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Canada International Conference on Education (CICE-2014)

June 16-19, 2014

Cape Breton University, Nova Scotia, Canada



CICE-2014 Proceedings

Edited By

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Galyna A. Akmayeva

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Canada International Conference on Education (CICE-2014)

June 16-19, 2014

**Cape Breton University
1250 Grand Lake Road
Sydney
Nova Scotia
Canada
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Message from the Steering Committee Chair

Welcome to the Canada International Conference on Education (CICE-2014)! The CICE-2014 provides an opportunity for academicians and professionals from various educational fields with cross-disciplinary interests to bridge the knowledge gap, promote research esteem and the evolution of pedagogy. The CICE-2014 received 1104 papers from 96 countries of which 311 papers were accepted, 7 posters and 7 workshops. A double blind paper evaluation method was adopted to evaluate each submission and selected papers will appear in high impact International Journals.

Many people have worked very hard to make this conference possible. I would like to thank all who have helped in making CICE-2014 a success. The Steering Committee and reviewers each deserve credit for their excellent job. I thank the authors who have contributed to CICE-2014 and our Keynote Speakers: Dr David Wheeler (Cape Breton University's sixth President), Professor Richard Cowan (Department of Psychology and Human Development at the Institute of Education - University of London), Dr Richard Cooper (Director of Disability Services at Harcum College), Dr Ann Sherman (Dean of Education - Faculty of Education, University of New Brunswick) and Professor Patricia Gouthro (Faculty of Education - Mount Saint Vincent University) for agreeing to participate in CICE-2014. I also like to acknowledge my appreciation to the following organisations for their sponsorship and support: Infonomics Society, Cape Breton University, Canadian Teacher Magazine, University of London, National Association for Adults with Special Learning Needs, University of New Brunswick and Mount Saint Vincent University. It has been great pleasure to serve as the Steering Committee Chair for CICE-2014. The long term goal of CICE is to build a reputation and respectable conference for the international community.

On behalf of the CICE-2014 Executive members, I would like to encourage you to contribute to the future of CICE conference as authors, speakers, panellists, and volunteer conference organisers. I wish you a pleasant stay in Canada, and please feel free to exchange ideas with other colleagues.



Professor Charles A. Shoniregun
CICE-2014 Steering Committee Chair

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PhD and Doctorate Consortium

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Keynote Speakers

Keynote Speaker 1



Dr. David Wheeler was named Cape Breton University's sixth President in 2013. He is an internationally experienced academic and former international business executive who brings a wealth of experience in public health science, international development, corporate social responsibility, entrepreneurship and sustainable energy policy to his position as President and Vice-Chancellor of Cape Breton University. Dr. Wheeler has focused much of his advisory work in the fields of energy conservation and renewable energy policy in South West England, Nova Scotia and Alberta. Dr. Wheeler's former academic posts include Director and Erivan K. Haub Professor in Business and Sustainability at the Schulich School of Business, York University; Dean of Management, Dalhousie University and he served as Pro Vice-Chancellor (Sustainability) and Executive Dean of Business at the University of Plymouth (UK). He holds a BSc (Hons) and a PhD in Microbiology from the University of Surrey. Throughout his three decade academic and business career he has advised international agencies such as the UN, the World Bank and numerous governments and corporations as well as publishing his research in academic journals and leading medical and business publications.

Keynote Speaker 2



Richard Cowan is a Professor of Psychology of Education in the Department of Psychology and Human Development at the Institute of Education University of London. He is interested in how developmental psychology can contribute to understanding children and supporting their education. His research mainly concerns number development in children in preschool and primary education though he also studies the skills of adult calendrical savants, people who can tell you the days of the week for dates in the remote past and future despite substantial impairments. He has recently completed an ESRC funded research project on the Development and Importance of Proficiency in Basic Calculation with Dr Chris Donlan (Department of Developmental Science, University College London).

Title: Understanding the relationship between education and general cognitive skills

Abstract: Associations between measures of educational achievement and general cognitive skills are well established but their explanation remains unsettled. They might reflect how education develops general cognitive skills, as asserted in the doctrine of mental discipline that used to dominate education. They might reflect how general cognitive skills affect learning, as the intelligence test movement have emphasized. The association may reflect a dynamic relationship in which each affects the other. Finally the association may reflect the influences of other factors which influence both. In this talk I consider how much existing research can tell us about these relationships using data from an ESRC-funded project and a longitudinal study of twins as illustrations.

Keynote Speaker 3



Richard Cooper is the Director of Disability Services at Harcum College, Bryn Mawr, Pennsylvania. He is also the Founder and Director of the Center for Alternative Learning and Learning disAbilities Resources, organizations dedicated to providing educational and social support to children and adults with learning disabilities, problems and differences. He is an internationally recognized lecturer and expert on alternative instructional techniques and tools for reading, writing, math, and study skills. He has authored a number of books and articles describing the use of these techniques and tools. He speaks nationally and internationally about a wide range of learning problems and instructional techniques to help both children and adults improve their skills. He maintains a private practice through which he provides assessment, counselling and tutoring of children and adults. He was a member of the Observer Delegation from the United States to the 1997 UNESCO Conference on Adult Education in Hamburg, Germany. He is a founding member and current co-president of the National Association for Adults with Special Learning Needs. Most recently, he co-authored a book entitled *Test Anxiety, A Student Manual and Teacher's Guide* (2009).

Title: Characteristics of Learning Differences

Abstract: The concept of individual differences is well an established pedagogical principle, but most of us believe that we are not that different than our colleagues and students in the way we think and learn. In this Keynote Address, the speaker will describe how very differently some people perceive, process, and communicate and the implications for learning and instruction. This information is based on thirty years of observation of children and adults who present a wide range of characteristics of learning differences. You will leave the lecture hall with a new appreciation for how very differently some people think and learn.

Keynote Speaker 4



Dr. Ann Sherman is currently the Dean of Education at the Faculty of Education at the University of New Brunswick. She graduated with a Bachelor of Science Education from STFX in 1977 and taught high school mathematics and science for two years and then elementary school (grades K to 6) for thirteen years. She was an elementary school administrator in Fort McMurray for the last three years of her public school teaching career. She completed a Master of Education in Curriculum and Instruction from the University of New Brunswick in 1993 and then a Ph.D. in Early Childhood Education in 1995 from the University of Nottingham in the UK. Since 1997 she has taught at three universities in Canada where she has served in several administrative roles. Her research interests include instructional leadership and pedagogical support of teachers in the areas of instructional practice and assessment. She currently works with classroom teachers as they develop a deeper understanding of assessment for learning and as learning.

Title: Changing our thinking about assessment

Abstract: In this talk we explore ideas around the purposes of assessment and the ways in which socially constructed understandings of assessment may be preventing us from using formative assessment strategies to help students, parents and educators delve more deeply into what we learn and the way we learn. Re-thinking the ways we place value and judgement on actions and ideas may lead us to open up new learnings for students, colleagues, parents and ourselves.

Keynote Speaker 5



Patricia Gouthro is a Professor in the Faculty of Education at Mount Saint Vincent University, located in Halifax, Nova Scotia. She is currently the Coordinator of the Graduate Studies in Lifelong Learning program. She is completing a SSHRC (Social Science and Humanities Research Council of Canada) grant on lifelong learning, citizenship, and the craft of fiction writing. Her research interests include critical and feminist theory, lifelong learning and the homeplace, higher education, cross-cultural learning, women's learning experiences, life history and biographical research, citizenship, civil society, and grassroots learning organizations. She has previously served as the President of the Canadian Association for the Study of Adult Education and as a Co-Editor of the International Journal of Lifelong Education..

Title: What Do You Know For A Fact? How Can You Learn From Fiction?

Abstract: As educators we are currently challenged to work in what Barnett (2000) defines as a time of supercomplexity. Instead of knowledge we have “knowledges”. Never before have people had such easy access to “facts” – all we have to do is type in a question on the internet and we can find a plethora of information. Jungworth & Bruce (2002) describe our current educational contexts where there is “direct access to unaccountable relevant online sources, vast amount of search results, and an increasing number of daily emails – these are all familiar experiences when we think of our work or the challenges students have to face” (p. 401).

This ongoing deluge of information can leave us feeling bewildered and overwhelmed. As educators, we are caught between trying to ensure our students have literacies and skills to navigate the new “information highways” while also being concerned with workload – recognizing that many students must juggle family, work and community responsibilities in addition to schooling. To manage the overwhelming amount of information out there, Brown & Simpson (2012) note that increasingly faculty are using “custom textbooks” and web-based discovery searches designed to facilitate research by navigating predetermined search indexes. The problem with this “packaging” of information and facts is that ultimately it may limit students’ critical learning capabilities.

So how do we help our students to effectively navigate through the multitude of “facts” that are out there, and to think in creative and critical ways? One way to do this may be through fiction. For the last few years I have been involved in doing research on lifelong learning in connection to fiction writing. This research has involved interviews with many fiction writers as well as an exploration of programs to foster learning in relation to fiction writing. In addition, my research collaborator and I have explored educational strategies that can be incorporated into various teaching contexts at different levels to encourage students to engage in learning in connection to fiction writing. We have also investigated the emergence of new technologies that are reshaping the world of fiction writing. In this talk I will share some of the key findings of this research, talk about how fiction can foster creative and critical learning opportunities, and share some examples of practical, pedagogical strategies that may be used in a variety

of educational contexts. From this, I will consider how fiction may be used to foster “creative literacies” that will support learners who are working in a fact-laden world characterized by supercomplexity.

Workshops

Invited Workshop 1: Tic Tac Toe Math: An Alternative Techniques for Individuals Who have Learning Disabilities

The 90 minute workshop will provide participants with:

- a rationale for using alternative instructional techniques with individuals who have learning disabilities;
- a description and demonstration of Tic Tac Toe Math* for completing multiplication, division, fraction and percentage problems;
- a discussion of the pros and cons of using such alternative techniques.

The objectives of the workshop are to:

- explore the alternative instructional technique of Tic Tac Toe Math for teaching basic math skills;
- discuss the pros and cons of alternative instructional techniques.

The motivation for workshop participation is to:

- learn to use a successful alternative math technique that can replace the usual drill and practice model;
- learn about an alternative technique that appears to match the way that individuals with learning difficulties process information;
- explore the implications for conducting outcomes based research on the use of this technique.

Organiser: Richard Cooper, Learning Specialist, Center for Alternative Learning, USA

Invited Workshop 2: Education for the Elderly is lively, meaningful and strengthening sustainable paths of hope!

This 90 minute workshop will provide participants with facts, techniques and inspiration for educational opportunities with elderly people. It helps to understand how it is to either become older or to work with elderly people within the framework of sustainable elderly education. Funny exercises, interesting statements and questions will lead into encouraging discussions, give considerable impressions and show what is important to care about in this context. The presenter was involved in executive management for many years, building up and leading several programs and projects for the elderly within the field of health- and social-services. One important part of this engagement was to develop several programs of older adult education with the aim of strengthening elderly people's potential and lower their burdens. These initiatives addressed heterogeneous groups of elderly people, lively and curious seeking golden agers as well as fragile and dependent old people, and beyond even more seniors somewhere in between, with various combined forms and expressions of a challenging old age. Christiane Bahr enjoyed doing this task with great commitment to the Austrian Red Cross in Salzburg (Austria) for many years, is now working in private practice as a client-centred psychotherapist, psychologist and person-centred supervisor, as well as a lecturer at the University of Salzburg occasionally where she teaches about these topics within firstly educational gerontology and secondly psychotherapy with the elderly. As the presenter is familiar with scientific work in gerontology as well as practical points of view, this workshop focuses on both and gives very lively examples of strengthening issues in particular and this challenging educational field of interest in general.

Organiser: Christiane Bahr, Specialist for Educational Gerontology, Psychotherapy and Person-centred supervision, Salzburg, Austria

Workshop 1: Integrating Time Management, Reading, and Note Taking Strategies into the Postsecondary Classroom

Are you concerned about the students who are arriving at college and university without the skills required to be successful learners? Research on learning and our own experiences as teachers tell us that effective time management, note taking, and reading skills are critical to student learning, success, and retention. But, how do we integrate these skills into our post-secondary lectures without taking time away from the content we must teach? In this workshop participants will learn how to seamlessly integrate time management, reading and note taking strategies into their lectures and/or curriculum.

Organisers: Sarah Hunter and Cindy Korpatnicki
Georgian College, Ontario, Canada

Workshop 2: Strengthening the Mentoring Process via Adaptive Mentorship©

Adaptive Mentorship (AM) is a mentoring model applicable across all professions/occupations. AM has been developed, refined, and researched by the authors for the purpose of enhancing the mentorship process in its variant forms within all educational/training settings. It has been recognized as a clear conceptual and practical framework to help guide leaders' mentorship practice. The creators of the AM model are promoting and disseminating the model more widely, because of its potential to increase mentoring effectiveness across the learning spectrum.

Attendees from any professional discipline with an interest in enhancing their mentoring practice will benefit from this workshop by:

- becoming acquainted with the Adaptive Mentorship model, its rationale, and its research results;
- witnessing the model's applicability in assisting learners in any field to develop their respective body of knowledge and skills;
- learning how to implement Adaptive Mentorship in the mentor-protégé setting;
- examining the proven strengths of the model in assisting mentor/protégé pairs to understand the mentoring relationship and to guide their respective actions;
- recognizing how AM might be misapplied;
- deciding whether to adapt Adaptive Mentorship in their unique situations.

Organiser: Edwin G. Ralph, University of Saskatchewan, Canada

Workshop 3: A Model of Institutional Readiness for Hybrid Learning

This workshop will elucidate a process for bringing a hybrid model of instruction to your institution.

What are tenets paramount to deliver high quality, learner-centered hybrid instruction that will create a synergy to embed hybrid learning into your institutional culture?

- Faculty commitment to a course development process that expects demonstrable mastery of best-practice competencies in the philosophy and mechanics of learner-centered hybrid instruction;
- Dynamic training model that brings eager subject specialists and key support professionals together to collaborate and meld best disciplinary practice with best practice for design and delivery of hybrid instruction.

Continuous and on-going assessment that evaluates design and delivery process, is responsive to the learner experience and supports instructors.

Organisers: Kelly La Venture and Becki George
Northland College, USA

Workshop 4: Measuring up... Helping the Educator Measure

Today's educators have the quality of their skills put under the microscope daily. Media is very quick to shout it out if any weakness or wrongdoing of an educator or student, while they do seem to have time to look for the many positive which take place in the education world daily. A few years ago, a TV show in the US became very popular by making unsubstantiated humor at people's lack of basic knowledge. This show supposedly used questions which were appropriate for the average fifth grader. Many movie stars were the contestants for the show. At their expense, a comedy was developed emphasizing their lack of knowledge. While it could be truth that much (questions) was staged, education as a whole was being humiliated. Lack of knowledge or low intelligence was being portrayed as funny and appropriate. Measurement is not as simple as we are often lead to believe. Just for a moment think of all the different instruments used to determine volume, time, etc. Measurement is a concept which has one of the highest needs for mastery in both the mathematics and science curriculum. The mastering of the concept has far outreaching potentials (National Research Council, 1996). Measurement offers children an opportunity to see the usefulness of mathematics in their everyday lives. Thus the children will be able to connect and learn other mathematics concepts such as fractions, decimals, etc. It is hoped that the children will be truly able to master measurement. As a bonus of this mastery, should improve the estimation skills..

Organiser: Barba Patton, University of Houston-Victoria, USA

Workshop 5: Supporting Student Transitions in Higher Education

Colleges and universities lose large sums of money due to student attrition. The factors affecting attrition are strongest during the early stages of a student's experience and students who withdraw frequently do so by the end of the first term during their Freshman year. The literature identifies that four year colleges and universities graduate less than 20 percent of an entering class over a span of six years. While numerous factors attribute to student success and retention, student success in higher education is primarily the function of success in the classroom and the ability of the faculty to promote student success. Therefore, efforts to improve student success and retention are enhanced through an understanding of transition theory.

The objectives of the workshop are to:

- Identify types of transitions individuals face when entering post-secondary education
- Discover Transition theory and transition as a process of moving in, moving through and moving out
- Explore links to helping models and how transition theory guides practice

The motivation:

Help participants to gain a better understanding of first year college and university student transitions for the purpose of improving student success and retention.

Organiser: Rosemary Vogt, Red River College, Winnipeg Manitoba Canada / University of North Dakota, North Dakota USA

Sessions

Session 1: Global Issues in Education

Overcoming ideology for critical democracy in education
(Author: Sirous Tabrizi)

Out of Place: Exploring the First Year Migration Experiences of Newcomer Families to Nova Scotia
(Author: Rola AbiHanna)

Students in Poverty: Online Conversations between Chinese and American Teachers
(Authors: Peggy A. Gallagher, Yali Zhao, Nannette Commander)

Educating Young Moslem Women in China: Affirmative Action and Ethnic/Religious Identification in a Secular Society
(Author: David Makofsky)

Overcoming ideology for critical democracy in education

Sirous Tabrizi

University of Windsor, Windsor, Canada

Abstract

In a global society, where an emphasis on equality and social justice is important, equality of opportunity is of high importance especially for minorities. Within government policy groups there are a number of highly influential ideologies. Two currently popular ones include neo-liberalism and neo-conservatism. While both neo-liberalism and neo-conservatism seek to create opportunities for all citizens, through different means, their impact on education may hamper this. Furthermore, either ideology may hamper the development of critical democracy in a society. This paper will examine how neo-liberalism and neo-conservatism influence attempts to implement critical democracy in education, and why an emphasis on critical democracy regardless of the underlying ideology is better for education.

1. Introduction

As the world is becoming more heavily globalized, education systems are slowly changing and adapting accordingly. A properly functioning globalized society requires the harmonious cooperation of multiple diverse groups, which suggests that topics such as equality and social justice are of great importance. Hence, an education system for a globalized world needs to include some preparation of students for potentially engaging with others who have a very different background and set of opinions.

Different schools of thought have emerged to address this new kind of educational need, of which three will be examined in this paper: neo-liberalism, neo-conservatism, and critical democracy. Each of these schools attempt to train students for effective performance in a globalized society, but they differ quite a bit in terms of how this educational should occur, the policies involved, and the role of government and economics. However, in this paper greater emphasis will be placed on how these different schools encourage and enable different groups to become educated. It will hopefully become

clear how neither neo-liberalism nor neo-conservatism are sufficient for effectively educating all people in a country to become more active and capable global citizens.

In the next section below I will provide a brief background of the three schools of thought. After that, a longer discussion will be made about the educational implications of each school. Finally, this paper will end with a short summary and conclusion.

2. Literature review

This section will briefly discuss the three main concepts of this paper: neo-liberalism, neo-conservatism, and critical democracy.

2.1. Neo-liberalism

Proponents of neo-liberal ideology argue that open, competitive and unregulated markets that have been liberated from all forms of state interference “represent the optimal mechanism for economic development” [3]. The paradox of neo-liberal ideology, continue Brenner and Theodore, is that while it emphasizes decentralization of administration to local and private institutions, in practice, Neo-liberal policies and practices actually involve “coercive, disciplinary forms of state intervention in order to impose market rule upon all aspects of social life” [3].

In education, the Neo-liberal agenda manifests itself in closer linkages between schools and businesses as well as the implementation of “free market” reforms, such as school vouchers, into education policy [9, 14].

2.2. Neo-conservatism

Neo-conservatives are usually guided by a vision of a strong state that asserts control over knowledge, culture, and the body. They seek a return to a romantic past where “real knowledge”, morality, and a supposedly stable social order existed. In education neo-conservative manifest in national and state-wide testing and curricula, content standards, the heralding

of western canon of knowledge, a relatively uncritical patriotism, and moral education [9, 14].

Neo-conservatism has its roots in American politics. It is based on a version of US Conservatism, itself possessing tenets of neo-liberalism. Neo-conservatism promotes traditional values to the extent that this party rejects individual rights. Rights for Neo-conservatists do not supersede considerations of state; on the contrary, the public good justifies the state in setting aside the liberty of persons to live their life as they choose. Apple [14] writes that Neo-conservatism supports a limited welfare state in favor of low taxes and a free market. According to this theorist, neo-conservatives are still willing to interfere for overriding social purposes even while rhetorically being supportive of free markets. They accomplish this by setting private enterprise loose; from which, the state needs to be strong in teaching “correct” knowledge, norms, and values.

As such, education is the major emphasis for neo-conservative thought. The state has an important duty, through education, of reinforcing specific cultural, religious, national, and ethnic identities [20]. However, the state is not necessarily a supplier of education but rather an agent that regulates the educational content (ideas, materials, perceptions, etc.). History, language, and religion are the educational subjects which receive the most regulatory focus due to their strong influence on identity generation. As a result, the debate surrounding these topics becomes very heated. History is the most important of these subjects though, due to the influence of history education in conveying particular identities and ideas about the past and future [15].

2.3. Critical democracy

Although both neo-liberalism and neo-conservatism can be foundational ideologies for educational systems in democracies, what is meant by democracy can be radically different [24]. In one case, democracy can be defined in terms of individual and civil rights and a representative government [24]. In another case, it can be defined in terms of choice or even as consumer-like choices [11, 14]. In contrast, critical democracy is defined as an ideal that is committed to social justice, equity, diversity, reasoned choices and public participation [18]. Alternative definitions exist, though these contain similar or overlapping themes and principles such as equality, inclusion, mutuality, discussion, debate, critical-mindedness [14, 18, 24].

Education from a critical democracy perspective is intended to “foster the development of critical, engaged citizens committed both to creating a robust participatory and pluralistic democracy and to pursuing justice” [17]. Students are thus encouraged

to be open to different viewpoints, to value these differences, and to recognize how an issue can be understood from different perspectives [18]. This requires students to learn respect for the opinions and ways of life of others, especially those that may differ from accepted social norms, provided these differences do not lead to the harm of others [21]. In doing so, they also learn to respect diversity and that all individuals have an equal standing [1].

However, simply learning these differences and respect is not enough. Students also need to learn how to engage in respectful dialogue with others who may have drastically different views [1]. The purpose of these dialogues is to encourage the flow of ideas so that students may become as informed as possible [9], for students to become comfortable with being exposed to new or different ideas [18], and to encourage proper handling of conflict [10, 17]. Furthermore, to properly engage in such dialogue students need to learn how to think critically [11, 17, 18].

The overall intent behind such education though is to encourage an attitude of commitment to community and active participation in the present life of the community so as to shape its future form toward the common good [9, 11, 18]. Such participation requires discussion about conflicting beliefs, determining what is the best interest of the community, and exploring these conflicts and tensions so as to understand the real purpose, intent, and needs behind such differences [11, 17, 21].

Educators within a critical democracy education require a critical perspective, and must demonstrate concern for human dignity and minority and individual rights [9]. It is necessary for them to approach students as people who can contribute to the inquiry that occurs in the classroom, and to remain aware of any hidden agenda within their own curriculum [11]. In addition, collaboration between teachers and researchers is encouraged for the purpose of creating equal educational opportunities through policy, pedagogy, and curriculum [4]. The role of public school thus becomes not only a place for fostering desired qualities in students but also as an incubator of social justice projects.

3. Discussion

In general, neo-conservatives agree with neo-liberals on the importance of free markets, free trade, corporate power, and elite government [22]. Namely, neo-liberalism and neo-conservatism focus on markets, the size of state (generally they prefer a small state), and freedom of private enterprise. Neo-conservatism, however, focuses on traditional values [14] and is much more inclined to combine their hands-off attitude toward big business with intrusive government action for the regulation of the ordinary citizenry in the name of public security and

traditional morality. In the context of foreign affairs, neo-conservatives promote extensive use of both economic and military power, claiming as their motivation the promotion of freedom, free markets and democracy [22].

Key players involved in the policy-making process include governmental (Legislature or House of Assembly, Cabinet, Bureaucracy, and Privy Council Office) and non-governmental (interest groups, mass media, community, board of directors, regional boards, lobbying groups, and individuals) entities. The different stages of policy development include formulation, implementation, and evaluation. There are also some fundamental issues which guide these processes such as: policy as text and discourse, policy as multi-dimensional, policy as value-laden, policy as existing in context, and policy as state activity (see [7, 23]).

Taylor and colleagues [23] writes that “even without any obvious ambiguities in a policy text resulting from competing interest, there will be no single interpretation of a policy document” (p. 50). These theorists went on to quote some stories about people with different jobs, all of whom were under the pressure of certain policies. In this context, we can observe some commonalities across systems and groups: policy implementation can never be achieved in a vacuum since policies are part of social environment, and policies tend to be ignored, resisted, contested, or rearticulated to suit local circumstances; and the idea of community participation in decision making and equality of education opportunities are flourishing. This is to say reactions and understanding to policy are often not linear or rational; there are complex and multiple factors influencing perception and therefore implementation of policy initiatives.

Several instances of the complexity of policy making come to mind in relation to the Ontario context where some policies have been subjected to interpretations quite different than originally intended by the policy makers. The EQAO tests, for example, were ostensibly developed to assist schools in better developing programs to increase student achievement and also to serve as an accountability measure. From the onset of articulation and formulation, and even today, arguments abounded about the ‘hidden’ agendas of this tests; the competence of schools, teachers and boards are assessed through these tests. The ministry sees this policy as serving the needs of the education system, tax payers and some parents take it as justification and investment and principals and teachers see it as a flawed, over-emphasized and oppressive system that seriously derails their best efforts at improving student learning.

The work of Ball [19] and Taylor [23] clearly allude to policy making as a value-laden, complex and multi-faceted process. Moreover, as Taylor and

colleagues aptly posit, policy is interpreted differently by different individuals and groups. Individual and group ideals and values would influence policy interpretation and reaction, and this will resultantly affect the level of commitment brought to policy implementation. It therefore stands to reason that the values and assumptions policy makers consider hold dear will substantially influence the nature and scope of policy reforms. It is important to point out that there is significant overlap in terms of the influence of these movements on policy formulation, interpretation and implementation because initial values and tenets of each will necessarily follow into and shape the different development stages of the policy making process.

Minimizing the role of government through privatization and marketization is integral to neo-liberally-driven policy agendas and Neo-liberal education reformers’ have an enhanced market system at the heart of their vision; market-based education system providing good conditions to enable students to achieve new knowledge with a better method. Education policy would therefore emphasize market-driven schools, in which students and parents (the clients) are given the opportunity to choose for themselves the kinds of educational ‘services’ that they feel are best and educators can select the services and products that best meet their needs. Advocates of this vision claim that the freedom to choose can be a desirable practice that is consistent with democratic ideals [19, 23].

The common sense revolution (CSR) pushed by the Harris government in the mid-1990s employed a clear mix of Neo-liberal and Neo-conservatist principles (see [8]). Policy reforms of that time characteristically emphasized job creation, economic recovery, and renewed growth [8]. Wiggan and Hutchison [25] are convinced that due to focus on these kinds of economic competition, neo-liberal economic policies have been driving neoliberal education policies. This includes expanding corporate sponsorship of education, suppressing teacher compensation, levels of private ownership in school, and aligning school curriculum with the economy.

In recent years, Neo-conservative critics of U.S. higher education have called for a return to core humanities curricula that would emphasize the value of western civilization as the cornerstone of U.S. culture [13]. A Neo-conservatist agenda of policy reform thus emphasizes traditional values. The role of the state (a minimized state, private enterprise) here will be to maintain central control of education, standardizing and making explicit the correct knowledge, norms and values to be instilled. In the United States, for example, there is a panic over falling standards, illiteracy, and dropout rates; a fear of violence in school; and a concern over the

destruction of traditional values. These have had a major effect and have led to attacks on teachers and teacher unions and to increasing support of marketization and tighter control through centralized curricula and national testing [14].

So too will policy development of the Neo-conservative agenda emphasize traditional values in setting standard curricula and instruction and developing programs of high skills, the curriculum (e.g. Ontario Curriculum) through the state/province controlled and Ministry Of Education. The EQI Act (Education Quality Improvement Act) is also an example of control that focused on teachers, school boards, per pupil funding, and taxpayers. The state/province must actively mold people in order to make them virtuous; and among these virtues, sacrifice for the common good is paramount. Omi and Winant [16] state that “racial discrimination and racial equality, in the neo-conservative model, were problems to be confronted only at an individual level, once legal system of discrimination such as *de jure seg* had been eliminated” (p. 131).

George Radwanski’s call for a return to the teaching of core knowledge and skills in the Ontario curriculum came from a Neo-conservative lens. According to him, education policy designed for the new (twenty-first) century should equip students with the necessary specified knowledge and skills that would prepare them to successfully work in that era. The contents, structure and language of the Ontario Curriculum serves as an example of how neo-conservative ideals have influenced the curriculum and pedagogy of the education system.

As seen with Neo-liberalism and Neo-conservatism, the ideals of critical democracy will impact the language and direction of the policy making process. These policies will seek to better the learning experiences of students, especially the especially disadvantaged so as to ensure that every child reaches his/her potential. Policy reforms will strive to take some action to redress social inequalities with the overarching goal of achieving social justice and equality (see [12]). To develop democratic outcomes links between learning, teaching and democracy are primary issues in education; these include issues such as critical thinking, classroom discussion between students and teachers, civic education, and student councils that promote particular skills, attitudes, values, and behaviors in students. This can result in helping students become active citizens, and can rejuvenate the larger democratic society [12].

Critical democracy tries to establish social justice, equality, diversity, participation, cohesion and freedom of choice for all citizens. These goals are for all areas of society such as health, education, and so on. Critical democracy has a sensitive role to promoting the education system because it is a major public asset. For example, in Canada public

expenditure on education exceed the billions every year. Not only is the education system a major public asset now, but is likely to become more important in the future [5]. In this sense, Connell is proposing that education is a moral process when he says that “teaching has been described as a ‘moral trade’... this is profoundly true” [5].

However, one significant aspect of social justice and equality occurs with the issue of privatization. Privatization is a highly controversial topic, where both sides have substantial arguments. Supporters believe that a private school system gives opportunities to the lower class of society, who normally use the public school system. A private school education can also reduce the number of students in the public school system, and teachers can therefore allocate more time with students. Additionally, such a system would reduce the educational costs for government budgets, allowing for investment in other parts of society. From this perspective, private schools give students more opportunity and this freedom of choice does not conflict with principles of social justice or equality.

Opponents of privatization though suggest it has a negative effect on the education system. This is because private schools are able to hire teachers who have higher knowledge and experience, consequently leading to inequity in the education that students may receive. Privatization will transfer a higher educational cost to families. This higher cost may be acceptable for wealthy classes of citizens. Middle class citizens may also want to send their children to private schools, but it may become too expensive or difficult for them. As such, the higher cost creates a barrier to the education that can only be overcome by a minority of people in the society, and this is also considered an example of inequity. This difference becomes worse when the government wants to encourage privatization through offering financial support. In doing so, the government actually takes funding away from public schools, furthering the difference in quality between public and private schools. Although such support may go against neo-liberal and neo-conservative ideas of privatization, it can still be the approach taken when government policy-makers want to quickly and strongly encourage privatization. Thus, opponents of privatization conclude that it is a fundamental cause of inequity and social injustice in society because family income becomes too strong of a factor in determining the quality of education that students receive.

4. Conclusion

In creating an education system for a globalized society, critical democracy may be the best school of thought due to its emphasis on establishing equality and social justice in all sections of society. However,

there is also some overlap and agreement between critical democracy and neo-liberalism in two main ways: freedom of choice and globalization.

Freedom of choice can empower and enable all ethnic groups in multicultural societies to strive, giving them opportunities that they might otherwise be denied. Hence, it is of great benefit to critical democracy. Freedom of choice though is also an intrinsic element of neo-liberalism, particularly as it relates to the free-market. The difference between critical democracy and neo-liberalism with respect to freedom of choice is in how they approach education. In critical democracy, education is seen as a service provided by the state to its citizens, whereas neo-liberalism sees education as a means for the state to affect future generations [2]. The first emphasizes the individual aspect of education, while the second emphasizes the social or collective aspect of education.

More importantly though, both critical democracy and neo-liberalism place a strong emphasis on globalization. In neo-liberalism, globalization extends the range of the free market to ideas, allowing ideas to compete such that the best ideas can become recognized and adopted by anyone regardless of their background [6]. In critical democracy, globalization is an assumed context that should be embraced as it gives a field in which diversity of opinion and expression can grow. Hence, both critical democracy and neo-liberalism agree in the importance and value of globalization.

Finally, regardless of how important critical democracy may be in developing social justice and equality, there needs to be leaders and ordinary citizens in the society who actually practice it. The most effective way for a policy to become a reality is through strong leaders, and without leaders in the education system who both believe and practice critical democracy this whole discussion will have little effect on society.

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Out of Place: Exploring the First Year Migration Experiences of Newcomer Families to Nova Scotia

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Abstract

This extended abstract discusses the intent of my PhD research, exploring the first year migration experiences of newcomer families to Nova Scotia, while highlighting my own experience of migration. The critical theory and methodology of the research will be discoursed as well as the potential contributions of the study to Canadian population growth, organizational systems, and policy development and reform.

1. Introduction

“Ever since I can remember I have felt that I belonged to both worlds, without being completely of either one or the other” [19].

Newcomer families face significant challenges negotiating their intercultural identities following their migration [24]. They navigate between their ethnic identity and the identities of the cultures in which they now live [1] [2] [3]. The negotiation process is a delicate dance of denial and belonging, where families often feel they must deny aspects of who they are in order to better integrate and belong in a new country [10] [11]. These concessions can leave newcomer families feeling somewhat disconnected from their heritage community while simultaneously being excluded from their new one.

Newcomers to Canadian society, may at times feel caught between two hybrid [4] and potentially conflicting identities [14]. Disjointed and conflicting identities within a family unit can contribute to catastrophic consequences, as was the case with the honour killings of the Shafia sisters by their father, mother and brother in Kingston, ON (2009), the murder of 16 year old Aqsa Parvez of Mississauga, ON (2007), strangled to death by her brother and

father, and the homicide of Dr. Otilia Chareka by her husband Patrick Chareka in Antigonish, NS (2011). There have been an estimated 13 honour killings in Canada over the last decade [6], an increase in gender violence against immigrant women [17], an increase in gang affiliations by immigrant youth [16], and a growing number of cases of psychosis among immigrant populations, resulting from migration related adversity and other social conditions [5] [21]. These violent consequences associated with migration demand an examination of the ways in which communities and services support newcomer families, and a consideration of the sociocultural elements that both bind and separate us as Canadians.

2. Proposed Research

I was nearly 4 years old when my own family immigrated to Canada in 1976 as a result of the civil war in Lebanon and I am only now starting to fully understand the impact of my own migration experience on my evolving identity as a first generation Lebanese Canadian woman. In addition, my personal and professional experiences, teaching and counselling in multicultural communities, as well as my current academic study cause me to question the impact of sociocultural factors on the identity negotiation of newcomers. In response, my doctoral research questions are:

1. What are the enculturation experiences of newcomer families in their first year of migration to Nova Scotia?
2. How do sociocultural factors influence the intercultural identity negotiation of members in newcomer families?

3. Theoretical Framework

My research study will be informed by components of both Identity Negotiation Theory (INT) [25] and Acculturation Theory (AT) [1]. I will be focusing more on the concept of enculturation or cultural learning [30], in order to foreground the relational and sociocultural influences on identity development and integration, unlike acculturation, which presumes a conscious choice regarding social amalgamation on the part of the newcomer. INT examines the identity negotiation process of newcomers and its influence on intercultural communication. The AT four-fold model explores the strategies of assimilation, separation, integration and marginalization with respect to the enculturation of newcomers. Both theories will support my study of sociocultural interactions between newcomer families and any supportive connections that play a significant role in the migration experiences and shaping of newcomers' ethnic and social (cultural) identities. Research has shown that the interactions between newcomers and people from the dominant culture have a significant impact on newcomers' identity negotiations [27]. Following on from that work, I will further explore the impact of sociocultural factors on the enculturation process of newcomers [13] [29].

I will be using a critical anti-colonial lens to generate and analyze the data. From a critical perspective, the practice of "othering" people who are foreign to the dominant culture, referred to as Orientalism by Edward Said [18], is done with intentionality and purpose and has bearing on all aspects of intercultural relationships. An anti-colonial researcher position provides a space to take up the notion that colonial and imperialistic practices are still present but perhaps more covert and to explore the possibilities of resistance [9]. There is a need for researchers to address the many commonly held assumptions about newcomer families, and the ways in which support services interact with those families, that may influence the formation of the family members' intercultural identities [12] [28].

4. Research Methodology

Respectfully, to honour the newcomer families, and to capture the full richness of their migration experiences, I will consider the interconnectedness of family members as central to my research. Family plays an integral role in the intercultural identity development of its members and the bonds they

maintain to their ethnic distinctiveness [15] [20] [26]. I will be conducting a qualitative inquiry that takes an interpretive stance using a critical ethnography model [7] [23]. Spending the necessary time with newcomer families through a critical ethnography approach supports my ontological and epistemological positions as a researcher. More importantly, critical ethnography respects and privileges the voices and perspectives of my research participants and is located in a place of advocacy and self-determination [8].

Through my study, I will be documenting the experiences of three newcomer families in their first year of migration to Nova Scotia. I will use a variety of mixed methods to generate the data, including fieldwork observations and field notes, focus group interviews with the whole family as well as interviews with individual family members, and community members identified by the family members as being significant to their lives. In addition, I plan to encourage the practice of written and audio journals maintained by family members.

5. Contributions to Research

According to Statistics Canada, the country's population is projected to grow from the current 33.7 million people to between 40.1 and 47.7 million people by 2036. Immigration levels account for the greatest percentage of the population increase in years to come [22].

Over the next number of decades Canada will continue to open its doors to immigration and as a result will have to address policy and systemic gaps in its response to migrant citizens. The most current Canadian research and information initiatives on immigration are led by the Metropolis Project, and more specifically to Nova Scotia, Immigrant Settlement and Integration Services (ISIS). However, I have been unable to find migration research specific to the province, and very few qualitative studies in relation to the influence of sociocultural factors on identity negotiation within families. My research will be beneficial to newcomers during their enculturation to Canada but also to policy developers and practitioners as they work towards supporting migrant families in a respectful and culturally responsive way.

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Students in Poverty: Online Conversations between Chinese and American Teachers

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Abstract

Many teachers in high-poverty schools have little teaching experience (Carey, 2004). It may be helpful for such teachers to engage in self-reflection and earnest dialog regarding beliefs and best practices regarding educating students from backgrounds of poverty. Our poster will present the results of a qualitative study analyzing responses of 35 American and Chinese teachers to online case studies (one from the U. S. and one from China) about educating students in poverty. Results revealed five major themes including shared visions for educating students in poverty, beliefs in compassion and respect as keys to teaching such students, the importance of culture in promoting collectivist or individualist strategies, the impact of teacher expectations, and the enhancement of teachers' knowledge of culturally responsive pedagogy when working with students in poverty.

Educating Young Moslem Women in China: Affirmative Action and Ethnic/Religious Identification in a Secular Society

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Abstract

The dynamics of change in the Moslem world continue to be felt throughout Asia. This study presents the choices and challenges surrounding the education of three young Moslem women in China. The Uyghur population of Xinjiang is over eight million people, and was never effectively integrated into China in 1949. The language of those native to the area is Uyghur-Turkish, and there is little chance that a Uyghur student on a high school or university level will be as linguistically fluent in Mandarin Chinese as a Han Chinese. Young Uyghur women, the subject of the interviews, have set of choices regarding identity. As students at Minorities University of China (MUC) in Beijing, an “affirmative action” university program, the relative freedom of Beijing has a great impact on these students. Educational and employment opportunities are available that might not be available in their home province, Xinjiang, but these raise challenges for them and their families. What are termed here “affirmative action”, institutions such as schools of ethnic studies and the college competitive exam (the gaokao) provide opportunities as well as obstacles for Uyghur women.

1. Introduction

Economic development and armed conflict has swept across the Muslim world of Central Asia in the past decades, and the lives and cultural identity of those who live there have been profoundly altered. This investigation deals with one Moslem group, the Uyghurs, a Turkic people of North West China primarily living in the Uyghur Autonomous Region of Xinjiang, closely related in language, culture and ethnicity to their Kazakh, Uzbek, and Turkmen neighbors. They are a small group in terms of China’s population of 1.3 billion, numbering 8.3

million. Although the region was formerly obscure, Xinjiang is a part of a wealthy and increasingly powerful modern China. The Uyghurs are a critical part of ‘Islamic China’. Over the last few years there has been considerable urban development in the region, but in general most Uyghurs were raised in rural areas.

In Xinjiang, Uyghur and Chinese speakers typically live apart, in separate neighborhoods, due to language difficulties and ethnic misunderstandings after the establishment of the People’s Republic of China (PRC) in 1949 and the incorporation of Xinjiang into the PRC in the 1950’s, the PRC made a substantial investment in the region. The province is rich in mineral resources. Xinjiang’s economy by today’s standards in China is relatively well off, although this does not mean that the Uyghurs themselves are well off.

2. The goal of the investigation

Minority language education, here called “affirmative action programs” affects the entire Uyghur population, but in this article I want to investigate whether or not minority educational programs have failed to effectively integrate Uyghurs into Chinese society. In the field interviews, I focus especially on Uyghur females. The term “affirmative action” is used here in the same sense that it is used in other nations with ethnic minority problems, the United States, Canada, and Australia. That is, these programs recognize the special needs of special section of the population.

At the outset, we should understand that any citizen of China can attend regular Chinese language schools. There are Uyghur language schools, and in Xinjiang, Benson [4] notes the program of minority language education extends down to the elementary education level reflecting the fact that Uyghur/Turkish, not Chinese, is the first language of the millions of Uyghurs living in the region.

Although the Chinese census does not break down students by ethnicity, it may be that nearly one million students are enrolled in the Uyghur language school system, cited in Kormondy [10].

Graduates of the minority language programs can attend Chinese language middle schools, high schools and universities in China, but they must pass the entrance exam. Except for the minorities language programs, the exams are exclusively in Chinese and often graduates of the Uyghur language system must attend Chinese language schools in order to enter a regular university curriculum.

A group of universities are set aside for minorities. There are over fifty official minorities in China today, and the Uyghurs are one of the largest in number. As Chris Evans-Hume [8] says: The Minzu University of China ... is a major ethnic minority university in China. Located in Beijing, approximately 70% of the students are non-Han Chinese minorities. The school has been designated as a Project 211 School. This means that the government gives the Minzu Funding: University of China special funding and support for the purpose of modernizing and improving the competitiveness of higher education in China."

Following Uyghur and Tibetan disturbances in recent years, minority language education in China is currently under attack. This attack is based on some issues of issues that have nothing to do with education, but there are also issues that deal with minority education on educational issues as well. This is a time of conflict in Xinjiang, and the schools maintained on the basis of ethnic identity are naturally suspect when issues of ethnic identity arise in the course of protest. A Uyghur faculty member in the ethnic minorities department of MUC has been detained by police, and initially some students were detained as well. The turmoil outside the university setting has been more extensive, as reported in China File [6].

At the same time, there are those that claim that there are more effective ways to improve minority education. Mike Ives [10]: "Now there is growing concern that decades-old programs designed to help minority students are not effective. The proportion of ethnic minority students studying at Chinese universities has not kept pace with an expansion of the nation's higher education system, particularly at China's top-tier universities, said Gerard Postiglione, Director of the Wah Ching Center of Research on Education in China at the University of Hong Kong. China's ethnic minority education policy is failing to

bridge the growing wealth disparity between coastal areas and its interior border regions, he added. "The Chinese government tends to paint a rosy picture by talking about how literacy is going up, but most people feel that in the market economy, there's been a downturn in benefits for minorities."

Another criticism of the current system of affirmative action appears in a discussion by Rui Yang, Mei Wu [12:117-121]: Sautman reports that Han students admitted to Xinjiang universities in 1986 averaged 435 points in science and 440 points in liberal arts; whereas minorities averaged 300 points in science and 245 points in liberal arts. In 1987, Han students from Xinjiang admitted to national key universities averaged 472 points in science and 445 points in liberal arts; minority students averaged 313 and 269 points respectively. There's a lot of debate, and not just among scholars, about why China should perpetuate a system where minorities are poor compared to Han Chinese," concurred Dru Gladney, an anthropologist and expert in China's minority policies at California's Pomona College. "Under the old centralized system, the government used to spend a lot of money on the border areas," Gladney added. "But now they're relying on the market economy, and many of these ['nationalities'] universities have suffered as a result, because their funding hasn't kept pace."

3. Minority language education in Xinjiang

3.1. History of the program

The development of this program in the region was an accident of history rather than the intention of the new government in 1949. The adoption of Uyghur language schools was a necessity when the government had no means of educating the population other than to maintain the educational system in place in 1949. The incorporation of an industrialized economy into the Xinjiang region of China did not occur rapidly. There was no rail connection to the province until 1970, which meant that any type of machinery could not be easily imported. In addition to the absence of rail transportation, roads were poor. It was not until the great development of the 1980's that Xinjiang was transformed from a low population density farming community with small-scale industry to a relatively low-income part of a global powerhouse.

As we see in Table 1 Line 3, the region is largely “minority” in character. Chinese population was low at the time of the liberation (1949), but the development of the region has produced a dramatic increase in the size of the ethnic Han Chinese population. In the 1990’s, and today, the Han Chinese population is concentrated in the Eastern portion of the region. In the center of this region is one of the largest deserts in the world, the Taklamakan. The Uyghur population is concentrated in the West.

Over the last few years there has been considerable urban development in the region, but in general most Uyghurs were raised in rural areas. Not many Uyghurs have been outside of Xinjiang province, and one reason is that Uyghur, rather than Chinese, is the first language for the local population.

In Table 1 Line 2 We see that the population growth rate in the province is nearly 33% higher than China as a whole. This is because the Uyghurs and other minorities are exempt from the “one child policy” as it operates in the rest of China. Instead of a nuclear family living in small urban apartments, what we have in Xinjiang is a large patriarchal Moslem family living in separate suburban houses, often with some livestock (sheep, goats, chickens) in the housing area.

The cultural differences that separate Moslems from non- Moslems can be found in observations made about cultural distinctiveness, many of which are applicable to Uyghurs. The important theoretical contributions are those of Lila Abu Lughod [1] and Valentine Moghadam [14] for Moslem society, and Linda Benson [4] and Xiaowei Zang [16] for the Uyghurs.

Many features of Uyghur identity serve to isolate them from the larger Chinese society. Uyghur dress is a point of contention; women’s use of headscarves has been an issue for women in China and. There are language differences between Uyghurs and Chinese. In the Xinjiang region there is typically residential separation, Uyghur districts and Chinese districts. Despite variation from community to community, and from decade to decade, there is ample documentation of interethnic hostility. The hostility can occur on an interpersonal level, but there have been instances of rioting as well. Naturally, on a day-to-day level, there is also cooperation, and there is no point in making the true situation appear worse than it is.

3.2. Young Uyghur Moslem girls and educational barriers

The historical circumstances that brought the Xinjiang Uyghur Autonomous Region into the New China in 1949 had major consequences for the Uyghur minority. Sources agree that in 1949 the Uyghur population, male and female, was largely illiterate. As Table 1 lines 4 and 5 demonstrate, the population is now largely literate, both for males and females. Uyghur female literacy in the region may now exceed the national average in the country. In the context of Central Asia, the literacy figures themselves also represent a dramatic achievement, since female educational attainment is one of the critical issues in Moslem society.

Uyghurs and Han Chinese are literate in different languages. Since literacy in Chinese is a function of memorization and character recognition, the ability to read at a university level is too difficult for most Chinese students. For Uyghurs, whose first language is not Chinese, literacy in Chinese is difficult to accomplish. The difficulty of character recognition in Chinese was recognized very early on in the reform period from 1911-1949, but the effort to substitute phonetic pinyin for characters failed.

With the establishment of the New China in 1949, the remoteness of Xinjiang and the uncertainties of the new government necessitated the development of two separate school systems. Uyghur families are free to send their children to Chinese schools, but in these schools the students would have a difficult challenge of receiving instruction in their second language. This met the demands of the local population, but it created another obstacle for Uyghurs, and especially for young women. Since Chinese is a second language and basic instruction is in Uyghur, an immediate challenge faces all students.

Table 1. Statistical Data (Adapted from Kormondy [11]. From China Statistical Yearbook, 1999)

	Xinjiang	China
1. Population	17,470,000	
2. Natural Population Growth Rate	12.8	9.57
3. Percentage of Minorities	61.4 %	(< 10%)
4. Illiteracy Males 5 y.o. +	4.7 %	4.5 %
5. Illiteracy Females 5y.o. +	5.9 %	11.3 %
Students 6 y.o. +		
6. Primary School	44.8 %	39.7 %
7. Secondary School	38.9 %	43.7 %
8. Higher Education	5.7 %	2.7 %

Table 1, lines 6 and 7 demonstrate how the situation was resolved to the disadvantage of young Uyghur girls. Compared to the national average, fewer children attend high school in Xinjiang. Given the pattern of school attendance in China, it is widely believed that this is the result of Uyghur parental action.

It is believed that this fall off in attendance comes from the fact that Uyghur girls are withdrawn from school. Linda Benson observes [4], 'Available Chinese statistics on education (in Xinjiang) give rise to a number of questions. ... The statistics do not explain why, for example, the percentage of students (Uyghurs) continuing on to middle school remains relatively low. One factor may be the early withdrawal of girls from elementary school.' Government figures from the 1990's have shown that young Uyghur girls often end their education with primary school.

Also, Linda Benson stated: 'The government's undeniable successes [in raising the education level of minorities] are tempered by ongoing problems, some of which trace directly to the continued existence of two separate school systems – one for the minorities taught in their own languages and one offering instruction only in Chinese.

... Uyghurs and other Muslim peoples link their concern to preserve their culture and identity with the language of instruction in the schools.' Uyghur schools may not effectively prepare children for assimilation into Chinese culture, but without these schools Uyghur culture itself may disappear. Chinese is taught in all Uyghur language schools.

To control, perhaps to protect, their daughters, Moslem families encouraged them to curtail their education and to marry partners chosen by their parents. Uyghur culture, which is Central Asian culture, has a long history of arranged marriage that continues up until the present time. Current research by Zhang [14] shows that young Uyghur men are given more freedom to choose their brides while Uyghur girls are offered little choice. Comments made by participants in this study illustrate that controlling parents present obstacles to their children, such as the reluctance to allow their daughters to go to college outside their regional area.

4. Presenting Three Young Women

4.1. Aynur - Uyghur Identity and Career

The young women who were interviewed are from large rural families. Aynur is a 22-year-old woman from a rural area of Kashgar. Kashgar itself is a large Western urban area with a population of 350,000 residents, over 90% Uyghur by the 2007 census. The town in which she was raised is rural, with mostly small homes lacking indoor plumbing. Her family and neighbors are farmers. Until a few decades ago there was little motorized travel or rail traffic to the city. Now Kashgar is a major city in the region, with trade ties to Pakistan and Kazakhstan, and an airport. Aynur has two younger sisters and one younger brother.

As a young child, from 1990 to 1996, Aynur lived with her grandparents, her mother having left home for work after a divorce from her father. Her grandfather had a minor government position. Her grandparents lived in a society in which people were barely literate, and her grandfather could hardly read a document before he got his job. Her grandparents were no better educated than their neighbor, although most of the neighbors were farmers and her grandfather was a civil servant. Aynur's grandmother had been a teacher. The couple had six children. "One of my uncles liked reading; he lived in town and every Friday he came back and brought some books and told me about these books and read to me." Aynur's uncle was a factory worker. When she was old enough, Aynur went to primary school and read by herself. Her aunt taught her how to dance and sing. Aynur "was a smart girl so they had no complaints about my studies in school."

Aynur went to Uyghur schools because there were no Chinese schools in her area at that time. In 1949, at the time of the revolution, Xinjiang had been a region in which most local residents did not speak Chinese, so there were no textbooks for the local population other than those in the Uyghur language. This dual education system exists at the current time, but Uyghurs now have a choice of which school they wish to attend.

In the Uyghur school system, Aynur was considered very smart in the class and so the teachers favored her. "They expressed their love without any hesitation. Two teachers in high school showed me the good way to study and plan my life, and I believed them. I would not have (been able to)

come to Beijing to study without their help. I believe that education can change a person. Good teachers can help students, and I want to help some students who need help.

If there is one institution that is the source of wide debate in modern China, it is the *gaokao*. This exam is not required for students who simply want a high school diploma, but each year the teen-age children who are planning to attend college in China take this national competitive exam. It relies heavily on memorized information and it continues for three days.

The challenge of the *gaokao* is especially difficult in Xinjiang. Most of the Uyghur families in this study chose to send their children to Uyghur language schools. Uyghur language primary and secondary education is widespread in the province, but if parents choose to send their children to these schools, then the children take the *gaokao* in Chinese as a Second Language, which requires a lesser knowledge of Chinese than that of a regular Chinese high school graduate. Those who take this exam have a limited choice of majors in college. If the students take the *gaokao* of a regular Chinese high school student, they are taking the exam in their second language and competing against Chinese students who are taking the exam in their first language. Despite this, Uyghur parents believe if they do not send their children to Uyghur language schools, then Uyghur language and culture will be lost forever.

Aynur's *gaokao* was in Chinese as a Second Language, which meant that her college choices and her choices of major were limited. "I give thanks for *gaokao*, although I hated it. The *gaokao* changed my life. When I was a high school student I never thought about my future and college. I was scared of taking the *gaokao*. If you can't do well, you need to wait for one year and take it again. Without passing it, you have no chance to further your education." The Chinese as a Second Language *gaokao* is comprised of four parts: Chinese, Uyghur literature and language, mathematics, and a fourth comprehensive exam including history, politics, geography, physics, chemistry, and biology.

Aynur's score was one of the highest in her school so she had more choices of universities than her classmates. She chose the Minorities University of China (MUC), where she could get a full scholarship if she majored in Uyghur Language and Literature. Only two people in her school came to Beijing to go to college.

Aynur states that: "Maybe for some people, nation is not important as career. But for me and my (Uyghur) friends, we must think about this. In Beijing, we have good opportunity but for girls it is hard to find a Uyghur boy and raise a family. As a Uyghur girl, the family is very important for us. If I go back to Kashgar, perhaps I cannot advance in my career because my family has no connections. Kashgar does not have a large job market like Beijing, so I may not have any chance to prove my abilities for my career." What she means by this is that in Xinjiang it is difficult to find a good job if your family cannot help. This "help" represents family connections and influence and in China it is spoken of as *guanxi*. In her view, Aynur's larger job market in Beijing lessens the need for *guanxi*.

Beijing had been a dream to her, and this was something that her parents could not refuse. The choices between career and Xinjiang and choosing a major were very problematic for this young woman. Although her parents had been teachers, she is not fond of teaching. She feels that the curriculum in schools is too rigid and the job is too difficult. In addition to the regular curriculum, the students must attend extra Chinese society education classes that take up a great deal of the free time of students and the teachers. Aynur does not feel comfortable engaging in this work.

Instead, what she wants to do is to open up her own educational institution, perhaps a library, and a place where she might have the freedom to educate young Uyghur children with her own curriculum. These are the plans of a young twenty two year old Uyghur woman. They may be difficult to realize, but they represent the attempt of a young woman to balance the strains of parents, opportunities, and the desire for personal independence.

4.2. Meryam: The Opportunity to Investigate Culture

The most dramatic example of a Uyghur woman exercising the ability to investigate the past is Meryam, a young woman of Kyrgyz-Uyghur descent who wears full Islamic dress. Unlike most others, she wears not simply a headscarf but an entire outfit of modest clothing. Like other Uyghur women, she majors in Uyghur language and literature. What she wants to do is go to school in Egypt to study Islamic education at a world famous institution, Al-Azhar University in Cairo.

Additionally, she would like to visit Turkey. She has had the opportunity to study Turkish and Turkish culture at MUC. Her destination is the world of the Middle East. She then wants to work in Xinjiang as her life's choice. She believes Urumchi, the capitol and the largest city in the province, is the best place for her to work in Islamic education. She comes from a rural background. Her parents were poor farmers, and her grandparents were farmers as well. She has a sister who lives and studies Uyghur Language and Literature in Lanzhou.

Courses in Uyghur Language and Literature at MUC Beijing and Lanzhou include the Islamic and old Turkish heritage of the Uyghur nation. Some students in the Uyghur language department at MUC choose to study "old Turkish," the Chagatai language, an extinct Turkic language which was once widely spoken throughout Central Asia, including Xinjiang, and remained the shared literary language until the early twentieth century. Specialists from Turkey serve as visiting professors in old Turkish. There are excellent sources of old Turkic history and culture, and the literature in English, Chinese, and Uyghur is growing.

4.3. Radiyeh: Family Control and Women's Choices

Radiyeh is a young woman from Kashgar who speaks excellent English in addition to being fluent in Uyghur and Chinese. Radiyeh's major is similar to the others, Uyghur Language and Literature, but unlike most of the other students, she wants to live away from Kashgar because her parents are too controlling. She faced great opposition from her parents when she wanted to go to school in Beijing, and it was only the fact that she scored well enough on the gaokao to attend a school as prestigious as MUC that they allowed her to leave Xinjiang and go to Beijing. In Xinjiang, Radiyeh is one of the first generation of women to deal with such issues. A university opportunity in the capitol of China was beyond the hopes of most Uyghurs from earlier generations. Radiyeh is also escaping from her family background, since her parents, brothers, and sisters are all farmers.

As Radiyeh says: "(In the old days,) the child of a farmer would marry a farmer—now a girl (a Uyghur college student) may be more educated than her boyfriend. In the time of her grandmother (the 1950's), the wife usually stayed at home."

Things are changing in Kashgar, but not quickly enough for Radiyeh. She would like to find a job in Beijing, but even if she found a job back in Xinjiang, she would be reluctant to live near her parents. Issues such as leaving home, going out with boys, and finding a job are all problems in religiously conservative Uyghur families. The fact that Radiyeh went to Beijing was a great problem for her parents. Radiyeh said that in this respect, Xinjiang is like Afghanistan, which borders on Xinjiang on the West. This underlines how severe the limitations on Muslim women in Xinjiang can be. This issue may exist for women all over Central Asia.

Radiyeh is not necessarily worried about the choice of a job; she expected that she would be a teacher. With a major in Uyghur Language and Literature, this is one logical outcome for an educated Uyghur woman. Radiyeh is also interested in becoming a cultural worker, a journalist or one who works for a museum. Radiyeh hopes that she can get a better job in Urumchi, far across the province from Kashgar. Her first priority is personal freedom.

One of the things that weigh heaviest on Radiyeh's mind is the tradition of arranged marriage. Speaking about Central Asian family practices, Dami and Sheikh write: "In many senses, marriage is considered the union of two families, and the parents usually arrange the marriage. Although the free consent of both the bride and groom are essential, parental coercion is often strong. Some parents are evidently beginning to understand the marital concerns of their children." The practice of choosing marriage partners from within the parents' community of friends and business acquaintances, however, continues to be considered important by young and old. (Dhami and Sheikh 2000). Choosing a spouse may involve family members other than the immediate families of the couple. The matter is further complicated by the high costs of elaborate weddings and dowry, which means the couple will have to rely on parental financial support in order to marry. This in turn increases their dependency on parents and increases parental control.

Facing issues such as these means that a young Uyghur woman must confront her parents at an early age about her hopes and plans, when she is in her teenage years, or be bound to her parents' choice for the rest of her life. These traditions are changing, but young, ambitious women must decide their fate when very young.

5. Minorities Studies, Affirmative Action, Social Change

5.1. The Uyghur Language and Literature Department at Minzu University

A major in Uyghur Language and Literature is general liberal arts major, including language, culture, and sociology in the first language of the student. Most of the undergraduate majors are young women, with young men perhaps preferring business or engineering. Most of those who major in this field of study do not have any life experience outside Xinjiang, except for their years in MUC in Beijing. In order to recruit good Uyghur students, MUC offers scholarships to students that major in Uyghur Language and Literature. On the graduate level, there are excellent jobs available in translation, since with eight million Uyghurs, there is a constant demand to translate documents back and forth from Uyghur to Chinese.

MUC students discussed here believe that the departments play a very positive role integrating them to the university and to modern China. Most of the students have not been outside Xinjiang before and comment on the friendships they have made with other Uyghurs at MUC. One freshman at the university reported that her parents were pleased that she made friends with other Uyghurs. In talking about her major, one student commented about an English class she had taken. In such classes, the professor talked the whole time, while in the Uyghur classes, the entire class participated and it was a more interesting class.

Students also mentioned the friendliness the Uyghur faculty and staff at the school. Uyghur parties and events feature faculty speakers, and at one graduation party, a leading faculty member congratulated all the participants individually. These events draw not only the students, but also the Uyghur community in Beijing, who bring their young children.

As was shown in the case of Aynur and Maryam, these same departments heighten Muslim and Uyghur awareness and solidarity. The Internet and the school expose students to developments in the global Islamic community. They are exposed to speakers and to ideas that are not available in Xinjiang.

Aynur commenting on the Uyghur Studies School: Our department at MUC very famous in Xinjiang. In Xinjiang University and Xibei Minzu University (in Lanzhou) and in Xinjiang Normal University there are also Uyghur language and literature departments. Our teachers at MUC are good, they have good personalities and they are supportive. There are chances to go abroad; they help us with employment, and provide information. We can learn everything about minority studies if we want. We are in Beijing. Beijing is our New York.

5.2. Does Uyghur language learning hold the students back?

The criticism that Uyghur students do not have access to top tier schools must confront the fact that for most Uyghurs, Chinese is a second language. Uyghurs have an enormous attachment to their province, and most plan their future occupation and family life in terms of Xinjiang. Students from highly ranked Chinese Universities have little interest in living in a relatively poor rural area such as Xinjiang, far away from the cultural centers of Beijing and Shanghai.

What appears to foster ‘separatism’ actually facilitates integration? Uyghur students can study Chinese for one or two years and then, if possible, enter regular Chinese schools at any level if they can pass an entrance exam. China has many opportunities, and these are increasingly available with some college background.

6. Conclusion

The argument against affirmative action programs does not take into account the real benefits for cultural identity. Although not immediately apparent to outsiders, the “push” for cultural change is very present in Xinjiang, especially among women. This change is in an unintended direction, since it introduces young students to membership in a larger world Muslim community.

The Minorities University of China provides the chance to participate in the liberalism of Beijing compared to the perceived limitations in Xinjiang province. Experience in the university provides an opportunity for investigation of one’s ethnic culture in a way that is not fully explored in Xinjiang. The opportunity to escape parental control is facilitated in college. Education and employment opportunities

are the vehicles for group integration into larger Chinese society.

Ethnically oriented institutions such as the Uyghur Department of Language and Literature, which might appear to further separate young people from the Chinese society, actually helps to integrate these students into academic life, and at the same time supports investigation into an exciting realm of ideas. The Muslim awakening, a process that is still in its early stages in this century, is advancing through the preferences of women. It parallels the cultural pride that Han Chinese feel for Chinese development, and hopefully points the way towards equality in a multicultural China.

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Session 2: Learning / Teaching Methodologies and Assessment

Responsibility Increases Self-Esteem (R.I.S.E.): An Effective Anti-bullying Program to Promote Socially Acceptable Behavior
(Author: Jennifer Scully)

Student assessment strategies in classroom for their overall development: A case study
(Author: Khalid Abdullah Alotabi)

Supporting Teaching and Learning through Lesson Study
(Authors: Cathy Kinzer, Cynthia Bond, Kathryn Million, Chris Woods, Zaira Falliner, Melissa Gilbert, Helen Duran)

The Effects of Paternal Incarceration on the Academic Performance of Primary School Children Aged Six to Twelve Years in the Republic of Ireland
(Author: Ashling Ryan-Mangan)

Responsibility Increases Self-Esteem (R.I.S.E.): An Effective Anti-bullying Program to Promote Socially Acceptable Behavior

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Abstract

There are at least two major determinants of self-esteem. First, what one thinks of himself, and second, what one thinks others think of him. Most theorists on the subject of self-esteem recognize the influence of these two factors in the formation of one's view of self. Each interaction a student has influences his view of self: each success, each failure, each correction, each word of encouragement. When a student is able to master his environment, he comes to view himself in a positive manner. Unfortunately, the converse is also true in that a student who feels unable to master his environment feels inadequate and regards himself poorly and develops a pent up anger, which may lead to socially unacceptable behavior such as bullying.

The R.I.S.E. Program is a highly structured, supportive program that assists students in overcoming the challenges of everyday life. In addition, aspects of the program teach students the necessary social skills to fit in as a productive member of society. This program will help teachers, parents and other professionals guide and teach specific social skills, while enhancing character development within each student. Character consists of "operative values, values in action" (Lickona 1991), as well as "knowing the good, desiring the good, and doing the good" (Lickona 1991). It is important to tap the values that parents teach their children to enhance them by helping students realize that it is in their nature to respond to situations in a morally good way.

Positive behavior in students is encouraged through the mentoring process, which is an essential component to the R.I.S.E. Program. This support is structured through weekly meetings between the student and mentor whereby student progress is discussed as well as the opportunity to address deficits with the higher order social skills that may lead to anger and anti-social behaviors. The role of the mentor is to engage the student by using ego-supportive counseling techniques and serving as a positive example for the student to follow.

Student Assessment Strategies in Classroom for Their Overall Development: A Case Study

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Abstract

To understand the behavior of learning and teachers overall development, students always play an active role. With the help of students, overall assessment of the classroom can be judged. So Questions represent a major technique used by teachers to assess their students. Questions in the classroom can be student-teacher interaction, teachers questioning for learning or for assessment purpose. This form of assessment does not require the creation of tests or additional materials or resources. Neither does it necessarily require additional time. During classroom interaction, teachers use different types of questioning methodologies. Questions can be asked either through open questions or close questions. For this paper, data was collected at the end of the semester. Data was collected mainly by Class observation schemes which were conducted through observing student-teacher interactions for their overall development.

1. Introduction

To understand the behavior of learning and teachers overall development, students always play an active role. With the help of students, overall assessment of the classroom can be judged. To understand the learning process well, assessment is important. Assessment is the process of gathering and interpreting evidence to make judgments about student learning. It is the crucial link between learning outcomes, content and teaching and learning activities. Assessment is used by learners and their teachers to decide where the learners are at in their learning, where they need to go, and how best to get there. It is obvious that the purpose of assessment is to improve learning, inform teaching, help students achieve the highest standards they can and provide meaningful reports on students'

There are common classifications of assessment which are formative and summative. Formative assessment is used to provide feedback to students and teachers to promote further learning. Summative assessment, however, contributes to the

judgment of student learning for reporting and certification purposes.

Formative assessment – is assessment for learning. It is used at the beginning of an instructional period to diagnose the students experience and during the process of instruction as teachers check for student understanding. Diagnostic tools determine what students already know and where there are gaps and misconceptions [3]. Formative assessment also includes assessment as learning, where students reflect on and monitor their own progress. The information gained guides teachers' decisions in how to enhance teaching and learning. Formative assessment enables students to learn through the process of feedback and opportunities to practise and improve [23]. As students reflect on and monitor their progress this process effectively becomes assessment as learning and contributes to students planning future learning goals.

Summative assessment – is assessment of learning. It is used towards and at the end of the instruction period [7]. Teachers document the culmination of students' learning achievements through tasks that invite students to demonstrate their mastery and knowledge of the course content. Summative assessment data provides teachers with information about how effective teaching strategies have been, time needed for instruction and how to improve teaching for future students [17].

2. Assessment Strategies

Assessment can be applied by variety of ways. Marsh named some techniques in applying assessment such as questioning techniques, problem-solving techniques, peer assessment and written or oral feedback comments. To demonstrate learners' progress, Cowie and Bell suggested that using different forms of assessment tools, such as portfolios, observations and projects. For this research, classroom observation is used as method of collecting data [16, 10].

Table below defines some assessment strategies that can be practiced in classrooms.

Table 1: Assessment Strategies

Strategy	How it can be practiced
Student self-assessment	Self-assessment is a process by which the student gathers information about his or her own learning. It is the student's own assessment of personal progress in terms of knowledge, skills, processes, or attitudes. Self-assessment leads students to a greater awareness and understanding of themselves as learners.
Quiz, test, examination	A quiz, test, or examination requires students to respond to prompts in order to demonstrate their knowledge (orally or in writing) or their skills (e.g., through performance). Quizzes are usually short; examinations are usually longer.
Essay	An essay is a writing sample in which a student constructs a response to a question, topic, or brief statement, and supplies supporting details or arguments. Through essay, teachers can assess the student's understanding and ability to analyse and synthesize information.
Portfolio	A portfolio is a collection of samples of a student's work. It is focused, selective, reflective, and collaborative. It offers a visual demonstration of a student's achievement, capabilities, strengths, weaknesses, knowledge, and specific skills, over time and in a variety of contexts.
Learning log	A learning log is an ongoing, visible record kept by a student and recording what student is doing or thinking while working on a particular task or assignment. It can be used to assess student progress and growth over time.
Exhibition/ Demonstration	An exhibition/demonstration is a performance in a public setting, during which a student explains and applies a process, procedure, etc., in concrete ways to show individual achievement of specific skills and knowledge.
Classroom presentation	A classroom presentation requires students to verbalize their knowledge, select and present samples of finished work, and organize their thoughts in order to present a summary of their learning.
Interview	An interview is a face-to-face conversation in which teacher and student use inquiry to share their knowledge and understanding of a topic or problem. It can be used by teacher to explore the student's thinking, assess the student's level of understanding, gather information, obtain clarification and determine positions.
Observation	Observation is a process of systematically viewing and recording students while they work, for the purpose of making programming and instruction decisions. Observation can held at any time and in any setting. It provides information on students' strengths and weaknesses, learning styles, interests, and attitudes.
Conference	A conference is a formal or informal meeting between the teacher and a student for the purpose of exchanging information or sharing ideas. Conference might be held to explore the student's thinking and suggest next steps; assess the student's level of understanding of a particular concept, and review, clarify, and extend what the student has already completed.

3. Teachers' Questioning

Questioning is a common assessment practice and plays important roles in teaching and learning processes [11]. It is recommended that higher-level questions should be used in classroom in order to stimulate students' motivations and promote their thinking rather than recalling of information. Questioning practices are a part of the learning cycle. So, questions can enhance student thinking during classroom interaction. Black and Harrison asserted that "questions have become a more significant part of teaching and teachers' main concern now is to think harder about how questions can be constructed and used to develop students' learning [2]. Therefore, students' responses can be

determined by the nature of the teacher questions [22].

During classroom interaction, teachers use different types of questioning methodologies. These questions can be used as a part of teaching and learning processes or as a part of assessment processes or both. Teachers have different purposes in asking questions. Questions can be check the students' progress and obtain feedback about the instructional process. When asking questions, teachers can identify the students' knowledge and understanding. In addition, asking questions keep students involved in classroom discussions as well as evaluate students' learning.

Teachers' classroom questioning practices can take on several forms. The most common classification of teachers' questions contrasts open

and closed questions. Open questions are questions require effective communication and positive interaction in the classroom. In contrast, closed questions do not provide effective communication during the classroom interaction. In addition, open questions require unknown answers to the teacher and require quite long answer. While closed questions require short answers and require students to recall knowledge that is already known and has been taught [15]. Open questions have more than one acceptable answer, while closed questions have only one accepted answer [14].

4. Methodology

The data in this study were collected from Hotat Bani Tamim (a region in Riyadh provenance of Saudi Arabia). In this study, observations were conducted to investigate classroom practices related to teachers' questioning by using a classroom observation form in order to capture the key behaviours relating to teachers' questions. Five science teachers in primary schools were observed in their classrooms in Hotat Bani Tamim. The observation form was conducted at the end of school year. This form was reorganised according to the teachers purpose whether they intended to assess their student formally (formal assessment tasks) or not (non-formal assessment tasks). Quantitatively, the observation form included space to capture a number of different types of moves made by teachers or students during classroom interactions. The observation form was divided into three sections of moves between teachers and students. The first section is about teachers' moves on questioning, and included three types of practices: 'Teacher asks an open question to get an answer (TQO)', 'Teacher asks a closed question to get an answer (TQC)', and 'Teacher checks that the class is following (TCh)'. The second section of the observation form is students' moves to investigate students' responses to the teachers' questions. The student's moves were coded according to whether an individual student answered a question (IA), or there was a choral answer (CA). The third section is follow-up teachers' moves. It is to follow the student response by teachers. It was coded according to whether no feedback was given (none), the teacher affirmed the student's response (affirm), the teacher praised the student's response (praised), the teacher criticised the student's response (crit.), or the teacher elaborated on the student's response (com.).

5. Sample

Five science teachers have been chosen randomly from primary schools at Hotat Bani Tamim. After having their consents, I arranged a meeting to explain the purpose of this study and

agreed the time and procedures for visiting them. As observation form was applied, the data collected were analysed quantitatively by counting frequencies and percentages.

6. Results

During the classroom visit, I captured all teachers/students interactions during the lesson in order to explore how teachers use questions with their students.

As results shown, there are substantial variations in practices between the teachers. Some teachers asked open questions nearly double of others. Despite these variations between the teachers in relation to asking open questions, none of them asked open questions in assessment purposes. Therefore, all formal assessment questions were closed questions. In addition, the teachers rarely asked open questions. A similar pattern appears with the closed questions. As a result, all teachers asked more closed questions than open questions. Teachers asked closed questions in both formal and non-formal assessment tasks was almost the same.

Further differences can be seen in the way the teachers checked if the class was following. More than eleven per cent of the teachers' moves were checking to ensure that the class was following. These checks for all teachers occurred in non-formal assessment tasks.

Despite these differences between the teachers, in the formal assessment tasks, none of them asked any open questions. In the same way, none checked if the class was following or answered students' questions in the formal assessment period.

Since the only purpose of the teachers' question appears to be confirming the attainment of specific, previously taught skills, and none of the questions seems to seek information unknown to the teacher, this result confirms that the teachers are not using formative assessment.

In the results of teachers' follow-up, it was common for students' answers to receive follow-up. However, the crucial matter is the type of feedback the teachers provided. Positive feedback was the dominant practice in relation to the teachers' follow-up moves. Most of these feedbacks occurred in the non-assessment tasks. In addition, positive feedback was merely saying words such as 'yes', 'good', and 'well done' and clapping. The crucial feedback that students benefit from is very rare. Most of feedbacks were in the non-assessment tasks.

In conclusion, the types of questions used by teachers are not consistent with formative assessment. Commonly known, using positive feedback frequently in classroom is a vital aspect in the formative assessment strategy. Students can modify their learning based on teachers' feedback.

7. Summary and conclusion

The research presented the clear picture of assessment strategies for the overall development of students and based on the data and its analysis. As shown, teachers focused on asking questions in order to assess students and give them grades rather than focusing on the students' learning. Assessment is a good tool to improve the students' achievements [4]. Ministry of Education in Saudi Arabia has to work hard to enhance the assessment strategies. Improving assessment system should start with the base line.

Based on the findings of this study, the following points are suggested:

1. Policymakers and teachers should emphasise the implementation of formative assessment as a tool for increasing students' achievement levels.
2. Students should be given the opportunity to be active learners who seek knowledge by themselves, to be able to assess their learning.
3. Teachers should be trained on assessment training programs to be updated with new moves.
4. Teachers' questioning should focus on how students learn rather than what students learn.
5. Encouraging students to express their thoughts and opinions is a good way to put them in the room of high order thinking.

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Supporting Teaching and Learning through Lesson Study

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Abstract

Lesson Study is a classroom-based process used in education for studying and improving lessons to support students' learning. The Lesson Study cycle has the potential for building shared professional knowledge about mathematics and studying instructional practices. It can influence teaching and students' mathematics experiences through focusing on research lessons taught in mathematics classrooms and subsequently redesigning the mathematics lessons based on evidence, and reteaching them. The premise is that, if mathematicians, mathematics educators, and teacher leaders design and implement robust research lessons in K–12 classrooms, the Lesson Study process can serve as a mechanism for actively examining classroom instructional practices and understanding their relationships to students' mathematics learning. This article provides a research base for Lesson Study, highlights one type of professional learning experiences of the Leadership Institute for Teachers (LIFT) through the teachers' voices, and considers affordances for advancing mathematics learning through engaging in collaborative classroom-based Lesson Study.

1. Introduction

The purpose of this article is to document a research-informed process for studying and improving teaching practices in relation to students' mathematics learning. Elementary and secondary teachers, school administrators, mathematicians, and mathematics educators are participating in a 2-year mathematics teacher leadership project, The Leadership Institute for Teachers (LIFT). LIFT is a National Science Foundation-funded research project (#0928867) for two cohorts of 30 K–12 teachers who are engaging in rigorous coursework at the university (New Mexico State University) and implementing

their learning at their respective school sites. The project utilizes a variety of data to understand (a) how to advance K–12 students' mathematics learning and achievement, (b) how to design and implement relevant coursework at the university, and (c) how professional learning experiences for teacher leaders develop effective mathematics teaching and leading.

The LIFT project weaves mathematics and education courses that are collaboratively designed and taught by mathematics educators and mathematicians. The project includes ongoing opportunities to connect university coursework to teacher leader classrooms to study and improve mathematics teaching. One of the approaches for directly connecting LIFT university math/math education courses and K–12 classrooms is through engaging in Lesson Study. Lesson Study includes the elements of effective professional development [1,2,3] and is used as a research-based process for collective learning in LIFT K–12 mathematics classrooms. LIFT educators use data to develop learning goals for students. Teachers collaboratively design, teach, and study their research lessons and they analyze students' learning. Based on observational data gathered by the teacher leader team, video of the lesson, and the students' artifacts, the research lessons are redesigned and taught for further study of instruction and students' learning.

Lesson Study has the potential for building shared professional knowledge about mathematics and responsible instructional practices. It can impact teaching and students' mathematics experiences through focusing on the lessons in mathematics classrooms and collectively taking action for improvement. The premise is that, if mathematicians, mathematics educators, and LIFT teacher leaders design and implement research lessons in K–12 classrooms, the Lesson Study process can serve as a mechanism for actively examining classroom teaching practices and understanding their relationships to students' mathematics learning. This

professional development design holds promise for improving mathematics teaching and learning.

This article presents an overview of the LIFT research project and a theoretical framework for this approach to professional learning. It includes teacher leaders' comments (identified by TLC#) to document their perceptions of Lesson Study and provide their insights into the process they engaged in.

2. LIFT Lesson Study perceptions

LIFT teacher leaders and researchers documented the lesson study experiences. The teacher leaders were asked how Lesson Study influences their classroom instruction in mathematics. Excerpts from their written comments describe their experiences.

Lesson Study allowed for a very conscious effort in understanding exactly what was being done during the lesson, why it was being done, what misconceptions we needed to be prepared for, and what accommodations might need to be made for certain students. During the reflection and discourse with colleagues, tremendous learning occurred from the sharing of insights and knowledge. As a result, the students received a much richer and deeper experience of learning in the subsequent math lesson. (TLC#1)

Lesson Study influenced classroom instruction by helping me to realize that teacher collaboration and student achievement are closely connected and that the continuous cycle of pedagogical refinement is crucial. The implementation of formative assessment, data analysis, peer teacher observations with collaborative analysis, and professional development strategies are all a part of continuous inquiry and improvement for student achievement. In addition, I saw firsthand the positive impact a student responsive learning environment has on ELLs [English Language Learners] and students that have less confidence in their math thinking as it brings a tangible element of equity for all learners. (TLC#2)

3. LIFT research project: Context

LIFT connects and engages educators and administrators from elementary, secondary, and university settings in a research project that studies mathematics teaching and learning in order to improve what happens daily in mathematics classrooms for K–12 students. LIFT goals are (a) increasing teacher leaders' knowledge, skills, and dispositions through blended courses focused on teaching K–12 mathematics through responsible pedagogical practices, (b) developing intellectual leaders who ensure effective mathematics learning

and who can differentiate instruction in their own classrooms and support other teachers to meet the needs of diverse learners, (c) implementing LIFT learning in mathematics classrooms and schools with mentoring from the LIFT school support team, and (d) building and sustaining viable partnerships based on shared goals for learning by mathematicians, education faculty, and educators in school districts.

LIFT focuses on mathematics education leadership in K–12 schools. Teacher leaders in the LIFT project are developing content and leadership knowledge through 33 hours of university coursework required to obtain the degree Master of Arts in Teaching Mathematics. They are opening their teaching as a space for building shared knowledge and skills in the LIFT, as well as providing guidance in the learning needs of other teachers at their respective campuses. LIFT utilizes course experiences and assignments applicable in teacher leader classrooms as a vehicle to develop mathematics content, pedagogical content knowledge [4-7] and pedagogy, with the ultimate goal of supporting learning for all K–12 students. As classroom teachers encounter increasing expectations for gains in their students' mathematics achievement, the LIFT university coursework is a way for collectively studying instructional routines and actions and learning through teaching. LIFT course designers and teacher leaders consider how to improve mathematics instruction both at the university and in K–12 LIFT classrooms.

The LIFT research project investigates the effectiveness of coursework, as well as the effects of teacher learning in their schools, utilizing a mixed-methods methodology [8,9]. This design supports collection and analysis of quantitative and qualitative data related to teacher leader learning of mathematics, pedagogy, and leadership during their participation in the LIFT project. Data are continuously analyzed regarding teacher leader participation in LIFT, students' mathematics achievement, and the development of effective classroom learning environments [10]. Data from teacher leaders include focus group/interviews, pretest/posttest data, classroom observations, surveys, and ongoing feedback. These data are used to understand the learning needs of the teacher leaders in the LIFT cohort. The iterative cycles of gathering and analyzing both formal and informal assessment data in the K–12 classrooms and university coursework appraises ongoing LIFT course design and the next steps for campus support; this process is used to guide the research project holistically.

A central goal of advancing mathematics learning for all students is approached through building content knowledge and improving instruction. LIFT courses create a culture for dialogue, modeling, experimenting, and reconceptu-

alizing mathematics as a content domain and space for developing instructional strategies and practices that should occur in K–12 classrooms [11]. Lesson Study affords opportunities for investigating the core elements of teaching, developing, and improving research lessons to examine the skills and instructional practices that supports students' learning. Each teacher leader is observed over two years at the beginning and end of each semester as they teach math. Project researchers and course developers wanted to know if the coursework was influencing classroom practices and if so, in what ways. Observational data and teacher leader feedback indicated the need for professional learning experiences in mathematics classrooms with colleagues. A teacher leader reported the following after they had worked with a team of colleagues in a Lesson Study cycle:

I have developed, reviewed, and taught lessons throughout my teaching career. After thoughtfully co-designing research lessons and studying the impact on students in my classroom, I realized the lessons we developed together focused squarely on supporting every student in the classroom to understand and make sense of the math. It has changed my behaviors, opened my eyes to how the choices and actions . . . my understanding of mathematics and the teaching practices I use will shape students' lives and views of learning mathematics. Every action matters, each choice, the teacher and student interactions in the classroom, every word can make a difference. It is powerful to understand teaching as the central vehicle responsible for students' learning. (TLC#3)

4. Theoretical framework for LIFT Lesson Study

4.1. Developing the dispositions, skills, and knowledge for teaching

Teaching is a cultural activity that inherently includes a substantial level of resistance to change; however, teaching is the key to improving students' mathematics learning [12-15]. Much of the research on educational improvement indicates a need for professional development that provides ongoing opportunities to examine beliefs, ingrained assumptions, and thinking about what it is to teach mathematics [16-18]. To change teaching itself requires effort, time, and viable opportunities for examining one's identity as a teacher, beliefs about intelligence and instruction, sense of efficacy, and students' roles and ways of participating as learners [19]. Building relational trust and having a willingness to be vulnerable in sharing one's practices and ideas with colleagues are attributes of a

professional learning stance. Using ongoing experiences to study actions or practices within teaching itself is a plausible strategy in considering how teaching hinders or supports students' learning [12,13].

4.2. Practice-based professional learning

Collaboratively developing the knowledge needed for effective mathematics teaching is an essential investment for educators [11, 19]. Professional learning situated in classrooms provides a viable avenue for understanding the complexities of a well-designed lesson in relation to teaching practices and students' learning [20, 21]. Professionals in many fields, such as doctors and lawyers, have processes and procedures for continuing to learn and improve their craft in situ. Through this approach, transferring the knowledge and skills to another setting is minimized. Instruction can be studied through both formal and practice-based professional learning experiences. Both models are integral in developing knowledge of mathematics and common practices for teaching mathematics effectively to diverse learners [11]. Transformative models of professional learning for teachers should be (a) embedded in or directly related to the work of teaching, (b) grounded in the mathematics content, (c) developed through communities of practice, (e) sustained in collaboration with experts outside the teaching community, and (f) focused on equitable student learning [17]. Teachers with a shared commitment to instructional improvement can utilize a learning community to unpack and rehearse the complex tasks within teaching [2, 12, 21, 22, 23]. Professional learning communities provide a structure for improving teaching through utilizing shared norms and goals, developing/refining explicit skills and routines within math lessons, and using inquiry research processes to improve teaching practices [24].

These practice-based professional learning opportunities should occur over time; produce knowledge, skills, and dispositions for learning; and develop a reflective stance for collective inquiry and continuous improvement of teaching [17]. Developing this disposition of inquiry is a challenge that teachers face when examining their practice [5]. To improve their practice, teachers must learn in and from their practice both the subject matter and how to teach the subject effectively. Through the systematic use of inquiry, analysis, and reflection on teaching and learning, teachers develop "knowledge of practice" and can document instructional changes over time [25].

4.3. Professional knowledge for teaching

If teachers are to teach for deeper understanding through processes that are engaging to their students, the professional learning should mirror the type of instruction that schools would like to see practiced in their classrooms [26]. Effective teaching requires extensive knowledge, skills, and deliberate practices or actions such as connecting to learners' prior knowledge and experiences, developing coherent structures of related knowledge rather than isolated bits of information, engaging students in problem solving and inquiry, and explicitly validating mathematical ideas and strategies [27]. This requires a deep and useful understanding of the structure of mathematics concepts and the strategies that students use in learning mathematics, the conceptions and ideas that students may generate, where students might struggle or have misconceptions, and how to respond appropriately to students' thinking and ways of interacting and communicating their ideas [6,28]. High-leverage teaching practices such as posing worthwhile problems or tasks and understanding how to differentiate instruction in order to develop students' thinking and problem solving skills are integral to responsible teaching [11]. Teaching requires being cognizant of students' responses to teaching actions and how students engage in the learning processes. Teaching is complex and requires generative professional opportunities to understand the relationships between teaching and rigorous learning.

4.4. The Lesson Study process

Lesson Study in mathematics is a collaborative inquiry-based process to consider an area of difficulty or interest for focused learning [22]. It is conducted in a classroom and can serve as a way to build professional knowledge for teaching, as teachers are the researchers. In Lesson Study, educators develop overarching, unit, and lesson goals for students' learning of the concept. Based on these goals, they study the mathematics content to allow them to plan the lesson thoughtfully. They investigate the mathematics of the lesson through curricula and other resources [29]. The lesson is taught by one of the team member teachers and observed for students' learning. It is discussed based on the lesson goals and the resultant learning. The lesson is then revised through reflection and thoughtful improvement for reteaching [30-32]. Students' thinking, learning processes, and strategies for solving problems are a central focus of the research lessons. Teachers scrutinize the possible strategies involved in the task through longitudinal exploration of important mathematical concepts, thereby promoting their own content understanding, development of skillful teaching, and building a

shared professional knowledge base [19,29]. The Lesson Study process promotes actual study of teaching itself, with the goal of steady improvement in mathematics learning by students [14]. Lesson Study can serve as a process for systemic continuous development of practitioners' knowledge that is situated in teaching and learning.

4.5. LIFT Lesson Study

The LIFT cohort includes participants who teach or coach in K-12 schools. The teacher leaders from five school districts represent a broad array of knowledge, skills, and experiences. After two semesters of LIFT coursework, the teacher leaders were introduced to the Lesson Study research process. Mathematics educators with extensive experience in Lesson Study shared protocols for observing, engaging in the Lesson Study cycle, and reporting and preparing presentations for other educators [22]. Teacher leaders were grouped by grade bands (K-1, 2-3, 4-6, 7-8, and high school), with three to five teacher leaders in each band, to determine their collective focus, design research lessons, and engage in the Lesson Study process with mathematicians and mathematics educators.

For two semesters, or four cycles of lesson study (design, teach, redesign based on data, and teach), teacher leaders partnered with university mentors in collaborative research via Lesson Study to think about lesson design, instructional moves, students' engagement, and learning through the mathematics lesson. Teacher leaders did not know who would teach the research lesson until the day it was taught. The lessons were videotaped and many hours were spent in studying the video, engaging in discussions, determining lesson revisions, and thinking deeply about the teacher's and students' actions.

Several teacher leaders are in schools without professional learning communities; others are in schools with highly functioning professional learning communities that routinely observe in colleagues' classrooms. However, the Lesson Study was a different type of professional learning experience for most teacher leaders in LIFT.

I learned that the infrastructure of schooling needs to change. When we have the TIME to work together as colleagues, we can accomplish so much more than working in isolation. Unfortunately, most of our planning time has to occur after hours and so we are limited in the depth of our time together. I learned more from my fellow teachers and the experiences we have together in Lesson Study than I've ever learned through other professional development or conferences. (TLC#4)

It is a really rare opportunity, unfortunately, to think about one question you have as a practitioner and explore it thoroughly, but when

you have support (such as I have through LIFT) and time dedicated to thinking about that question, then amazing learning can happen with both the teacher and students. We are missing the mark in the U.S. We need to invest in teachers in order to invest in students (this is not about money, but time). (TLC#5)

The research lessons provided the opportunity to consider sequences of concepts, teacher moves, manipulative uses, learning goals, what questions were asked, and how those choices affected students' thinking and learning. It takes time and knowledge to develop a research lesson, teach the lesson, and redesign the lesson based on students' learning. LIFT teachers valued the focused time for classroom-based professional learning.

It was very useful to take a standard and really study it in depth and have time to think about all the aspects of it and misconceptions students might have. It changed how I look at standards and process them before teaching them. I really think about not just the learning targets, but misconceptions, vocabulary, equity, assessments, and so much more! One insight was the importance of the language teachers used in describing the learning target and steps in the lesson on how the students carried out the lesson. As I'm writing this, I realize how obvious this will sound to an outsider, but students catch on to phrases that will either support and further their understanding or confuse them. I now understand the importance of students "speaking mathematically." If students can say it, they are more likely to do it/think it. So, I have added a "talking target" to our math learning targets. (TLC#6)

An elementary teacher leader reflected on Lesson Study:

I have learned so much through the Lesson Study process. My eyes were really opened as to how important it is to understand the vocabulary in the math standards so that I know exactly what I am teaching and what my students need to be learning. I also learned the value and benefit of collaborating with a team to see different perspectives and learn from each other. All the insights and ideas shared throughout the lesson study have added to my knowledge base as a teacher. I have come to understand how much can be learned from a well-planned, -researched, and -thought-out lesson. My learning from Lesson Study helped me in the classroom with math standards and gave me insights into student groupings and interactions, as well as ideas on addressing student misconceptions. (TLC#7)

A central goal LIFT is to develop the teacher's mathematics content and pedagogy. Lesson Study teams had opportunities to deepen their mathematical

knowledge through designing and teaching the research lessons in their classrooms.

The big goal of our lesson was decomposing numbers from 1 to 10 into pairs. One of the insights for me was making sure I really understood the vocabulary. After our morning lesson we realized that the students were composing, "3 and 2 make 5" or "4 and 1 is a combination of 5" instead of decomposing "5 can be broken/decomposed into 3 and 2." We modified our vocabulary and the way we introduced decomposing in the afternoon, as well as the recording sheet ($5 = 3 + 2$). By using several strategies for decomposing, it reached students at different levels. In our first lesson students counted the dots on dominoes by ones. In the afternoon we focused on seeing patterns of dots and knowing the amount—"See it and say it" (subitizing)—as well as counting. As a result, we saw more students using these strategies to find the total amount of dots on the dominoes. (TLC#8)

Within a semester, the teacher leaders study mathematics and pedagogy in the LIFT courses through a mathematics learning progression, for example, the mathematics ideas leading to the distributive property and how the property is applied from elementary grades to secondary courses. LIFT teams share the research lesson, classroom videos, and their learning with LIFT colleagues.

We engaged students' interest and attention to learning by facilitating and soliciting active participation and creating a student-centered learning environment in which students were exploring, creating, sharing their mathematical thinking, creating viable arguments and critiquing the reasoning of others, taking notice of repeated patterns, questioning, presenting, connecting to real-world scenarios, and formative assessment/ progress monitoring. As a result of this Lesson Study specific to the Distributive Property, we learned that providing a standards-based learning environment facilitates and deepens student learning in that it promotes equity among students. In addition, observing student learning in both real time and in reflection for the purpose of monitoring and adjusting instruction is crucial to student achievement. In collaborating with teachers in planning and reflection, we analyzed student work and shared notes regarding teacher moves and student understanding. This research process resulted in the implementation of collaborative professional development, the improvement of instructional strategies, and increased student achievement. (TLC#9)

In the Lesson Study written reports, the topic of equity came up many times. Teachers were developing a lens to think about how their

instructional moves empowered or supported each student as a learner, as well as how the classroom environment provided equitable learning opportunities.

One of our main focus areas was equity and what was really useful was to see the lesson first and then consider ways to make it better, for example, checking it by going over learning targets and criteria for success, having students paraphrase for each other, and randomly calling on students by a card system so that more voices are represented. At the beginning of the second lesson we provided students with an entrance ticket that involved sketching or writing the definition of some of the key vocabulary we would be using in the lesson. Students were busy right away and took no time at all to get engaged with the lesson. Students used the vocabulary more throughout the lesson when we went over it at the beginning of class. Our revised research lesson also included making the problem more accessible through multiple entry points. (TLC#10)

From my perspective, Lesson Study is about looking closely with a lens on student learning with colleagues that are learning together as professionals to become more proficient at teaching. You go through disequilibrium and it can challenge you as a teacher. It is different from any other PD in that it truly engages teachers in the process, uses reflection to focus on teacher practices and students' learning, and then follows through on the reflection by taking responsible actions to advance learning. Many experiences of PD give you the information and say, "Now, have a go" and there is no application. For Lesson Study, you are forever changed through the teaching of that particular lesson, as well as those that follow. This is the reason that teachers would benefit the most from engaging in research through Lesson Study. (TLC#11)

5. Conclusions

One of the major things that I carry forward with Lesson Study, as a process of focused research on practice, is the never-ending need for professional learning and that it is a life-long journey. We never know all there is to know about how students learn. It is our responsibility to constantly be reflecting on what is happening in the classroom with our students and work in a generative culture with colleagues to systematically research our instructional practices so we are able to improve math learning for all students. (TLC#12)

Lesson Study has provided opportunities for understanding the LIFT teacher leaders',

mathematicians', and mathematics educators' beliefs and actions of teaching, developing mathematical knowledge and skills, and investigating students' math thinking and reasoning. In this cohort of 30 teacher leaders instructional practices have changed. Data from cohort member's classroom observations and student achievement scores document improvements in LIFT mathematics classrooms over the two-year project. The project continues to focus on Lesson Study as a viable approach for instructional improvement in K-12 classrooms, as well as in the LIFT university courses. Teachers have taken ownership of this school-based process as a useful way to advance their practices in mathematics classrooms through designing, testing, and refining math lessons. The LIFT project has developed and utilized a collaborative lesson study cycle that includes the key elements of the formal Japanese Lesson Study process yet is more succinct and easily implemented within the school day. Several LIFT teacher leaders' schools are choosing this modified design of a collaborative lesson study cycle as one of the models for ongoing school based professional learning. For the Leadership Institute for Teachers, Lesson Study is a resource for university and K-12 teacher leaders to engage in mathematics research, build a collaborative culture for understanding mathematics more deeply, and create robust professional knowledge required for improving teaching to support students' learning.

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The Effects of Paternal Incarceration on the Academic Performance of Primary School Children Aged Six to Twelve Years in the Republic of Ireland

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Abstract

Children of incarcerated parents are considered to be more at risk socially, emotionally, economically and mentally than their counterparts. Despite the growing international interest in the area, there is a dearth of research from an educational perspective, particularly in Ireland. The current research aims to explore how the direct and indirect effects of paternal incarceration can have an impact on a child's academic life and will examine possible moderating factors, with a view to identifying areas in which interventions would be best placed.

1. Introduction

Children separated from their parents, for any reason, are known often to experience considerable emotional, behavioural and developmental problems and are typically thought to be at increased risk of learning difficulties [1]. Absence of a parent through incarceration can prove to be a particularly difficult adjustment for a child to come to terms with for a variety of reasons. For example, parental incarceration often results in disruption to a child's living situation, a change in primary caregiver, financial difficulties and vague (if, indeed, any) explanations given to the child. All of the above disruptions and difficulties potentially experienced by a child may be exacerbated by negative reactions of those around the child, which might manifest themselves through stigma, bullying or the withdrawal of friends from relationships with the child. Children's reactions to any or all of the above have been shown, in turn, to cause changes in behaviour, concentration levels, health, psychosocial development/outcomes and educational attainment. Purvis succinctly sums up existing literature in stating 'research resoundingly confirms that the incarceration of a parent has devastating effects on children' [2]. At present there is no accurate figure of the number of

children currently separated from parents through imprisonment in Ireland and these children remain the 'forgotten victims' of crime [3].

2. Research Rationale:

2.1. Aims/objectives

This study aims:

- to identify and examine the effects and implications of paternal incarceration for a primary school child aged six to twelve years in Ireland,
- to explore how these effects have an impact on a child's educational performance or alter a child's likelihood of success (particularly in the matters of literacy and numeracy), and
- to examine the extent to which moderating factors (e.g. child's gender, quality of father-child relationship prior to imprisonment, level of contact during imprisonment, etc.) play a part in determining the level of disruption experienced by the child.

2.2. Proposed method

The main research method proposed for this study is empirical qualitative research. In order to triangulate findings, there will also be an element of quantitative research, specifically with regard to children's test results (standardized and other).

2.3. Participants

Proposed participants include teachers of children whose fathers are incarcerated, fathers in custodial care, present care-givers, prison officers/chaplains and children of incarcerated fathers.

2.4. Data generation/analysis

The principal method for data generation is open-ended interviews in conjunction with observation. Some standardized tests assessing literacy and numeracy levels will also be referred to.

2.5. Expected outcomes and potential impact

The research is expected to provide an insight into the problems experienced by children of incarcerated fathers in Ireland for educators and other professionals working with these children. This may enable the application of appropriate interventions (that is to say, interventions that do not have detrimental effects on children's academic performance). I also hope that my research highlights the issue for politicians, officials and other relevant parties, both in Ireland and internationally, so that these children may benefit from support not thus far afforded to them. Additionally, creating general awareness of this problem in society may promote a realization that these children are also essentially victims of a crime and as deserving of support as any other victims.

3. Conclusion

Having examined the existing research, I conclude that the proposed study will serve to fill an important void, at least insofar as Irish research is concerned, and will provide a much-needed insight into the effects of paternal incarceration on the academic lives of children in the Republic of Ireland.

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Session 3: Curriculum, Research and Development

Weaving an Interdisciplinary Science Curriculum: Analysis of the Connections across Learning Progressions
(Authors: Sun You, Cesar Delgado)

Case Study: Alternate Model of Program Delivery for Apprenticeship Trades
(Author: Rosemary Vogt)

Scientific Studying and its effects on Mathematics competency
(Authors: Marco Pasteris, Stanca Somesfalean)

Design and construction of a training program for activating the educational values of education at the secondary schools
(Author: Majed Abdullah AL-Hazmi)

Weaving an Interdisciplinary Science Curriculum: Analysis of the Connections across Learning Progressions

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Abstract

Learning progression (LP) research can potentially bring coherence to individual big ideas in science education. However, natural phenomena are associated with the core ideas of a variety of disciplines, so science education research must consider the interdisciplinary connections across LPs. This study asks a question crucial to developing an exemplary interdisciplinary curriculum: how do existing LPs relate to one another across disciplinary boundaries? This study analyzed 12 published LPs for eight big ideas: matter, genetics, energy, carbon cycling, force and motion, celestial motion, biodiversity, and evolution. A content analysis was conducted to establish how these big ideas formed interdisciplinary relationships. A three-dimensional representation of the learning progressions, their levels, and the interconnections among levels was developed. The approach modeled in this study can inform the development of standards and materials for an integrated science curriculum.

1. Introduction

Recently, international test results in the United States provided us with firm implications concerning the education levels of students in the United States in regards to science. Based on the results of recent international assessments (e.g., TIMSS and PISA), in math and science, U.S. students performed well at lower grade levels, but at higher grade level students showed less ability in comparison to their peers in other highly industrialized countries [18]. Current K-12 science education in the United States fails to achieve desired outcomes, in part because science curricula are not organized systematically across multiple years of schooling. Also, emphasizing separate facts with a focus on breadth over depth does not provide students or teachers with engaging opportunities to learn science in a coherent manner [11]. A national report by Schmidt, McKnight, and Raizen [14] found that the curricula and teaching in the U.S. were “a mile wide and an inch deep”. A lack of coherence in curriculum inhibits deep understanding. Learning progressions (LPs) can potentially address the fragmented nature of the US curriculum. LPs are becoming the default way of

conducting research [8] and can serve as guides in developing aligned and cohesive curriculum, instruction, and assessment [12]. In order to transcend the poor performance levels in US science education, we need to establish and expand on systematic and coherent curriculum programs guided by LPs, which will lead to better understanding of core ideas. However, the current LP studies have developed LPs focusing on only one core idea (e.g., matter or energy). While science education is currently discipline-based, with discrete courses such as chemistry, physics, and biology, it is important to recognize that these disciplinary distinctions are artificial. Much of the most interesting and novel work is in fact conducted at the interface of scientific disciplines, and K-12 science education will likewise need to recognize and adapt to the inter- or cross-disciplinary nature of science. Any particular kind of natural phenomena is associated with the core ideas of a variety of disciplines. Each core idea cannot belong to a single discipline in the K-12 science education curriculum, for each big idea might be a prerequisite for a big idea in another area of science. Integrated big ideas without respect to disciplinary boundaries may allow students to construct a sophisticated understanding of the material. These big ideas share some characteristics with the “crosscutting concepts” emphasized by the standards documents [11], but may be less abstract and general. The field of science education research will need to think about how individual LPs focusing on individual core ideas can be woven into a cohesive curriculum for all of science. Further interdisciplinary integration will allow students to recognize how big ideas in the scientific fields are articulated to one another, which will help them to prompt horizontal transfer for learning [15, [19]. In the light of the need for integrated science learning, our study focuses on an objective that is crucial in developing an exemplary interdisciplinary curriculum: how do existing LPs relate to one another across disciplinary boundaries?

2. Methods

We scrutinized various papers focused on developing LPs targeting K-12 and selected eight big ideas. The papers were selected from a special issue on LPs in the *Journal of Research in Science Teaching*, the journal *Science Education*, the *Learning Progressions in Science (LeAPS)* conference, and the Consortium for Policy Research in Education. Papers that dealt with theoretical, policy, or assessment issues of LPs were not included. Neither did we include LPs for scientific practices that did not also explicitly include a progression for a core disciplinary science idea. For matter, four LP papers were selected and examined for characteristics of core ideas with some levels suggested in each LP [1], [3], [5], [16]. In genetics, LP models from two different studies were used [6], [7]. Because LP literature focusing on big ideas other than matter and genetics is rare, only one study was included for each of the remaining topics: energy [9], carbon cycling [10], force and motion [2], celestial motion [13], biodiversity [17], and evolution [4]. In choosing appropriate literature, this study first focused on LP studies that were constructed through systematic empirical research and analyzed their content, to see how these big ideas formed interdisciplinary relationships in a horizontal manner. For example, CPRE [5] describes the structure, properties and transformations of matter, while Mohan, Chen & Anderson [10] suggest a learning progression for carbon cycling. Core ideas such as matter and carbon cycling are both connected with properties and transformation of matter. Genetics also has a close correlation with big ideas like matter, evolution, and diversity. In this study, we attempt to show the integrative relationships of the various levels in the LPs for the eight big ideas.

3. Results

3.1. Principal findings

We next describe our principal findings for the analysis of the LPs for each of the eight core ideas, followed by our analysis of their interconnections.

Matter: CPRE (2011) and Smith and colleagues [5] suggested LP models for matter and atomic-molecular theory, including properties of matter (e.g., density, properties of different states of matter, etc.), transformations (e.g., reshaping, cutting, changes of phase), and conservation during physical transformations (e.g., grinding, melting, freezing). In grades 6-8 (Smith et al.) and grades 7-9 (CPRE level 4), the concept of atoms and chemical change was presented. Grades 10-12 (CPRE level 5) introduced subatomic particles (e.g., electrons, protons and neutrons), electrostatic forces, and concepts of

energy and stability during chemical reactions. Author [3] developed a hypothetical learning progression for the atomic structure and electric forces for 7-12 grade students and Adadan, Trundle, and Irving (2010) investigated the conceptual pathways of grade 11 students for the particulate nature of matter.

Genetics: Duncan, Rogat, and Yarden [6] described the learning of core concepts in modern genetics over grade bands 5-10. The concept of genes and function of cells were presented. In grades 7-8, central role of proteins and cell division were discussed, and in grades 9-10, DNA, nucleotide, chromosomes, and amino acids as components of proteins were involved. Duncan and Tseng [7] suggested design-based research for fostering a genetics curriculum, including protein functions determined by amino acids sequence, how genes code for proteins, and genetic phenomena.

Carbon cycling: Mohan, Chen, and Anderson [10] developed a LP focusing on carbon-transforming processes. They specifically compared and contrasted elementary, middle, and high school students' accounts in terms of four key elements: life, materials, scale, and models. Level 1 is in the stage of visible macroscopic observation, differentiating dead things from living organisms. Level 2 shows the description of "hidden mechanisms" in students' accounts. Students of level 2 can recognize gases as matter; learn about the structure of organs and cells, and about the movement of materials and energy. Level 3 is usually observed in high school students, and includes the description of chemical change. The upper anchor (level 4) contained the concept of matter-energy conservation, the mass conservation principle during chemical changes and substances such as lipids, carbohydrates, and proteins. Even though several materials were described at the atomic-molecular level, students held a limited knowledge of the atomic structure of materials.

Energy: Lee and Liu [9] presented a construct-based assessment approach to measure a LP of energy concept across physical, life, and earth science contexts in middle school curriculum. Their LP model demonstrates the level of knowledge integration of middle school students on energy source, transformation, and conservation items across grade levels.

Force and motion: Alonzo and Steedle [2] developed students' learning progression levels on a force and motion learning progression using a pair of assessments (i.e., ordered multiple-choice (OMC) and open-ended (OE) items). A LP of force and motion targeting middle school students is illustrated as 5 levels. In level 1, students understand force as a push or pull, and level 2 shows the relationship between motion and force. Level 3 includes the relationship between net force and motion along with

the (mistaken) belief that there is a proportional relationship between objects' speed (not acceleration) and net force. Level 4 students begin to understand the more accurate concept that net force induces acceleration proportionally.

Celestial motion: Plummer and Krajcik [13] describe the process of developing a learning progression for apparent (i.e., Earth-based) celestial motion (path of the sun, orbit of the moon, patterns of stars, phases of the moon) through the construction of learning trajectories (smaller-grained components of LPs). They focused on elementary students' development of astronomy concepts in a planetarium. Four inter-related explanatory models form the basis of four separate learning trajectories, in which the levels range from least (level 1) to most sophisticated (level 3 or 4) description of a characteristic.

Biodiversity: Songer, Kelcey, and Gotwals [17] followed an empirically driven, five-step process to develop a LP for 4th-6th graders, focusing on biodiversity (they also focused on scientific practices, not covered here). The learning progression contains 12 focal points in the sub areas of classification, biodiversity, and ecology. This paper begins with 4th grade, then adds four classification ideas in 5th grade. Ecology is introduced in 4th grade (e.g., food chain, energy of organisms), and these concepts are deepened in 6th grade (e.g., the impacts on a food web from changes in the number of one species, factors affecting biodiversity of ecosystems).

Evolution: Catley, Lehrer, and Reiser [4] proposed a prospective learning progression for evolution across K-8 grade bands. K-2 students focus on the basic definition of organisms, their attributes and habitat, and changes over their lifespan. Grade 3-5 students deal with the classification of species by their characteristics, associations of species type and habitat quality, the themes of organismic variation, and the emphasis on the functional change of individual organisms. Grade 6-8 students are expected to understand intraspecies variation, the reason for diversity, the notion of interrelationship, and factors affecting organisms' survival (e.g., stress, changes of environment etc.).

3.1. Analysis

Figure 1 shows the complicated connections across the big ideas. Both M1 (matter level 1) and CC1 (carbon-cycling level 1) have a common component with visual macroscopic change and physical change of materials. M2 shares the conservation principle and the microscopic model in which materials consists of smaller sized parts. Beyond that, the concept about atom (M4) and sub-atomic models (M5) will support future learning as concerns the structures and behaviors of other

molecules such as glucose, DNA, amino acids and proteins (CC4). Mastery of chemical change of matter (M4) is a prerequisite for proceeding toward CC3 and CC4. FM4 (force and motion level 4) is a prerequisite to understanding electrostatic force and Coulombs' Law in M5. Grasping the energy transformation/conservation principle (EF/EC) early on allows students to engage with opportunities for sophisticated learning about phase changes (M2) and properties of gas, depending on temperature or pressure, for sophisticated learning (M4). M1 also has a relationship with EV K-2 (evolution K-2 grade level) in terms of focusing on external features of objects or organisms. Energy-matter conversion in CC4 relies on the concept of energy transformation (EF). To distinguish matter from energy (CC4) in carbon cycling, the atomic-molecular concept (M4) is required. CC3 and G1 have concepts regarding the function and structure of cells in common. Also, the biological molecules (e.g., lipids, carbohydrates, and proteins) represented in CC4 are necessary parts in genetics level 2 (G2). M4 also has a significant effect on understanding structures and other characteristics of the molecules involved in G3 (e.g., amino acids, proteins, DNA) and CC4. As it can be easily seen in Figure 1, diversity, ecology and genetics are closely intertwined with one another as core ideas of biology. It can be said that evolution accounts for the core ideas of biodiversity, genetics, and ecology in an integrated manner. Celestial motion of elementary level is a relatively independent core idea, unrelated to the other big ideas except for force and motion. It is expected that if LPs of more than middle school levels were developed, the outcome of stronger interrelationship with other core ideas would be present. As shown in figure 1, matter overall is closely related to, biology, energy, and carbon cycling, which implies the importance of matter as a core idea.

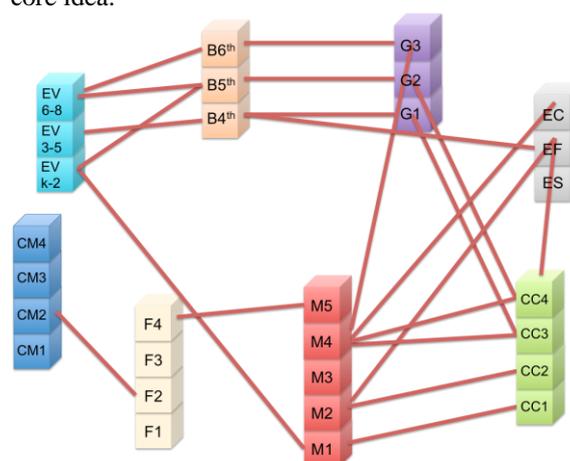


Figure 1. A three-dimensional representation that shows the relationship with big ideas of science in learning progressions (M: matter, CC: carbon-cycling, ES: energy source, EF: energy transformation, EC:

energy conservation, G: genetics, B: biodiversity, EV: evolution, CM: celestial motion, F: force and motion). The numbers represents the levels, grade (e.g., 4th), or grade bands (e.g., K-2).

4. Implications to the teaching and learning of science

LPs help teachers and other educators in making instructional and curricular decisions, for individual big ideas, which will result in greater coherence in teaching and learning of the material [4]. However, the big ideas of science transcend disciplinary boundaries, and thus we need to think about how to connect across disciplines and topics since. Integrated knowledge allows students or teachers to explore the underlying ideas and to appreciate those ideas' interconnections. The interdisciplinary-based approach will offer a large-scale map of a coherently organized science curriculum and aid the process of aligning curriculum and developing assessments within the science curriculum.

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Case Study: Alternate Model of Program Delivery for Apprenticeship Trades

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Abstract

Due to the alleged skill shortage across Canada, Red River College in Winnipeg Manitoba partnered with Apprenticeship Manitoba for the purpose of designing, developing and delivering an alternate model of program delivery for apprenticeship education comprised of distributed learning using hybrid or blended learning methodology. This case study presents the experiences and recommendations of individuals associated with the project. The study is significant as the literature is void of empirical data relating to any model of training delivery for apprenticeship training in Canada or elsewhere.

1. Introduction

In many trades, the demand for training seats has strained the conventional delivery capacity of training providers with respect to meeting the needs of the Manitoba labour market. In 2008, Red River College investigated ways to expand capacity for apprenticeship training, which resulted in recommendations to develop an alternate model of program delivery comprised of distributed learning using hybrid or blended learning methodology. In the fall of 2009, Red River College partnered with Apprenticeship Manitoba to design, develop and implement online training for selected apprenticeship trades. The intention was to provide an alternative to traditional block release training (typically 8-10 weeks) by increasing access to training for a wider demographic. Known as the E-Apprenticeship Alternative Delivery Development Initiative (EADDI), this model provides community-based training and reduces the amount of time apprentices need to leave their community to complete their level training at one of Manitoba's technical colleges.

2. Background

The Conference Board of Canada has identified a skills shortage across Canada that poses a serious threat to the competitiveness of Canadian industries and participation in the knowledge economy [4]. It is important that leaders in higher education understand

the link between international competitiveness, post-secondary education and skilled labor. Industry Canada perceives that the speed of adjustment in market requirements for skilled labour depends on how the post-secondary education system responds to the volume and type of skills required (Government of Canada). Predicting future skill requirements and job markets is challenging due to the tenuous nature of the labour market information used to forecast approaching demographic changes [6].

Given these considerations, the objectives of this case study are to examine an online training delivery model for apprenticeship technical training, specifically EADDI. The case study is significant as the literature is void of empirical data relating to any model of training delivery for apprenticeship training in Canada or elsewhere. Therefore, the data does not link to any other findings or research on apprenticeship training programs. This groundbreaking data is important for future researchers and subsequent inquiry on alternate models of program delivery for apprenticeship education.

2.1. Delivery Objectives

The program delivery model for EADDI was generated based on a distributed cohort model in which apprentices work through online modules individually and meet in a virtual classroom twice a week to discuss their learning. As in traditional face-to-face delivery, the EADDI delivery model requires apprentices to engage in individual and group learning activities. Where appropriate, apprentices engage in small workplace projects to enhance their learning. Apprentices meet face-to-face on two occasions: (1) for an orientation at the beginning of their level training to learn the skills necessary to be online learners, and (2) at the end of their program for a Capstone¹ to refine and demonstrate their practical skills. In some trades, apprentices also write

¹A period of time (typically 1 week in duration) when apprentices demonstrate the hands-on, practical components of their level training in a face-to-face learning environment.

qualifying examinations for their level of training during the Capstone period.

2.2. Benefits and Key Features of EADDI

There are numerous benefits and key features of the EADDI model of program delivery. EADDI eliminates the need for apprentices to go on Employment Insurance while completing level training and reduces employers' loss of staff. It enables communities to retain their people since apprentices frequently fill multiple roles in their community such as coaches for local sports teams and volunteer fire fighters in addition to being spouses and parents. The EADDI model also offers the potential for reduced cost delivery. Discussions are currently underway regarding modularizing the online content to serve as a resource for face-to-face instruction, for remediation as well as for supporting the provincial bridging program for foreign-trained trades professionals.

2.3. Fundamental Conditions for EADDI

There are five fundamental conditions for EADDI to be successful:

- 1) The training delivery model needs to fit realistically within commitments of apprentices' employment, family and community.
- 2) The apprentice remains in the community working full-time with the exception of attending a face-to-face orientation session at the beginning of program delivery and attending the Capstone at program completion.
- 3) The level training must be delivered to the same standards as the traditional block release on-campus model.
- 4) The level must be deliverable within a reasonable time span, preferably in non-peak seasons.

2.4. Development and Delivery

During the initial stages of content development for EADDI, it was anticipated that an alternative level of Electrical would span approximately six months from October to May with a two week break over the winter holidays. It was expected that apprentices would spend approximately 22 weeks online in addition to ten days on campus for a total of 300² hours of instruction. A ten-hour weekly cycle was projected on a four-hour employer release during a work week *plus* six hours to be scheduled in two-hour blocks by the apprentice according to the needs of the curriculum.

Although EADDI was intended to provide distributed learning for apprentices in their own

² Number of hours varies based on trade requirements.

homes, in November 2012, Levels 1 and 2 of the Electrical program rolled out to two cohorts of apprentices employed with Manitoba Hydro in Gillam, Manitoba.³ Both cohorts met at the Radisson Converter Station twice a week to participate in a virtual class environment using Blackboard Collaborate⁴ in addition to completing online independent study. There were seven apprentices in each level; one apprentice in Level 2 participated from an offsite location in western Manitoba. In June 2013, both levels of apprentices successfully completed their level training. The Level I cohort completed the Capstone requirement onsite in Gillam, while the Level 2 cohort completed the Capstone at Red River College in Winnipeg.

3. The Literature Review

Currently researchers are asking probing questions about how to plan, design and implement meaningful learning experiences for online learners. Analysts have frequently focused on the usefulness of case studies for comparative analysis and making meaningful decisions about e-learning practices. A reoccurring theme in the literature indicates that effective practice criteria need to be developed. As technology is changing the service delivery options available to learners, course and program developers are eager to understand how to best meet the needs of online learners. Currently there is no pedagogical model for online learning that developers can apply to all aspects of designing, developing and implementing online learning alternatives. A continuous dialogue about the development process is required [1].

3.1. A Review of Literature from 1996-2008

A report by Means, Toyama, Murphy, Bakia and Jones (2010) provides a comprehensive review of e-learning literature from 1996 – 2008 using over a thousand empirical studies. The meta analysis combining results from multiple experiments found that on average students in online learning environments performed modestly better than those receiving the same instruction in face-to-face environments. The results were attributed to blended conditions where learners received additional learning time and instructional elements not received by students in face-to-face environments. The findings suggested that the “positive effect associated with blended learning should not be

³ Gillam is situated 1,062 kilometers north of Winnipeg between Thompson and Churchill.

⁴ Blackboard Collaborate is an online collaboration platform providing web conferencing, mobile collaboration, instant messaging and voice authoring.

attributed to media” (p. ix), rather the incorporation of mechanisms that promote student interaction, reflection and level of understanding [1].

3.2. Ensuring Success

Folinsbee [7] seeks to answer questions about how to ensure online learning alternatives are effective and successful. The author reviewed key documents from the last eight years noting, “Online instructors need advanced technological skills, more patience than the traditional classroom [instructor] and the ability to develop confidence and comfort with students” (p. 10). The findings emphasize the need for patience and “experimentation to determine what works . . . and training and support for both faculty and students” (p. 18).

3.3. A Gap in the Literature

Research on online learning in Canada has not been a priority; there is almost no research on hybrid courses or design (Contact North). Therefore, collecting data on the development of new models for online delivery deserves attention. Questions abound about what happens when service providers combine traditional face-to-face instruction with self-guided online learning and virtual classroom technology. As educational service providers increasingly compete for student enrollment and students explore online learning options more empirical research is required to inform the development of learning experiences to engage learners.

4. Methodology

This case study focuses on the experiences and recommendations of individuals associated with designing, developing and delivering an alternative model of program delivery for apprenticeship trades using an online hybrid blended approach. Qualitative research methodology was chosen as it lends itself to the use of in-depth participant interviews using open ended questions to elicit as many details as possible from the informant; participants can answer from their own frame of reference, freely expressing their thoughts and feelings [3]. Qualitative research methodology is an appropriate method of inquiry for documenting the experiences and recommendations of individuals associated with designing, developing and delivering an alternate model of program delivery for apprenticeship trades technical training. These individuals include apprentices, apprentice supervisors, instructional designers, instructional design technicians, subject matter experts (SME’s), online instructors, department coordinators and project managers. The collection of the data occurred

through audio recorded one-on-one face-to-face interviews with participants in May and June of 2013 at Red River College in Winnipeg Manitoba and with Levels I and II Electrical apprentices at the Radisson Hydro Generating Station in Gillam Manitoba.

5. Findings

Project managers stressed the importance of institutional communication from senior levels of administration regarding the launch of a new model of program design, development and delivery. The importance of institutional ownership and buy-in from all stakeholders simply cannot be overstated. Designing, developing and delivering an online alternative model of program delivery for apprenticeship training requires consideration regarding the diversity inherent in each trade and at every level within a trade. Consideration must be given the availability of committed and sustained subject matter expert (SME) time. It should also be anticipated that SME’s attitudes will vary in terms of commitment to a project development initiative which in turn results in considerable pressure on the instructional designer who is responsible for adapting apprenticeship curriculum into an online format.

Instructional designers and technicians reported working with subject matter experts to develop course content as the most challenging aspect of program development due to SME (un) availability and tight deadlines. Major weaknesses in the design, development and delivery of the EADDI initiative were identified as inadequate communication between stakeholders, a one-size-fits-all approach with regards to course look and feel and an over-extended commitment to produce an alternate model of program delivery within an unrealistic time frame. Instructional designers and technicians recommend a flexible approach to developing alternative programming, constant re-evaluation of the processes and enhanced communication between stakeholders.

While subject matter experts recognised the potential of the EADDI model to deliver technical training to apprentices for whom attending face-to-face instructional classes at a technical college is a hardship, they generally remained dubious due to the tacit historical nature of learning an apprenticeable trade through a blended online model. Likewise, instructors were skeptical about the concept of online learning and the robustness of the level training curriculum. Instructors reported feeling unprepared for delivering instruction online even though some training had been provided prior to delivery. Unanswered questions and insecurities prevailed concerning how to use the document camera in a

virtual environment and how to give students access to voice and chat.

Program coordinators and chairs reported that releasing instructors from regularly scheduled face-to-face instructional responsibilities for the purpose of creating and delivering programming for EADDI was the primary challenge associated with the project. Also reported was a significant stigma surrounding the EADDI model, as many instructors did not believe that technical training for apprenticeship trades could be delivered online. Apprentices reported previous experience with online learning as beneficial, however, not essential; apprentices with families reported difficulty in finding a quiet space for study. Appreciation for recorded sessions on the *Live* virtual classroom platform and camera use by instructors was favorably noted. Nearly unanimously, apprentices agreed that the EADDI model suited their needs as an apprentice in a remote northern region. Although several of the apprentices stated they would prefer to take their level training down south citing the social benefits of being on a campus in a large city. Weakness of the blended or hybrid delivery model centered on the duration of the level training (22 weeks), as well as inadequately prepared and indifferent attitudes of instructors.

Apprentice supervisors at Manitoba Hydro reported overall satisfaction with the alternate model of program delivery although they would like to see a more condensed delivery model (10-12 weeks). Some glitches were noted attributed to instructor unfamiliarity with using technology and inconsistent use of recorded sessions and web camera. Apprentice marks were noted as being as good as or better than apprentices attending face-to-face program delivery at one of Manitoba's technical colleges. Supervisors unanimously agreed that the best feature of the EADDI model was the opportunity for apprentices to remain in their community where they are entrenched in family responsibilities and various volunteer roles in the community.

6. Recommendations

The research data from this case study informs the following recommendations:

1. Duration: A modification to program duration needs to be negotiated for a Manitoba Hydro cohort (or any other client).
2. More polished program delivery: Action must be taken to ensure all online instructors receive adequate initial training and on-going support. Given that instructors faced challenges due to inexperience with learning technologies during program delivery and these insufficiencies impeded apprentices' learning experiences,

instructor training and ongoing support with regards to program delivery must be a priority.

3. A flexible approach to developing alternate program delivery: Subsequent initiatives must embrace a flexible approach to program design, development and delivery recognizing that a one size fits all approach is not suitable for apprenticeship trades technical training.
4. Subject matter experts: A more proactive approach needs to be adopted in order to avoid the subject matter expert pitfalls experienced in the past.
5. Communication: There must be improved communication between all internal and external stakeholders.

7. Conclusion

This case study has examined the E-Apprenticeship Alternate Delivery Development Initiative (EADDI), a collaborate project between Red River College and Apprenticeship Manitoba. Evidently, there are many individuals with diverse roles directly or indirectly associated with EADDI. It is evident that the project could be improved with the adoption of a communication plan and various amendments for subsequent design, development and delivery. As EADDI moves forward into a second phase of development, lessons learned inform avoiding the previously experienced pitfalls. Finally, the data informs the possibilities for enhancing apprentice access to technical training in the effort to provide more skilled labour which in turn increases the competitiveness of Canadian industries and participation in the knowledge economy.

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Scientific Studying and its Effects on Mathematics Competency

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Abstract

Studies reveal that students often rate Mathematics as the most difficult subject in school. While the reasons and the remedies can be multiple, we place this problematic within the wider scope of efficient studying. We propose that a study methodology based on the scientific self-experiment – namely, Scientific Studying – provides a solution to the massive waste of intellectual resources that derives from the inefficiency of ‘Traditional Studying’. Through a number of experiments we conducted with middle and high school students, we have proven that using Scientific Studying may lead to a fifty percent increase in learning power in just a few months. Crucially, our experiments revealed that the increase in learning power is at its highest when the subject matter is perceived as most difficult to a given learner. Thus, the increase of learning power in Mathematics, for instance, was significantly higher than the average increase in learning power.

1. Introduction

We have proposed in [1] and [2] to substitute the non-scientific ‘traditional’ study methodologies used by students all over the world with Scientific Studying, a scientific methodology consisting in a series of self-designed and self-administered scientific experiments, with the result of considerably improving learning power. We now show how the learning power obtained through the application of Scientific Studying is proportionate to the level of difficulty of the subject matter being studied. Thus, competency in Mathematics, which is often considered a difficult subject, may be significantly improved. Most importantly, the application of Scientific Studying may lead to improved competency levels in any given subject that proves difficult for a given student. We investigate this phenomenon and link it with one of the drawbacks of traditional study methodologies, namely with procrastination, which in turn can be overcome by applying Scientific Studying. Our research into optimal study methodologies has far reaching consequences and the potential to significantly contribute to the improvement of the level of education around the world.

2. The principles of Scientific Studying

Scientific Studying is based on the following assumptions:

- i) There is a significant level of waste in the learning activity of students all over the world. By “waste” we mean that students generally study using a suboptimal methodology, which we have defined ‘Traditional Studying’, and which is often the result of a number of inputs learned unconsciously and applied mechanically since early childhood.
- ii) A scientific method can be successfully used to solve this waste. By “scientific method,” we mean a method that satisfies the requirements of being unbiased, conscious, measured and documented, and communicated.

Table 1 resumes the main differences between Scientific Studying and Traditional Studying.

Table 1. Comparison between Scientific Studying and Traditional Studying

	Traditional Studying	Scientific Studying
Goal	Study (the way we are used to, the way we feel, the way we naturally do, etc.)	Study (using an optimal methodology)
Methodology	Acquired through a number of inputs learned almost unconsciously during several years, since early childhood	Acquired in a relatively short period of time (typically a few months to one year) through a number of scientific experiments conducted by the student himself/herself (with or without the help of an instructor) on methods, parameters, and implements, starting with a methodology that proved optimal for a majority of subjects in previous experiments
Characteristics	<ul style="list-style-type: none"> • Mostly unconscious and unplanned • Mostly unaware of the existence of waste and entropy • No conscious self-observation 	<ul style="list-style-type: none"> • Strictly conscious and planned • Conscious goal of reducing or eliminating waste and entropy • Conscious goal of maximizing the learning power • Conscious self observation
Prerequisites	• None: the student is not formally exposed to “learn how to learn in a scientific context”	• Formal exposure to “learn how to learn in a scientific context”
Separation of planning and execution of work/study	• No: they are randomly mixed together	• Yes: the student plans first and executes later
Measurements and communication of results	• None: there are only individual isolated study methods	• Formal measurements and communication of results, in view of further developing them

Our proposal has essentially been to shift study methodologies from non-scientific to scientific, aiming to reach impressive productivity improvements, which would in turn revolutionize education. Crucially, Scientific Studying is not about a particular methodology in and of itself, but rather about the importance of being open to scientific

experimentation and allowing oneself to scientifically experiment with different methodologies in order to find the winning one. Thus, students perform a series of experiments, using methods, parameters and implements and measure the effect on the learning power before proceeding to new experiments with modified methods, parameters and implements. While these experiments can be continued indefinitely, it is usually the case that one reaches a winning methodology that yields significantly improved results after a few rounds of experiments.

The tool kit of Scientific Studying contains:

i) **Methods:** One example of method is the separation of the time dedicated to study into study activity and recreational activity. Time management is a crucial element in the implementation of Scientific Studying. While the natural tendency is to mix the time dedicated to study and the time dedicated to recreation, this leads to an important loss in productivity. The way to avoid this is to appropriately plan, in writing, for a specific time segment for study and a specific time segment for recreational activity. Such detailed planning can cover the day or simply a few hours.

Moreover, as an added experiment, subdividing time provides better learning power when used in conjunction with alternating the subject matters that are being studied. In the experiments we performed, time segments of fifteen or twenty minutes yielded the best results. Thus, for instance, a student would study Literature for fifteen minutes, followed by History for fifteen minutes, Math for fifteen minutes, then take a fifteen minutes pause, before continuing with another round of study segments. This typically contributes, according to our results, to the efficiency and effectiveness of the study activity. A shorter time frame allotted per subject matter renders the study more focused. This is easily understandable considering that the smaller the time segment, the smaller the time wasted: in a small time segment, even a minimal waste of time will have a relative large ratio of wasted time on allocated time. For instance, five minutes' waste on a two-hour interval (120 minutes) is $5/120=4.2$ or 4.2% of the overall time. However, five minutes of wasted time on a total of twenty minutes is $5/20=0.25$ or 25% of the overall time, thus much larger percentagewise and therefore more visible and easier to detect and control. This is in sharp contrast to Traditional Studying, which typically consists of studying one subject matter for a prolonged period of time.

ii) **Parameters:** The parameters are, for instance, in the case of the subject matter alternation method, the length of the study intervals, as well as the length of the recreational activity.

iii) **Implements:** The implements are, for instance, a music player (studying with or without the music),

markers (underlining or not important concepts, etc.), pens or pencils, and so on.

The study methodology is the sum of the methods, parameters, and implements used at a given time. The optimal methodology, which is in essence the outcome of Scientific Studying, is the combination of several methods, parameters, and implements that yield the maximum learning power to the specific student.

3. Experiments

3.1. Design

We conducted four sets of experiments with middle and high school students over a period of eight months. Participants were given a number of methods, parameters and implements as potential study methodologies and were encouraged to customize and change them at will. Table 2 outlines some of the methodologies we first proposed to the participants.

Table 2. Methods, Parameters, and Implements proposed to participants in the four sets of experiments

Experiments	Methods	Parameters	Implements
First Round	Clear division of study time and recreational time Subject matter alternation	Length of study time and length of recreational time Frequency of subject matter alternation	Paper on which the list of subject matters is written and where the detailed plan is also written (highly visible to the student) Watch (highly visible to the student and close to the study plan)
Second Round	Introduction in the study plan of intervals to review or repeat aloud what was studied in the previous segments	Frequency and length of time segments	Paper on which the list of subject matters is written and where the detailed plan is also written (highly visible to the student) Watch (highly visible to the student and close to the study plan)
Third Round	Listening or not listening to music while studying	Type of music (classical, instrumental, etc.)	Radio or CD player or iPod, etc.
Fourth Round	Underlining or not underlining key concepts	The number of different colors or intensity in the underlining	Pencils, different colored pens, highlighters, markers, etc.
Fifth Round	Writing or not writing key concepts in the books being studied, with or without a hierarchical sequence	The number of the different hierarchical levels	Pencils, pens, etc.

Participants' marks were recorded before the experiments and after each application of a given methodology. We measured the increase in learning power based on two factors: marks and average time dedicated to the study activity, or more specifically:

i) Average marks before the experiments, as compared to average marks after the experiments, calculated both by subject matter and by overall average. The increase or decrease in average mark was calculated through a weighting process taking into consideration the overall mark distribution in the school. For example, a 100% improvement (in terms of marks only) was obtained if the student improved from the lowest score of all the students in the school to the highest. Since all this was subject to a weighting process, the higher the density of marks in the segment representing the absolute increase, the higher the percentage increase as compared to the absolute increase.

ii) Average number of hours dedicated to study before the experiments, as compared to average number of hours dedicated to study after the experiments.

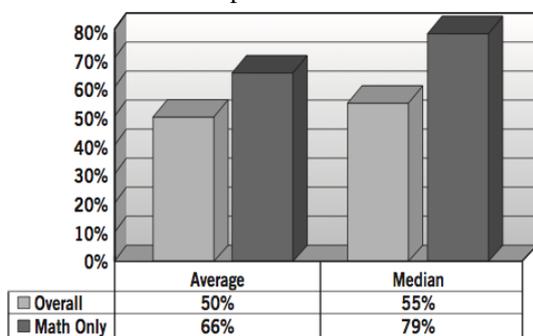
By using both measures i and ii outlined above, we calculated an index that quantifies the percentage increase in learning power, which is directly proportional to i above and inversely proportional to ii above.

3.2. Results and discussion

The results have been strong across the entire spectrum of experiments. We illustrate in Table 3 below the results of the first three sets of experiments, while the full results are detailed in [1].

Fourteen students participated in the first three sets of experiments. Eleven students completed the experiments and three dropped out. All the students who completed the experiments achieved impressive improvements of overall learning power, from a minimum of 23% to a maximum of 79%, with an average of 50% and a median of 55%.

Table 3. Improvements in learning power (recreational time included) for the first three sets of experiments



Taking a closer look at the results in Math, we notice that Math was the subject matter that achieved the highest increase in learning power. For eight of the eleven students the improvement in learning power was larger than the overall improvement, ranging from a minimum of 24% to a maximum of

109%, with an average of 66% and a median of 79%. We detail in Table 4 the general increase in learning power for the students who participated in the first set of experiments and in Table 5 the Math performance, per student.

Table 4. First set of experiments: improvement in learning power in four months (recreational time included).

	Average mark prior to experiment	Average mark after the experiment	Average study time prior to experiment	Average study time after the experiment (including breaks)	Estimate of the improvement in learning power after the experiment
Student 1	8.1	9.4	5.25	4.7	35%
Student 2	7.8	9.0	6.0	4.7	56%
Student 3	7.4	8.4	4.25	3.8	49%
Student 4	7.8	9.0	5.0	4.7	40%
Student 5	8.7	9.2	5.25	4.5	23%
Student 6	7.4	8.4	6.0	4.7	60%
Student 7	7.6	8.4	6.0	4.3	57%
Student 8	7.1	8.5	4.5	4.5	55%
Overall Average	7.7	8.8	5.3	4.5	47%
Overall Median					52%
Math Average	6.8	8.5			71%
Math Median					79%

These results are interesting in view of the fact that Math is perceived as one of the most difficult subjects in school. A 2005 US study on 10 to 13 year-olds shows that 44% of girls and 31% of boys rate Mathematics as the most difficult subject in school [3]. If this is the case, how can we explain the fact that the increase in learning power obtained through Scientific Studying is at its highest when the subject matter is perceived as most difficult?

Table 5. First set of experiments: improvement in learning power in four months, Math only¹.

	Average math mark prior to the experiment	Average math mark after the experiment	Average overall study time prior to experiment	Average overall study time after the experiment (including breaks)	Estimate of the improvement in learning power after the experiment
Student 1	7.0	9.0	5.25	4.7	82%
Student 2	6.5	8.0	6.0	4.7	79%
Student 3	5.5	8.0	4.25	3.8	79%
Student 4	7.0	9.0	5.0	4.7	78%
Student 5	8.5	9.0	5.25	4.5	26%
Student 6	5.5	8.0	6.0	4.7	90%
Student 7	6.5	9.0	6.0	4.3	109%
Student 8	7.5	8.0	4.5	4.5	24%
Overall Average	6.8	8.5	5.3	4.5	71%
Overall Median					79%

We believe the answer has to do, in part, with a common feature of ‘Traditional Studying’ and which is significantly reduced or eliminated in Scientific Studying, namely procrastination. Students put off as much as possible tasks they dislike, such as studying a dreaded subject matter. When they do decide to tackle the task and commence studying, the activity is often inefficient (given lack of interest, lack of attention, etc.). This leads to a vicious circle of poor results and disliking that particular subject matter. Scientific Studying provides a solution to this, firstly because it implies a conscious planning – on the part of the student – of the exact moment when a given subject matter will be studied. Furthermore, the student also determines the exact time interval allotted to that subject before alternating the study activity to another (potentially more agreeable) subject or to a break. Viewed as an activity that has a limited time span with a definite end point, and that is only a small part of a longer study routine, the task of studying a disliked subject matter – such as Math – becomes more approachable and potentially also more agreeable. In other words, dividing a big task into smaller targets makes the task achievable and rewarding. The results of our experiments confirm this. Students obtained the highest increase in learning power in the subject they most disliked. That is in most cases Math, but it need not be. For instance, the student who had the smallest increase in Math learning power as compared to the overall increase in learning power was a student that was

¹ In this institution marks range from 1 to 10.

already quite proficient in Math, but had difficulties in language studies. In this case, the highest increase in learning power was indeed obtained in language studies, i.e. the most difficult subject as perceived by this particular student.

It is also interesting to notice that while all eleven students applied the “subject matter alternation” as one of the key methods, the top three increases in Math performance have been achieved by students who had a subject matter alternation lower than 20 minutes (10 or 15 minutes approximately), while most of the other students had 20 minutes subject matter alternation. This further proves the correlation between subject matter alternation and an increase in Math performance.

4. Conclusion

The results of our experiments indicate that limitations in the study of Math and the associated level of proficiency may be deriving from limitations in the study methodology employed by students, rather than from an intrinsic ability of our brain to process mathematical concepts. This can be addressed, at least in part, by applying a study methodology based on the scientific experiment. We believe that Scientific Studying may significantly improve the learning power of our students and significantly help them to be more proficient in Math. More and broader experiments on methods, parameters and implements will provide more insight on how to optimize learning power, especially with respect to Math.

Our findings have far reaching consequences as they are compatible with theories on the modifiability of intelligence such as [4], and confirm studies revealing that brain activity (such as a decision-making task) increases more rapidly following a time of intense physical activity [5].

The innovative methodology we have proposed in [1], [2] has the potential to significantly contribute to the improvement of Math competency level and more generally, of the level of education around the world, through a series of self-designed and self-administered scientific experiments, thus implying little or no investment by the institutions, but potentially yielding enormous beneficial results for our society.

5. References

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Design and Construction of a Training Program for Activating the Educational Values of Education at the Secondary Schools

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Abstract

Education is the most current resource for the stability and development of the nations and communities around the world, with all their mixture of beliefs, visions and perceptions. However, this education should consist of human's values and ethics; otherwise it may cause the conflict and differences between the people and nations.

Nevertheless, there is no doubt that there are various of common human's value and attitudes between people, such as; love, mercy, forgiveness, sympathetic, caring and partnership. However, this study aims to motivate these values among the students in the secondary schools as this stage is sensitive and unstable stage in their lives.

This study believes that the absence of these educational-human values is the main cause for what we called "intellectual terrorism" which nowadays spread among the young people. Moreover, the lack of intellectual awareness and educational-human values create the conflict and squabble between different trends and ideologies.

1. Research objectives

The main objective is to motivate the educational-human value among the students in the secondary level; this objective can be achieved through the following objectives;

- To frame a set of educational-human values in the secondary level approved from the education experts.
- To design and build training program to motivate the educational-human values in the secondary level.
- To prove that the education together with the educational-human values is more effective than the education without these values.

2. Proposed methodology

1. This study suggests practicing the "expert procedure"; by laying a proposal for educational-human values then formulate a network of educational values from the experts, after this; reformulate the new values after deleting all the replicated values. This methodology called "expert procedure" or "Descartes".
2. After the formulation of the values by the experts, this study aims to build and design a training program to motivate those values

among the students in the secondary level. Here the study aims to use the "experiment" procedure by choosing two groups of students in the secondary level between the ages of 16-19. The "experimental group" and the "control group".

3. Findings and recommendations

The hypothesis suggest by this study as follow;

- There are range of different values that all the experts are agreed with in order to motivate them among the students in the secondary level, such as; the partnership, forgiveness and tolerance, the passion for learning, and respect the others.
- The motivation of the educational-human values helps to achieve the objectives desired from the secondary level, which in turn leads to find the appropriate education that advance the stability, happiness and development.
- There are statistically significant differences between the group of students who have attained to the training program, and who have not attained the program.

Session 4: Ubiquitous Learning

Guide Students to Discover and Learn through Movies and TV Dramas
(Authors: Bin Li, Wenling Cao)

E-Learning: The Role of Student Proactivity and Technology Utilization
(Author: Shakil Arshad)

Addressing Mixed Levels in Courses Using Information Technology
(Author: Norman Spatz)

Facilitating Globally Networked Courses with Newsactivist.com: Student Blogs, Social Networks, and Collaborative Pedagogy
(Author: Gabriel Flacks)

Guide Students to Discover and Learn through Movies and TV Dramas

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Abstract

The young generation of learners are found more drawn to visual stimuli than books in print and prefer instant accesses to information. There are also concerns that university students nowadays have problems in applying knowledge acquired in classrooms in life situations. On the other hand, students complain that theoretical concepts and abstract terminology have turned applicability of scientific disciplines opaque because they fail to see its relevance to everyday life. Linguistics, the scientific study of human language, is an example in being perceived as a difficult subject that lacks fun and application despite its direct relation to human and society. We proposed an approach that brings students' new learning habit into the teacher's advantage, through guided watching of TV and movie clips.

TV and movies are mirrors of human society and repertoire of cultural and linguistic issues. They contain rich resources that can be turned into effective educational tools. Our approach promotes an enjoyable learning process that encompasses observation-query-discovery-solution. Teachers will first introduce related topics and play selected multimedia materials. Guided by questions, students will learn to identify, describe, and explain related issues in selected multimedia resources. For instance, when teaching topics on social and regional dialects, the teacher could give students pre-lesson questions on major variables of language variations. Students then watch clips from the movie <My Fair Lady> containing the episode where Professor Higgins showed off his magic power by correctly identifying where Eliza, a flower girl, was from with her pronunciation of several words only. When students could point out the major factors in language variation, the teacher would introduce definitions of related linguistic concepts and then give them a new task: to figure out a method to help Eliza hide her identity. Then, students could continue to watch another clip of the movie on how Professor Higgins tried to train Eliza to sound like a lady. Post-watching activities could include discussion on the scientific validity of the presentation and explanations provided in the movie, or how they would propose to direct a similar play.

Our teaching practice under this approach has proved popular in general education courses and with linguistics-majors. They found learning more enjoyable and that linguistics terminology more meaningful when they discover knowledge themselves while discussing seemingly-unrelated stories. We believe that this inductive approach helps students develop sensitivity to language phenomenon and enhance their analytical and problem-solving skills. Moreover, motivated by curiosity in the subject matter, students may eventually return to books. A balance is thus restored between the new habit of learning and the traditional way of seeking answers from books. Last, our approach has wide application in teaching other scientific disciplines. For example, teachers could use episodes from popular TV comedy shows like <The Big Bang Theory> in teaching Physics, <Sherlock > for Criminology, and <Lie to me> for Psychology.

E-Learning: The Role of Student Proactivity and Technology Utilization

New Pathways in E-Learning: The Role of Student Proactivity and Technology Utilization

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Abstract

This has been observed that within the past few years, colleges and universities have introduced and incorporated a number of e-learning technologies to increase flexibility in course offerings and to enhance student-learning experiences. However, little systematic research has been conducted to assess the value of e-learning tools to the students. We propose and test an e-learning model that incorporates proactive student characteristics, the utilization of e-learning tools and educational outcomes within an Internet learning environment. While previous research indicates that e-learning technology can support higher-order thinking by engaging students in authentic, complex tasks, our e-learning model seeks to understand the factors and processes essential to student education and development (i.e., achieving the multiple learning goals of exploration, communication, collaboration, and assessment). We incorporate and examine factors, including student proactivity and the utilization of e-learning tools that may influence a student's ability to achieve his or her learning goals and objectives. A total of 1043 students comprised of graduate and undergraduate students participated in the study. All participants were enrolled in an e-learning environment in which no face-to-face instruction occurred. Results revealed that the interaction of student proactivity factored into the students' utilization of e-learning tools and programs. The increased utilization of e-learning tools subsequently influenced e-learning goal attainment and student outcomes. This research is one of the first empirical studies of e-learning innovations within a university setting and practical implications as well as directions for future research are discussed.

1. Introduction

This has been seen in the last few years, educators involved in the many forms of distance education are exploring the potential of e-learning instruction as an extension or even a replacement to their current educational delivery systems. As many universities are discovering, e-learning classrooms are the new frontier. And yes, the challenges of building and maintaining e-learning classrooms while adjusting to the needs of diverse learners across space, time zones, languages, and cultures seem insurmountable at times. This research study examines a new model of e-learning that can be employed to assist and guide schools through the development of quality e-learning classrooms.

Given the changing workplace environment and the requirement for continual employee learning, many working adults are searching for universities that offer their courses utilizing e-learning technology and programs [4,6]. However, the rapid growth in e-learning is occurring without research into the effective design of Internet-based courses. The authors have designed their e-learning model as the initial research methodology into determining the various factors that influence student outcomes and e-learning goal attainment (see Figure 1). Our study examines the role that student proactivity has on the utilization of e-learning tools and programs. These tools and programs may impact a student's ability to achieve his or her learning goals and objectives. To test our proposed model, we gathered both institutional and program assessment data over a two-year period.

2. Defining E-learning: The immediate opportunities and challenges

In a recent study by the International Data Corporation (IDC), the number of college students enrolled in distance learning courses will triple by 2002 (reaching 2.2 million or 15 percent of all

higher education students). Additionally, according to IDC, the proportion of four-year colleges offering some form of distance learning or e-learning program will rise from 62 percent to 84 percent.

The term e-learning involves using the Internet as a communications medium where the instructor and students are separated by physical distance (Cooper, 1999). E-learning expands the learning opportunities of students who are time limited, live in remote communities, and/or have work or family

commitments or other barriers that prevent them from attending a traditional classroom learning environment. Common e-learning tools include discussion boards, email, chat rooms, video streaming, document transfer, and other technologies to facilitate the educational process.

In order for students to take full advantage of many of the e-learning innovations and technologies, several factors are essential in facilitating student



Figure 1. Proposed model relationships

education and development. Our model investigates the role that student proactivity (including active class participation, internal and external class communications, and the degree of performance feedback) has on the utilization of e-learning tools and programs (e.g., course management software programs). All of these factors contribute to a student's e-learning goal attainment and outcomes (at both the personal and work level). The following is a discussion of many of these areas highlighted in our model.

3. Student e-learning perspectives

E-learners, just like most adult learners, possess certain common proactive characteristics, which tend to differ from traditional age college students [12]. The ability to set goals and then to prioritize the various goals is one of the significant characteristics of adult learners. Adult learners are more likely to organize diverse time demands generated by work and family requirements. Given the various demands on an adult's time, there is a greater tendency to take their education more seriously [12]. Other common characteristics of adult learners is that they possess good time management skills, adopt easily to new learning environments, and can work with minimal outside feedback and reminders [5].

Another characteristic of an adult learner is that they are more independent than the traditional learner. They possess the ability to work with minimal direction and will rely heavily on their past experiences when confronted with new learning situations [5]. Adult learners find it easier

to relate and transform theory into practical applications outside of the classroom [12]. Furthermore, adult learners prefer to and appreciate experiential learning situations [12]. Ultimately, adult learners will tend to relate to new situations within the framework of their past experiences.

Employing these adult student-learning perspectives as a foundation, this research study incorporated various student proactivity characteristics into the online survey. For courses that did not require the use of electronic communication, students were asked to indicate how likely they are to be an active participant in discussions about course material. Given the fact that adult learners incorporate their work within their learning framework, the questionnaire also examined their willingness to communicate with content experts outside of school as well as with student peers.

4. The relationship between the utilization of e-learning tools and programs and student education and development

The goal of implementing an e-learning program is to assist and facilitate the educational development of the student. Use of current e-learning tools and programs by the instructor and students must be effectively integrated within the course. Although the integration of technology into the classroom has been a slow process, the development of new Course Management Software (CMS) programs have begun to change the instructional methodology in higher education.

Table 1. Benefits of course management software (CMS) technology

CMS Component	Benefit	E-learning Utilization	Example
Course Content Area	<ul style="list-style-type: none"> • Just-In-Time availability of course material • Central material depository • Student access to material 	<ul style="list-style-type: none"> • Students use web browser to access material. • Office productivity software 	<ul style="list-style-type: none"> • Digital Lecture • PowerPoint lecture material • Multimedia material <ul style="list-style-type: none"> ○ Video clips ○ Web sites
Discussion Rooms (electronic bulletin boards)	<ul style="list-style-type: none"> • Asynchronous communication <ul style="list-style-type: none"> ○ peer to peer ○ student to teacher • Increases course discussion • Student participation 	<ul style="list-style-type: none"> • Student use web browser • Word processor usage • Feedback on discussions • Email 	<ul style="list-style-type: none"> • Chapter relation discussions • Ask the experts Outside experts answer student questions • Group-related functions
Chatrooms	<ul style="list-style-type: none"> • Synchronous communication 	<ul style="list-style-type: none"> • Student use web browsers • ICQ 	<ul style="list-style-type: none"> • Instructor Office hours • Virtual Student Union
Assignment Drop Box and Examinations	<ul style="list-style-type: none"> • Students hand in their assignment electronically • Flexibility 	<ul style="list-style-type: none"> • Use of Office productivity software • Student use web browser • File Transfer Programs 	<ul style="list-style-type: none"> • Group collaboration
Online Grade book	<ul style="list-style-type: none"> • Students are able to see their grades whenever they desire • Feedback 	<ul style="list-style-type: none"> • Student use web browser • Improved feedback on student progress 	
Progress feedback	<ul style="list-style-type: none"> • Students can track where they have been • Track work completed 	<ul style="list-style-type: none"> • Student use web browser • Improved feedback on student progress 	<ul style="list-style-type: none"> • Assignments, papers emailed directly back to students with ideas and comments

The use of CMS technology and innovations in learning methodologies can assist many students to achieve and attain multiple course learning goals and objectives. From the students' perspectives, here are just a few of the comments that have been gathered in an e-learning program [7].

The quality of contact with students in the 'cyber-classroom' is far superior to the standard classroom. Each student has the opportunity to correspond when he or she is ready; this creates an open, non-restrictive atmosphere.

The contact in the on-line course room is more productive and thought provoking. One has the time to contemplate answers, which opens up further discussion. Everyone is truly given the opportunity to answer. There are no constraints on time as would be in a classroom setting. The atmosphere is one of mutual respect.

The comments are usually quite well thought out and in themselves, stimulate additional discussion. It's interesting to hear comments from other regions of the country and how they compare to the comments I might have. The classes lend themselves very well to diversity, which is an asset in itself.

5. Method

5.1. Participants

The 1043 participants of this study were undergraduate and graduate students enrolled in an on-line program at a private Midwestern University. Data was gathered from spring of 2000 through August 2001. Of the 1043 participants, 26% were graduate students, 70% were undergraduate students and 4% did not indicate their major. The graduate students were enrolled in a Masters of Business Administration or a Masters of Science in Health Service Administration degree program. Of the undergraduate students, 85% were enrolled in a Health Art degree completion program, 7% were nursing students, and 8% were business students.

5.2. Questionnaire and measures

The instrument used in this study was based on the evaluation questions from the Flashlight Program (assessment of the effectiveness of the University's On-line Program). The final version of the questionnaire was converted into a web-based form for use by the students from their home computer. During the last three weeks of a course, students completed the assessment questionnaire.

Although web-based surveying may require sophisticated programming expertise (over the traditional mail format which are paper and pencil based), the software used to develop the questionnaire can be programmed automatically to collect summaries of the data that can be readily tabulated and analyzed.

Researchers who have compared on-line and traditional mail respondents have concluded that there are no significant responses biases between these two methods on demographic and/or attitudinal or behavioral data [2, 11, 14]

In terms of our measures, we examined multiple factors associated with our e-learning model including student proactivity (i.e., a student's willingness to participate and communicate with the instructor, other students, and content experts outside the university), Utilization of e-learning tools and programs (i.e., a student's use of course management tools including interacting with other people using real time electronic communication and crafting or revising a discussion response before producing and posting the final response and student e-learning outcomes (i.e., assessment of various student educational goals and objectives). All items that comprise these measures can be found in Table 2.

Table 2. Results of confirmatory factor analysis (measurement model)

Items	Student Proactivity	Utilization of E-Learning Tools and Programs	Student E-Learning Outcomes
	Lambdas		
Be an active participant in discussion about the course material	1.00		
Communicate with content experts outside your college or university	0.77		
Receive comments from the instructor on assignments quickly	1.11		
Communicate with fellow students regarding course subject matter	1.09		
Ability to check on how well you are performing in the class	1.06		
Interacting with other people using real time electronic communication like a chat session		1.00	
Reviewing additional reading and/or conducting additional research related to this course		0.80	
Revising one or more drafts of an assignments before producing the final product		0.86	
Crafting or revising a discussion response before producing and posting the final response		0.80	
The technology used in this course was appropriate for performing the required tasks			1.00
I would recommend that others take a course that is delivered via this on-line course technology			1.26
I learned as much with this delivery system as in a traditional classroom			1.38
My computer skills have increased as the result of this on-line course			0.86
I would take another on-line course offered by this university			0.85
My experience from this course can be directly transferred to my work			0.91

$\chi^2 (87) = 470.59$; Goodness Of Fit Index (GFI) = .94; Comparative Fit Index (CFI) = .91; Tucker-Lewis Index (TLI) = .90

6. Statistical Analysis

The data were analyzed using the two-step approach for measurement analysis and structural equation modeling, as recommended by Anderson and Gerbing [1]. Their approach separates the analysis of a measurement model representing the relationships between the individual indicators and latent variables from the analysis of the structural paths between the latent concepts.

In order to determine the structural relationships proposed in our model, a series of models were evaluated by comparing the change in chi-square associated with the restriction of certain paths to zero [3]. Figure 2 shows the first model (Model A) which contains paths from student proactivity to utilization of e-learning tools and programs and from utilization of e-learning tools and programs to student e-learning outcomes. From this saturated model, three nested models were evaluated: Model B, which restricted the path from student proactivity to utilization of e-learning tools and programs; Model C, which restricted the path from utilization of e-learning tools and programs to student e-learning outcomes; and finally, Model D, which restricted the path from student proactivity to student e-learning outcomes. Significant changes in the chi-square of these models from Model A indicate support for the reinstatement of the restricted path.

After completing these model analyses, the significance of the individual paths in the best-

fitting model was assessed to demonstrate which structural paths showed which specific paths accounted for the significant change in chi-square and to determine if the change was positive or negative. Lisrel VIII was utilized to compare the fit of all nested models to determine if the association between student proactivity and student e-learning outcomes is mediated by utilization of e-learning tools and programs [8].

7. Results

7.1. Descriptive Statistics

The means, standard deviations, zero-order correlations, and reliabilities for our constructs are reported in Table 3. The reliabilities of the measures used were over the .70 minimum established by Nunnally (1978).

7.2. Test of the E-Learning Model

Before analyzing the e-learning model and the individual relationships, an analysis of the measurement model (overall confirmatory factor analyses was conducted, as recommended by Anderson and Gerbing [1]. Although the chi-square score for this model was significant, ($\chi^2(87), N = 1043) = 470.59, p < .001$), two incremental fit indexes, the comparative

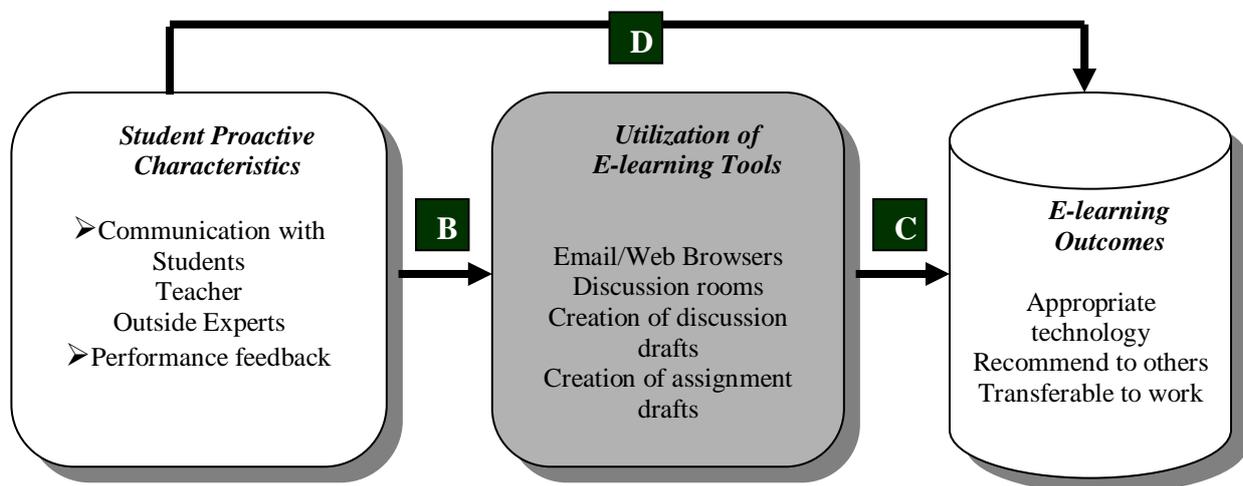


Figure 2. Proposed model relationships and analyses (Model A)

Note: Theoretical relationships between student proactivity, utilization of e-learning tools, and e-learning outcomes and the nested models utilized to assess the significance of those relationships. The path labeled B represents the paths restricted to zero in Model B; the path labeled C represents the path restricted to zero in Model C; and the path labeled D represents the paths restricted to zero in model D. For each of the nested models, if restriction of the paths to zero causes a significant difference in chi-square, then support is shown for reinstating those path(s) in the full model.

Table 3. Descriptive statistics, correlations, and internal consistency reliabilities

Variable	Mean	SD	1	2	3
1. Student Proactivity	3.95	0.86	(.84)		
2. Utilization of e-learning tools and programs	2.89	0.56	.41**	(.83)	
3. Student e-learning outcomes	3.98	0.85	.17**	.40**	(.85)

**N = 1043; Internal consistency reliabilities (Cronbach's Alpha) are provided along the diagonal, in parentheses.
p<.001

fit index (CFI) and the Tucker-Lewis index (TLI) were .91 and .90, respectively. The CFI index is independent of the size of the sample and degrees of freedom [10] Bentler and Bonett recommended that a value of .90 or higher on the CFI and TLI indicates an adequate fit of model to data [3].

Nested model comparisons were then conducted to determine if the relationship between student proactivity and student e-learning outcomes is mediated by utilization of e-learning tools and programs. The results of the nested models analysis are reported in Table 4. Model A in Table 4 is the model in Figure 2 (includes all of the mediating and direct effects). As shown in the first row of Table 4, this saturated model had a χ^2 of 470.59, with 87 degrees of freedom (GFI=.94; CFI=.91; TLI=.90). Model B is almost identical to Model A, except that the effect of student proactivity to utilization of e-learning tools and programs was omitted. As shown in Table 4, the chi-square difference between these models was 79.07, which was significant ($p<.001$) at 1 degree of freedom, indicating that the effect of student proactivity on utilization of e-learning tools and programs made an important contribution to the overall fit of the model and should not be omitted.

Model C is almost identical to Model A except the effect of utilization of e-learning tools and programs to student e-learning outcomes was omitted. The chi-square difference between Model C and Model A was 31.92, which was significant ($p<.001$) at 1 degree of freedom, indicating that the effect of utilization of e-learning tools and programs to student e-learning outcomes should not be deleted from the model. Finally, Model D is the same as Model A, except that the effect of student proactivity to student e-learning outcomes was omitted. This model was used to determine whether the relationships between student proactivity and student e-learning outcomes were fully or partially mediated by utilization of e-learning tools and programs. The chi-square difference between Model D and Model A was 2.30, and is not significant at 1 degree of freedom. Therefore, student proactivity is fully mediated by

utilization of e-learning tools and programs in determining student e-learning outcomes.

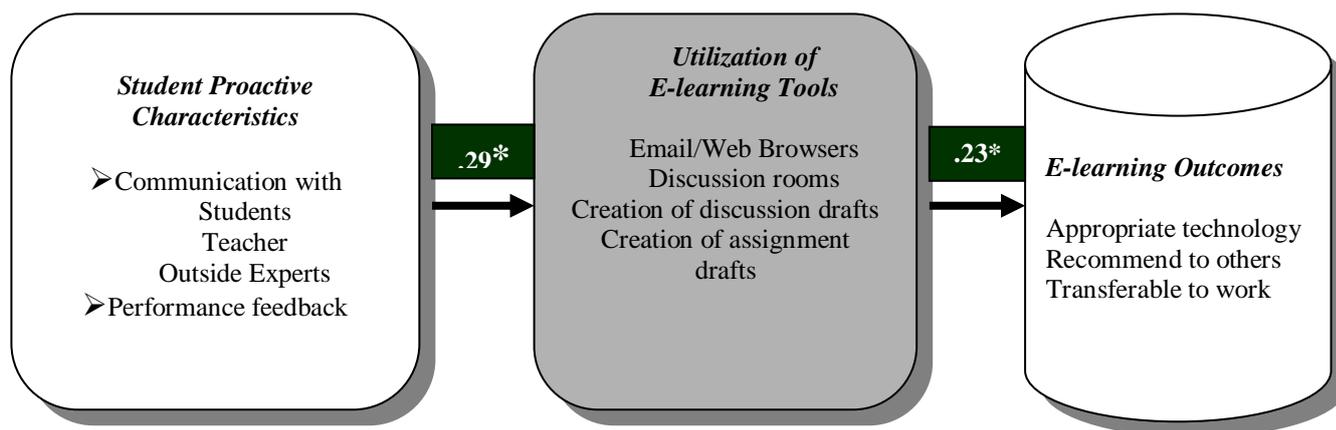
8. Significance of Individual Paths

The model comparisons discussed above were conducted to test the aggregate, not the individual relationships. Figure 3 displays the standardized LISREL estimates for the relationships in the final model examined in Table 4 (Model D). Student proactivity had a significant impact on utilization of e-learning tools and programs ($\beta = .29$; $p<.001$). Additionally, the relationship between utilization of e-learning tools and programs and e-learning outcomes was also significant ($\beta = .23$; $p<.001$).

Table 4. Model analysis and comparisons

<u>Model</u>	<u>Interpretation</u>	Goodness of Fit					Chi-Square Difference ^a				
		χ^2	df	<u>GFI</u>	<u>CFI</u>	<u>TLI</u>	χ^2	df	<u>ΔGFI</u>	<u>ΔCFI</u>	<u>ΔTLI</u>
A	Full Model (i.e., mediating and direct effects)	470.59**	87	.94	.91	.90	—	—	—	—	—
B	Full Model without Student Proactivity → utilization of e-learning tools and programs	549.66**	88	.92	.89	.87	79.07**	1	.02	.02	.03
C	Full Model without utilization of e-learning tools and programs → student e-learning outcomes	502.51**	88	.93	.90	.89	31.92**	1	.01	.01	.01
D	Full Model without Student Proactivity → student e-learning outcomes	472.89**	88	.94	.91	.90	2.30	1	.00	.00	.00
	Measurement Model	470.59**	87	.94	.91	.90	—	—	—	—	—

^aDifference scores were calculated from a chi-square of 470.59 with 87 df.
Goodness of Fit Index (GFI); Comparative Fit Index (CFI); Tucker-Lewis Index (TLI); **p<.001



**Figure 3. Final model relationships and analyses (MODEL D)
N=1043. Standardized Lisrel Estimates. **p<.001**

9. Discussion

The results uncovered in this research represent one of the first empirical investigations into factors and characteristics that influence e-learning outcomes. As a first and foundational step to increasing our understanding of e-learning programs, this study examined students' proactive characteristics and their influence on learning goals and objectives as mediated by the use of electronic learning tools and programs. The results of our study yield information that may be useful in guiding future research as they address key factors essential to the adoption and effective integration of e-learning strategies, initiatives, and programs for universities.

As seen in our results, the utilization of e-learning tools and technologies had a significant impact on learning goals and objectives. In addition to statistical data, the importance and value of using e-learning tools was also reflected in the open-ended questions on the assessment survey. One major issue mentioned by the students about e-learning was the time convenience of the courses. Students have the ability to schedule class time according to their schedule, even if they have to travel for extended periods of time for work-related assignments. Second, the degree of interaction and communication between classmates and others was unexpected, with many students commenting on the depth of the on-line discussions and debates that occurred throughout the course period. Finally, the students appreciated the customer support they received not only from a technical aspect but also from the university as a whole.

Moreover, the students' comments included more specific and interesting thoughts that are related to e-learning tool utilization, the quality of online learning they received, and the learning outcomes of their online classes. From the students' perspectives, here are just a few of the

comments that were gathered in the on-line program.

I feel like I can express myself more on the Internet than in a regular classroom. Maybe talking in front of everyone is more intimidating than talking of the Internet. You can get a lot of good feedback from your fellow students as well as your instructor. All of the information is very educational and helps you to expand your knowledge on the subject.

I particularly like the discussion portion of the classroom or on-line setting, as it is a very meaningful part of how I learn. The on-line forum actually has allowed me to participate in discussions all week versus one night a week.

Although I initially felt self conscious about posting my discussion, I had time to think about it ahead of time and could take my time in writing my response.

The rapid feedback from professor and the interaction with peers' homework assignment sparked class discussion.

I like the interaction with students all over the country. The diversity of student backgrounds made for a more interesting learning environment.

The online class allowed me to take as much time as I want to read and think about subject material including classmate discussion remarks. Being able to e-mail my professor or anyone in my class any time I like was a great advantage.

I wish people would stop trying to compare this forum of learning with that of an onsite classroom. I have by far had more interaction and more discussion online than I ever had in a conventional classroom.

Also included in the assessment questionnaire were two questions asking the students to identify barriers to their learning. The most common complaint was the slow or narrow bandwidth

available to the students in their homes. Secondly, the students felt a social disconnection from their classmates and instructors. The need for face-to-face communication was desired but most were willing to forgo the social interaction in order to accomplish their learning goals. The final major barrier was service outages at various times, including being disconnected from their Internet Service Provider (ISP) and when the university's servers were off-line.

Further work should seek to understand the needs and preferences of graduate and undergraduate management students with respect to e-learning technologies and other course attributes (beyond student proactivity). Although outside the scope and purpose of our study, it is our hope that future research examines effective and alternative approaches for delivering flexible format business courses with "right" mix of online technologies. One econometric procedure, known as discrete choice analysis (DCA), may be used to model students' course selection process with varying levels of e-learning technologies.

10. Conclusion

By incorporating e-learning innovations and technologies, students have other learning avenues and alternatives that can assist them in meeting the changing demands of the marketplace where complex problems and uncertainty are ever present. Just as organizations must find creative ways to sustain their competitive edge through the introduction of new technologies and services, universities and educators should take proactive steps toward meeting the needs of their students. Introducing e-learning tools and resources may be one way that educators can assist students in achieving the multiple learning goals of exploration, communication, and collaboration beyond the framework and boundaries of the traditional classroom.

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Addressing Mixed Levels in Courses Using Information Technology

You Don't Always Get What You Want - Sometimes You Get What You Need

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Abstract

For the last two years, I have been working on a research project funded by the Entente Canada-Quebec which has elicited both positive and negative feelings and comments from students, but few reactions from the college teaching community. This article is an invitation to teachers and pedagogical counsellors to become aware of certain aspects of synchronous and asynchronous communication between classes that I have been dealing with. It is also an invitation to teachers to reach out to their colleagues to work together to share their pedagogical experiences as information technology becomes an increasingly important part of the learning experience. Teamwork between teachers and with technical staff and school administrators can help the individual teacher understand and ultimately benefit from new pedagogical paradigms that technology has engendered through mutual aid and analysis.

1. Introduction

For several years now there has been an ESP (English for specific purposes) course offered as part of the program for administration students in the Administration specialization of 'Gestion de commerces.' At Cégep du Vieux Montréal (CVM), this course is identified as 604-410-VM English in Business. The course reviews many of the concepts acquired in French in the course *Communication en affaires* but gives students experience in transferring their skills to their second language.

During the course's development in 2003 at CVM, a major problem was identified by members of the *Département de Langues* which was that there weren't enough students in this specialization to create more than one group. This group would therefore contain students whose language levels varied from level 101 to 103, a range of competence from beginner to bilingual. No other English course in *Vieux-Montreal* is as diverse in terms of competence levels, and over the years, no teacher in the department has completely overcome the difficulties that such a mix entails.

Solutions to deal with this diversity have been varied. They have included different grading rubrics for the same assignment, dividing the class into different competence groups and essentially teaching two or three separate courses as well as creating mixed-skill teams, assigning more advanced students a teaching task. The course remains one of the least desirable in the department, and teacher reaction to being assigned the course has varied from an outright refusal to acceptance of the structure including the limitations it represents for students at all levels.

While on Profweb's Personal Space,[1] I noticed a blog for the business ESP course offered at *Cégep de Granby-Haute-Yamasaka*. [2] It occurred to me that a way to deal with the mixed level structure of this course could be achieved by using information technology. With sufficient planning, an arrangement similar to the joint humanities classes offered at Vanier College and *Cégep de Sept-Îles* could be created. [3] Two or more teachers could divide their combined virtual class into two groups divided according to language competency. The danger of such an arrangement, however, was that the solution might create as many problems as it would eliminate, or perhaps more. As I would learn, information technology does not always provide easy solutions to difficult pedagogical problems. I also learned that the team of teachers, technicians and administrators is as important in a smooth insertion of a technological response to a pedagogical problem as the technology being implemented.

2. The Initial IT Solution

After writing a number of columns for Profweb about the Entente Canada-Quebec's research grants and preparing for a column that was to appear in May of 2011, [4] I realized that I had a possible research project myself trying to create a virtual class where a number of teachers could create virtual multiple cohorts to deal with the diversity of second language competency levels in these classes. A number of teachers were intrigued enough to explore participating. For one thing the project offered a possible solution to a problem that

was common throughout the college network. For another thing, the grant allowed funding to offer each participant release time for the additional preparation required to participate in the project.

The reality of having teachers participate in a virtual group, however, proved to be more complicated than I had originally imagined. A number of factors presented themselves as roadblocks to participation:

- There were different specializations in the administration program. At Cégep du Vieux Montréal, these are Techniques de comptabilité et de gestion, Conseil en assurances et en services financiers and Gestion de commerces. Not every teacher felt that they would have the flexibility from their administration or department to modify their course plans to create a virtual course with a class in a different specialization from the one my class was addressing.

- The times for these courses are often well-established within a schedule for the specialization. Not every teacher felt that they would have the flexibility to change the meeting times of their courses. No one felt that they would be able to move their course from one semester to another.

- Teachers' availabilities are very unpredictable. As it turned out, one teacher who began participating in the experiment wound up withdrawing having received release time for university study.

As the Winter Semester of 2012 approached I had a partner offering a similar class at a college in the greater Montreal area. In harmonizing our course plans over the Autumn 2011 semester, I discovered a wealth of interesting elements that I would never have developed on my own to put into my class which included the following:

- A concentration on the development of a business plan as a final project. I had been using a profile of a company and found that the structure of a business plan better reflected the skills that students were acquiring in their other classes.

- A Final Presentation using a jury of anglophone businesspeople modeled on the program Dragons' Den. Dragon's Den is a program on CBC where entrepreneurs have to pitch their ideas to a panel of successful businesspeople with the goal of receiving financing and mentoring from them. Both of us felt that synchronous conversations between the two classes would be an important part of the preparation for this activity, which would allow students to participate in conversations at their own level.

- A much more flexible grading schedule which attributed specific percentages to types of assignments, such as group conversations, rather than committing beforehand to a specific number of tasks in each category.

On my end, I was able to acquire the cooperation of the CCDMD [5] to use their Adobe Connect [6] server for our synchronous conversations. I also coordinated a number of technical meetings with staff at both schools in order to ensure the best performance of the conferencing software. Even at these meetings, a potential problem with bandwidth was mentioned. In retrospect, I realized that I should have worked a lot more closely with the technical staff of my school and kept them abreast of the difficulties that I was experiencing. As well, both teachers had already incorporated visits from local business people to speak to the class.

3. The Initial IT Experience

I will never forget the first time that I had to manage an online conversation using Adobe Connect. We had coordinated a speaking task based on a video, so students had an outline of topics that they were supposed to cover. Speaking through loud background noise, I felt totally powerless communicating with little video pictures of students whom I had no relationship with. We made our introductions, but some groups never got beyond that, fascinated with the technology and hamstrung by its problems.

One of my partner's students from this class, however, wrote her a letter months later thanking her for the experience because she had been hired by a company with offices across the country based on her experience with online teleconferencing, even though her English was not that strong. This experience illustrates the importance of integrating the skills of the ICT Profile promoted by the IT Representatives' Network into the curricula of college programs.[7]

Then came the biggest surprise of all! In February 2012, my students at Vieux-Montréal went out on strike. By the time, we were making up our classes in the Autumn of 2012, our schedules were weeks out-of-synch, and my partner and I both admitted that it made more sense to finish the courses separately and do planning for the next Winter's courses during the autumn. Perhaps, to illustrate how much the approach of harmonizing classes was a matter of luck, my partner went out on medical leave for the entire Autumn 2012 semester.

In the four weeks before the student boycott, there was time to learn that students perceive an experimental course using information technology as valuable until it doesn't work. Students were very enthusiastic about online conferencing until... they weren't. The feedback on our conferencing system using Adobe Connect was at times too loud for useful conversation. The background noise on the recordings sometimes made grading difficult,

but my partner found it fun and interesting to have the recording to refer to when students questioned their grade or their actual participation.

Fixing the quality of the videos was multifaceted. The easiest fix of all was done that first year. I deactivated my own microphone on the Adobe Connect interface. I found out that opening several virtual classrooms on my computer and keeping the microphone open in each created feedback.

Many other improvements, however, depended on modifications of the course structure. Technology in effect was driving changes to class procedures. Towards the end of that semester I began adjacent seating for students in the same discussion. Other discussions were not as disruptive, and the face-to-face aspect eased transition into a virtual environment. Both my partner and I asked students to turn off their microphones when they were not speaking. I tried to get students to have their conversation outside of the lab using cellphones which I would record on Skype, but unfortunately my partner informed me that her college banned the use of cellphones even for academic purposes.

Perhaps the most important technologically driven change to the course structure was to schedule discussions over a two week period. In the lab, advanced students at both schools met while less advanced students had a different assignment. There was a lot less ambient noise, and this arrangement allowed us to change the weekly discussion topic in order to allow less advanced students to have a simpler topic the following week. Some students found this unfair and suggested that we do the same conversation at both levels and grade accordingly. There were rarely easy answers to the problems that arose, but in this case, I actually felt that this procedure was more adaptive to the vast range of student abilities. By this point, however, students who were not doing well found the technology an attractive excuse for their own difficulties in the curriculum.

Conversations still lacked clarity at times, but by winter 2012 the conversations were beginning to show the promise of the original concept. We also used Adobe Connect to broadcast guest speaker presentations to the other school. As with the conversations, each event allowed us to improve.

4. Changes Made After a Difficult Start

In the autumn of 2012, after the dust from the student movement settled, I realized that asynchronous communication needed to become an important part of student exchanges. Students were used to chatting in French and could transfer their knowledge of the procedure to English with little difficulty. They also had access to these resources

during the week, so that homework assignments could be created to foster writing skills. Writing assignments could be created to tie in to themes to be discussed later in class. In general, there were few downsides to blogging other than the lack of interactivity for a supposedly communicative skill.

The flexibility of asynchronous resources really hit home when I saw the Profweb story about the J@nus Project,[8] a virtual class between Vanier College and *Cégep de Sept-Îles*. When I covered the website Newsactivist[9] for Profweb, I began to realize that the site had potential for my virtual classes. Newsactivist is a blogging site that allows students to post from one class to another. Our students used it to blog on a number of topics and comment on posts with the other class during the Winter 2013 semester.

My partner and I were free to vary assignments as we needed to, and students got writing practice, garnering reactions from their peers from several groups and feedback from their teachers in a controlled manner. We sent students comments on their posts using the tracking feature in Word. As we ran into problems, the administrator at Newsactivist was around to tweak the site architecture to make the posts easier to access for students and to grade for teachers.

One of the interesting dimensions that Newsactivist has brought to the project comes from its Humanities origins. In order to conform to the site's community service orientation, my partner and I built our course around ethical business for the Winter 2013 semester. This allowed us to interact with a larger audience of students using Newsactivist at an English language college in Quebec and at colleges in the United States. A number of my student comments after the course mentioned that ethical business was something that had not been covered in their other courses. There was a positive reaction to learning something new, yet germane to their program, in their second language. But yet again, the technology was driving the pedagogy.

5. Building Grammar Autonomy for Students with Information Technology

I have also been experimenting with automated grammar correctors trying to encourage more autonomy in student writing. Virtual Writing Tutor [10] (VWT) and the grammar checker from Word signal errors. My partner suggested that students use Grammarly Lite as she felt that it caught more mistakes than VWT. My students did an oral exposé on these errors. For my part, I flipped my classroom by sending the class online quizzes created with the CCDMD's Netquiz[11] containing cloze exercises, based on the writing of the student

that was to present each week. Students arrived in class sensitized to the errors that their classmate made before the presentation.

In order to make my students more conscious of structures transferred from French, I asked them to rephrase their writing into French once they used English grammar checkers. As our project also brought in a teacher at an English college who taught *Le français langue des affaires*, she was able to use these passages for her students to return feedback to our students in French. We sought to work more closely with this group to foster peer instruction to our teams working on their final projects but realized that there was a limit to what one could do in one semester.

6. Out of the Depths of Despair

On April 12, 2013, I received an email from my partner telling me that she had received a letter signed by a majority of her students asking to opt out of the experiment. As she said in her letter, "Not only do I feel that we have failed in the project, but I realize how much time has been wasted in trying to make something work that is a wonderful idea in theory, but in reality hasn't been what we had hoped." My response was that not all experiments work out, hence the term.

Although discouraged, I was heartened by the reaction of my students. They were really surprised. One of my students sent a heartfelt apology to my partner for having fooled around during a conversation that she had moderated. The group seemed to pull together at a critical time in the preparation of their final projects. Looking back, I realize that the synchronous conversations, that had been so difficult, were only a part of what was happening in the class, and it was time to use other resources even if the classes had continued to work together. I also realized that the problem with the conversations was technical, not pedagogical. There were pedagogical goals being achieved.

Very quickly, other resources that had seemed secondary assumed a more important role. As planned, I got students to begin working on their drafts of the business plan on TitanPad[12] an online platform for group document authoring. Once the work on TitanPad was advanced, the texts were posted on NewsActivist for review by a Humanities Class at Champlain College's Saint-Lambert campus in a critique of the ethical component of my students' business plans.

This advice from the students at Champlain College was invaluable. Not only were those students able to offer constructive criticism about content, they could give feedback as native speakers that had much greater effect than any comment I could make. Perhaps the best illustration of this was when one of these students

said that she understood this was being written in the authors' second language but that misspelling a word in the title was unforgivable if the team seriously hoped to succeed in their marketing plan.

Students also began using technology in their assignments. A grammar reflection by two girls who were too timid to speak in front of the class was submitted in the form of a video. They had enjoyed themselves. I didn't limit experimentation, and not totally to my surprise, their later presentations for the final project showed a marked improvement. I allowed laptops in class, even though I'm sure not everyone was working on my assignments.

7. Conclusions

Using information technology requires planning both pedagogically and technically to succeed. Teachers must commit to thoroughly testing their tools before using them when possible. When not possible, the proverbial Plan B must exist! The involvement of the school's technical services is critical. Can technical services increase bandwidth to the lab when required? What platforms and software do participating schools have in common? Can a technician be on hand when needed? What resources are available from the IT Partners? Often these decisions involve the school's administration, which needs to be made aware of the existence of the project and the flexibility that a teacher in such a venture requires. The teacher needs to inform both technical services and the administration of their requirements well in advance.

Information technology can be used by a teacher to create a learner-centered classroom that can engage students at different levels allowing learning to occur at a number of levels. This is fortuitous as students of greatly varying skill levels in their second language classes in colleges is a more common phenomenon than I imagined, occurring not only in the course I give for Administration, but for courses in many fields and in general studies courses in smaller institutions. I believe that incorporating these tools is best achieved when teachers work closely together to share their efforts, but the best results do not always occur with the virtual cohort that was the original premise of my project.

My focus in teaching English to my students has shifted from being an individual teacher to being a part of a team dedicated to making learning a multifaceted experience that can deal with greatly differing needs, particularly in classes where students are at widely differing ability levels. To deal with the multiplicity of learning tasks within the multi-level second language classroom, a team consisting of teachers, technicians and students is required. Yes, the students have to buy into the

concept of using information technology to reach out of their classroom. Cooperation and communication are at the heart of this team, but the keystone of these exchanges is the establishment of a community of practice among teachers.

My partner in this project and myself were a community of practice, a group of people who work together to improve their knowledge within a particular field or profession. More formal communities of practice are being created in many cegeps in the English system, for among other reasons, helping teachers adjust to teaching in active learning classrooms.[13] This structure allows for the sharing of knowledge and the common development of skills.[14] Currently Vanier College, Dawson College and John Abbott College are all using multidisciplinary communities of practice to help teachers cooperatively improve their mastery of information technology.

In the last few years, my experiences using information technology have convinced me of the value of this resource in reaching out to students of widely different skills and learning styles in the classroom. I have also realized that integrating these resources into an existing curriculum can be a challenging experience which does not always produce positive results. The mere existence of an online platform, such as Profweb, indicates the activity that is occurring within the field of information and communication technology. Teachers cannot be expected to stay abreast of developments on their own. The development of communities of practices which use the resources of information technology itself to develop expertise in this field among teachers augurs well for the successful use of technological resources with our students.

These communities of practice, however, require someone to function as a moderator.[15] The Entente Canada-Quebec grant has given me the time to moderate a small community of practice through their grants. For one thing, Newsactivist has created a moderated forum for teachers to exchange knowledge within their platform called "The Teachers' Room". This year, teachers that I am partnering with are working to create a structure that will endure and help teachers in multi-level second-language classes to use technology as a tool to help their students, all of their students, succeed for years to come.

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Facilitating Globally Networked Courses with Newsactivist.com: Student Blogs, Social Networks, and Collaborative Pedagogy

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Founder, NewsActivist.com

1. Scope

This proposal is for a presentation/paper sharing the experiences of teachers and students from across Quebec and New York from a variety of disciplines who were (and are) engaged in blogging together about contemporary news using the NewsActivist.com website. Gabriel Flacks, the chair of the Humanities Department at Champlain College, Saint-Lambert, in Quebec, Canada explains his role as the founder of the website www.newsactivist.com and teacher of courses that use the website. The website was developed by Flacks to support collaboration between teachers in creating assignments that then foster collaboration and understanding between students across the globe. The website provides students and classes multiple ways to communicate across campuses and provincial/national borders. The website was built by Flacks to support global collaborative writing across campuses; he tried to provide students this pedagogical form in 2009-2011 and was unable to find an appropriate platform for his students, so he, with the support of his institution, designed and implemented the site. The presentation and paper explain both Flacks's experience and reasons for developing the site and shares the words of students and teachers who have used the site. Finally, the paper considers academic literature from disciplines such as philosophy and education that further indicate and analyze the import and impact of such teaching.

provides best practices for the structuring of curricula using networked blogging and gives examples or student dialogues that illustrate the process and its values. After 1.5 years online and dozens of teachers and thousands of students using the site, surveys and student and teacher feedback enrich the presentation and provides prospective teachers a variety of ways to bring this presentation's scope into the classroom.

2. Objective and Motivation

The presentation/paper targets teachers and other educational professionals exploring effective ways to integrate blogging into curricula as a tool to foster development in writing, critical thinking, cultural awareness, and civic engagement. Synthesizing research done by Flacks as well as academic literature from a variety of disciplines will indicate the impact, individually and collectively, of this pedagogical method. Further, this presentation

Session 5: Pedagogy

The Interactive Learning Dynamic of Mid-Later Career Doctoral Candidates and Supervisors in Australia
(Author: Margaret Robertson)

Disciplinary enculturation in critical thinking: Developing effective pedagogies and assessment strategies for higher education
(Author: Maya Gunawardena)

Comparative Study about Psychology of Cognitive style in Saudi Arabia from the Perspective of the Workers in Educational Field
(Author: Tareq A ALSilami)

The Interactive Learning Dynamic of Mid-Later Career Doctoral Candidates and Supervisors in Australia

Margaret Robertson
LaTrobe University

Abstract

Teaching and learning are inextricably linked. They are different activities that are co-dependent. In doctoral studies candidates are cast as learners and supervisors as teachers yet the boundaries of these activities blur and potentially one becomes the other. Mid and later career doctoral candidates are uniquely positioned, bringing with them substantial bodies of knowledge that may balance power dynamics that are more typically asymmetric. This paper lays the ground work for a study into this under theorized aspect of doctoral studies.

1. Introduction

After a long and diverse career in education that spans contexts in primary and secondary education in Australia, and in a bilingual kindergarten, primary, secondary and tertiary sectors in China that included private and corporate training, I remain intrigued with concepts of learning. As a teacher I was aware that I was learning alongside my students- what I was learning was different but I was continuously enriched by the experience.

The extended duration of doctoral studies where “the supervision relationship is personalised and frequently protracted” and highly private and largely unscrutinised [1] creates an opportunity to examine significant transformation. In this transformation we might find evidence of expanded learning. Mid-later career professionals bring with them a substantial body of industry based knowledge that often informs their topic choice and methodology [2], and may exceed the contextual knowledge of their supervisor, making this relationship fundamentally different to those who proceed to doctoral studies pre or early career [3].

This study seeks to reframe the role of supervisor as a learner as well as a master of knowledge, and the student as simultaneously a learner and master of knowledge. It seeks to examine the “double hermeneutic [and] dialectical relationship” [4] that creates expanded knowledge for the candidate and supervisor, and contributes new knowledge and/or specialized knowledge to a field of practice.

2. Focus of the study

This study is focused on identifying holistically learning as an outcome of candidate/supervisor interaction in doctoral studies, how that learning is leveraged, why this learning occurs and whether the professional expertise and life experience of mid-later career candidates influence learning outcomes.

3. Body of knowledge

In Australia between 2000 and 2012 the number of doctoral candidates has doubled, with increasing representation of mid-later career professionals. This massification of higher degree studies has not been matched by increases in academic appointments. During the same period government funding models have changed, with funding determined by completion not enrolment numbers. The government focus has been to direct higher education to contributing to national economic development through up-skilling of human resources as a means of improving national competitiveness in a global marketplace [5]. Program evaluation and learning outcomes are seen in neo-liberal economic terms.

These factors have had a number of impacts in candidates and supervisors. Candidates are increasingly being selected according to their capacity to complete within prescribed time limits, with unofficial preference for full-time candidates. Additionally, international candidates are avoided because of the perception that they require additional supervisory support. Candidate selectivity is more evident in engineering and sciences, especially at large and more established universities. The impact of candidate selectivity is most likely to impact on those “who are slightly older, female and studying in professional disciplines” [6]. Increasingly universities are introducing course work, especially in professional doctorates to scaffold learning and expedite thesis development. Candidates benefit from this measure by explicit inclusion in a community of practice which plays an important role in self learning and identity development [7].

For supervisors, increasing numbers of supervisees and legal concerns have contributed to an increase in co-supervision, and supervision of groups of candidates. Accountability on outcomes has added pressure on supervisor pedagogy, with more managerial styles being adopted. Domains of knowledge, while on the one hand have become more specialized and on the other more cross-disciplinary, meaning co-supervision is increasingly cross-faculty. As research has moved increasingly into industry, and away from universities, co-supervision is more frequently between academics and industry experts. Pressure to change pedagogy to adapt to increasing and increasingly diverse candidate cohorts who are expected to complete their thesis in the minimum time with the minimum use of resources has directed supervisor learning to refining their craft and/or finding ways around the system [7]. Some research into learning in higher education contexts for candidates[8] and supervisors has highlighted the importance of 'learning about self' and identity development, which is largely absent from accountability focused evaluation. The impact of changes to doctoral studies and supervision in Australia appear to be potentially both positive and negative. Government data gathering with its economic focus fails to consider learning holistically. Studies in learning outcomes in higher education focus on either candidates or supervisors. Rarely is the effect of each party on the other described as dynamic and mutually enriching.

4. Methodology

This study is framed with a Constructivist epistemology, acknowledging that learning and knowledge is socially constructed, and ordered according to an individual's culture and life experience.

A qualitative approach of face to face semi-structured interviews will provide data. Critical Discourse Analysis will be used to interrogate the interview data, as a way of examining the power dynamic embedded in the respective roles of supervisor and candidate, to determine any impact this might have on learning.

5. Expected outcomes

Pedagogic interaction between supervisors and mid-later career doctoral is an under theorized aspect of doctoral studies. From a close examination of this protracted and intense relationship it is expected that valuable insight into effective strategies that optimize learning outcomes for stakeholders may be gained.

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Disciplinary Enculturation in Critical Thinking: Developing Effective Pedagogies and Assessment Strategies for Higher Education

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As critical thinking (CT) is fundamental in higher education, academics strive to cultivate student' CT skills by embedding specific tasks in disciplinary teaching. Such a task is equally challenging in postgraduate and undergraduate courses. This study investigated macro and micro strategies used in teaching and assessment to enhance students' CT in the schools of Physical Sciences, Engineering, Humanities and Business. It included 20 interviews with academics and the qualitative analysis of summative and formative assessment tasks. The study shows that CT is an essential component in developing self-directed learning and student to be work ready and therefore, various strategies are used along with teacher and peer feedback to cultivate CT. The study indicates several challenges in developing holistic thinking with a subtle shift between scaffolded and independent learning. The paper identifies the need for enhancing students' advanced reading and writing skills to understand academic arguments and use different genres in argumentation.

Comparative Study about Psychology of Cognitive style in Saudi Arabia from the Perspective of the Workers in Educational Field

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Abstract

The aim of this study is to review the opinions of education professionals (teachers, principals, and supervisors) in regards to the cognitive style of students in rural and urban schools and the factors that impact on the cognitive style of students. The study utilized a qualitative approach. This study used semi-structured interviews with a selection of education professionals: including 15 male teachers from the rural setting; 15 male teachers from the urban setting; 5 male supervisors from the Makkah Department of Education; 6 male principals from rural schools; and 6 male principals from urban schools. The results of this study indicated that education professionals perceive that the urban environment has a more positive influence on a student's reflective style than that offered by the rural environment. Greater maturity and motivation are also factors that influence cognitive style in students. In conclusion, characteristics such as home situation, educational administration practices, school location, and teacher experience level play important roles in facilitating students to be reflective. Overall, the Saudi system of education should allocate substantially more resources to rural schools to improve opportunities for the students in these schools to achieve their cognitive style potential.

1. Introduction

Cognitive style refers to individual characteristics (the wholist-analytic dimension or the verbal-imagery dimension) which organize and represent information ([1]; [14]). Cognitive style is not static: a person's thinking can change depending on social learning and situational factors ([11]): like a student can improve his or her style. Furthermore, cognitive style is an important axis along which to study the

individual differences among students in the cognitive process. Also, many commentators ([6]) emphasize which tests that evaluate cognitive style (e.g. MFFT) are affected by examination conditions, and that individual differences affect learning and achievement ([19]).

A series of studies from a variety of cultures have examined the domain of cognitive styles ([18]). These studies focused on both cognitive style and a broad set of associated variables such as culture ([10]), intelligence [14], academic achievement ([17]) and environment [16]. The researchers also examined the strength of the relationship between cognitive style and their respective variables. In addition, cognitive style may be helpful for creative thinking research because flexibility in mental processes is a constant in reflective individuals ([11]).

Reflective-Impulsive (RI) is the cognitive dimension developed by [8] to describe one set of individual differences in students when solving problems ([5]). Kagan et al. [8] were the first researchers interested in the reflective-impulsive (RI) dimension and suggested that impulsive children make quick decisions, with more errors, while reflective children take longer to make decisions, and make fewer errors ([7]). Kagan et al. ([8]) have developed the Matching Familiar Figures Test (MFFT) in order to measure RI style ([15]).

In this study, the relevance of qualitative research to this study is first considered, and the relevant method of semi-structured interviews selected. Preparation for the research is discussed, the means of obtaining the sample population, and the characteristics of the respondents noted. The interviewing techniques are described, together with the data collection and preparation. Results are divided by the nature of the responses of supervisors, principals, and teachers.

Researchers have previously used qualitative research techniques to examine RI style [2, 4]. Qualitative methods employ a wide range of strategies such as interviews, investigation, and case study which can be used to evaluate the phenomenon. Using interviews as a form of qualitative data provides an alternative form of information that can elaborate on the questionnaire responses drawn from quantitative analyses. A qualitative approach was selected that involved the use of in-depth, semi-structured interviews with teachers, principals, and supervisors who work in the educational field. [19] suggest that there are four types of interviews: semi-structured, structured, non directed, and focused. The semi-structured interview is a flexible way of gathering data that is detailed and personal [12]. The interviews conducted in this study consisted of questions designed to investigate the individual's thoughts, opinions, and recommendations relating to the characteristics of student cognitive style. The interviewees were asked if they consider there is A further area of enquiry was the participants' perceptions on the differences between rural and urban students when considering the cognitive style.

To analyse the qualitative data obtained from the semi-structured questions during the interviews, the researcher in this study followed the interview analysis technique developed by [3].

2. Methods

2.1 Participants

The respondents are Individuals who work in the educational field: including 15 Saudi male teachers from rural and 15 Saudi male teachers from urban areas; five male supervisors from the Makkah Department of Education; and six male principals from rural schools and six male principals from urban schools.

2.2 Measure

2.2.1 Interviews. Before collecting the data for this study, interviewing techniques were selected and rehearsed. All interviews for the supervisors were scheduled for week days, and were conducted in the staff room in Makkah Department of Education. The data from principals and teachers were collected at the beginning of Semester 2 (2008) school year. All

interviews were scheduled for week days. The interviews, in Arabic, were conducted with study participants in the staff room at each school. The interviews were conducted individually to allow each participant the maximum opportunity to express his views. To minimise influence on participants' opinions during the interviews, the interviewer remained neutral and did not offer any opinion or response evaluation. Each individual was asked the number of years they had been in the teaching service. They were also asked about the characteristics of cognitive style representative of differences between rural and urban students. The individuals who work in the educational field were also asked if they understood the cognitive style for students.

All interviews were audio-recorded and then transcribed. Each participant read the transcript of his interview to confirm that it was a true and accurate record of the interview, and then the transcripts were translated into English at the Certified Translation Office (J.C.C. No.92120). To ensure the accuracy of interpretation, three Saudi English specialists at Umm Alqura University satisfactorily compared the translation with the original. Content validity was employed to ensure that the data was valid. Firstly, all interview items that supported the main goal of the study were identified. Secondly, to examine the content validity all interview items were examined by three Saudi English reviewers. The aim of this assessment was to determine the extent to which the interview items measured the main goal of this study. All reviewers asserted that the interviews were valid. Also, the interview transcripts and translations were reliable.

2.3 Procedures

2.3.1 Data collection. I interviewed all participants in the staff room in each school. All of the interviews were audio-recorded and then transcribed. I decided to conduct the interviews individually in order to give each interviewee the same possibilities and room to express his personal views. In addition, during the interviews, I consciously avoided expressing my personal views that might influence participants' opinions. After a period of five weeks the participants were given the opportunity to read the transcripts of their interviews, to ensure they were an accurate representation of their responses.

All interviews were conducted in the Arabic language. Later on, all interviews were translated in to the English language.

When I finished all interviews, I thanked all participants. After that, I offered an additional opportunity for every participant to ask any questions in regard to interviews and the research. All participants' responses were very good, especially urban teachers and supervisors and this demonstrated their depth of knowledge.

2.3.2 Data analysis. In this study the data transcribed from the interviews of people who work in the educational field (teachers, principals, and supervisors) was analysed using the technique recommended by [18]. The process is to transcribe the data whilst listening to the interview for a sense of the whole; identifying units of general meaning; delineating units of meaning relative to the research question; clustering units of relevant meaning; writing a summary of each individual interview; and contextualising themes.

3. Results

The preliminary analysis drew key points from the data; these are now contextualised as areas of agreement and reflective-impulsive style factors where the groups differed. The supervisors were not asked to define cognitive style as their role differed from the other participants. These are discussed in turn.

3. 1 Factors of Group Accord

There are several themes derived from the data analysis from the three groups of education professionals where all or a majority of participants agree.

3.1.1 The Home Environment. Home environment plays an important role in for cognitive style of students. A majority of participants from all three groups reported that the home environment with supportive parents is an important factor in encouraging children to be more reflective. Also, they confirmed that a parents' role is increasingly effective if the parents are more educated. In contrast, the parents' role will decrease if the parents are less educated, as many parents are in rural areas. For example, a teacher respondent said "(yes), family has a highly effective role in improving the student's level of reflectivity. This role could be

(crucial) if the family is educated. However, (it) will be lower if the family is not educated".

3.1.3 The Teachers' role. The finding from the majority of all study participant groups was that a teacher's role in eliciting reflectivity from children was crucial: "(the) teacher plays an important role in improving and encouraging the cognitive style of students". However, the role of the teacher may vary depending on the teacher's experience and the school's location. In rural schools the teachers' role may be less effective because they have insufficient experience to identify and nurture of cognitive style in students.

3.1.4 The School Environment. A majority of all three participant groups agreed that the school environment is an important factor in cognitive style. However, this factor varies according to location, as there are differences between rural and urban schools in their aim of fostering cognitive style in students. In rural schools where there are fewer resources, the school environment may be less effective; a teacher commented that this school is more interested in official working hours and routine than developing the student level of reflectivity. Therefore, the number of reflective students in this school is low. On the other hand, urban schools have more facilities when compare with rural areas.

3. 2 Factors of Group Discord

The results from the qualitative analysis show several key points on which the majorities from all three groups disagree: school performance and resources.

3.2.1 School Performance. In comparing urban and rural schools' relative performances in reflective-impulsive style, a minority of principals and all supervisors said that the rural schools lagged the performance of their urban counterparts. A supervisor explained that the rural society, family culture, and teacher attitude and experience impact a student's opportunity to display the cognitive style. Teachers were not asked directly for an opinion, as they did not have this overview. Nevertheless, a minority of teachers viewed rural schools as less supportive of reflective style, and a larger minority said that urban schools were better at encouraging students to be more reflective.

3.2.2 Resources. There was only one direct question regarding school facilities which was directed at principals. Half of this group considered that the school facilities that could encourage RI style for rural students were inadequate. Again, half considered urban schools' resources superior. Although not directly questioned, three supervisors said that urban schools had superior resources to aid students' more reflective. Although the responses are not conclusive, a finding from this study is that rural resources to promote student to be more reflective.

4. Discussion

This section addresses the findings obtained from the supervisor, principal, and teacher interviews. There are several themes derived from the data analysis which are, home environment, school environment, motivation, and age. These are discussed in turn.

4.1. The Home Environment

The descriptive findings of this study can be found in sub question four in the supervisors' section, question six in the principals' section, and question seven in the teachers' section with regard to their attitudes toward the parents' role and the cognitive style of their children. The result showed that all participants agreed parents have the main role in developing their children in regard to their cognitive style. This role is different depending on their level of education and their location. Therefore, the responses of the participants for this sub question are divided into two groups.

The first group suggested that the relationship between parents and cognitive style of their children is negative. Many participants in this group agreed that parent's role is negative in regard to developing the cognitive level of their children because they are less educated. One participant believed that there are differences between parents in regard to fostering cognitive style in their children. Therefore, the family influence may wane, or may become negative in encouraging reflectivity in a child if the parents are less educated, as many parents are in rural areas. The finding of the first group is supported by previous studies [1, 44]. The researchers suggested that parents who are less educated may be less capable of providing a broad framework

of opportunities for their children in regard to the development of their level of RI style. Also, increased parental control can negatively affect children's abilities in the classroom, and decrease their independence and RI style [1, 44]. [4] indicated that many rural parents are illiterate, so their children present with less reflectivity, and lower academic achievement. Also, [37, 48] believed that because parents in rural areas are less educated their children show lower levels of academic achievement when compared with those in urban areas.

In contrast, the participants in the second group suggested that the relationship between parents and the RI style of their children is positive, because they are educated, especially those who live in urban settings. This is because the surrounding environment and the facilities in urban areas encourage parents to be educated. For example, one participant believes that the role of parents will be positive in regard to increasing their children's level reflectivity if parents are educated. Furthermore, one principal noted differences between parents in rural and urban areas with regard to their level of education, favouring the urban parents. These findings are in alignment with previous studies (e.g., [32, 45, 57, and 61]), that parents influence the cognitive style of their children.

4.2. The School Environment

The result of responses for sub question three in the supervisor section, sub question five in the principal section, and sub question two in the teacher section showed that the school environment is important to a student's creative maturity. However, there are differences between rural and urban schools in regard to the cognitive style of students. One participant detailed a critical element of the important role that the school plays in increasing the level of reflective for students. Also, another participant suggested that schools, especially in urban areas, are playing an important role in regard to improving the reflectivity level of students.

Furthermore, the finding is that the teacher can influence RI style; however, the role of the teacher varies depending on the teacher's experience and the school's location. In rural schools the teachers' role may be less effective through insufficient experience in identifying and fostering RI style.

The number of students in Saudi Arabia has increased rapidly in the past two decades and that may be the cause of overcrowded schools.

The increases in student numbers may have exceeded the expectations of the Ministry of Education plan and this may negatively affect learning outcomes [1, 3]. Therefore, teachers in these schools have not had sufficient time to improve the RI style of their students. However, to solve this problem the Ministry of Education, represented by the Department of Education in all regions in Saudi Arabia, rented many buildings and turned all of them into schools.

In addition, the rented schools, especially in rural areas, have less infrastructure, have inadequate teaching material, unsanitary conditions, poor attention standards and below standard teacher experience. Attention standards were measured through attendances. Therefore, the opportunities to encourage and improve the RI style of students in these schools, especially in rural areas, are very limited. Also, the academic achievements of the students in these schools are lower in most cases.

5. Conclusion

The findings through the interviews support the conclusion that the school environment in urban areas plays an important role in the cognitive style of the students. It appears that the urban teachers have a greater understanding of the value of RI style they have greater knowledge in education through access to training, and they have more experience than the teachers in the rural schools. This leads to the conclusion that the rural teachers require support from the Department of Education to gain access to training, especially developing strategies to enhance the RI style of their students.

The results of the literature survey detailing the factors influencing the development of RI style leads to the conclusion that, whilst intrinsic factors are important, extrinsic factors. In conclusion, teachers should consider all possible responses to classroom problems to give students the opportunity to introduce new ideas.

The study concludes there are differences may refer to teachers' experiences or the school environment; its facilities, location near community assets, and its administration. Although teachers' experience differs from one school to another, the finding was that the majority of rural teachers were less experienced than their urban counterparts and this aspect impacts on their ability to encourage creativity in the classroom, laboratory, or on the playing field. According to the qualitative findings, there is

also the aspect to consider of rural teachers showing a lower understanding of RI style, and thus a decreased ability to enhance RI style in their students. The conclusion is that more attention is required to enrich the knowledge and experience of rural teachers to ensure equity for their students.

A further conclusion is that the urban environment (home and school) has a greater positive effect on student's RI style than that offered by the rural environment. The urban environment was considered by the interviewees instrumental in enhancing RI style in students, and the study participants also reported urban students more advanced in their reflective style.

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Session 6: Cross-disciplinary Areas in Education

Developing Graduate Researchers in Education: Personal Lessons Learned Through Thesis Collaboration
(Authors: Vincent Genareo, Renée Fornelli, Joshua Fornelli)

Information Literacy at Work: Study of Personal Information Management Practices in the Corporate Sector of Kuwait
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Program Development Distance Education for Health professional - as an Organizational Strategy
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Developing Graduate Researchers in Education: Personal Lessons Learned Through Thesis Collaboration

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Abstract

This paper is a self-analysis of the experiences of three familial graduate students who collaborated on a thesis research study. Thesis collaboration at the master's degree level is uncommon in the United States, but a university chose to allow three Master's of Education students to attempt a capstone research study together. Data collected were reflective journals and open-ended group question discussions. The results indicated their collaboration contributed to (a) personal and professional support, (b) reflection about the research process, (c) sacrifices of power and time, and (d) personal/professional growth. Discussions for higher education collaborative thesis considerations are offered.

1. Introduction

In the 2010-2011 academic year, 185,009 master's degrees in Education were awarded in the United States, which represented the second largest number of graduate degrees in any field [1]. As a result of shifting educational paradigms, many master's programs in education are becoming more dynamic in nature and are more responsive to graduate students' differences, distance and remote educational needs, and K-12 classroom support [2]. Researchers in higher education are increasingly collaborative [3] and they are aware of social learning benefits for their students [4]. Although the thesis is often the individual capstone project of a graduate degree, there is some growing interest in allowing collaboration on the thesis project [5], since it may be quite beneficial for new researchers [6].

Some authors note that collaboration can be advantageous over individual research [7] [8] [9]. Peer support throughout the thesis process may be a vital component in completion of the paper and the degree [10] and the interpersonal communication and interactions from cohorts can provide the support that students need to complete their projects [11]. However, collaborative theses are still uncommon in higher education. This paper describes the experiences and reflections of three students who collaborated on a Master's of Education thesis.

2. Background

2.1. Collaborative Research Benefits

Completing a thesis can empower graduate students to identify themselves as professionals [12]. Additionally, it can help them develop cognitive skills, organizational practices, and research methodologies [13]. However, it can be challenging for students to learn how to research, synthesize, and write a thesis. Nearly all learning is "essentially a social process" [14] (p. 58), and collaboration may allow graduate students to learn to research as they discuss with others and reflect [15] [6]. With proper faculty-guided social learning, including peer discussions and shared course experiences, those who collaborate can increase program objective attainment and develop into more reflective thinkers [16]. Students can benefit from supportive groups as they undertake the thesis process [17].

Collaboration offers a built-in system of checks and balances, allowing group members to hold one another accountable for their work. It may aid graduate students in producing higher quality outputs [18] and meeting completion deadlines [19] because they feel accountable to succeed within their groups [20]. Collaboration allows for a continuous discussing and editing process that may act as a safety net [21]. "A group allows two or three editorial pairs of eyes rather than one, which promotes clearer and better writing" (p. 34).

Collaboration may be easier today than ever before; online tools such as Skype, Facebook, cell phone applications, and other online platforms allow for nearly instant connection and communication in nearly any setting [22]. Teachers typically understand the usefulness of group work within their classrooms as their students engage in social construction of knowledge [23]. For graduate students in education programs, "a final compelling benefit is that working together in this way is... 'practicing what we preach'" [21] (p. 32). Adult learners may benefit greatly from the discussions and reflections that occur through collaborative work [24], and women may even learn better through group work where relationships can form [25]. As a result, it may benefit higher education institutions to consider advocating collaborative thesis research.

2.2. Thesis Collaboration Challenges

Collaboration offers growth potential for researchers, but brings unique challenges. Successful collaboration depends on individual personality traits, group dynamics, trust, and communication [26]. Group members may become frustrated with the process if they do not delegate responsibilities and find time to communicate and schedule meetings [5]. There are also debates regarding how to decide authorship order in the collaborative research publication [27].

Some institutions are concerned that collaborative projects may undermine the knowledge and skill acquisition that occurs during a thesis. Often, the assumption is that collaborative research means less work for individuals [21]. While it is clear that many educators and researchers support collaborative studies [20], at the master's level, thesis collaboration is uncommon. The hesitation for accepting collaborative work may result from an inability to move away from traditional, individual-centered values and "spring from the American emphasis on the individual...on distinguishing oneself in order to stand above others" [21] (p. 32).

Some are concerned that collaboration does not always produce a higher quality product than individual research [28]. However, educators view social interaction as a valuable learning strategy, and many institutional researchers collaborate on their own work [29], yet it is not often employed in graduate capstone projects such as theses in America. This study adds to the limited research in the area of collaborative master's theses. The purpose of this study is to describe the experiences and reflections of three Master's of Education students who collaborated on a thesis.

3. Methodology

In 2008, a small, private, Midwest university allowed three graduate students in the Department of Education to collaborate on a quantitative master's thesis for their degree, a Master's of Education in Curriculum, Instruction, and Assessment. The researchers were all teachers in public schools. The first researcher, Vincent, was a 24-year-old music instructor at a rural school. He had one year of teaching experience prior to beginning his master's thesis. The second researcher, Renée, was a 26-year-old language arts and social studies teacher in a small, rural school. She taught grades seven through twelve and had three years of teaching experience prior to beginning her master's thesis. The final researcher, Joshua, was a 28-year-old language arts and social studies instructor at a rural school. He taught grades nine through twelve and had two years of teaching experience prior to beginning his master's thesis. None of the graduate students had

experience conducting formal research prior to the thesis study. What made this collaboration unique were the relationships between the researchers. Vincent and Renée are brother and sister, while Renée and Joshua are married. All three lived in the same rural town, yet each taught in different communities.

3.1. Project Description

Each of the researchers had a different academic advisor. One advisor mentioned the idea of a collaborative thesis, and brought it to the attention of the other two, who agreed to be co-advisors of the thesis and developed an additional qualitative project to ensure academic rigor. The researchers were guided by the central research question: What are the perceptions and experiences of three graduate researchers who collaborated on a thesis?

The three graduate students were required to keep journals about their experiences while researching. Next, they met with one advisor monthly who took charge of the additional project. During these meetings, the students and advisor discussed the journals, the thesis progress, and the collaborative process. They were required to write an additional paper, which included a section of referenced background information about graduate collaboration, a qualitative analysis of their journals and experiences, and a discussion of their experiences.

The faculty advisor guided the graduate students to find resources and develop themes from their analyses. The final paper was about fifty pages, which included the title page, table of contents, and reference pages. It generally followed the format of a traditional research manuscript, including an introduction, background information, methodology, findings, and a discussion. Finally, the researchers formally presented their findings and fielded faculty questions at a presentation immediately following the thesis defense, and provided their advisors with a copy of the written paper.

3.2. Analytical Methods

Permission to perform research was obtained through the university's Institutional Review Board. During the thesis process, the researchers kept individual reflective journals that expressed their thoughts, insights, ideas, and concerns. Each made the first journal entry on the day they met with their advisor to discuss the option of collaborative research, and made the last entry the day after their thesis defense. This spanned three academic semesters (fall, spring, and summer). The researchers often wrote entries after thesis meetings and collaborative work. Discussions about the collaboration process were also noted in their

research journals. They averaged two entries a week throughout the eight months of research, and entries varied in length from three sentences to two pages.

After they completed their collaborative thesis data analysis and much of the thesis writing, the researchers worked on the analysis for the secondary qualitative project. They conducted group interviews, in which they asked semi-structured, open-ended questions about their experiences to one another, and the group answered and discussed them, noting the results in their journals. Since the three researchers were the also the participants in this study, they were actively involved in the research. They individually coded the journal entries and developed categories and themes [30]. They then coded one another's journals and checked to see if the interpretations matched. After they developed themes for the study, the researchers made suggestions to the university's Department of Education about considerations for future qualitative research collaborations based upon their experiences.

3.3. Validity

The researchers were interested in the perspective of individual realities of the participant researchers. The three participants in this study also performed the research, which aided in the understanding that the portrayed reality is generally representative of those involved [31]. The researchers addressed validity using multiple measures, including personal involvement in the research, peer debriefing, and multiple data collection methods [30] [32]. Since the results were interpreted and edited by all research participants, they accurately portrayed the beliefs and experiences of those involved in the project.

4. Findings

Upon coding the journals and discussing the findings, the researchers grouped them into four emergent categories: Support, Reflection, Sacrifice, and Growth. These categories represented their beliefs about the process of their thesis collaboration. The support that developed by working together was vital to their success. The group dynamics and individual styles allowed them to reflect upon the research and contribute their strengths to the group. However, with collaboration came sacrifices in their personal and professional lives, as well as sacrifices in individual power resulting in forced compromises. The researchers also felt as though they grew in their research, writing, and thinking abilities through working together.

4.1. Support

Since this was the first collaborative thesis the university had ever approved, the three graduate

students strove to ensure they would produce a quality thesis and contribute significant work towards this capstone project. Vincent wrote, "This needs to work out. I'd feel terrible if they let us do this and we let them down." Their three advisors supported their collaborative project from the onset, which was important to the graduate students' motivation.

The professor who took on the role of the collaborative advisor was the first to suggest the idea. She was able to move forms quickly and defended the project from the beginning.

The success of the thesis and the collaborative study was made possible by the close familial relationships of the three researchers. Joshua and Renée were married and found it convenient to be able to discuss their ideas and frustrations at any point. Renée indicated she "talked to Josh all the time about it. Sometimes I vent, sometimes I ask questions, but it's nice to have someone always there." The third researcher, Vincent, who was Renée's brother, also found it beneficial to be able to discuss topics openly and honestly.

The researchers supported one another because they trusted the others to uphold their responsibilities and scheduled meetings. During one particularly busy time of the year in which Vincent was coaching football in the evenings, Joshua wrote, "I wish he was here to work on Chapter Three this week, but I know that we'll get a lot done this weekend." Vincent stated, "I'm teaching music, have concerts and competitions, coach football. I feel bad we can't meet more, but I'll make up for it." The three supported one another's schedules because they understood personal and professional responsibilities, and often met late at night and on weekends when they were available.

Finally, the researchers were able to support the group with their unique skill sets. Renée and Joshua were English teachers and were able to offer a keen eye for detail and editing. While Vincent was also a proficient writer, he supported the group with his technological adeptness and statistical analysis. The creation of a thesis requires a thorough knowledge of how to access information, use multiple computer programs successfully, and store the thesis safely. The strengths exhibited by the individual researchers not only supported the growth of the thesis, but also helped all researchers reflect upon the research process and their roles within it.

4.2. Reflection

Once the writing process had begun, the three graduate students found that all members were proficient writers. Even so, collaborative writing was extremely complex. It was difficult to develop a continuous flow of thoughts because each sentence was scrutinized by three people and approved by the

group before it would be included in the paper. At times, they discussed the fact that it might have been easier for one person to write a thesis because they could get their thoughts down without having constant starting and stopping. Vincent wrote, "It's very frustrating to work together. I just want to get [my] ideas down and get it done." His writing style was to get the main points down first and edit later, while Renée and Joshua often edited as they worked. This led to many delays due to constant conversations about the best ways to advance their writing.

Through the discussions, the researchers learned more about themselves and about research skills. Renée felt that she "actually learned more about Word software and finding resources by talking about it with Vince and Josh," while Joshua felt he "had to compromise more by doing this as a group, which is actually beneficial." As they read research for their literature review on the living room floor, the three discussed and reflected upon what they were reading. Joshua added, "We'll be reading, and someone will say, 'Look what I found.' And we'll talk about it. It actually makes the literature review fun. Almost."

The dialogue and reflection required democratic principles in the group. In the beginning, they each had strong opinions and were resolute in their vision of the final project. However, they quickly found that this hindered the initial development of the thesis. There were three ideas about the final direction of the paper. However, their three-person was useful because it allowed them to vote democratically when there was no other viable way to resolve their differences. The three researchers agreed that this group reflection was one of the most valuable aspects of their collaboration and led to much deeper thinking about their research.

4.3. Sacrifice

The nature of collaboration forced the researchers to sacrifice power and time. They felt that more work was created because they not only had to research, read, and write the paper, but also had to synthesize their individual inputs into one voice. On several occasions, each of the researchers felt that it would have been much easier to do the thesis on their own. During a particularly long lull in progress, Vincent wrote, "I have talked to several other people about their thesis. They don't have to keep starting and stopping. I think that I would have been done with this a long time ago on my own."

When they started the collaboration, they underestimated how much time each task would consume, partly due to the collaborative work, and found that they had to sacrifice significantly more than they expected. The time dedicated to the project meant that they gave up time with family, friends,

spouses, and pets. Renée lamented, "With winter break almost over and school starting and so much to be done, it is very frustrating that we are all so busy. We're still having too much difficulty meeting...I don't like working on the weekends, especially when we have [graduate school] classes." Weekends were not a time for relaxation; they were spent attending classes, reading, and writing.

Since they were all teachers, the three had to work around their full-time job schedules as well as other duties that were assigned. Vincent was a coach and had several other music-related extracurricular activities during the school year that hindered the group from meeting. Joshua gave up a contracted extracurricular position to streamline scheduling, which also meant lost income for his household. Renée had prior commitment that eliminated a weekday that could have worked for the other two collaborators. Because of this, they scheduled around their weekend graduate classes in order to find time to work consistently on the weekends and any school holidays, as well as late into the evening on weekdays whenever scheduling permitted. Joshua wrote, "So we work at night. What choice do we have? It works; we're all willing to be here, so we do it." Although the researchers sacrificed individual power in the thesis and aspects of their personal lives because of the necessary collaboration, they felt they grew personally and professionally because of the group work.

4.4. Growth

As the collaborative process progressed, their relationships changed. Joshua and Renée believed their marriage was strengthened as their patience was tested. Joshua wrote, "We're compromising more now, since we had to do it so much anyway, we do it outside of the thesis." As the three spent a considerable amount of time together, they learned to work through each other's idiosyncrasies and accept one another's flaws. The bond of the three researchers was strengthened through the project. The ability to listen to and compromise about other opinions in such an intimate setting allowed the researchers to become more open in their other personal and professional endeavors. Renée stated, "We can be honest and can discuss our ideas. We can forgive occasional...outbursts or disagreements over data, phrasing, or setbacks." She felt more assertive at subsequent school meetings, feeling more open to express her opinion and contribute to conversations.

All three researchers felt their writing styles improved as a result of working with the others. Vincent believed "it taught me patience and compromise in my writing, and also the careful consideration of word usage." Renée believed she was "less concerned now with every particular detail.

Also, it's nicer to know more about technology, which I definitely wouldn't have if I had done this on my own." Joshua felt he grew most in his "ability to work under a variety of conditions. Renée and Vince had a different writing style than me, and it was good to work with them. I think we're all stronger writers and thinkers now." Additionally, the three felt like they grew as researchers as a result of the collaboration.

None of the students had ever performed empirical research. Joshua noted, "We were fairly confused on how to even start." However, the research process seemed much less daunting since the three collaborators were constantly sharing ideas and concerns. Renée felt she was weakest in statistical methods, and benefitted most "by discussing the data with the other two. It made more sense when we talked about the numbers. I'm not sure if I could have done that by email with my advisor. I need to talk things through."

After finishing the thesis, the three participants felt confident in their ability to perform future research. Vincent was "excited to do this more often." Joshua did not express so much enthusiasm for research, but acknowledged, "I did not even want to do a thesis at the start. Now I know how to research." Renée was much more confident since she finished her thesis, noting, "I honestly didn't know if we could do it, but now I really think we can do any type of writing. This was such an accomplishment. I'm proud of myself and all of us for getting through this together."

5. Discussion

The three graduate students generally benefitted personally and professionally by performing a collaborative master's thesis, which often seems to be the case [6] [7]. The support of group members was vital to the learning process of all three researchers. The success of their collaboration was dependent upon group member support. Student collaboration in higher education is beneficial in skill and knowledge acquisition [33], as well as in preparing novice researchers for collaborative endeavors outside of the institution [4]. The constant flow of ideas and discussion was motivating to the graduate students, and their individual strengths in the group led to a generally positive experience. Their unique relationships likely contributed to their ability to effectively compromise and communicate.

Since empirical research was an entirely new process to each of them, the collaboration let them progress together, using their strengths and reflections to grow from novice researchers to more experienced Master's of Education graduates. The participants believed they learned more about research methodology through the collaborative process, which may be attributed to the effectiveness

of social learning [14] [23], particularly among adult learners [24]. Consistent meetings and rich discussions were vital to their learning and progress.

While collaborative research may not be beneficial or appropriate for all programs, students, or institutions, the researchers in this study found it highly motivating and effective in their professional growth. These may serve various purposes, but this university's vision was for their master's students to acquire skills and knowledge to perform research at an intermediate level. The benefits of this collaborative project contributed to that goal.

6. Conclusion

Although they had to make sacrifices, the students felt they benefitted greatly from the opportunity to collaborate. The perspectives offered are only those of these three authors involved in the project. Additional research is necessary to understand master's thesis collaboration in other contexts, including: collaboration in larger or smaller group sizes; collaboration in other institutional contexts (including distance and face-to-face collaboration); interdisciplinary collaboration; and collaboration of diverse and multicultural students. There is a call for more collaboration in higher education research [3]. While it may not be appropriate for all students or programs, this study adds needed literature to the under-examined topic of master's thesis collaboration, and may help open a dialogue about the efficacy of allowing students to learn socially through the thesis process.

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Information Literacy at Work: Study of Personal Information Management Practices in the Corporate Sector of Kuwait

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Abstract

Review of information practices of 83 knowledge workers from 11 companies representing four important sectors indicated that most employees in the private sector were relying heavily on information collected through company sources, social media, and websites. They saved information on desktops and hard drives, Favorites, Bookmarks, and URLs of websites to facilitate its re-finding in future. Information was organized in folders using different work related categories such as organization structure, file formats, and document types. Employees regularly updated their files and folders, used social media and other tools to support personal information management activities. There is, however, a need to create awareness about the importance of schemes such as personal taxonomies and tree structures to facilitate locating e-documents in personal collections. It was recommended that training programs are desired to be arranged for enhancing information literacy focused on finding and re-finding of information.

1. Introduction

The information landscape is changing considerably with the explosion of digital information made available by electronic publishing, digitization, web sites, and repositories. Professionals appear to be overwhelmed with the information they receive and collect from a variety of sources and channels. Most people can easily find the needed information using the web but it is difficult to relocate the information which is already found. More efficient information management practices are expected to enhance finding and re-finding of information in the digital environment.

We conducted a study to investigate the practices used by professionals in corporate organizations in Kuwait to find and re-find information. We also reviewed the practices used by employees in selected companies to manage information in the context of work and personal development. The study was aimed at developing an understanding of personal information management (PIM) practices and related

issues. The study was guided by the following research questions: What sources are used for information gathering by professionals in the corporate sector? What methods are used for saving and archiving information for future use? What techniques are used for organizing digital resources? What information behavior exists among these employees for managing and updating information?

2. Conceptual Framework

Earlier studies of information behavior have focused more on information seeking and use. For example, Doyle looked at information seeking as part of information literacy [1]. Wilson defined information behavior as the totality of human behavior in relation to sources and channels of information, including information seeking and information use [2]. Choo et al. described three components of information behavior: information needs, information seeking, and information use [3]. Godbold presents a general model for information seeking [4]. Case asserted that information behavior encompasses information seeking as well as other unintentional or passive behaviors [5].

This study goes beyond information seeking. It looks at information behavior with an intention to cover steps after the information has been sought. It particularly focuses on personal information management. The term personal information is used in the sense that the documents are owned by the knowledge workers and are under their direct control [6], not that they necessarily contain information about the persons (knowledge workers). Similarly, the term management is not used in this report in the business sense. It refers to activities that are carried out to make sense of information for its possible application in work. Personal information management (PIM) refers to the practice and the study of activities people perform in order to acquire, organize, maintain, retrieve and use information items such as paper-based and digital documents, web pages and email messages for everyday use so as to complete work-related and other tasks [7].

The term Personal Information Management (PIM) in this paper is used to describe the collection, storage, organization and retrieval of items of digital

information (e.g. email, files, appointments, reminders, contacts, bookmarks) by an individual in their personal computing environment. Bergman et al. compared PIM with general information management in which a professional – such as a librarian – manages information for other people. In contrast, with PIM the onus is on an individual to manage his/her own information [8].

The abundance of digital resources is creating challenges in finding and re-finding information. Capra and Pérez-quñones pointed out that needs to store, re-find, and re-use electronic information are not well understood and supported by the existing interfaces and retrieval systems [9]. Most people can easily find the needed information using the web but it is difficult for them to relocate the information which is already found. Barth suggested that the most effective strategy in managing personal information and knowledge in the digital environment would be development of self-organization competencies among knowledge workers and professionals [10]. Khoo, et al. suggested that regularity in cleaning electronic files and categorizing information resources in appropriate folders would be helpful in overcoming the information overload in the digital environment [11]. It has been suggested that more efficient information management practices will be required to enhance finding and re-finding of information in the digital environment. Elswelier, Baillie, and Ruthven asserted that information re-finding is one of the PIM activities which address strategies that people employ to manage their information effectively [12]. Rowlands, et al. remind us for a need of improved information literacy among professionals and knowledge workers. They alert that a fundamental shift in the way people seek and read information has already occurred and that the impact of the shift has yet to be understood by information providers and educators.

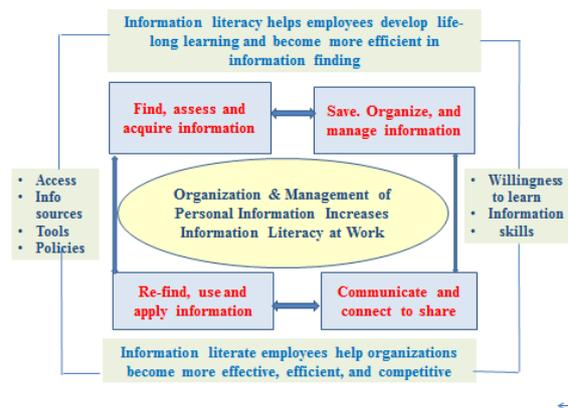
With the growth and the increasing complexity of digital resources, individuals have to use different approaches to organize and retrieve information needed to carry out their personal or professional tasks [14]. More effective management becomes essential with the overwhelming amount of information being produced in the digital environment. In today's information age, storage and organization of information for re-use is a significant problem. Trying to re-find information that was found on the web can be an especially challenging task. Specific web pages, entire web sites, and even small pieces of semi-structured information can be difficult to re-locate at a later time. Deng & Feng described that while most search tools provide help in finding information, they do not provide support when people aim to re-find information [15].

Some studies have discussed the connections between information literacy and knowledge management [16], [17], [18], [19] and [2]. In the digital environment, patterns of information finding have changed. Information is not now searched through delegated search services as used to be the case in the online bibliographic systems. Most professionals now find information themselves. In addition, information is pushed to them from other sources.

It is not the finding that is important, organizing and managing what is found have become even more important to reduce the information overload and save time through efficient re-finding. It is important to understand what practices and strategies will be more helpful to get back to the information already found. There is also a need for guidelines for better handling of e-documents, archives, records, and other vital information resources. Tools and technologies can assist in organizing and managing digital assets if professionals in these institutions are equipped with the right competencies.

The study has been carried out within the scope of activities shown in the conceptual framework for information management practices as depicted in Figure 1.

Figure: Framework for Information Literacy



The focus of information finding is on selection of appropriate information sources and eliciting relevant information to perform different tasks at work); information organization focuses on tagging, categorizing, and storing information in folders; information management focus on maintenance of personal collections (deleting, adding, and updating through regular review and cleaning of files and folders); and re-finding strategies attempt to enhance retrieving and locating of information already found.

3. Methodology

A web-based questionnaire was used for collecting data on different aspects of personal information management. Participants were asked about the sources from where they received and

collected information, how they saved this information for future use and what strategies they used to manage their documents. Data for this study was collected from professionals and managers from selected companies in Kuwait. An email was sent to all major companies in Kuwait identified from major company directories. More than a hundred employees filled-in the questionnaires, out of which only 83 questionnaires were usable. These 83 participants were from 11 companies representing four important sectors of economy: Finance and Banking, Telecommunication, Household and Furniture, and Information Technology. Majority of the participants are male, are under 30, hold a bachelor's degree; and have less than five years of work experience. They hold a variety of position titles including managers, engineers, accountants, and analysts.

4. Findings

Information Sources

Participants reported that they were collecting and receiving work related information from a variety of sources. Table 1 shows the frequently used sources arranged by number of responses.

Table 1: Sources Used for Gathering Information
N= 83

Source	Freq.	%
Company sources (portal, intranet, website, repositories, etc.)	27	32.53
Social media and software	22	26.50
Websites (search engines, e.g., Google)	20	24.10
Instant messages (Windows, Yahoo, Google, etc.)	10	12.05
E-mail attachments	4	04.82

As expected, the top source for collecting or receiving information turned out to be the company sources, social media, and websites. When asked about the most trusted sources, participants reported the following sources: Google (32), Websites (9), Company websites (7), Wikis and blogs (4), Academics, experts, and senior colleagues (3). The following sources were considered most reliable: Company sites/sources (10), Google (10), Websites (7), Vendors and manufacturers (6), YouTube (3), and Wikipedia (2).

It is obvious from the responses that company sources are very valuable for knowledge workers as these were listed as reliable by most and were also the second highest frequently used and most trusted. We asked the respondents what features in company sites were considered the most useful. The following features were listed by the participants: *Search Box*

(10), *About Us* (8), *Organizational Facebook* (6), *Help* (5), and *Contact Us* (3).

Methods for Keeping Information

Participants reported that the most favored method to keep information for future use was bookmarking followed by saving information in folders or drives. Other methods used for keeping information for future use are shown in Table 2. These are arranged by number of responses.

Table 2: Methods to Keep Information
N=82

#	Method	Freq.	%
1	Bookmark or add a Favorite on your desktop	39	47.56
2	Save on desktop, personal folders or share drives	15	18.29
3	Email to yourself	14	17.07
4	Store on outside services	4	4.87
5	Paste the web address (URL) into a document	4	4.87
6	Save the web page	3	3.65
7	Print the page	3	3.65

In response to an open ended, responded reported that more appropriate methods to get back to the information saved were folders were Browsing History (5), Keyword Searching (5), Searching in Google (3), and Bookmarks (2).

It was, however, interesting to note that the choice of methods for saving and keeping information by knowledge workers in the private sector is different from that of their counterparts in the public sector. A recent study reported that knowledge workers in the public sector of Kuwait were not making a good use of bookmarks for saving information [21].

Information Organization & Management

Organization structure (department, functions, etc.) was listed as the most frequently used category to organize information folders. Other types of methods used are shown in Table 3, arranged by number of responses.

Table 3: Categories Used to Organize Information
N=82

#	Category	Freq.	%
1	Organization structure	19	23.17
2	Document type	18	21.95
3	File format	15	18.29
4	Geographic region	9	10.97
5	Subject/topic	7	8.53
6	Project	6	7.31
7	Status/version	4	4.87
8	Other	3	3.65

Since folders are used as the most frequently used method to keep information that might be needed in future. It is important to introduce the concepts of personal taxonomies and information mapping to knowledge workers in the private sector folders to improve personal information management.

The questionnaire contained 10 statements about personal information management behavior. Participants were asked to choose the statements that reflected their behavior the best. A summary of responses is given in Table 4.

Table 4: Information Management Behavior
N=82

#	Statement	Freq.	%
1	I regularly clean up my desktop (e.g., once a week).	25	30.48
2	I clean up file documents into folders periodically.	12	14.63
3	I delete the files/folders when I find they have no use anymore.	11	13.41
4	I file documents into folders immediately.	11	13.41
5	I only clean up my desktop when something goes wrong.	7	8.53
6	I clean up my files and folders when I have time.	6	7.31
7	I clean up my desktop when the work or project is completed.	5	6.10
8	I feel happy after a cleanup exercise (easier to find in future).	2	2.43
9	It is a waste of time to do cleaning of files (better things to do).	2	2.43

About 25% of the respondents reported they cleaned their files and folders as and when needed while another 25% indicated that they did that when documents were no longer needed in their view. Only 15% reported that they were cleaning their desktop on a regular basis.

Several studies have indicated that companies lose considerable financial resources as a consequence of knowledge workers not being able to find information from their own folders. It has been pointed out that finding information is difficult for the first time but it is even more difficult the second time. Efficient information management behavior been suggested as a good strategy to overcome this problem.

Re-finding of Information

Information re-finding is a more directed and targeted search task than information finding. Finding information is an exploratory activity that involves recognition, while re-finding information is a focused task which involves both recognition and recall. Ten statements were chosen to seek input from the participants of this study. Table 5 shows use frequency of various approaches the knowledge workers in the private sector of Kuwait used.

Table 5: Strategies Deployed for Re-Finding Information
N=82

#	Strategy	Freq.	%
1	Searching by keywords	31	37.80
2	Browsing through folder structure (by names folders and files)	16	19.51
3	Access through bookmarks	13	15.85
4	Search the file names remembering tags or labels	11	13.41
5	Prefer to use my memory	7	8.53
6	Scan the desktop screen	4	4.87

Folders are the most frequently used means for saving and re-finding information. Other methods used by the respondents included Searching in Google (3), History (5), Keyword searching (5), and Bookmarks (2). Since saving information in folders is a preferred method of private sector employees, it is desirable that proper organization schemes (such as personal taxonomies or tagging systems) are introduced. There are simple tools available for structuring folders for email and documents as well as information items in personal collections. These features can also be integrated in the enterprise information systems used by private sector organizations.

5. Conclusion

Knowledge workers in Kuwaiti companies are overwhelmed by the amount of information they collect and receive from a variety of sources. Review of information management practices indicated that they are relying heavily on information collected through, company sources, social media, and websites. Participants also reported that a big chunk of information is kept for future use.

The most preferred methods to save information included bookmarks or favorites and saving information in folders. Most participants appeared to be well informed about the need for organizing the saved documents. The most favored categories used to organize information in folders included department/function, document type and file format.

Information management behavior of study participants was found encouraging as a majority of them reported that they regularly cleaned their desktop, filed documents into folders on weekly basis, and deleted files/folders when there was no use for the information they kept. Folders were the most frequently used means to re-find the information, while searching by keywords and accessing information through bookmarks were also listed as frequently used strategies for re-finding of information already found.

There is, however, a need to create awareness about the importance of schemes such as personal taxonomies and tree structures to facilitate locating e-documents in personal collections. Also, methods of re-finding of information and need to be reviewed training in information literacy is desired to be organized to enhance information finding and re-finding capabilities.

6. Acknowledgements

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Program Development Distance Education for Health professional - as an Organizational Strategy

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Abstract

The EAD [Distance Education] is an important strategic tool for survival of professionals, in addition to boost organizations struggling to maintain and gain spaces in the market. Purpose: to identify and update the knowledge of health professionals in the treatment of basic and advanced cardiopulmonary arrest (CPA). METHODOLOGY: case study performed in Hospital Sírio-Libanês in partnership with Senac - São Paulo (Brazil). It involved 2012 and 2013 and 5,195 health professionals. ANALYSIS and DISCUSSION: There was a good acceptance of EAD programs; by assessing the course, the answers showed its positive aspects and suggestions for undertaking new editions of the course. CONCLUSION: in the health sector, the EAD is an educational practice and an effective strategy to face the challenges that are present in the everyday work of health professionals.

1. Introduction

Distance Education (EAD) in Health is one of the key considerations for consolidating the reform of the health sector, training and continuing education of the workforce in health that needs to be prepared to face changes and monitor global technological and scientific advancement. Thus, there is the need to overcome the challenges of continuing Education in health, sharing and making available the scientific knowledge produced to solve problems of the sector. Therefore, a Continuing Distance Education in Health program with the use of networks may be a new paradigm.

This proposal sets up through the educational technology in health seeking new alternatives for the realization of the proposed program with the incorporation of technological and scientific progress in various fields of knowledge, offering new perspectives and advances for the training of health workers.

In health sector, the movement of Distance Education meets the political premise adopted by the Ministry of Health, which has in the permanent health Education (Brazil, 2007) means of changing

work practices for new models of policy formation, care, management, social participation and social control in the health sector [7]. Thus, continuing education can be done via EAD as a strategy for training and qualifying health professionals, providing expertise and quality in patient care.

So EAD is currently seen as a result from the possibilities that the New Technologies of Information and Communication (NTIC) brought the current Information Age, which began with the advent of computer technology (the 60's).

EAD is an important strategic tool for survival of professionals, in addition to boost organizations struggling to maintain and gain spaces in the market. EAD updates professionals and facilitates their access to new technologies, to keep them updated.

Its goal is to democratize the access to quality education, serving students in various educational needs and situations.

Lind and Mac Nab consider that EAD allows and respects time, space, actions and processes that suit the requirements of each individual, encouraging continuous learning and reducing costs to the student [3].

In Brazil, EAD is recent and has achieved momentum and political expression with the Law of Guidelines and Bases of National Education Law No. 9394/96 that put it as a regular modality member of the Brazilian Educational System.

As a result, it is observed that the Market of Health of Brazil has been concerned about the continuing education through transforming the educational practices of training, care, management and public policy formation. EAD mode allows healthcare professionals to constantly update knowledge, without driving them away from their routine activities and the resources enable the reproduction of learning situations, often better than in a conventional classroom, in addition to allow the interaction student X teacher by shortening of time.

The Purpose of this study was: to identify and update the knowledge of health professionals in the treatment of basic and advanced cardiopulmonary arrest (CPA).

2. Methodology

This study is characterized as a case study, which is a type of research that examines in depth a particular individual, group or social element. The study has also a descriptive, exploratory character with a qualitative approach, thus seeking to observe, describe and document aspects of a qualitative approach that is based on the knowledge on the individual that is only possible based on the description of the human experience.

It was performed in a reference, philanthropic hospital institution that develops integrated actions of social health care, education and research. It is recognized internationally for excellence, leadership and pioneering in healthcare and generation of knowledge with social, environmental responsibility and self-sustainability, attracting and retaining talents.

Said Hospital formed a partnership with the Institution Senac - SP (National Commercial Training Service) to conduct the case study. The National Commercial Training Service (Senac) is a renowned Brazilian educational institution also located in the city of São Paulo, which has a University Center and operates in the areas of health and education for over 65 years, offering vocational training and higher education.

Meaningful learning was used as a pedagogical basis of which the acquired knowledge must relate to the student's prior knowledge; as a teaching strategy, it was prepared an interactive animation, demonstrating the sequence of care for Cardiopulmonary Arrest (Basic courses for lay and Advanced courses for Adults and on Pediatrics) through texts and pictures, graphics and videos. The period involved 2012 and 2013; after the completion of the program, an online assessment was applied to check the knowledge of health professionals who participated in the training. In 2012, they were trained: 4247 professionals, being 2,140 basic CPA; 1,770 Adult CPA and 337 pediatric CPA. In 2013, it was observed basic CPA 893, adult CPA 540 and pediatric CPA 149 employees.

3. Analysis and Discussion

According to the study purpose, identify and update the knowledge of health professionals in the treatment of CPA, it was observed that, during 2012 and 2013, 5,195 professionals were trained from different units of the hospital institution. Through the instrument of evaluation applied after the course, there was a good acceptance of EAD programs, there was no barrier for the adoption of the methodology. Professionals stated that "the motivation for the course was the knowledge (acquire, extend, enhance, build and deepen)".

In this central idea, the word order is knowledge, since the answers about the motivation to take the course revolved around this word. Professionals declare interest "for the interactive technologies", whether in information / communication, for them to be prepared to a new educational system, which bring improvements to our health care system.

The "research interest" was also quoted by professional academic researches, in social and health networks that are very close to the speeches of the participants. "The training and experience in the health area" was mentioned as a parallel result, to also get more guidance to perform better on a consistent supply of courses, that will minimize the problem of lack of digital literacy in health care.

In the final evaluation of the course, the answers were composed of positive aspects, as well as suggestions for future editions of the course, among others.

4. Conclusion

In the health sector, we can consider that EAD is an educational practice and an effective strategy to face the challenges that are present in the everyday work of health professionals. EAD should not be thought of as a means of information or training, but educational training, a possibility for social transformation, starting with reducing inequalities in access to members of the Brazilian educational system educational institutions. From the results obtained, it was found that, in a short time, it was possible to update employees on these procedures and steadily, it was observed that the program may be available to new health professionals hired. Hospital Sírio-Libanês, by undertaking the course in partnership with the Senac Institution - São Paulo, managed to pique the interest of other health institutions, including the public ones that started to hire the National Commercial Training Service - Senac - São Paulo to develop health programs in the EAD mode similar to this one.

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Is there an App for that? The Usage of Mobile Technology for the Purposes of Teaching Health Education in Grade 4 and 5

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Abstract

The use of mobile devices in elementary schools has steadily increased in the last few years. These mobile devices harness many tools that can help teachers teach classroom material and help students become better students academically. The research question was “How can mobile devices be used to teach health education?” Research was conducted in a grade 4 and 5 classroom to see which mobile apps worked best among teachers and students in conveying health education. Anecdotal notes and daily journaling over a two-month period documented how the students enjoyed playing games and also how engaged they were when they subsequently used the devices for non-gaming purposes. It is still unknown how well these apps conveyed messages of health. How the mobile apps are being used in the classroom and the content inside the mobile apps largely dictates the messages they can convey to the students.

Session 7: Education Policy and Leadership

Creating a Model that Empowers School Leaders
(Authors: Syed T. Shah, Muhammad Riaz, Mary Kelly, Elsa-Sofia Morote)

Organizational Learning and Innovation in Education
(Authors: Asadollah Khadivi, Marzieh Hosseinzadeh, Masoumeh Hosseinnejad)

The Training of School Principals: A Comparative Study between Two Public Models - Jalisco and
Edmonton
(Author: Miguel Angel Diaz Delgado)

Creating a Model that Empowers School Leaders

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Abstract

The purpose of this study was to present a model that leads school leaders' empowerment, utilizing the following variables: resources to reward, information management, instructional leadership, and knowledge of technology. A survey was sent to school leaders in the United States who were trained to use IBM Change Toolkit software. 304 school leaders answered this survey. A structural equation model was used to create the model. The model shows that the major contributors of school leaders' empowerment are instructional leadership and information management. In addition, knowledge of technology influenced information management, which in turn influenced their empowerment. Similarly, resources influenced instructional leadership, which in turn influenced empowerment.

1. Introduction

The purpose of this study is to explore how does instructional leadership, information management, resources to reward, and knowledge of technology influence the empowerment of school leadership in the United States. Empowerment is an important tool in management sciences used to motivate organizational members for achieving organizational goals. It is involving them in decision making and planning process. Empowering organizational members not only gives them authority but also makes them more responsible and they feel sense of ownership and their commitment to the organizational increases. As we will see in literature review, researchers have already established the importance of empowerment in education and how it helps school leaders. Therefore, it also important to know the factors those contribute towards the empowering school leaders. This study is about finding these factors and explaining how they contribute to the empowerment of school leaders. The empowerment model presented in this study is based on variables instructional leadership, knowledge of technology resources to reward, and information management, which contributed to empowerment.

2. Literature Review

Empowerment is a distribution of power among organizational members to authorize the making a certain kinds of decisions [6]. More precisely, it is the extent to which organizational members are involved in the decision-making, planning and implementing change in an organization [2]. It also refers to extent to which school leadership has the authority of the decision-making and implementing organizational change.

Empowerment also facilitates human capability in an organization to foresee and enhance the prospects for autonomy, authority, responsibility and choice [9]. It provides a foundation and an important element for school reform. According to the research study of organizational management and sociology of work, empowerment is a change in the distribution of power in a working environment [8]. Empowerment makes people positive not only about themselves but also their organizations, which results in a positive environment, job satisfaction, greater productivity, and loyalty to the organization [3]. Pearson found that educators who perceived themselves more empowered tend to be more professional and was satisfied with their job. He also found that perceived empowerment and professionalism were highly correlated [10].

Heller and McNulty claimed that empowerment describes leadership and also provides essential elements for enhancing a leader's ability to empower staff and students [3]. This ability to empower others in turn results in leadership denseness within the organization. They also described that success needs a conducive-environment for empowerment. Empowering leaders is a change that builds trust in an organization, motivates them into taking risk for innovative decisions for organizational success, and promotes teamwork for problem solving [12].

Instructional leadership is those actions that school leaders take, or delegates to others, to promote growth in student learning. Instructional leadership involves setting clear goals, managing curriculum, monitoring lesson plans, allocating resources and evaluating teachers regularly to promote student learning and growth. Instructional guidance is utilizing national, state, and district standards by school in planning and implementing instructional programs [2]. Today school leaders are

required to be social, political, and instructional leaders to be empowered and influential. This understanding helps them to see beyond the walls of schools to search for opportunities to cause a positive change at multiple levels [11].

Information management is effective and well-timed communication in an organization that is relevant in achieving its objectives and goals. Moreover, it includes related data for decision-making, and also communication, and input from stakeholders [2]. In a study related to nursing profession, Trus and Razbadauskas stated that information and its access was one of the important factors of empowerment [13].

Mary Kelly [4] stated that the institutions needed resources to support and motivate employees' formal and informal systems of rewards to reach the goals. Resources are the extent to which an organization has the financial, material, and human capital to achieve its goals, or the ability to overcome obstacles that may exist in obtaining these items. The availability of resources is necessary for an organization to achieve its objectives and to overcome barriers. It is also a capacity of getting through the barriers in acquiring these substances [2]. Human resources, financial resources, and technological resources play active role for the empowerment of school leadership. These resources are correlated with one another. Financial and human resources are helpful to ensure complete and sustained implementation of the technology plan in schools. Leader can integrate strategic plans, technology plans and other improvement plans and policies to align efforts and leverage resources.

Different rewards are used as incentives and for motivation in order to achieve organizational goals and to satisfy individual needs and these rewards depend on availability of different resources. Different members in an organization hold different roles, that is, some hold positions of allocators of the rewards and other are recipients. A principal in a school is an allocator who allocates materials, research equipment, grants etc. to the teachers. These rewards are important in motivating the team members to exert the highest level of energy in achieving goals. Allocators with higher level of resources are able to give more rewards to their subordinates therefore able to achieve higher results [7].

Heller and McNulty stated that knowledgeable leaders were good at deciding what was important in a school and their thinking-level was raised which helped these leaders in understanding the school environment and day-to-day matters [3]. High-level thinking makes the leadership visionary, proactive, and future oriented. High-level thinking is learning something with experience and gaining familiarity through knowing and with association. It is

knowledge of the technology required to use as a tool in one's professional exercise.

This study defines the terms used in this study as follows:

Resources to Reward: The leadership of an organization needs resources to support and motivate employees. It should have formal and informal systems of rewards to reach the goals.

Instructional Leadership: Instructional leadership consists of direct or indirect leadership behaviors that significantly affect teacher instruction, and, as a result, student learning.

Information Management: It is ability of collecting, organizing, and sharing of information. This ability helps the leaders to utilize data and information in a timely and effective way for organizational planning and decision-making.

Knowledge of Technology: It is knowledge of standard and advanced technologies including Internet, computers, digital devices, software and other professional equipment. It includes set of skills required to operate these technologies.

Empowerment: It is the process of increasing capacity of individuals or groups to make choices and transform those choices into desired actions and outcomes.

3. Methodology

The purpose of this study is to explore how does instructional leadership, information management, resources to reward and knowledge of technology influence the empowerment of school leadership in the United States. In order to answer this research question, we first apply correlation among the variables; once we identify the relations we proceed to create a model using Structural Equation Model (SEM).

The 304 participants in this study worked in various schools settings throughout the United States as school district leaders or school building leaders. The data used in the study is a part of a large survey conducted by Kelly for her doctoral dissertation at Dowling [4].

The population of this survey was school leaders in the U.S. who received training for using the IBM Change Toolkit. The data were collected using an online survey tool, Zoomerang. IBM collaborators sent these emails to all registered users of IBM Change Toolkit. This software was used for leading and managing change, planning for particular initiatives or projects, developing online collaboration, and communicating among organizational members. It is a diagnostic tool that provides a capacity to monitor and evaluate the change progress. IBM sent 20,000 invitation emails.

Participants responded to the survey questionnaire rated on Likert scale (1=strongly disagree, 5=strongly agree).

The validity of the survey was established using a jury of administrators to evaluate the instrument. The jury consisted of seven public school administrators, each of whom had at least five years' experience in the area of school administration. The jurors were given the survey questions, along with definitions of the specific terms. In addition, variables were factor analyzed and refined. The questionnaire evaluated the following variables for reliability. Instructional leadership ($\alpha = .940$), information management ($\alpha = .870$), resources to reward ($\alpha = .787$), and Knowledge of technology ($\alpha = .875$) were all positively contributing to the empowerment.

4. Results

1) Correlations among the variables

Table 1 shows correlations among the variables empowerment, instructional leadership, information

60.22%), followed by information management ($r = .737$, $r^2 = 54.32\%$), resources to reward ($r = .498$, $r^2 = 24.80\%$) and lastly with knowledge of technology ($r = .246$, $r^2 = 6.05\%$).

2) Structural Equation Model (SEM)

A structural equation model (Figure 1) found that there was an influence of the instructional leadership ($\beta = .61$) and information management ($\beta = .38$) on the dependent variable empowerment. This model depicts 54% of empowerment by using instructional leadership, information management. This model also found the influence of the resources to reward on instructional leadership ($R^2 = 38\%$) and that knowledge of technology influences information management ($R^2 = 5\%$). Please note that resources influence instructional leadership, which in turn influences empowerment. Similarly, knowledge of technology influences information, which in turn

Table 1
Correlations among Empowerment, Instructional Leadership, Information Management, and Resources to Reward

		1	$r^2(\%)$	2	$r^2(\%)$	3	$r^2(\%)$	4	$r^2(\%)$
1. Instructional Leadership	r								
	p								
	N								
2. Empowerment	r	0.776	60.22						
	p	0							
	N	202		235					
3. Information Management	r	0.777	60.37	0.737	54.32				
	p	0		0					
	N	201		215		220			
4. Resources to Reward	r	0.607	36.84	0.498	24.80	0.598	35.76		
	p	0		0		0			
	N	203		227		213			
5. Knowledge of Technology	r	0.270	7.29	0.246	6.05	0.223	4.97	0.261	6.81
	p	0		0		0.001		0	
	N	192		206		203		204	

management, resources to reward, and knowledge of technology. Empowerment correlates highly with all the variables. Instructional leadership was highly correlated with empowerment ($r = .776$, $r^2 =$

influences empowerment.

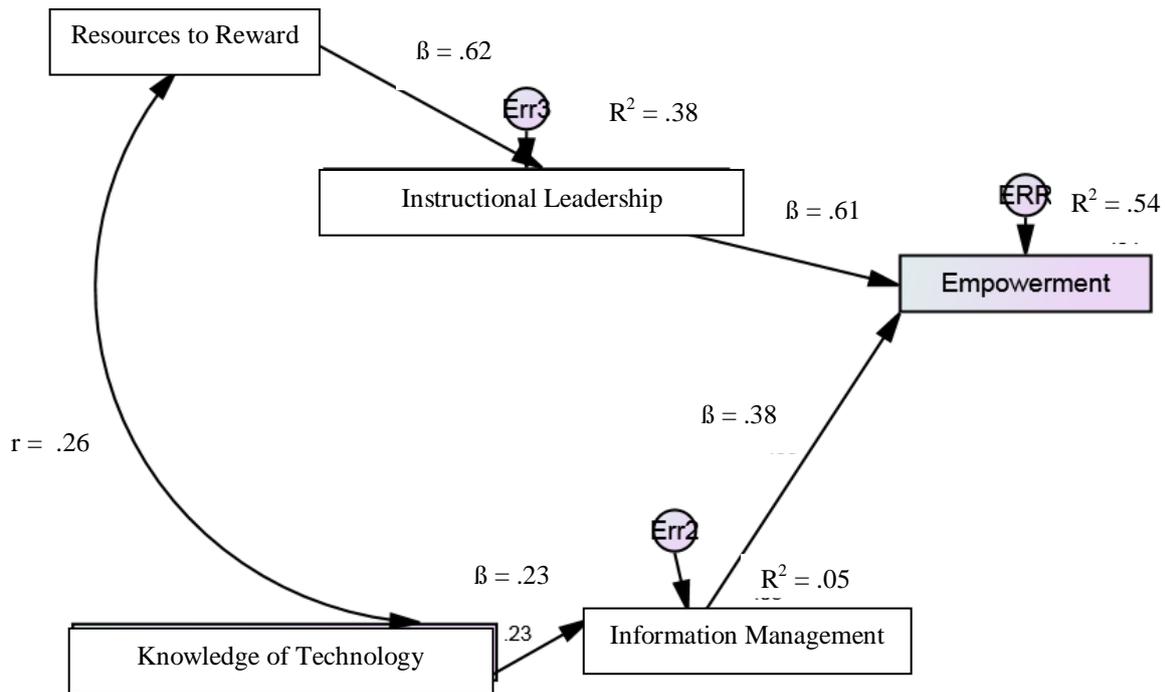


Figure 1: Structural Equation Model – Predictors of empowerment of school leaders

5. Discussion and Implication

The present study was involved 304 school leaders who were given a survey to determine whether resource to reward, information management, instructional leadership and knowledge of technology influence school leadership empowerment. A structural equation model reveals that these variables depict 54% of a dependent variable empowerment of school leaders. It is also worth mentioning that empowerment has strong and significant relationships with instructional leadership, information management, and resources to reward. Thus the empowerment correlates highly with these variables.

In this study, the model among resource to reward, information management, instructional leadership and knowledge of technology influence school leadership. The analysis of relationship in structural equation modeling was in two phases: (i) resources influence instructional leadership which in turn influences empowerment (ii) knowledge of technology influences information which in turn influences empowerment. The findings obtained in this phase of study can be summarized such:

- Resource to rewards positively influence both instructional leadership and empowerment of school leaders
- Information management enable school leaders to influence the empowerment

- Knowledge of technology also has a positive effect on information management and empowerment
- A structural equation model reveals that these variables depict 54% of a dependent variable empowerment of school leaders

Our findings are parallel to the deduction obtained from the research in literature concerning the relationship among resources to reward, information management, instructional leadership and knowledge of technology. School leaders' empowerment can be enhanced through involvement in the decision-making process is supported by Kim [5] who stated that empowerment is a distribution of power among organizational members to authorize the making a certain kinds of decisions through instructional leadership, information management, resources to rewards, and knowledge of technology. An improvement in these aspects might result in more empowerment of school leaders. Heller and McNulty [3] argued that empowerment makes people positive not only about themselves but also their organizations which results in a positive environment, job satisfaction, greater productivity, and loyalty to the organization that is also aligned our findings.

A further implication is that empowerment of school leaders might result in their motivation, responsibility, and sense of ownership. Empowered school leaders are willing to empower teachers and to take risk for innovative and future oriented

decisions. Well-informed and well-trained school leaders are more empowered. Resources positively influence both instructional leadership and empowerment whereas knowledge of technology also has a positive effect on information management and empowerment.

This study could be useful in future planning and decision-making to empower school leaders. The features like instructional leadership, information management, resources to reward, and knowledge of technology are considered for enhancing empowerment of school leaders.

Future research can be conducted to understand how principals decide to adapt their leadership practices in schools obtaining empowerment by instructional leadership, information management, resources to reward, and knowledge of technology.

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Organizational Learning and Innovation in Education

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Abstract

The present research aims to determine the relationship between organizational learning and innovation among school principals in Miandoab County in the academic year of 2011-2012. The research method was correlation in the research. Data was collected by standardized innovation and organizational learning questionnaires. The statistical population was all women and men at the primary grade in Miandoab County, which 75 people were selected by the proportional random method and the adjusted score of Cochran's formula, and responded to questionnaires. For assuring test reliability, Cronbach Alpha was used, which was confirmed, and for assuring test validity, formal validity and content validity were used; the SPSS software Version 17 was used to analyze data. The results showed that there was a significant direct relationship between organizational learning and its seven components with organizational innovation. Also, organizational learning components including organizational competencies, group work and learning and learning and participative leadership account for %37 of organizational innovation.

1. Introduction

Today innovation is of highly importance for organizations intending to continue their life. In other words, if an organization doesn't take a serious action for creativity and innovation, it will definitely fail. For creating promotion and innovation in the organization, we should increase innovation capability in individuals in the organization because organizational learning includes elements: information acquisition, information interpretation, and behavioral and cognitive interpretation [1].

The necessity and importance of finding solutions to creating innovation is that organizations are in a time when is called under different topics such as information age, speed age, creativity age, innovation age etc., which should prepare themselves to manage the world's quick changes. Flexible organizations encounter problems and difficulties logically and if a change is required, after examining it wisely they apply it. However organizations which have an inflexible structure face chaos in crisis periods to create cooperation [2].

Of course, innovation resulting from organizational learning will make organizations capable of obtaining a competitive advantage and offering new ideas to promote organizational performance [3].

The dimensions of organizational learning include the following from Neefe's view.

1. Shared Perspective: In this regard, Marquardt [4] believes that a common perspective provides focus and energy for learning;

2. Organizational Learning Culture: Members in the organization unconsciously act to learn to adapt to external environment and solve interior integrated problems;

3. Group work and learning: Teams, and not individuals, are units of basic learning in new organizations [5];

4. Sharing Knowledge: Organization capacity for transferring knowledge represents power transferability and sharing, which is need for the organization's success [4];

5. Systems Thinking: Systems thinking is to understand sources of and solutions to new problems in which the superiority of whole over part is confirmed;

6. Participative Leadership: In participative leadership, employees feel that they are required and that their presence is efficient to the organization, resulting in an increase in commitment to the organization and a decrease in stress level;

7. Development of employees' competency: To manage human resources, employee knowledge and skills should be promoted. Of course, development of human resources doesn't result from a lot of training but it should be planned and performed systematically [6].

Senge [5, 7] believes that five disciplines convert organizations to a learning organization:

1. Systems Thinking: It is a pattern based on whole over part. In this method, a problem is divided into parts, then each part is studied individually, and finally it is concluded about the whole. This rule constitutes the basis of organizational learning;

2. Personal Mastery: It is a discipline of continually clarifying personal vision, focusing energy and seeing realities objectively;

3. Mental Models: They are very deep imaginations or even images that affect our perception of the world and how we act against it;

4. Shared Vision: It can act as the heart of the learning organization;

5. Team Learning: It is the process of developing the capacity of group members.

The organizational learning process is consisted of four subprocesses. The first organizational learning process is to attract knowledge from environment. The second process is to distribute knowledge within the organization.

The third is to interpret knowledge and ultimately organization memory which means the process of storing information and knowledge obtained to use in the future. The final process is the organization's learning process [8].

The innovation process is to develop and administer new ideas by people who participate in interaction with others to change institutional and organizational contexts [9].

Altshuller divided innovation into five levels:

Level 1: Standard Level

Small improvements in systems which haven't changed their nature constitute innovation of Level 1 in which a specific feature of the system usually is improved or reinforced.

Level 2: Improvement Level.

They are innovations that result in small improvements in the system in parallel with a decrease in the contradiction inherent in the system. To achieve this innovation, having information required in a technology field is sufficient.

Level 3: Invention in the Field of Existing Technology

In this level, the contradiction in the existing system is resolved by introducing some totally new elements.

In this Level, technologies relevant to other industries are used.

Level 4: Invention outside the Field of Existing Technology

These kinds of innovations are discovered from the field of science, and not technology. In this level, the contradiction is removed, and physical effects and phenomena are employed.

Level 5: Discovery

This level belongs to knowledge beyond its time limits. These resolutions are created when a phenomenon is discovered and applied to on innovative problem.

Altshuller focused his research on Levels 2, 3 and 4, and avoided Level 1 because resolutions were not innovative. Also, because resolutions of Level 5 needed to discover new phenomena and there were few examples of them, he didn't do an organized activity to examine them.

Creating innovation requires innovation culture in the organization, because if culture doesn't accept innovation, it will face failure.

Martins and Terblanche [10] mentions that supportive culture encourages creativity of innovative ways to state problems and find solutions.

Organizational culture can postpone organizational innovation as it stimulates it. Lean [11] Found that organizational learning can play an important role in increasing innovation. In fact, innovation is affected by a set of individual and collective components. One of collective components is organizational learning that has a positive and direct effect on innovation, and also improves performance by innovation.

2. Research Methodology

The present research is a survey of descriptive – correlational type in terms of controlling research conditions. The statistical population is all 177 principals at primary schools in the academic year of 2011-2012, which using the adjusted score of Cochran's formula 75 principals (38 women and 37 men) were selected by proportional random sampling and were studied. In the research, two standardized questionnaires were used to collect data related to organizational learning and organizational innovation.

3. Findings

In the section, we examine the relationship between organizational learning variables and organizational innovation. Considering Hypotheses 1 to 7 present the relationship between organizational learning and organizational innovation, respectively, we concluded that there is a relationship between individual organizational learning variables and innovation in education. Also in the main hypothesis it was pointed that "There is a relationship between organizational learning and innovation in education; after it was examined, it was recognized that there is a relationship between organizational learning and innovation in education.

4. Research Question

Which of organizational learning components is a better predictor of innovation at primary schools in Miandoab County?

It follows from tables that development of employees'

Competency of beta 0.277, group work and learning of beta 0.271 and participative leadership of beta 0.231 have significant roles in explaining innovation in education in Miandoab.

5. Discussion and Conclusion

In this research, the relationship between organizational learning and innovation was addressed. The result of the research represents a positive and significant relationship between organizational learning and its seven components with innovation in education in Miandoab. Altshuller believes that 35% of innovations are in fact solutions presented in a specialized field and that the use of engineering techniques and specialized knowledge is one of features of innovation. In fact, the innovation process is based on knowledge building and learning. Research carried out by Safaee-Fakhri and Sharifian [12] indicates that there is a positive relationship between organizational learning and innovation and that it results from the existence of flexibility in decision making, improvement in human resources and creative suggestions.

Organizational learning and its components are one of the most variable that should be noticed and trained from authorities in an organization. As a result of the research question we reached a point that among organizational learning components, the most important components explaining better organizational innovation are employees' competency, group work and learning, and participative leadership in the organization. Managers are proposed that they support innovation supporters in the organization that they take a risk in performing managerial work and important organizational decisions, and that management is done through participation and using employees' innovation and creative thinking.

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The Training of School Principals. A Comparative Study between Two Public Models: Jalisco and Edmonton

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Abstract

This is a doctoral research where experiences from two Principals training programs were compared seeking to document the relations that links Principalship in two different contexts unveiling shared training needs for principals and seeking to construct the basis of a public policy for Principals training in Jalisco State inserted in an international environment.

The study presented, agreed the idea of that Principals training programs are a key area for the development of the capacities of school principals, especially if they are based on comprehensive relational practices, providing support for principals in solving problems of school life.

The comparative study addressed at organizational structure, relationships, and processes from the training programs from the voice of key participants (Principals and mentors). It was developed a qualitative research with quantitative elements that collects data from semi-structured interviews, structured written reflections and different types of dialogues within the principals training programs, a methodological strategy based on relational theory from social constructivism.

The research contributions lies on the proposal of five points of action, boosting dialogues between training models for school leadership.

Session 8: Curriculum, Research and Development

Using Intersectionality to Understand Post-Secondary Pathways of Marginalized Groups
(Authors: Karen Robson, Rob Brown, Paul Anisef)

Reclaiming our indigenous voices in postcolonial Sub-Saharan African school curriculum
(Author: Edward Shizha)

Direction of Civic and Citizenship Education for Developing Creative Character Strengths in Korea
(Author: Kim Tae-Jun)

The Role of School-University Partnerships: Leveraging Faculties of Education to Make a Difference in Social Equity
(Authors: Wendy Barber, Suzanne de Castell, Janette Hughes)

Using Intersectionality to Understand Post-Secondary Pathways of Marginalized Groups

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Abstract

Students occupy multiple markers of their identities that can include their race(s), class, gender, and whether they have special education needs. This research uses Toronto District School Board data to examine how various combinations of traits influence the PSE trajectories of individuals. We find considerable evidence that university and college pathways are closely linked to combinations of race, class, gender, and special education needs characteristics. Using an intersectionality framework, we make suggestions for how future policy work may contribute to leveling the playing field.

1. Introduction

We examine the postsecondary (PSE) trajectories of Toronto high school students, focusing on how various status characteristics (gender, race, class and special education needs) serve to influence such trajectories. Our analyses involve the use of several data sources. These include: data from a 2006 Toronto Student Census completed by Grade 12 students (N=14048); data from the 2006 Canadian Federal Census on household income (matched by postal code to the Census Dissemination Area of approximately 300 households); and data on post-secondary applications and confirmations as supplied to the Toronto District School Board (TDSB) by the Ontario University Applications Centre (OUAC) and the Ontario College Applications Centre (OCAS). We use multilevel modelling in order to account for school-level differences. In order to operationalize our theoretical perspective of interest – intersectionality[1] – we will run several interactions (also known as product terms and moderators) between key status trait indicators in our data (i.e. race, class, gender) in order to explore their relationship to PSE applications. We will also employ data visualization techniques available in the statistical package Stata in order to clearly depict the differences in PSE applications as they vary by the groups under consideration. Existing Canadian literature makes strong suggestions as to what groups

succeed in terms of PSE enrollment (i.e. Asian, south Asian, second generation in particular, females and members of the higher socioeconomic groups) and what groups do not (Caribbean and Latin American, males, members of the lower socioeconomic groups, students with special needs education). However, there has not been much exploration of different combinations of these traits.

2. Research Rationale

There is plethora of extant research on the predictors of postsecondary transition. The vast majority of this literature, however, does not understand the multifaceted nature of students' identities. It is known that gender, race, ability status and social class all contribute to life chances, but the intersections of these traits are rarely considered. Using an intersectionality approach, we understand the identities of students to be unique combinations of traits that historically act to enhance or reduce their likelihoods of progressing to PSE.

3. Contribution to Knowledge

Our results contribute to the existing knowledge in PSE transitions by understanding the students as living at the intersections of various identities. Instead of focusing solely on the additive effect of different characteristics (race, class, gender, special education needs), we examine how these factors interact together to constrain the choices that youths make. Our research demonstrates that the impact of these four characteristics cannot be fully understood with first recognizing that they are all themselves inextricably linked together.

4. Conclusion

Our findings reveal that issues of race, class, gender, and having special education needs matter very much to the postsecondary transitions made by Toronto high school students. We found significant

depressed likelihoods of attending university by Black males compared to other groups. We found that income, race, and gender were intimately linked in explaining the PSE confirmations of students. We also found that students with special education needs had limited postsecondary horizons and if they are to stand the chance of attending college then only those with sufficient economic resources can do so. All of these findings raise the question as to what sorts of interventions are possible to alter these existing situations that exist to limit the life chances of young people. We argue that building trust between marginalized youth and educational institutions may be one step in reducing the barriers to PSE for some students.

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Reclaiming our Indigenous Voices in Postcolonial Sub-Saharan African School Curriculum

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Abstract

Post-colonial Sub-Saharan African school curriculum experiences challenges from the legacy of colonial education. The curriculum negates the voices of African indigenous populations. Students experience barriers in learning because of the dissonance between the curriculum and their cultural experiences from home. The curriculum falls short of adequately reflecting African cultures. What the schools teach, and how teachers disseminate and transmit knowledge does not reflect the cultural symbolic conventions (collaborative and participatory learning) and representations (knowledge constructs, symbols and cultural beliefs) of the students' cultural experiences. This paper explores ways of reclaiming indigenous knowledges (IKs) and indigenous discourses in African schools. It argues that it is through the implementation of IKs in schools that communities can reclaim their voices in educating their African child. This paper advances a decolonizing cultural critique and discourse that argue that IKs are tools that help students to conceptualize knowledge and enhance academic performance and achievement.

1. Introduction

Despite the advent of political decolonization and emancipation that began in the 1960s in Sub-Saharan Africa (SSA), the education systems in SSA countries are to a large extent a mirror image of colonial education paradigms inherited from former colonial governments. SSA countries are those countries that are geographically located south of the Sahara Desert and were victims of colonization by European 'powers', which imposed their concept of education and knowledge on their African victims. Those countries that are north of the Sahara, often referred to as the Maghreb (the people belong to both Berber and Arab ethnolinguistic groups), are not the focus of this paper. Colonial education, which was imposed on Africans by European missionaries and European colonizers, was hegemonic and disruptive to African socio-cultural practices, IK systems, ways of life and ways of knowing. Before the advent of missionary proselytization in Africa and the

imposition of colonial rule, "Africans were socialized and educated within African indigenous cultural contexts" [1]. Colonization destroyed the roots of Africanness and Africanism (indigenous perspectives of life and existence) and as a result, traditional institutions of knowledge started disappearing. This was largely due to cultural repression, misrepresentations, misinterpretations and devaluation of African indigenous cultures. Indigenous cultures impact on African students' educational progress and sense of personhood. The process of learning relies fundamentally on the learners' abilities to make connections to their culture for identity and social reference. Thus learning is a socializing and interaction process that requires strategies for reproducing culture. Making references to one's culture is the most reliable and effective way to learning and cultural reproduction. Inappropriately selected culture leads to academic failure among students, while culture that is appropriately selected presents opportunities for successful learning and gives students agency in their learning.

Indigenous voices provide African students with the cultural capital they need to enhance their capacity to meaningful learning and improved school performance and educational achievement. SSA governments need sensitivity in selecting school knowledge that is relevant, meaningful and appropriate to their citizens. How knowledge is created, validated and disseminated is vital to students' cognition and their abilities to acquire knowledge and make use of that knowledge. The validation of school knowledge is not only a cultural process, but it is also political. This paper advances a decolonizing cultural critique [2] and discourse that argues for reclamation of African IKs in SSA education. The paper argues that through the implementation of IKs in schools students, parents and communities can reclaim their voices in the process of educating the African child. The paper also concludes that IKs are tools that help students to conceptualize knowledge and enhance academic performance and achievement.

2. Indigenous Cultures in Africa

In Africa, it is problematic to define and characterize indigenous people because of the

diverse subcultural groups. However, all the formerly colonized societies in the continent that have ancestral roots in the continent are considered indigenous regardless of their marginalization status. Sub-Saharan Africa is a large sub-region on the continent that has many heterogeneous ethnic groups that do not share the same cultural experiences. Neither are their cultures homogeneous as there are as many indigenous cultures as there are ethnic groups. They have cultures that are particularistic based on high levels of cultural and linguistic diversity. Therefore, Africans in the Sub-Saharan region do not share a common culture. However, when it comes to colonial experiences and the colonization of indigenous people and their cultures, their experiences may be explained and described in similar terms. In this chapter, the term 'indigenous' is used to refer to "'native' Africans who have their origins and cultural experiences based on their indigenous [African] communities" [3]. While, Africans indigenous cultures are characterized by cultural diversity rather than cultural uniformity, one may be excused for concluding that African ways of knowing and viewing the world are similar in that they can be "enacted and conceptualized as circular, organic, and collectivist" [4].

A discussion of African cultures, in this paper focuses on indigenous ways of knowing, which can be generalized as universal to sub-Saharan African societies. According to Jayeola-Omoyeni, African cultures "comprise all the indigenous activities such as intellectual, moral, physical and vocational training" [5] based on their IKs, which are what local people know and do, and what they have known and done for generations. IK is significant and present at the heart of indigenous peoples' self-identities [6] and self-sustainabilities in their local environments. African indigenous thought seeks interpretation, expression, understanding, moral and social harmony [4], rather than positivist verification and prediction reified through Western scientific paradigms [3]. However, as Battiste and Henderson have noted IKs are both empirical (based on experience) and normative (based on social values) [7]. As a system, IKS constantly adapt to the dynamism of empirical knowledge as well as changing social values. Therefore, African lived experiences are based on tested theoretical analysis of observations that lead to epistemological and ontological realities that are grounded in socio-cultural foundations that guided traditional cultural education.

Considering the multiplicity of ethnic groups in Africa, cultural education has been performed through different channels depending on the ethnic group's beliefs, social organization and values [8]. Nevertheless, the systems share some commonalities, such as communal and participatory education. Reflectively, African indigenous education entails a process of learning, participation, sharing histories

and identities expressed through social, economic and political life. While IKs have no universal definition because of fluidity and multiple meanings, Battiste and Henderson describe them as "the expression of the vibrant relationship between the people, their ecosystems, and the other living beings and spirits that share their lands" [7] An important aspect of life in Africa is the extent to which IKs are an attribute of a whole range of human cultural experience [9]. The most cited definition is by Warren who describes IK in terms of its uniqueness to the local and that as local knowledge it is specific and particular to a given culture or society [10]. IK contrasts with the international knowledge system generated by universities, research institutions and private firms. It is the basis for local-level decision making in agriculture, health care, food preparation, education, natural resource management, and a host of other activities in rural communities. Due to its location specificity, IK is based on community participation in its production, dissemination and utilization. It is the knowledge that indigenous African children learn in their communities, and sadly, the same knowledge is neglected by the education system in African schools.

3. Traditional Education and Colonial System Dialectics

For almost two hundred years, western education systems have dominated in African schools. There is no doubt that current educational practices are largely rooted in western cultural traditions. The arrival of colonialism in Africa in the 19th century disrupted African cultural beliefs and traditions. Before colonial education, education on the continent was essentially indigenous. European education marginalized the holistic, lifelong and practical indigenous traditions. Adeyemi and Adeyinka have defined education as "the process of cultural transmission and renewal" [11]. When viewed from an indigenous African perspective,

Education is an integral part of the culture and history of a local community, which is stored in various forms and transmitted through various modes. Such modes include language, music, dance, oral tradition, proverbs, myths, stories, culture and religion...and have to some extent been the basis for sustainable development in agriculture, food preparation, health care, conservation and other sectors for many centuries. This mode of education has by and large been used as a way of acquiring lifelong learning [12].

When compared to traditional education, colonial education was oppressive. Garvin quoted in Murphy defines oppression as "the destructive effects of social institutions on people, when such institutions damage their identities, denigrate their lifestyles, and

deny them access to opportunities” [13]. Regarding Western education, Bernstein describes western education as creating power structures in the ways it selects, classifies, distributes, transmits and evaluates educational knowledge [14].

Broadly speaking, the marginalization of African indigenous culture in education in postcolonial Africa is a continued historical legacy of European colonialism and mental manipulation. This historical legacy continues to shape contemporary educational and knowledge discourses in Africa. During colonial period, western education created individuals who, at the time, partly failed to use a critical and analytical perspective on the structural causes of their oppression and poverty [13]. While the education system was supposed to free indigenous Africans from poverty, if ever they were living in poverty, it actually contributed immensely to their marginalization and their cultural oppression. Cultural marginalization created African youths who were and are still alienated from their culture and their identities. Oluwole has summarized this plight by arguing that:

Africans today do not know who they are because they never studied nor tried to discover who they were yesterday. However, they have been told they are inferior to whites. Do our youths not deserve to be allowed to find out for themselves who they are? Do we not owe them the duty of providing them with an African education which allows them, to reach their own conclusions on the basis of evidences? Through Western education, we have mostly misled African youths [15].

Reading from Oluwole’s observations, critical postcolonial theorists have concluded that excluding African cultures in the education system has meant that African students are forced to learn a foreign culture that psychologically emasculates their self-identities. Students become victims to “unexamined epistemological assumptions that re-inscribe particular forms of white supremacy ...and colonial relationships” [16]. The legacy of colonial education necessitates the implementation of a critical and transformative education system in Africa.

4. Indigenous knowledge, democratic knowledge and emancipation

Much of what African students learn today is far from democratic knowledge that was transmitted during early socialization by their communities. Traditional theories of socialization emphasize that enduring social, cultural and political values, attitudes and beliefs are gradually acquired during the formative years in childhood and adolescence [17]. Socialization processes are thought to shape the ways in which individuals acquire their attitudes,

beliefs, and values from their social and natural environment. According to socialization theory, once established, cultural orientations are likely to crystallize and persist, even if the new foreign knowledge systems are introduced. Cognitively, cultural values, past knowledge, and historical commemorations should be the foundations of African school curriculum.

Democratic knowledge is political and works to decolonize Western knowledge that is legitimized as school knowledge. It frees the oppressed African knowledge that is undervalued by positivist approaches to knowledge production. According to Kincheloe, democratic knowledge is created to develop and cultivate a reflective community in which members participate and reflect on their everyday situations and the nature of their participation to gain insights into challenges facing their communities [16]. Democratic knowledge, which other scholars describe as critical knowledge is not personal/individualistic but it is community knowledge that reflects shared cultural traditions of the community. Community knowledge confers ownership and control of crucial participation in community projects and development. Any democratic or critical pedagogy that empowers learners and gives meaning to knowledge and learning must be embedded in social relationships and dynamic lived socio-cultural contexts.

Education has the power to free people from misconceptions about knowledge, the nature of knowledge and the utilization of knowledge. According to Paulo Freire, in *Pedagogy of the Oppressed*, education is the practice of freedom for dealing critically and creatively with our reality to participate in the transformation of our world [18]. Acquired cultural knowledge can emancipate individuals and communities by empowering individuals with skills, knowledge and tools for active productive participation in society. From a Freirean perspective, *dialogics* is the essence of education that provides freedom. The educational paradigm involves a human-world relationship in generating the content of education as the practice of freedom. Curricular content should be extracted from the cultural environment of learners. Curriculum planning should involve community stakeholders in order to awaken critical consciousness in the learner, teacher and the community.

Critics of modern education argue that it is facing a deep dilemma in spite of its great achievements. It promises to bring freedom to people, while in practice it builds new cages [19]. The schooling model is extremely structured and limits the freedoms of both teachers and students. Western education tends to focus on abstract and positive knowledge that does not correspond to the world-views of African students. Since western education has built new cages, human being has to break out its

chain and attain new freedom. The majority of Africans lives in rural communities where western knowledge might not make sense because rural communities depend on their indigenous knowledge systems to manage and control their social, health and economic lives. Therefore, western knowledge is extremely alien and divorced from their realities. To be of value and meaning, education should be a flexible, creative and socio-cultural enterprise involving learners and their communities. Knowledge should create and/or mirror the actual cultural needs and expectations of communities in which the schools are located. Meaningful learning should be embedded in community lived experiences of learners. From a phenomenological perspective, students rely on their personal knowledge and their community knowledge and lived situations to reflect on their learning experiences [20] and the teachers' pedagogical interactions with students. From this perspective, students are involved in active and reflective participation in meaning-making derived from knowledge that has practical significance. Thus, learning becomes a liberating and fulfilling experience. Unlike phenomenological knowledge which is participatory, democratic and empowering, western education and knowledge cage the spirits of learners, and dehumanizes them through feelings of alienation, powerlessness and hopelessness. For students and their teachers, IKs as phenomenological knowledge enhance their cognition and perceptiveness. It contributes to their sense of tact in human relations, and it provides them with phatic and empathic forms of understanding that are embodied, situational, relational and enactive [21].

Education should serve as the praxis of liberation [22]. Consequently, in African schools and classrooms, indigenous knowledge, which is rooted in indigenous cultures, has a liberating effect. It liberates students and their teachers [who are also indigenous] from western education that has continued to disrupt continuities in students' experiences, thus creating identity crises. Indigenous students' failure to identify with the knowledge, the structured experiences of formal schooling can "generate tremendous anxiety in those facing questions about who they are, who they should be, and how they want others to see them" [23]. The absence of empowering pedagogies and indigenous perspectives in formal schooling is a threat to educational performance and success, cultural identities and self-perceptions of African students. As Omotoso aptly concludes,

Western knowledge has exposed us to the outside world, but indigenous knowledge will restore our inward beauty, identity and pride. It behoves us to choose where indigenous education belongs so we can proceed in putting measures in place to attack any hindrance to emancipation, and then stimulate

our powers to achieve the objectives of our choice. True emancipation lies in our return to indigenous knowledge with a meticulously synthesised introduction of Western knowledge [24].

Western knowledge is deeply seated in the African education systems. We cannot deny that it plays a critical role in widening students' experiences. However, the alienating effect challenges policy makers and governments in Africa to deconstruct the colonial mentalities it has created and continues to recreate in African students. Colonial mentalities do not form a shared experience that defines 'the African' who should be proud of their indigenous identity, their language, and their cultures. Current African education systems should be redefined and reconfigured to portray African sensibilities and aim at reclaiming the African cultural histories and memories [25] by providing cultural spaces that reinforce students' cultural identities.

Education is supposed to buttress continuity in social and cultural processes via active participation. Active participation requires skills socialization imparts through education. Active participatory learning is situated in Freire's liberation theory [18], which was the essence of African traditional education. Freirean liberation theory promotes "problem-based learning, dialogue and participation within a co-operative learning environment" [26]. Central to the philosophy of African traditional education was a student-centred pedagogy, which placed the student at the heart of the educational experience through doing and exploring the ecological, social and cultural environments. African traditional education mirrored Freire's anti-didactic approach to education that enables learners to take an active role against oppression in order to bring about social transformation. Learners in traditional African societies were taught to be masters of their natural environment and to actively take part in social and cultural activities. Learning was not an oppressive experience that silenced learners into passive recipients of knowledge but through dialogical education learners were active co-creators of knowledge. For African students, as Freire contends the basic importance of education lies in the "act of cognition not only of the content, but of the *why* of economic, social, political, ideological, and historical facts...under which we find ourselves placed" [22].

5. Traditional African education and participatory learning

African perspectives on education hinged on strengthening the relationships between the learner and the community and the ability of the learner to contribute to the community. Learners engaged in negotiating a space where common ground could be determined and built upon in culturally safe, yet

challenging, ways. Knowledge of the social, cultural and ecological place was necessary for everyday interactions, personal and community survival. Local knowledge of land and place worked synergistically to construct multiple social realities and ways of knowing. Knowledge of space, land, language, culture and community intersected with and informed participatory learning and action-oriented educational practices. African traditional and indigenous knowledge were scripted on the consciousness of the people who recognized that human beings were not detached from their ecological environment. Therefore, knowledge was consciously created and it reflected life in an African community or society.

In African traditional education, participatory learning was a strong component of the education system. It was critical and relevant to local contexts. Participatory learning was largely a community engagement rather than an individualistic, private and personal pursuit as promoted in western education systems. It was embedded in a theoretical framework based on indigenous orientation to place and community. Indigenous researchers [2; 9; 16; 27] assert that participatory action in knowledge construction and learning is a model that is deeply connected to indigenous ways of knowing and to the decolonization process. Participatory action research is not new to Africa but a process that was colonized by Europeans. As Budd Hall cited in Lange reminds us, the term participatory research began in Tanzania as “a description for community-based approaches to knowledge creation, which merged the processes of social investigation, education, and action” [28]. Evidently, participatory education has always been a component of African education. African traditional cultures were inclusive when it came to knowledge production. The input from members of the community assisted in preparing young members who were easily integrated into society as active participants in every aspect of community life.

Participatory learning/education is strongly linked to skills development and social and economic development. Ideally, social development for Africans had a humanist approach, development of the people toward their greater freedom and well-being [29], an approach consistent with African indigenous cultural perspective on working for the betterment of society. All members of society had to participate in the task of community building and share in its rewards. Active participation brought a measure of harmonious relationships between communities and the sharing of ideas, knowledge and goods led to a balanced society. Participatory development was linked to participatory learning that children learned from adults. Participatory learning involved young members of society observing adults at work and then taking part in the activities, or when the young went out into the forests, rivers, mountains

to practise the knowledge they had learned from adults. Learners, who acquired a deep knowledge of a particular place, cared about what happened to the landscape, creatures, and people in it.

6. Rationale for reclaiming indigenous cultures in African education

Reclaiming indigenous cultures in African education is not an exercise in replacing Western systems of education that are entrenched in Africa but a response to dominant discourses and epistemologies that marginalize African ways of knowing. The aim is to suggest “critical platforms of education and culture that are epistemologically inclusive...of African knowledge, philosophical traditions and learning realities” [30]. Cultural reclamation in African education is a necessary means for deconstructing Eurocentric schooling programs by emphasizing critical aspects of indigenous philosophies, content and approaches. The purpose is to decolonize African education systems by providing educational programs that are pragmatic and culturally responsive.

Cultural reclamation stems from a realization that contemporary African education is a relic of the historical colonial past. Colonial education created an identity crisis via proselytization, economic exploitation and assimilation of indigenous Africans into Western cultures. African education systems continue to create an identity crisis and an identity-perception gap between what schools teach and what most students experience in their homes and communities. There is limited direct relationship between what is in the curriculum, pedagogic practices and the everyday lived experiences of students. The self-identities schools and teachers construct for their students are usually incompatible with students’ perceptions. In this context, schools create a crisis that may lead to social antagonisms [23], which is reflected in the failure by students to see the purpose and relevance of school knowledge to their communities.

The retention of western education systems in Africa cause cultural dissonance in students and those who are schooled in western world-views. Describing the experiences of African students in contemporary schools, Shizha defines cultural dissonance as “the disturbing inconsistency between African students’ cultures and the curriculum that is taught in African schools” [31]. Current African schooling practices contribute to what Andreas Huyssen describes as “inner and outer imperialism” [25]. Western constructs of school knowledge contribute to colonial mentalities and mental confusion and lacks congruities with students’ everyday experiences. Cultural dissonance among students can be explained using the congruity theory [32] which predicts that if there are two contradicting

sets of information, or concepts on which a judgment must be made by a single observer, the observer will experience pressure to change his or her judgment on one of the sides. However, if the two sets of information are similar or congruent, then there will be no problem, and the observer will not experience pressure of any form. For the majority of African students cultural dissonance, which in turn leads to academic failure, results from the introduction of external reality or knowledge that has little practical implication for their community survival. In reality, the external knowledge is not congruent to their lived experiences and it dislocates and disrupts their cultural lives [31], destroys their self-affirmation and their holistic life experiences. According to Diame,

African children are no longer educated to become responsible community members.... Traditional values and socio-economic skills transmitted from fathers to sons, elders to youth, and mothers to children are replaced by general-knowledge teaching, specific knowledge such as mathematics, sciences, grammar, etc. and skilled knowledge basing more on foreigners' culture, history and economics. The changes that accompany the Western educational system have had major impacts on different aspects of African life [8].

The changes from traditional cultural knowledge to Western knowledge introduce incongruities, incompatibilities and contradictions in managing the complexities of belonging to an African culture and being assimilated into a foreign cultural system. The students are expected to cross multiple epistemic, linguistic and political spaces everyday of their schooling. They are not culturally connected to the formal school curriculum. The challenges faced by African students call for reclamation of indigenous cultures in African education. Perhaps, as Dei and Asgharzadeh inform us, curriculum planners, including teachers should be aware that different cultures, particularly those in contemporary classrooms, bring in multiple ways of knowing [20].

7. Reclaiming indigenous knowledges in African education

Formal education should be informed by the history, geography and sociocultural context of the learners. In order to consider meaning-making in classrooms for participants, we have to recognise its dependence on sociocultural practices and individual experiences that are situated in the history and culture of the society in which the education system operates. Education systems that do not take into account the life experiences and cultural contexts of learners' lead to significant cultural and conceptual disconnections that often emerge in classrooms.

The cultural foundation of the school curriculum is critical to the education of students. Curriculum, in this context, is the body of knowledge of *what* is to be taught, and *how* it is to be taught in schools. In Africa, curriculum content and pedagogical practices are not consistent with the culture, norms and expectations of African societies. The curriculum contains European biases and assumptions, which are a result of the colonial legacy. These biases need to be problematized in order to help students develop appropriate lenses for thinking about knowledge and its relationship to them and their society [33]. An appropriate and culturally relevant curriculum requires an approach that uses students' culture in order to transcend the negative effects of Eurocentric knowledge systems.

While some governments may have attempted to Africanize education by modifying content in humanities and social sciences, natural sciences have remained untainted. The content of learning, for example, in natural sciences uses Western cultural referents to impart knowledge, skills and attitudes, which contributes to continued marginalization of indigenous perspectives and discourses. Culturally relevant curriculum is content and pedagogy that empowers students intellectually, socially, and emotionally by using cultural referents that match students' everyday experiences to school knowledge. To use students' culture is to create meaningful understanding of their world and the world presented in the curriculum.

Western education is creating divisions that are at odds with the harmonious traditional cultures that focus on collective lives and educating individuals for the good of the community. Consequently, schools churn out social misfits who are alienated from their African societies. The negative effect of Eurocentric education has been challenged by Kwakwa (cited in Nwomonoh) who reported on the social divisiveness of schooling in Africa:

The effect of the Western type of education has been to produce ... three nations in one country, each unable to communicate effectively with the others ... the 'educated,' ... many who do not understand the ways of the 'educated,' ... then ... a third group, the 'half educated' who understand neither the ways of their own indigenous society nor those of the 'highly educated' [34].

Ali Mazrui sheds more light on cultural misfits in terms of the linkage of education with the rural-urban divide:

Western education in African conditions was a process of psychological deruralisation. The educated African became ... a misfit in his own village ... when he graduated ... his parents did not expect him to continue living with them, tending the cattle or cultivating the land [35].

Contrary to the competitive and individualistic nature of western education, cultivation of communal responsibility was the dominant objective of indigenous African education.

Systems of education should emphasize social and cultural harmony that is built on the “*narrative of the nation (s)*” as told and retold in national histories, literatures, and popular culture” [25]. From Shizha’s point of view, narratives of the nation are “a set of stories, images, historical events, national symbols, and rituals which stand for, and represent, the shared experiences that give meaning to African societies” [25]. Narratives of the nation should be the framework of the African school curriculum. A negation of the people’s historical commemorations delegitimizes the people’s overall wellbeing that is structured by their cultural histories. The African school curriculum should involve a deconstruction paradigm that redefines the structures of knowledge systems as socially situated. Socially situated knowledge assumes that knowledge construction and learning cannot be dissociated from interpersonal interactions located in cultural frameworks [36], and socially situated learning recognizes the values, emotions, experiences, and cultural contexts that are integral to learning; they support and reinforce students’ prior knowledge from home. Shizha argues that western approaches to knowledge and learning in African schools “decontextualize knowledge production and dissemination” [3] as African education systems tend to mimic European knowledge systems.

African school curricula should adopt greater flexibility that will enhance the accumulation and dissemination of knowledge that has an African cultural identity. Cultural identity brings together all that is common to the members of a group [37], including the epistemological constructs, language, values, philosophy of life that one shares with one’s community. From a social constructivist approach, fluidity and flexibility allows for community knowledge and narratives (that are often neglected by neo-objective positivist academics and scholars in knowledge production and dissemination) to be the foundation of the school curriculum.

8. Medium of instruction as an educational cultural tool

Language plays a pivotal role in the production and transmission of knowledge. The language that teachers use in the schools determines the extent to which students will participate in contributing their knowledge to the learning situation. In most African classrooms formal learning is conducted in foreign languages that continue to dominate the education systems as the media of instruction. Languages of instruction in African schools that include English, French, Spanish, Portuguese, and Afrikaans limit the

contribution the majority of students could make in their learning. Those students who cannot or who fail to master a foreign language are excluded from their right to learn, especially in their first languages (L1) or mother tongue. The use of foreign languages perpetuates neo-colonial or postcolonial oppression. With postcolonial oppression, the notion of “white” supremacy that was established during the colonial period is likely to prevail [13]. An education system that facilitates the entrenchment of a foreign language in Africa is not the most desirable. Critical sociological research, for example, recognises the differentiation and inequality in the politics that control the selection, organisation, access and redistribution of knowledge, and the politics behind the evaluation of legitimate knowledge through educational institutions and the impact these have on the marginalization of indigenous knowledges.

One major component of current African education that seriously requires reconsideration and reclamation is the language of instruction in African classrooms. Shizha describes language as “a societal vehicle for life stories, historical commemorations, communication, and meaningful social activities” [37]. It is also central to literate practices and to learning, and can either enhance or frustrate the acquisition and sharing of knowledge. In discussions of language and education, language is usually defined as a shared set of verbal codes [38], such as English, Portuguese, Shona, French, and Swahili that have a communicative and instructional role. Teachers and students use spoken and written language to communicate with each other—to present tasks, engage in learning processes, present academic content, assess learning, display knowledge and skill, and build classroom life. In addition, much of what students learn is language. Language and ways of knowing are learned within dynamic cultural systems that structure experiences. It involves socialization in the ability to decode scripts and to reason in patterned ways that are consistent with the learners’ cultural experiences [39].

In Africa, schools are seen as the repository of the “standard” foreign language (English, Portuguese or French), which is assumed to be the proper medium of communication and instruction. However, for the majority of learners and their teachers in Africa, a foreign European language is a second language, which many struggle to speak and understand. Subsequently, the voices of the students who are second language learners are often marginalized in the classroom discourses [40]. Colonial education policy defined the failure by indigenous students to use the colonial language as cultural and linguistic deficits. In sub-Saharan Africa, foreign languages such as English, French and Portuguese continue to be used as media of instruction, while indigenous languages are viewed as inferior especially in science education [31]. This view reflects the current

practices in most African countries that advocate the continued use of foreign languages as the primary and ultimate media of instruction throughout the education system. The argument for maintaining the current language policy in education is that if the policy worked well and succeeded under the colonial system in developing the leadership needed and in training the manpower required for the Africa, it should work in postcolonial Africa [41]. However, this colonial practice that marginalized indigenous languages in education should no longer be the vision for contemporary Africa.

Not all critics on language-in-education agree on the deficit-model. Researchers who have studied the use of African languages in education argue that when indigenous languages are used in school instruction they act as a resource for learning and conceptual development [39]. There is convincing evidence that the use of mother tongue or of an African indigenous language as the natural medium of instruction in African schools improves teaching and learning. Kathleen Heugh who studies language education models in Africa and the use of African languages in South African schools concluded that indigenous languages contribute positively towards the better provision of education for children [38]. In a longitudinal study that compared the use of Yoruba and English as media of instruction in Nigeria, Bamgbose concluded that children who were taught in Yoruba, the home language, performed significantly better than those who had been taught in English, although those who were taught in English had a specialist teacher of English who provided a model of communicating in English for the class [42]. In Ghana, Wilmot studied classes in which the medium of instruction was changed from English to the child's mother tongue, and found that children knew much more and learned much better when they were taught in a language familiar to them than in a foreign language [43]. Wilmot also found that children who were classified as low achieving actually had a lot of knowledge which the school incorrectly assessed because the children did not master the foreign language which was the language of instruction. In Zimbabwe, Shizha found that the use of English as a medium of instruction in primary schools was the main factor that silenced students in science classes [44], while in Niger, Chekaraou who made a comprehensive study of the use of Hausa in primary schools observed that teaching in these schools through a home language fostered active teacher-student interactions which enabled students to develop their critical thinking skills which were transferable to all learning experiences even when the first language ceased to be the language of instruction in upper grades [45].

With regard to silenced voices, Les Back argues that in schools, the muted voices, which happen to be the everyday indigenous language of the child, must

be integrated into any understanding of contemporary politics of culture, identity, and education which leads to the promotion of educational equity and social justice [46]. Studies of culture, language and cognition show that through repeated and patterned experience in the world, children who use their indigenous language develop schema through which they can filter future experiences [47]. New learning is strongest when children are able to communicate in a familiar language to make connections to prior knowledge since language has important outcomes for the ways children are or are not able to extend the funds of knowledge they bring to classrooms. For most African children, school knowledge and the language of instruction are disconnected from the children's home experiences and from interactions with teachers. Hassana Alidou and Birgit Brock-Utne conducted classroom observation studies in several countries in Africa (Burkina Faso, Mali, Niger, South Africa, Togo, Tanzania, Ethiopia, Ghana, and Botswana) and found that the use of unfamiliar languages forces teachers to use traditional and teacher-centred teaching methods which undermine the teachers' effort to teach and students' effort to learn [41]. Closing the communication gap between the teacher and students is a crucial and rewarding undertaking for both teachers and students. Gap-closing can be adequately achieved by integrating the mother tongue as the medium of instruction in African schools. Knowledge and information needed for modern development cannot reach African masses that have no access to the official/foreign languages. Because knowledge and information in Africa is transmitted through the official/foreign language, the critical mass of knowledgeable required to achieve development will not be created in a foreseeable future if the language of education is not transformed to include indigenous languages.

9. Conclusion

The emphasis of this critical approach to knowledge production and dissemination in Africa is on legitimizing indigenous cultures in African education. Education systems in Africa run the risk of reproducing colonial systems that are not responsive and appropriate to Africa and that produce an African "elite" that is disconnected from the African realities. The process of reclaiming indigenous cultures in African education recognizes that indigenous knowledge systems have a role to play in social development. Looking at the impact of colonization and globalization on the African elite, it is imperative that we recognize and acknowledge the relevance of African cultures in the decolonization of educational systems to enhance students' educational success. This chapter discussed the importance of emphasizing IKs in the African school curriculum in

order to emancipate Africa education from biases of Eurocentric knowledge and limiting pedagogical practices and policies that were inherited from the colonial era. A major shortcoming of the contemporary African education systems is the exclusion of vital world-views of African learners and the use of a familiar language, as the medium of instruction. African indigenous knowledges, historical commemorations, languages and cultures are necessary in the school curriculum to provide positive self-identities for African students. Epistemological questions regarding the production, dissemination and consumption of indigenous knowledges, the relationship between culture and learning in current systems of education in Africa need to be interrogated and addressed. Indigenous cultures and languages should be the cornerstone of educational development that employs pedagogical thoughtfulness, pedagogical sensitivity, and pedagogical tact [21] to improve learner cognition, performance and success.

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Direction of Civic and Citizenship Education for Developing Creative Character Strengths in Korea

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Abstract

This study is to investigate a direction of civic and citizenship educational policies for developing creative character education in Korea by comparing other countries. Currently it is reviewed the curriculum, educational activities in schools, teacher education, assessment, and reforms and debates in civic and citizenship education in Korea. This paper refers to the progress phase of the research completed by 2014 to attain its purpose.

1. Introduction

Creative character education based on key competencies focuses not only on acquisition of subjects or specific skills but also it is reflected in various teaching and learning ranging from sharing school vision regarding civic and citizenship education to student's individual lifestyle.

This study is about empowering and preparing individuals for tomorrow's world that can be prosperous yet challenging, unpredictable and uncertain. Those empowered can better contribute to a society that demands active citizenship. Education can help empower individuals by raising their cognitive ability which is reflected in, for example, literacy, critical thinking and problem solving skills. Moreover, education can reinforce personality traits such as conscientiousness and self-esteem that have been shown to be as effective as cognitive ability in promoting individual success yet more malleable even beyond childhood [6].

In Korea, there is serious competitiveness about entering famous colleges which people believe those are to guarantee for success of their life. However they have suffered from the belief, because it induces to strength on the memorization oriented education. Moving away from college entrance exam oriented education, Korea is trying to implement key competency based curriculum mainly driven by future curriculum committee. It is focused on the creative character education based on developing key competencies.

Recently character education has been received attention as an important factor to promote success for life (ASPEN IDEAS FESTIVAL, 2012).

Character strengths as conscientiousness, grit, resilience, perseverance, optimism, resourcefulness, professionalism, integrity, self control, willpower, zest, gratitude, curiosity, social intelligence play a central concept in this study. Those have been called as non-cognitive skills, personal traits by economists and psychologists (OECD, 2012).

New Zealand is preparing active promotion and guidelines prior to overall, compulsive implementation of public education system change focused on character education based on key competencies since 2010 (Ministry of Education, 2010). The purpose of the study investigates a direction of civic and citizenship educational policies for developing creative character education in Korea through comparing with New Zealand.

2. Components and methodologies

The study is organized by two components. Each component approaches the issue of civic and citizenship education and character education from different perspectives and together provides a broad-ranging programme of research and development. Component 1 (Literature reviews) clarifies what we know and don't know about civic and citizenship educational policies for creative character education in each countries; Component 2 and 3 (Qualitative and quantitative analyses) develops empirical evidence.

2.1. Literature reviews

The first task of this study is to evaluate the state by comparing and analyzing civic and citizenship educational policies for creative character education in Korea and New Zealand. Currently it is reviewed the curriculum, educational activities in schools, teacher education, assessment, and reforms and debates in civic and citizenship education in Korea.

2.2. Qualitative analyses

The second task of this study is to analyze New Zealand key competency education system schools (8 schools of elementary, middle and high schools in Oakland, Wellington).

2.3. Quantitative analyses

The third task of this study is to evaluate the level of civic and citizenship education based on character strengths of students/teachers/schools by comparing and analyzing the ICCS (International Civic and Citizenship Study: 2006-2010) data. Korea and New Zealand are participating in ICCS with 38 countries worldwide.

3. Results for current analysis

Korea's national curriculum does not provide an official definition of the term civic and citizenship education and but it does suggest that this is an area to be developed through public education. In this regard, civic and citizenship education is intended to create citizens who can contribute to community development at different levels by solving problems rationally on the basis of knowledge about people and society. The goal is to instill the values and attitudes that are expected of members of a democratic society (Kang, 2008).

3.1. Civic and Citizenship Education in the Curriculum

3.1.1. General overview

In Korea, civic and citizenship education is embedded in civic and citizenship education-related subjects rather than as a single subject. Although the terms citizen, citizenship, and civic and citizenship education as such are not specifically named, the content is reflected in some subjects (Kang, 2008).

Of all subjects, social studies has the greatest relationship to civic and citizenship education in Korea (Cha & Mo, 2008). It sheds light on and encourages the cultivation of citizenship. Curriculum documents, curriculum guidelines, and the teacher's manual emphasize its importance within the social studies curriculum. Another aspect of civic and citizenship education is moral education, which covers the nature of citizenship in the domain of values and attitudes (Ministry of Education, 1997b; Ministry of Education, Science and Technology, 2009b).

3.1.2. Civic and citizenship education in lower secondary schools (ISCED 2)

In lower secondary schools, social studies and moral education both contribute to civic and citizenship education. In the knowledge domain, social studies covers various characteristics of society, interactions between people and nature, occupational diversity, regional geographical characteristics, and historical tradition. It also covers

the cultural uniqueness of Korea, Korean culture and history, development processes, and the cultural characteristics of each historical period. In the functional domain, the subject covers the acquisition, organization, and application of knowledge and information; exploration; decision-making; social participation; and rational problem-solving. In the domain of values and attitudes, the study covers democratic attitudes, concerns for current social issues, and attitudes towards the development of democracy in Korea and the world (Ministry of Education, 1997a; Ministry of Education, Science and Technology, 2009a).

In middle schools, social studies occupy three to four hours per week, and moral education, two hours. The two subjects take up approximately 15% of total instructional time in middle school education.

Social studies and moral education are differentiated in terms of purpose, content, methods, and evaluation. For example, social studies focuses on developing citizens who are aware of social phenomena and able to make rational decisions, while moral education aims to internalize and develop the values and moral virtues necessary for community life. Those two subjects are also different from extracurricular education such as vocational and career education. In dealing with specific topics of social studies and moral education, vocational and career education can be referred to and some content may overlap, but the two studies deal with those topics in a relatively broader social and ethical context.

The revised curriculum for social studies presents six objectives (Cha & Mo, 2008):

- To understand various social phenomena and characteristics in relation to geography, history, politics, economics, and the social system.
- To comprehend the diversity of human life in terms of place and to develop a systematic understanding of the geographical characteristics of towns, regions, states, and the world.
- To comprehend the development of human life and the cultural features of each period by appreciating the uniqueness of Korea's historical tradition and culture based on characteristics of each period, and understanding the progress of national history.
- To grasp the basic knowledge and principles of social life, and political, economic, social, and cultural phenomenon in a comprehensive manner and to recognize the various problems to be solved in today's society.

- To develop the capacity to acquire, analyze, organize, and utilize the knowledge and information necessary for understanding social phenomena and issues, and to cultivate the capacity for rational problem-solving, decision-making, and social participation.
- To cultivate the attitude of democratically managing both individual and community life, to develop an interest in social issues, and to actively contribute to the development of a democratic nation and world.

3.1.3. Civic and Citizenship Education Activities in Schools

With regard to civic and citizenship education, the scope of activities for students is wide, ranging from regular classes at school to activities outside of school. During regular classes, students participate in debates and discussions. They join club activities with themes that include universal values or global issues such as the environment, human rights, anti-war, peace, and welfare. As members of a class or school student council, students participate in making decisions or in managing an organization. They may also visit non-government organizations, welfare organizations, and government agencies to inquire into relevant issues or seek advice. At times, they may even conduct campaigns in cooperation with these organizations.

The homeroom and student council are the fairly typical situations in which students can take part in decision-making processes about class or school issues. This traditional system still exists but it is neither practical nor effective (Ministry of Education, Science and Technology, 2010). Recently, there has been a growing trend for students leave messages or comments on the school website or their teachers' blogs, emails, or via text messages to convey their opinions. In some cases, school administrators may hold meetings with student representatives. Some schools conduct student surveys to decide on school trips or school regulations.

3.1.4. Current Reforms and Debates in Civic and Citizenship Education

Compared to the 1997 curriculum, the 2007 and 2009 national curricula reflect social changes such as multiculturalism and globalization. In the 1997 curriculum, specific terms such as national identity or national culture are mentioned in social studies. However, in the revised curriculum, those words are deleted or replaced by the term *world development*. In light of the recent conflicts with China and Japan over ancient history, discussion about history

education (Korean history and world history) has become more intense. In this context, middle and secondary schools have put together a textbook entitled *History* by combining Korean and world history. In addition, compared to the 1997 curriculum, the revised curriculum assigns more hours to history-related classes.

In the late 1990s, one of the significant developments in Korea's civic and citizenship education program was the emergence of and increased attention paid to the term *citizen*. In spite of recognizing that social studies aims to cultivate citizenship, the term *people* was emphasized more often than *citizen* in the curriculum, textbooks, and teaching. The distinction is an important one: The people, as members of a nation, have a legal right to act and make decisions. Citizens, as members of various communities including a national community, act and make decisions based on universal values and ethics, as well as based on their legal rights. This change was reflected in the social studies curriculum beginning in 1992, expanded in the 1997 curriculum, and continued in the 2007 and 2009 curricula.

Currently, there is some debate about the structure and emphasis of civic and citizenship education in the curriculum. Some believe that civic and citizenship perspectives should be more apparent in social studies and moral education. This perspective argues that it is difficult to know what to teach as the core competences for all subjects are primarily weighted towards function. An alternate viewpoint suggests that the existing subjects should be reorganized to focus on core competences rather than on subject content. The existing, segmented curriculum creates problems such as the repetition or omission of content. Cultivating citizenship, it is believed, should be achieved through functional elements, such as creativity, communication skills, information skills, and problem-solving, and not confined to specific subjects. Even though the current curriculum is well established, it does appear likely that more people will adopt the latter perspective.

4. Conclusion

This report is only the first step of the research. Therefore, we cannot anticipate the consequences of the level or the strategy of Korean civic and citizenship education based on character education. However, to prepare for the next, we have plans to implement the study as follows.

First of all, we will take key competency-related joint research between Korea and New Zealand with civic and citizenship education frame researchers. Also we will do joint-research between Korea and New Zealand through comparative analysis of ICCS measurement data presently available.

Second, there will be an exchange between professionals leading research consultative group and in charge of actual policies (those in charge of New Zealand's education policy making and operation result monitoring). I will be reviewed and given suggestions of alternatives of competency-based curriculum presently practiced in Korean government and research institution, etc.

Lastly, providing mutual learning opportunity for Korea and New Zealand's education policy experiences and cultural differences, merits and demerits regarding civic and citizenship education based on creative character education in multicultural, global society, not only New Zealand is searching appropriate approaches to attracting students from Korea through understanding current status of Korean education, but also Korea is preparing innovation plan for the future curriculum based on advanced nation's education innovation experience.

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The Role of School-University Partnerships: Leveraging Faculties of Education to Make a Difference in Social Equity

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Abstract

This paper will elicit discussion about the impact that can be made when university Faculties of Education partner with local high needs schools. This pilot project is designed to provide mutually beneficial experiences for teachers, teacher candidates, students and community members. The partner elementary schools in this project rank among the lowest in the province for EQAO scores in math and literacy. Their lack of access to resources has had a direct impact on the consistency and stability of the school community, as well as a negative effect on the ability of students and teachers to learn and use new digital technologies. Attentive to both recent findings of sub-par results in mathematics across the province generally, and informed by research findings that identify early mathematics achievement as the primary indicator of subsequent educational success, the emphasis will be on supporting student success [5].

1. Introduction - Context and Objectives

Public education in the 21st century is challenged with ensuring all Canadians have the requisite skills to participate in a digital, knowledge-based economy, an aspiration increasingly difficult to realize under present-day conditions of austerity in both K-12 and post-secondary education. The notion of a “digital divide” typically emphasizes unequal access to digital technologies, software and hardware, as well as the quality of Internet connectivity. Still a significant barrier for many Canadians, a troublesome complementary issue focuses on unequal literacy and computational skills to engage with technology. This research addresses the need for concerted attention by faculties of education to the conceptual and operational challenges of assuring “digital literacy” across the digital divide. Its primary purpose is to build a research-based model for achieving education and equity in the 21st century, by bringing the resources, strengths, skills and expertise of faculties of education directly to bear on the ‘digital divide’ evidenced in low socio-economic status (SES), high-needs local

schools to assist them in improving the educational successes of their students.

This research fits within a partnership framework in three ways: (1) It promotes a reciprocal relationship between and among educational researchers and administrators, teachers, teacher candidates (TCs), students and parents through a partnership that both generates and co-creates research knowledge and facilitates the multidirectional flow of that knowledge among partners with a view to enhancing educational opportunities, and as a result future social and economic benefit to individuals and society. (2) It increases the accessibility of research knowledge by building bridges from schools to the educational specialists who are best equipped to define and to operationalize 21st century learning -- for ALL students, not merely for those privileged to live in high SES communities having demonstrably and consistently higher educational outcomes, including prominently among those outcomes, both access to new and emerging technologies, and skills to make fully functional uses of them. (3) Through academic dissemination in journal articles and scholarly symposia, as well as focused social media communication and the production of a research documentary, it increases research knowledge mobilization between and among academic and non-academic audiences and supports the development of research networks and community partnerships.

This work describes the design of a sustainable university-school partnership intervention that will have a measurably positive impact on student achievement in literacy, numeracy and science (and less readily measurable, on their physical and mental health and well-being). We piloted the design, and will continue to implement and evaluate a rich and robust digital literacy program, one that specifically includes computational as well as linguistic knowledge, skills and understanding that will increase the competence and confidence of teachers, TCs and those students persistently left out of the ‘digital native’ demographic. Addressing what has proven to be a longstanding correlation of income with educational outcomes (Globe and Mail. Nov. 12/13), we aim to explore how the collective knowledge, skill and experience of university-based specialists can be mobilized to

build sustainable, collaborative capacity for interrupting this entrenched pattern of inequality. This is the pre-eminent challenge to faculties of education today, and it is the central question driving this research. Our objective is two-fold:

- 1) To develop a conceptual model for whole school improvement that emphasizes the high-demand areas of STEM and digital literacy, partnering faculties of education with high-needs schools in their immediate areas, and to operationalize and pilot the model through a partnership with UOIT and the Durham District School Board.
- 2) To mobilize this knowledge for use by other Faculties of Education to promote community engagement that makes real, objectively measurable improvements to the educational outcomes of those high-needs schools in each faculty's constituency.

With this clear challenge in mind, attentive to both recent findings of sub-par results in mathematics across the province generally, and informed by research findings that identify early mathematics achievement as the primary indicator of subsequent educational success [followed by reading, then by attention skills, our Faculty's emphasis will be on supporting teachers as they prepare their students to sit the EQAO math and literacy assessments in grades 3 and 6 [5]. Our instructors and TCs will work collaboratively with school staff to meet the professional development needs of teachers and the educational needs of students with respect to target areas of literacy, math, science, health and wellness and digital technology.

This paper describes the pilot year of this partnership development project from our own immediate location in the faculty of education at the University of Ontario Institute of Technology (UOIT), Ontario's foremost 'high-tech', STEM focused education faculty, situated in downtown Oshawa, Ontario, a low income, low education region where only 10 percent of the population has attended university and only 30 percent has a high school education, working with two extremely high needs, profoundly low achieving schools both of which are located just a few blocks away from the faculty itself. As evidenced by the Education Quality and Accountability Office (EQAO) results, these two schools represent significantly underserved populations in the Oshawa area that stand to benefit greatly from connections to UOIT. Our TCs have the opportunity to be in the target schools on a regular basis, learning from practicing teachers while promoting literacy, science, math, technology, and environmental studies informed by fundamental principles of mental and physical health sciences and community wellness. Although health and wellness are neither digital skills for the

21st century, nor are they STEM-focused areas in any obvious sense, nevertheless student well-being, both physical and mental, has been consistently and demonstrably linked to higher levels of academic achievement, so we contend these areas need to be included in this whole-school improvement initiative as integral aspects of effective education for 21st century learners. Regular school-based workshops by faculty members in the study's target areas, and opportunities for project teachers to pursue advanced study through the Faculty's technology-focused graduate programs, provide readily accessible professional development opportunities in building requisite technological skills and pedagogical content knowledge to support 21st century learners, no matter what their family's education or income levels. This is something a faculty of education ought to be able to accomplish; this persistent pattern whereby the greatest predictor of educational success is material wealth remains a shameful testimony to the consequences of leaving high needs schools to solve problems of social inequality on their own. We can, and we should, do better than this, and if faculties of education prove incapable of helping schools develop sustainable capacity for interrupting the timeworn cycle of poverty, surely it is entirely reasonable to suggest that this educational emperor has no clothes after all.

2. Structural Components of this Partnership

2.1. Year One

The focus of this year was forging relationships between the teachers, TCs, education faculty and the wider university. Members of the university team visited the schools, identified teacher participants and selected TCs through a formal application and interview process. These TCs were then partnered with a specific teacher and grade for the duration of their year at the faculty of education. TCs observed within the school/classroom extensively prior to assuming their roles as tutors and support teachers in their classes during the second half of the year. The UOIT team, consisting of subject expert instructors, researchers and TCs hosted outreach events in each year. The first large scale event, a math concert (integrating mathematics and the arts) took place early in the year, with all students from both schools attending. A further component, designed to teach programming to elementary students, using the innovative 'coder dojo' model (coderdojo.com) under the design and direction of McMaster University collaborator Dr. Brock Dubbels, was offered as a March break camp on site at UOIT. These programs are now spreading at near viral rates as education authorities in Canada and

internationally come to recognize that digital literacies must include computation, or they are not truly 'digital' literacies in any full sense. UOIT faculty plan to hold 2 workshops for teachers, one to introduce educational uses of iPads to the teachers and familiarize them with uses of digital technology for pedagogical documentation, the other to introduce a community-building activity involving project participants and parents in the design and creation of a learning garden, which will be chronicled in a written book and through digital story-telling methods. Our aim is to promote increased parental participation -- bearing in mind that the majority of parents are themselves living in poverty, experiencing high rates of unemployment, most have had, themselves, little education, and for most the school is far from being a safe or congenial space -- through the creation of a 'learning garden' at both school sites, led by a faculty specialist in science and environmental studies and who has established a research program focused on studying the educational benefits of school gardens. The presumption here is that whereas parents are largely refusing to participate in the academic aspects of their children's schooling, they may feel far more 'at home', welcomed and specifically not so intimidated by joining with their children outside the school building to develop and tend a school garden -- at least there is a better chance of engaging them in this way, and in either case, students gain a hands-on experience of proven value for their learning of both science and literacy as they document in numbers, pictures and in words, the ways their gardens grow. The learning garden will have a digital component where project participants use mobile technologies to research and digital storytelling to document the design and development of the garden.

2.2. Year Two

The focus of this year will be "leveling up", both student engagement and teacher knowledge and skills in using digital technology to improve student success. We will continue to provide both schools with volunteer TCs for tutoring, and build on this foundation to offer workshops that support teachers in the project's target curricular areas and enhance integration of technology. These TCs will again be partnered with a specific teacher and grade for the duration of their year at the faculty of education. As TCs demonstrate interest and ability, observation and limited instructional experience in special needs classes will be introduced. TCs will attend their own classes in core methods and classroom management in the UOIT project room within the host school, and those involved in the schools' highest needs classes will be supported by course content focused on designing and

implementing educational interventions for special needs students. TCs who prove both interested and computationally capable will also be recruited to carry on the 'coder-dojos' program begun in year one.

2.3. Year Three

The focus of this year will be integrating TCs into higher needs classes, with particular attention on working one-to-one with individual special education students in areas of need as identified by the principals of the school. We again focus data collection and analytical attention on measuring outcomes for students who are required to take the standardized grade 3 and 6 provincial tests. These TCs will again be partnered with a specific teacher and grade for the duration of their year at the faculty of education. TCs will act as tutors and support teachers in their classes during the second half of the year. TCs will attend their own classes in core methods and classroom management in the host school. In this third year, as well, we will pursue dissemination and outreach activities to extend involvement beyond our pilot university/school collaboration, holding information sessions and workshops to mobilize the knowledge gained through our fully documented pilot project.

2.4. Each Year

Teachers will be invited to the university's digital literacy lab and will bring classes of students to the lab for hands-on experiences with technology, in order to familiarize students with the university, a place in which few would otherwise set foot. Each year we will organize a targeted intervention in the form of a "March Break Camp" for grade six students who will be sitting the EQAO examinations this year will be held at the Faculty of Education's Digital Literacy Research and Development Lab (<http://education.uoit.ca/dlrd/>), at which full-day sessions in literacy, mathematics, technology, digital game design, science and art have been designed to give these students a 'leg up' towards higher EQAO scores. To close out each year of our collaboration with these schools, the Faculty will host a summer institute aimed specifically at addressing the professional development needs of the collaborating teachers across our initial 2 project schools.

As the relationships build and strengthen across the Faculty and these two project schools, additional needs will be identified and new program components designed, as we are committed to a reciprocal, respectful, non-intrusive and collaborative process of learning with and from school staff and principals, the best ways to

intervene to support our objective: an evidence-based, progressive improvement in academic achievement that impacts significantly on both schools' EQAO scores. To assemble and analyze the extensive data, the faculty's library and information science specialist is developing an education informatics platform for compiling and analyzing data and documentation.

As the project unfolds, we will create short digital documentaries, posted on our project website, to share the experiences of participants. These short documentaries will serve to share the school improvement model that we collaboratively develop, and to highlight the role played by all participants, especially teachers, students, and parents, so as to help re-shape the identity of marginalized schools as agents of change and as leaders in redefining digital literacy to include coding skills. When students are given opportunities to share their personal learning stories with peers, family, teachers and the general public, they are likely to make gains in self-confidence, self-esteem and a sense of community belonging through positive. And, for all participants, Hull & Katz (2006) note "the power of public performance in generating especially intense moments of self-enactment" (p.47). This identity reshaping of marginalized schools serves our goal of building a sustainable capacity for interrupting the cycle of poverty and underachievement. The documentaries also serve as artifacts and opportunities for collective reflection.

3. Related Literature and Theoretical Frameworks.

This research redefines digital literacies, moving that concept beyond the familiar disciplinary boundaries of the arts, humanities and media studies to encompass STEM, and, specifically computational knowledge and skills, a necessary convergence between definitions of digital and 21st century literacies, and computational thinking. Canadian education cannot afford to ignore the current movement to include computer programming among education's foundational skills and knowledge and thus we contend it is of critical importance to the educational futures of Canadian students that 'digital literacy' be articulated in ways that make clearly evident its connection to and dependence upon computational thinking [7,21]. This position has not been much developed in Canadian education thus far, so one of our challenges in this project is to make the empirical and theoretical bases for that co-relation persuasively evident.

In addition to this critical reconceptualization for 'digital literacies', this project is shaped by the integration of three further theoretical frameworks, all focused on school improvement. The first of

these concerns the organizational characteristics that are necessary for school improvement. Cibulka and Nakayama identified six primary characteristics of high-performing schools, including "a collaborative culture, transformational leadership, reflective practice, an ethic of interpersonal caring, increasing standards of professional development and accountability for high standards" [3]. The second framework guiding our project design is the critical importance of a healthy environment for student success and teacher development. For the purpose of this work, "health" will be defined as a combination of physical, social, emotional and spiritual wellbeing as evidenced by healthy behaviours, values and attitudes in the school, including the development of strong attentional skills and dispositions (task persistence and self-regulation). This model of Comprehensive School Health identifies ten fundamental guiding principles as key to a health-promoting school which include "democracy, equity, empowerment and action competence, school environment, curriculum, teacher preparation, measuring success, collaboration, communities and sustain ability" [1,2]. Finally, this project mobilizes school improvement models for improving student achievement in high needs schools identified by Leithwood et al and McDougall, Gaskell et al [16, 17].

By integrating the principles of healthy schools, student success in literacy and numeracy, a continuum of teacher development, digital literacy and whole-school improvement this project aims to leverage the power of the university to develop sustainable, collaborative capacity for leveling the playing field for students and teachers in local high needs schools.

4. Methodology

Methodologically, this research is participatory and action oriented and designed to better understand how to more effectively intervene in the lives of educationally marginalized youth. Building on nearly a decade of qualitatively focused, SSHRC funded research working with youth both in-school and in after school settings, this project will employ a mixed methods study design that includes both qualitative and quantitative data collection [15, 18, 10, 11, 12, 13, 14, 4]. By definition, a mixed methods approach "focuses on collecting, analyzing, and mixing both quantitative and qualitative data in a single study or series of studies. Its central premise is that the use of quantitative and qualitative approaches in combination provides a deeper understanding of research problems than either approach alone does" [4]. Studying converging digital literacies calls for methodologies capable of bridging disciplinary orientations, tools and methods, and able to be

encoded in terms that, too, are necessarily convergent. Accordingly, this study will use a mixed methods approach to studying both the quantitative EQAO results of grade 3 and grade 6 students over the program's initial 3-year span and the qualitative experience of whole-school improvement and focused teacher development. Implementation of educational programs will be school wide and cross-grade, however data collection/analysis will be focused on grades 3 and 6, as these are the provincial standardized testing grades in the province of Ontario and this will provide a comparative standard for measuring project impacts on student success. The university has been granted space at both schools affording a strong presence on site for project meetings, teacher development workshops, library and digital resource circulation, as well as 'home base' to carry out much of the project's qualitative work, including individual and group interviews of teachers, students and, it is to be hoped, parents as well. Qualitative project documentation including, photos, videos, journal entries and interviews will feature pedagogical documentation by teachers as well as researchers, learner ethnographies by volunteering faculty members and student teachers as they track the learning activities and outcomes of the individual students they tutor, and a 'learning garden journal', to which all classes will contribute data, descriptions, drawings and photographic materials logging their work in the school garden. Additional quantitative components will include pre- and post-intervention surveys to assess the initial digital technology skills of both teachers and students as well as to track how these develop over the duration of the project, and which also surveys all participants' basic mathematical and literate competences and confidence levels, both prior to the project and at the end of each academic year over the three years of this partnership development project.

5. Data Analysis

Quantitative data analysis will require, in year one, obtaining the prior years' EQAO scores for all students tested to provide a baseline. In all three years of this project, EQAO scores of these same students in grades 3 and 6 will be collected through data sources available at the Durham District School Board, and changes both directly and indirectly related to documented interventions identified. The same process will be used for publically available documentation. School-level objective testing in reading and math will be added to our database as it becomes available. All participants will be assigned an anonymized ID code, which will be used to coordinate all available data for that individual. In addition, data will be compiled and analyzed by grade level, and by

individual class, for both schools. Indices of academic progress will be compared both over time, and across all Ontario schools, to clearly determine whether and how much student learning outcomes demonstrate statistically significant improvement. Pre- and post-online surveys with teachers and TCs will be analyzed to identify growth in competence and confidence in using digital technology. Regular classroom-based projects will be compiled and analyzed as qualitative indicators of student achievement in the project's targeted curricular foci. Semi-structured interviews conducted with teachers and teacher candidates twice per year will be thematically coded with reference to our specific project goals: increasing student achievement, contributions to professional development, improvements in psychological, behavioural and physical health and wellness, gains student confidence and increases in ability to identify personal educational successes, and any increases in parental involvement.

6. Conclusions and Future Directions

This pilot project has indicated that teacher candidates and teachers in practice can benefit from university school partnerships. The leveraging of the technology available at the host university has a significant impact in helping make changes to local high needs schools. Some revisions were noticed by the researchers at the end of the pilot year. Data from student focus group discussions indicated that the Faculty of Education timetable had to be revised in order to facilitate their presence in the schools. Going forward, we have secured an elementary classroom in the host school that will be the site for Core Methods and Language arts courses for our teacher candidates. Our intent is to populate the room with technology that the school might not otherwise afford. Teacher candidates will become the leaders and teachers for digital literacy and so we predict that many benefits to learners will occur. The lessons learned when immersed in the school culture will allow teacher candidates to make a better match of theory and practice. Classroom teachers will have access to university labs for themselves and their students. Most importantly, the collaborative experience of board administrators, teachers, and university faculty will level the playing field and create a lasting impact on social equity for students in our local community.

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Session 9: Inclusive Education

Comparison of Sport Competitive Anxiety Levels of Saudi Arabian National Team Athletes with And Without Disabilities in Competitions
(Author: Hassan Halawani)

Inclusive Teaching in Broadcast Education and its Potential Impact on the Canadian Media Landscape
(Author: Anna Augusto Rodrigues)

Women as Minorities in Science and Technology: Implications in Family Growth and Development in Nigeria
(Authors: James Uduak Utibe, Grace Effiong Udongwo)

Acting in Ways That You Would Expect of Others”: Superintendents’ Roles in Implementing Response-to-Intervention Models
(Author: Susan G. Porter)

Comparison of Sport Competitive Anxiety Levels of Saudi Arabian National Team Athletes with and Without Disabilities in Competitions

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1. Aim

The purpose of the present study is to compare the individual differences in the levels of somatic anxiety, worry, and concentration disruption of Saudi Arabian national team with and without disabilities in competitions.

2. Background

Anxiety in sport is complex and can lead to a number of undesirable consequences such as burnout, performance difficulties, interpersonal problems, and injury. The purpose of this study was to compare whether significant differences existed in the levels of somatic anxiety, worry, and concentration disruption between individuals of the Saudi Arabian national team with and without disabilities in competitions. In addition, differences in somatic anxiety, worry, and concentration disruption were examined between athletes in an individual or team sport. The Sport Anxiety Sale (SAS-2, Smith et. al, 2006) was employed to measure the subscales of somatic anxiety, worry, and consternation disruption.

4. Methodology

Participants were 120 Saudi Arabian national team athletes with and without disabilities who participated in competitions during the 2010 competitive season. Sixty Saudi Arabian national team athletes with disabilities from four different sports (track and field, table tennis, wheelchair basketball and volleyball) were surveyed. Another 60 Saudi Arabian national team athletes without disabilities who competed in the same four sports were also surveyed. Athletes' ages ranged from 18-35 years. Furthermore, athletes varied in their level of competitive experience.

5. Results

Results of the multivariate analysis indicated that there were no statistically significant differences between athletes with and without disabilities or between individual and team sport participants in

their levels of somatic anxiety, worry, and concentration disruption.

6. Conclusion

It was found that Saudi Arabian national team athletes with and without disabilities both have relatively the same levels of somatic anxiety, worry, and concentration disruption. At this point and especially in the Kingdom of Saudi Arabia, individuals with disabilities who participate in sports are considered athletes. They could definitely use their practices and mental skills training to improve performances and promote their enjoyable sporting experience. Therefore, in terms of the anxiety performance relationship, the psychological profile of athletes with and without disabilities seems similar.

Inclusive Teaching in Broadcast Education and its Potential Impact on the Canadian Media Landscape

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Abstract

Inclusive classrooms are spaces where opinions are valued, viewpoints are expressed without fear and the course content allows learners to be exposed to a multitude of perspectives [5]. In the field of broadcast education, instructors use videos, audio files, case studies and other materials to augment instruction however, when looking at my own teaching practice I realized the materials I use do not represent the diversity of Canada's population. This realization led me to wonder if there are links between inclusive teaching practices in broadcast education and the lack of diversity in Canadian media.

1. Scope

Canada has one of the most diverse societies in the world. Two national surveys conducted in 2012 by Forum Research Inc. (commissioned by the National Post) indicated that five per cent of Canadians identified as being gay, lesbian, bisexual or transgender [1]. Approximately seven per cent of students in post-secondary education reported having a disability, which is half of the number of Canadians who report having a disability according to a 2011 report by the Higher Education Quality Council of Ontario [2]. According to data collected from Statistics Canada, there are more women enrolled in college and university programs than men and higher numbers of females graduating from post-secondary programs than males [6].

The above statistics are snapshots of Canadian society providing the reason for one of the codes in Canada's Broadcasting Act, which is to ensure that the diverse nature of Canadian society is represented equally and in a positive manner in the media [4]. However, studies point to a different representation being broadcast.

For example, a 2012 report on Toronto's media production industry points out that the inclusion of diverse populations in front of and behind the camera is still far from reality [3].

2. Objective and Motivation

The above information and my own personal realization led me to wonder if the lack of diversity in Canadian media has its roots in the manner broadcasting is taught at colleges and universities. Two questions are central to this inquiry:

- are broadcast educators creating inclusive learning environments in their classrooms?
- how would inclusive classrooms in broadcast education impact the Canadian media landscape?

In January 2014 I began a mixed-methods research project, which collected data until May 2014, in an attempt to answer the above questions. As part of this project broadcast educators were surveyed and interviewed on their teaching practices. Media professionals from diverse backgrounds were interviewed as well. These participants are being asked to reflect on the impact inclusive teaching practices could have on the representation of a diverse population in the broadcast industry in Canada.

After an extensive literature review I was unable to locate a report or paper on the use of inclusive materials specific to broadcast education, however, there were a number of articles on the importance of fostering an inclusive classroom at the post-secondary level. As there seems to be a paucity of research on this topic, this project may provide new insights into this issue and provide ideas to media educators on how to create inclusive classrooms. Those classroom practices may have some impact on the Canadian media landscape as students enter the broadcast industry.

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Women as Minorities in Science and Technology: Implications in Family Growth and Development in Nigeria

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Abstract

The Population of Nigeria shows that there are more women than men in the country. It was on this premise that the study was carried out to determine the number of women in public employment, their distribution and impact in the family growth and development. Three research questions guided the study. A total of 2342 respondents constituted the sample of the study. The survey design was applied in carrying out the study. This was to obtain information on the distribution of women in the different professions considered in this study and impact in the family growth and development. Two researchers made instruments: Professional distribution of women and impact of women on family growth and development were used for data collection. The data were analysed using frequency and percentages. The instruments were validated by three experts in measurements and evaluation and two experts in women education. The reliability of the instruments was 0.83 and 0.87 respectively. The result of the study revealed that, women were the minorities in all the professions under the study, there was low impact of women on family growth and development and there was urgent need to encourage women to take up paid employment. The implication of the findings of this study is that, the low population of women in all the sectors can have negative impact on the family growth and development. Based on the result of the study, it was suggested that the society should embark on mass mobilization of women to take up paid employment and contribute to both the society and family growth and development.

1. Introduction

In the beginning, God first created Adam. And later, He said that "it is not good for the man (Adam) to be alone, I will make him a helper" (See Genesis 2 Vs 18). Consequently, Eve, a woman, was created to him. But one is tempted to wonder: why a woman? Why did God not create another man to add to Adam if, indeed, the justification for creating Eve is to give Adam a helper?

Since no one can question God, one can only hypothesize, for purpose of this study that perhaps the divine intention may have arisen out of His

plans for co-habitation of beings of opposite sexes i.e. man and woman living and working together. It is evident from God's original plan that the intention of His creating them (Adam and Eve) was to ensure the perpetuation of this Pair that is equal number of man-Adam and woman-Eve. And in strict obedience to the Divine order 'to multiply,' the estimated human population of the world has multiplied to about 6.83 trillion, made up of about 3.44 trillion males and 3.39 trillion females [9].

The composition of the world population negates this divine plan (i.e. more man than woman). The situation is more different in Nigeria, with a population of 170,123,740,600 representing 48.95% males and 55.33% females [2]. This shows more women than men. This parity in population distribution validates the need for this study on women as minorities in science and technology: implications in family development in Nigeria.

The MDGs aim at promoting gender equality and empowering women [9]. It therefore, follows that for effective and efficient attainment of MDGs, equitable harnessing and maximization of the human resources of the 6.83 trillion people irrespective of sex is necessary. In the view of Kornhauser, since women have high creative power and equal intellectual assets with men, they (women) should be equally distributed in science and technology related professions to fast track sustainable development of the human society [7].

In tandem with this, MDGs, intercontinental and national treaties, policies and programmes abound that are focussed on promoting gender equity in professional distribution in science and technology, two examples of which are:

1. The proposals to the 1994/5 working group of the United Nations Commission on Science and Technology for Development (UNCSTD) which enjoined all governments to agree to adopt a Declaration of Intent on Gender, Science and Technology distribution for Sustainable Development. The Declaration of Intent identified six basic principles of equity regarding gender and science distribution (UNCSTD, 2012).
2. Protocol to the African charter on Human and Peoples' Rights on the Rights of Women in Africa, which in its Article 12(2) specifies that State Parties shall take

specific positive actions to promote employment for women (and men) at all levels and in all disciplines, particularly in the fields of science and technology. (www.achpr.org/instruments/women-protocol)

The common emphasis among these policy specifications is promotion of gender parity in the distribution of employees in science and technology related employment.

The basic unit of human development is the family. A family is composed of the men, woman and children who are related by birth or marriage, or even adoption. In most cases, a family is initiated through marriage between at least a man and a woman with the aim of producing children. In a family, there are shared responsibilities between the man and the woman for the smooth running and growth of the home. The man generally has the leadership role, while that of the woman is supportive (Proverbs 31Vs 14-18).

World Bank reports that 51% of the women participate in labour against 49% of the men. It shows that out of the seven of the World Bank's groupings of countries in the world, it is only in Middle East/North and South Asia that the proportion of men that participate in labour is higher than that of the women, which is 80% and 68% respectively [10]. In the "least developed nations" group such as Nigeria, women constitute as high as 65% of the population participating in labour.

The foregoing implies, among other things, that from creation, women were not only charged with the responsibility of providing the family food but have to work more for the overall growth and development of the family, and therefore, the larger society. Women's knowledge and skills for this responsibility, is initially transmitted minimally from mothers and other elderly women to the younger girls at home, and later in life through formal education at which they may specialize in various areas of study such as in sciences and technology considered in this study.

Formal science and technology education for women is, therefore, indispensable for the growth and development of the human society. No wonder then a Ghanaian scholar, Dr. James Emmanuel Kwegyir-Aggrey, once said that "If you educate a man you educate an individual, but if you educate a woman you educate a family and a nation" [1]. This exposition is because women education impacts positively on the health of the children, and by implication, that of the adults, and adult fertility. The fact that two of the eight Millennium Development Goals (MDGs) 3 & 5 focus specifically on women lends credence to this crucial role women play in some very important national development sub-sectors in which they actively participate. Few examples are:

Women play a significant role in agriculture, the world over. About 70% of the agricultural workers, 80% of food producers, and 10% of those who process basic foodstuffs are women and they also undertake 60 to 90% of the rural marketing; thus making up more than two-third of the workforce in agricultural production [3]. In West Africa which Nigeria is part for instance, up to 80% of the labour force in all trade is female [5].

Women play a very integral part in the medical field. Some of the important roles women play in medicine are wet nurses, mid wives and caring for one another during pregnancy and in an ante-natal capacity throughout time. Traditionally, in most Nigerian families women are the first port of call for most people who are sick as they offer advice, provide such healthy remedies as first aid care and even hospitalization in most cases [4]. Throughout the world, women make vital contributions to science and technology related industrial output. Women have traditionally played an important role in the SME sector, as owners, managers and workers. They dominate these three important subsectors:

- (i) 80 per cent of the employees in textile, clothing and leather production,
- (ii) 75 per cent in food, beverages and tobacco production, and;
- (iii) Over 60 per cent in wood and wood processing.

Generally, Over 200 million women are employed across all industry sectors, with half of this number in developing countries [6]. Their work not only sustains their families but also constitute a major contribution to socio-economic progress.

As women play these major roles in the science and technology related sub-sectors of national growth and development, they need the acquisition of abundant knowledge of science and technology. In other words, women and girls ought not to only be proportionately distributed in sciences and technology professions but should be more encouraged to develop higher disposition(s) towards achieving higher in the discipline, if sustainable growth and development of Nigeria and the world is to be attained. These reviews validate the need for this study on women as minorities in science and technology: Implications in family development in Nigeria.

2. Statement of the Problem

Over the years, women in Nigeria have been subjected to various forms humiliation and deprivation in employment in science and technology. As workers in the public service in the country the researchers observed that in every establishment, there would be more women to men. In the family the women bears most of the responsibilities, they care for the children, pay fees,

take them to the hospital, provide food and in most cases pay the house rent. In cases where the women cannot do this there would be fighting accompanied with divorce. This study is therefore directed on women as minorities in science and technology: implications in family development in Nigeria. The women that are employed in possibly science and technology related professions are those that can possibly assist the men in line with the original intent of creation. God created Eve a woman to assist Adam a man.

3. Purpose of the Study

The main purpose of the study was on women as minorities in science and technology: implications in family growth and development in Nigeria. Specifically, the study examined:

1. The extent of professional distribution of women in Nigeria.
2. The extent of contribution of women to family growth and development in Nigeria.
3. The difference between the percentage rating by men and women on the contribution of women to family growth and development in Nigeria

4. Research Questions

The following research questions were answered in this study.

1. What is the extent of professional distribution of women in Nigeria?
2. What is the extent of contribution of women to family growth and development in Nigeria?
3. What is the difference between the percentage rating by men and women on the contribution of women to family growth and development in Nigeria?

5. Research Design

A survey research design was used in this study to find out the distribution, contribution and the implication of women as minorities in science and technology to family development in Nigeria.

6. Population of the Study

The population of this study consisted of all the women in the south-south and south-east geo-

political zone of Nigeria. It also covers all the women of working age in all the science and technology related professions in the country.

7. Sample and Sampling Technique

From the given population, a total of 2342 respondents were randomly sampled from the south-south and south-east geo-political zone of Nigeria. This sampled covers 1171 women and 1171 men. The choice of men and women in this study is to give unbiased views for women as minorities in science and technology: Implications in family growth and development in Nigeria.

8. Instrument for data Collection

The research instruments used were two researchers made questionnaires titled: professional distribution of women questionnaire (PDWQ) and impact of women on family growth and development questionnaire (IWFGDQ). The instruments were made up of seven and six items each respectively. The items were ranked from VHE – Very High Extent, HE – High Extent, AVE – Average Extent, LE – Low Extent and VLE – Very Low Extent. To carefully addressed the opinions of the respondents to each of the items in the questionnaires.

9. Validity of the Instrument

The instruments were given to three experts in measurements and evaluation and two experts in women education. The experts went through the items and confirmed that they had content validity.

10. Reliability of the Instrument

In establishing the reliability of the instruments, the researchers adopted the test retest method with an interval of two weeks. Pearson product moment correlation coefficient formula was used in computing the correlation coefficient of the instruments. The reliability coefficients of 0.83 and 0.87 were obtained.

11. Data Analysis

The data were analysed using frequency and simple percentage.

11.1. Research question one: What is the extent of professional distribution of women in Nigeria?

Table 1: Frequency and percentage of professional distribution of women in Nigeria N = 2342

S /No	Items	Responses										Ver dict
		VHE		HE		AVE		LE		VLE		
		F	%	F	%	F	%	F	%	F	%	
1	Teaching (Secondary school and below)	200	8.54	250	10.67	386	16.48	400	17.08	106	4.53	AV E
2	Lecturing (Above Secondary level)	150	6.40	180	7.69	960	41.42	806	34.42	246	10.50	AV E
3	Medical (Doctors, Nurses, Pharmacist and other Para-medical staff)	242	10.33	329	14.09	1020	43.55	506	21.61	423	18.06	AV E
4	Business (All paid employees in science and technology related professions other than the ones listed above)	180	7.69	202	8.63	510	21.78	640	27.33	810	34.59	VL E
5	Business (All self employers in science and technology related professions other than the ones listed in 1, 2, and 3 above)	170	7.26	201	8.57	490	20.92	580	24.77	901	38.47	VL E
6	Politics (Both elected and appointed with science and technology related major)	59	2.54	81	3.44	381	16.29	498	21.28	503	21.48	VL E
7	Sports (Local and International with science and technology related major)	28	1.20	69	2.94	106	4.53	482	20.58	576	24.60	VL E

Key: VHE – Very High Extent. HE – High Extent. AVE – Average Extent. LE – Low Extent. VLE – Very Low Extent F – Frequency % - Percentage

Table 1, indicates that women are averagely distributed in the teaching, lecturing and medical

professions and they are present in very low extent in other paid employment, self employment,

11.2. Research question two: What is the extent of contribution of women to family growth and development in Nigeria?

Table 2: Frequency and percentage of contribution of women to family growth and development in Nigeria N = 2342

S /No	Items	Responses										Ver dict
		VHE		HE		AVE		LE		VLE		
		F	%	F	%	F	%	F	%	F	%	
1	Family Bread Winners (The one that financed the family)	22	9.48	46	1.050	68	1.998	80	3.433	60	2.570	LE
2	Single Mothers (This covers all divorcees, widows and those who raised children on their own violation)	20	8.63	48	1.059	70	2.861	610	2.605	612	2.613	AV E
3	Pay school fees (All categories of school financial requirements)	32	9.91	52	1.076	80	2.050	620	2.647	75	3.237	VL E
4	Set up income generating businesses for the family	10	4.53	12	9.05	86	1.648	96	2.545	104	4.449	VL E
5	Support the family in health related matters	30	1.315	30	1.289	86	2.502	60	2.600	37	2.293	LE
6	Train the family members with the knowledge gain from their professions	30	1.289	80	1.96	80	3.023	620	2.647	32	1.845	AV E

Key: VHE – Very High Extent. HE – High Extent. AVE – Average Extent. LE – Low Extent. VLE – Very Low Extent F – Frequency % - Percentage

Table 2, indicates that women contributes to a low extent as family bread winners, to an average extent as single mothers, to a very low extent in paying school fees and setting up income

generating businesses, to a low extent in supporting the family in health relating matters and to an average extent in training the family members with the knowledge gain from their professions.

11.3. Research question three: What is the difference between the percentage rating by men and women on the contribution of women to family growth and development in Nigeria?

Table 3: Frequency and percentage rating by men and women on the contribution of women to family growth and development in Nigeria N = 2342

S /No	Items	Responses										Ver dict
		VHE		HE		AVE		LE		VLE		
		F	%	F	%	F	%	F	%	F	%	
1	Family Bread Winners (The one that financed the family)	11	9.48	11	1.00	32	9.81	01	5.70	02	4.33	VL
		11	9.48	11	1.00	32	9.81	01	5.70	02	4.33	VL
2	Single Mothers (This covers all divorcees, widows and those who raised children on their own violation)	01	8.63	11	1.00	35	8.61	05	6.05	03	6.13	AV
		01	8.63	11	1.00	35	8.61	05	6.05	03	6.13	AV
3	Pay school fees (All categories of school financial requirements)	16	9.01	12	0.76	40	0.50	10	6.47	07	2.37	VL
		16	9.01	12	0.76	40	0.50	10	6.47	07	2.37	VL
4	Set up income generating business for the family	03	4.53	10	0.90	93	6.48	98	5.45	02	4.49	VL
		03	4.53	10	0.90	93	6.48	98	5.45	02	4.49	VL
5	Support the family in health related matters	54	3.15	51	2.89	93	5.02	04	6.05	68	2.80	LE
		54	3.15	51	2.89	93	5.02	05	6.05	67	2.80	LE
6	Train the family members with the knowledge gain from their professions	51	2.89	40	1.96	54	0.23	10	6.47	16	8.45	AV
		51	2.89	40	1.96	54	0.23	10	6.47	16	8.45	AV

Key: VHE – Very High Extent. HE – High Extent. AVE – Average Extent. LE – Low Extent. VLE – Very Low Extent F – Frequency % - Percentage S- Sex M – Man W - Woman

Table 3, indicates that there is no numerical differences in the percentage rating of women contributions to family growth and development in Nigeria by men and women in this study. The result shows that both men and women have the same percentage rating with very low extent of contributions as family bread winners, average extent as single mothers, very low extent in paying

school fees and setting up income generating business for the family, low extent in supporting the family in health relating matters and an average extent in training the family members with the knowledge gain from their professions.

12. Discussion of Findings

The finding from responses of research questions one which sought to find out the extent of professional distribution of women in Nigeria indicates that women are averagely distributed in the teaching, lecturing and medical professions and they are present in very low extent in other paid employment, self employment, politics and in sports.

This finding is in agreement with the work of Foong-ming, [4]. These findings affirm that traditionally, in most Nigerian families women are the first port of call for most people who are sick as they offer advice, provide such healthy remedies as first aid care and even hospitalization in most cases.

Evidence from the responses from research question 2 on the extent of contribution of women to family growth and development in Nigeria indicates that women contribute to a very low extent in paying school fees and setting up income generating businesses, and to a low extent as family bread winners and in supporting the family in health relating matters and to an average extent as single mothers, and in training the family members with the knowledge gain from their professions.

This finding is in agreement with the work of Brimmer [1]. These findings affirm the quotation from Dr. James Emmanuel Kwegyir-Aggrey, a Ghanaian scholar, that "If you educate a man you educate an individual, but if you educate a woman you educate a family and a nation".

Finally, the result of research question 3 on the difference between the percentage rating of men and women on the contribution of women to family growth and development in Nigeria. The result is in line with creative vision recorded in Proverbs 31Vs 14-18. The result affirms that in a family, there are shared responsibilities between the man and the woman for the smooth running and growth of the home. The man generally has the leadership role, while that of the woman is supportive. Both the man and woman in this study realise that they complement each other in the task of growth and development.

13. Implications of the findings in family growth and development in Nigeria

Findings in Table 1, indicates that women are averagely distributed in the teaching, lecturing and medical professions and they are present in very low extent in other paid employment, self employment, politics and in sports in the south-south and south-east geo-political zone of Nigeria. Since the women who are supposed to assist the men in all respect of finance are not evenly distributed in paid employment they are not able to

play the creative roles of women in family growth and development in Nigeria.

Findings in Table 2, indicates that women contributes to a low extent as family bread winners, to an average extent as single mothers, to a very low extent in paying school fees and setting up income generating businesses, to a low extent in supporting the family in health relating matters and to an average extent in training the family members with the knowledge gain from their professions. The low level of women contributions will affect the growth and development of families in Nigeria negatively.

The findings in Table 3, indicates that there is no numerical differences in the percentage rating of women contributions to family growth and development in Nigeria by men and women in this study. The implication herein is there is a valid deviation of women from their creative roles of developing the families in Nigeria.

14. Conclusion

The study of women as minorities in science and technology: Implications in family growth and development in Nigeria is very crucial in this period of national transformation. The results of the findings indicate that women are truly minorities in sciences and technology related employments/professions in Nigeria.

15. Recommendations

To correct the imbalances in the distributions of women as minorities in science and technology: Implications in family development in Nigeria as shown in the findings of this study, the following recommendations are made:

Nigerian government should urgently create employment for women in all sectors to balance the population of both men and women.

Since employment opportunity is synonymous with qualification, the government should encourage women to register and be trained in all disciplines in Nigeria.

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“Acting in Ways That You Would Expect of Others”: Superintendents’ Roles in Implementing Response-to-Intervention Models

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Abstract

Response-to-Intervention (RTI) is a general education initiative designed to reduce numbers of students identified for special education services and to improve instruction for at-risk students.

RTI models require specific components and a structured approach to assessment and instruction. [1] In practice, however, there has been much inconsistency in RTI implementation. [2]

District leaders are key to implementing educational reforms. To implement RTI reforms, they must understand the technical and the cultural changes needed for their fidelity and success. [3] Since the fidelity of an educational reform is affected by administrators’ understanding of the reform. [4] This qualitative research undertakes to learn district superintendents’ understanding of the term “RTI” and about their perceptions of RTI models currently being used in their districts. It is hoped that this will further the fields’ understanding of district leaders’ roles in successful reform implementation.

1. Introduction

Research on school reform shows that superintendents not only impact policy implementation, district leaders’ understanding of these reforms affect whether and how well these reforms are carried out. Further, it is the superintendent’s practical understanding of the skills and efforts required for implementation that are critical to reform efficacy and sustainability [4]. Spillane found that in districts that demonstrated high fidelity to implementing curricular reforms, district leaders “were more likely to maintain a function-focused understanding” of the piloted reforms [4; p. 165]. Therefore, superintendents must have advanced understanding of national, state, and regional policies in order to decide what aspects of a reform need to be ignored, changed, or adopted for their district’s use.

The success and fidelity of RTI implementation efforts indicate that leadership is just as important for this reform as it is for other educational reforms. Klingner, Arguelles, Hughes, & Vaughn [5] found that districts with leaders showing strong commitment to using RTI practices and who took measures to ensure that principals followed through

were most likely to maintain and use these reforms. Another qualitative study in which teachers were asked about their concerns regarding upcoming RTI reforms in their district revealed that these teachers placed a high priority on administrative support at the site and district level in the RTI implementation process [6].

One of the obstacles to implementing RTI with fidelity is that, in practice, RTI models often do not resemble models that are outlined in the research [citation]. In order to begin a discussion of the realities of RTI implementation, it is important to know how RTI models and constructs are constructed in the research.

2. Literacy Review

2.1 Definition of Response-to-Intervention

Although district-adopted RTI models can be quite divergent in appearance, Barnes & Harlacher [7] designated the following components as being essential to RTI models: a) multiple tiers, or steps that signify the level of intensity of the intervention provided; b) an assessment and data collection system that provides frequent and ongoing information about how students are performing in key academic areas and is used in the special education referral process, c) protocols (replicable procedures and approaches for determining what resources and level of intervention a student needs), and d) evidence-based instruction.

Typically, district RTI models use a three-tiered or four-tiered approach. Higher tiers signify increasing support and specialized instruction or behavioral supports. Tier One is considered to be general education setting with students being taught the school or district-adopted curriculum or school-wide behavioral expectations. Tier Two is often supplemental instruction or support provided with more frequency or intensity (e.g., higher educator to student ratio) than at Tier One. Students who are not successful in Tier Two interventions are placed in Tier Three interventions. Less than 18% of all students are served at this intensive level, which is often provided by a specialist in a setting outside of the general education classroom [8] Many models of RTI consider special education services and

placement as Tier Three or Four. [9] While a teacher may develop their own protocols and interventions for Tiers Two or Three, many districts have adopted standard protocol models in which the materials and delivery of instructional or behavioral interventions are pre-determined for all students at each tier. Typically, interventions in standard protocol models attempt to reduce teacher variation to the greatest extent possible, choosing scripted procedures for carrying out these interventions to ensure fidelity of treatment. [10]

Response-to-Intervention (RTI) was initially developed as an alternative to traditional methods of referring and assessing students who were at risk of being referred for special education. [11] An interdisciplinary Student Study Team (SST), chaired by the school psychologist is typically responsible for the referral and assessment process in this traditional eligibility model. The SST team relied upon "discrepancy models" to determine eligibility. These models were so named because a normed intelligence test scores were compared with the norm-based achievement test scores of a student being considered for special education. If there was a significant discrepancy between these two scores, then the student would be considered eligible for special education services due to a learning disability. As an alternative to these discrepancy models (which had questionable validity and reliability), researchers developed sophisticated data analysis and growth models that allowed for the use of curriculum-based measures (CBMs) for determining learning disabilities. By using these data models to chart student growth on CBMs, districts and schools could now use authentic measures that could be collected with greater frequency in order to determine whether a student was making sufficient gains to catch up with his/her normally developing peers. [12]

RTI has strong support at the national and state policy levels. No Child Left Behind [13] and IDEA [14] specifically advocate the use of RTI models for assessing and identifying students with mild disabilities. Expert educational panels and national organizations have also acknowledged RTI as a major general and special education initiative. [15] [16] All 50 states have incorporated RTI into their State Development Plans, nearly every state has adopted a state RTI framework, and a majority of the states offer financial support for districts that wish to implement district-wide RTI models. [17] On the other hand, clear procedures from the state and federal government on how to implement RTI models have been slow to reach the district and school level. [18] [19]

2.2 District Leaders' Roles in Implementing RTI

The research on educational reform can offer insightful information to those who have a vested interest in the success of Response-to-Intervention models at the school and district level. For example,

Fullan notes that external factors (e.g. state and federal policy) can mandate reforms, but real change can be thwarted by passive or active opposition at the school and district level. [20] Therefore, site and district leadership are critical to the fidelity and success of any educational reform. [21]

Leadership factors are also shown to be important prerequisites to ongoing student achievement and to sustained reform efforts. Klingner, Arguelles, Hughes, & Vaughn [22] found that districts that with leaders who showed strong commitment to using research-based practices and who took measures to ensure that principals followed through were most likely to maintain and use these reforms.

Furthermore, local school leaders (i.e., principals and superintendents) understanding of school reform policies affects whether these reforms are successfully implemented in the schools and districts they lead. Research in the field of leadership roles and education educational reform revealed that the local administrator's level of understanding about a particular policy are critical to the efficacy and sustainability of the reform in question.

To gather more in-depth information about leadership knowledge and understanding of district mathematical reform efforts, Spillane interviewed district administrators to determine their level of understanding of the curricular reforms. Spillane's research distinguished between administrators' "form-focused understanding" of the mathematical reform, which included practical understanding of the pedagogical activities and the procedures required to implement a reform and "function-focused understanding," which required deeper insight into the intent of the policy reform and its intended outcomes. Spillane found that districts that were most successful in implementing these reforms had leaders who "were more likely to hold function-focused understandings of the mathematical reform" [23, p. 165]. These findings suggest that effective reform implementation requires local school and district leaders to understand and interpret national school reform movements at an advanced level in order to decide what aspects need to be ignored, changed, or adopted for their school's and district's use.

Furthermore, school administrators who that share decision-making responsibilities are credited with creating greater motivation, increased trust and risk taking, and increased sense of community and efficacy among its members (Copland, 2003). Leadership models that defy traditional hierarchical educational leadership prototypes in favor of those that encourage shared decision-making between administration and teachers increase the successful implementation of school reforms. Distributed leadership is one structured approach to increasing teacher's involvement in shared decision-making at the school and district level. [24] [25] Professional Learning Communities (PLCs) are another example of school organizational structures that heighten

teacher involvement in decision-making. [26] Teachers and administrators in PLC communities are committed to student learning through collective reflection and professional growth. David & Shields (1999) found that schools whose teachers maintained membership in professional learning communities typically maintained educational reforms and new ways of teaching for longer periods of time than their peers. [27] Ultimately, the facilitation of school structures that allow for shared decision-making lie with school and district leaders. "It seems clear that transforming the school organization into a learning community can be done only with the leaders' sanction and active nurturing of the entire staff's development as a community" [28]

3. Research Questions

The study was designed to address the following questions relative to Response-to-Intervention (RTI) and its implementation in districts led by superintendents who are being interviewed for this study:

1. How is the term "Response-to-Intervention" defined by superintendents in this study?
2. What are the self-described leadership styles of superintendents who have implemented successful RTI models?
3. What successes have superintendents perceived or observed as a result of this reform?
4. What are the needs and concerns of superintendents that have arisen as a result of implementing Response-to-Intervention models, given the demographics of students enrolled in their districts and the fact that other mandates and reforms (e.g., Common Core State Standards) must also be implemented at the same time?

4. Methodology

4.1 Research Design

Stake defined two types of case studies: (a) *intrinsic*, or those individual cases selected because of researcher's interest in the unique aspects of the individual case, and (b), *instrumental*, those cases that are selected in order to represent a broader sampling of the population that share similar characteristics or situations. [29] Shkedi writes of instrumental case study, "By studying the uniqueness of the particular, we come to understand the universal". [30, p. 21] Collective case study methodology extends the instrumental case study design through the selection of multiple cases, each of which provides the researcher with different aspects of those cases that share common features. [31] The collective case study is being used in the selection and recruitment of districts and their superintendents for this particular study.

4.2 Participants

Cases for this study were selected, based upon the following criteria: (a) that the district had adopted RTI reforms within the past four years; (b) that each district in the study had RTI programs that contained all four universal components of RTI as outlined by Barnes and Harlacher [32] ; and (c) that the current superintendent was an administrator in the district while RTI models were being implemented and was instrumental in bringing about RTI reforms within the district.

Additionally, districts and their superintendents recruited for this study were selected to get a broad representative sample of districts in California. To this end, 3 districts from Southern California and 3 districts from Northern California were selected. For purposes of this study, "Southern California" consisted of the region defined by the California-Mexico border to the south and the counties of Monterey, Fresno, and Inyo Counties to the north. "Northern California" was comprised all counties north of Monterey, Fresno, and Inyo Counties. For each of the three districts selected and recruited for the study, one each of the following was selected and recruited from each of the two regions in California: (a) rural, (b) suburban, and (c) urban.

It was the author's intent to recruit superintendents from elementary school districts, high school districts, and from "unified" school districts (those districts that served students from grades P-12, inclusive). However, very few high school districts contacted in the study had adopted RTI models that met the above criteria at the beginning of this study in 2012.

4.3 Procedure

The interview protocol used for this study was adapted from a similar instrument developed by the primary researcher for use as an assessment tool for a Teacher Quality Grant administered by a university in Northern California. [33] The original interview protocol was disseminated to experts in the field of special education and district administration for their feedback and edits. The current interview protocol was updated to reflect new terms and new policy developments in RTI and in education. Experts in higher education, P-12 education, and special education reviewed the updated version for bias and for content. The instrument is an open-ended response format.

Superintendents and their designees were contacted by telephone and/or by e-mail to solicit their participation in the study. Once written consent to be a participant and to have an audio recording of the interview session was obtained, the researcher conducted a face to face or telephone interview with superintendent. The researcher did not deviate from the interview protocol except to ask the superintendent to expand on responses that were not

clear. The researcher would also reword a question when the superintendent asked for clarification. The researcher concluded each interview by debriefing with the superintendent and providing him or her with contact information, should they have any questions or concerns about the interview or their participation in the study.

4.4 Data Analysis

Transcripts of the responses to the open-ended questionnaire were analyzed using "constant comparison analysis" which uses grounded theory frameworks to interpret text. [34] An open coding of the interview transcripts was conducted in order to categorize the district administrator's responses. This initial coding led to a second selective code analysis. Two selective code analyses were conducted. One selective coding analysis was conducted by the primary researcher, while a second and independent selective code analysis was conducted by an impartial researcher to validate the results. Using these coded data, the primary researcher wrote summaries and analyses for each school district representative. A cross-case analysis was also conducted to compare responses and themes across districts for patterns of similarity and dissimilarity. [35]

To date, four district superintendents have been interviewed for this study. Of these, two are from districts in Southern California and two are from districts in Northern California.

5. Preliminary Results

Emerging themes so far support Spillane's research showing that educational leaders who maintained a "function-focused understanding" of RTI reform. [36] Leaders who reported the most benefits and sustainability from their RTI models also had extensive knowledge of RTI and how it was being implemented in their district. These superintendents had also dedicated ongoing support for RTI, both in terms of district resources and their own time and efforts towards this initiative.

Another recurring theme in all four interviews was superintendents' concerns about the Common Core State Standards (CCSS) [37] and how their students with disabilities would perform on the Smarter Balanced Assessment designed to align to the CCSS. While further data are needed for a cross-case analysis, these findings suggest that school district leaders are experiencing a phenomenon that Coburn observed among teachers who had to implement overlapping and sometimes competing policies in California's reading wars. "At any given time, teachers are not only connected to current policy but also connected to previous policies as they have become embedded in teaching materials, local

teaching practices, and routines in their proximal communities." [38]

This study also supports Copland's research on the positive impacts that distributed leadership styles and models have on the sustainability of school reforms. [39] Copland found that leaders used inquiry and reflection to advance teachers' commitment to and knowledge of reform efforts within distributed leadership models. One superintendent who was interviewed for this study conveyed deep understanding of RTI models and described her direct involvement in carrying out RTI models in her district. After identifying herself as a collaborative leader, she defined distributed leadership as "acting in ways that you expect of others...and in the leadership role, being knowledgeable about what you expect others to do and being able to demonstrate that." Such an evolved level of knowledge and involvement with reforms such as RTI suggest that there is a "Golden Rule" level of distributed leadership that is difficult to attain, but yields the best outcomes for students and teachers alike.

6. Conclusion

This research in progress seeks to define those attributes and abilities of superintendents that help school reforms like RTI sustain and thrive. Data collected in this study do date appear to support Spillane's work which focused on the cognitive factors that support or impede district leaders' understanding of educational reforms. [40]

This study also supports Copland's research on the positive impacts that distributed leadership styles and models have on the sustainability of school reforms. [41] Copland's work found that leaders used inquiry and reflection to advance teachers' commitment to and knowledge of reform efforts within distributed leadership models. Responses collected from interviews with superintendents of districts that were implementing RTI showed that, even among leaders who were well versed in RTI and distributed leadership models, there were levels of understanding and commitment to RTI reform models within their respective districts.

This study has many limitations, both as a work in progress and as a case study of a small number of school districts in California. However, the findings here are promising and suggest that administrator's depth of knowledge of specific educational reforms and their investment to distributed leadership models in their districts can effect real and positive change at the school and district level.

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Session 10: Science Education

Messages from the curriculum: tracing the role of Indigenous knowledge in the South African science curriculum from 2002-2011
(Author: Audrey Msimanga)

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Messages from the Curriculum: Tracing the Role of Indigenous Knowledge in the South African Science Curriculum from 2002-2011

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Abstract

In this presentation I look at developments in the South African science curriculum as a social and political project as well as an academic statement of the scientific knowledge to be transmitted to future generations. Using Young's notion of "powerful knowledge" I trace the role of Indigenous knowledge in curriculum documents from C2005 through 2011. I explore the social, political and academic messages that can be inferred from the ways in which IK is progressively included or excluded in curricular documents, the ways in which IK is articulated as a form of knowledge and as a pedagogical tool. The analysis shows a progressive reduction of statements that refer explicitly to IK in science curriculum documents. Literature notes that such a gradual silence in the curriculum about IK integration will translate into a corresponding pedagogic exclusion of IK from classroom interaction and diminishing recognition of the role of IK in the science curriculum which defeats the social transformation goal of curriculum change in South Africa.

1. Introduction

The South African science curriculum has undergone several revisions since the introduction of democracy in 1994. Over several cycles of review, both the Physical Sciences and Life Sciences curricula have evolved from the Revised National Curriculum Statement (RNCS)¹ through the National Curriculum Statement (NCS)² to the current Curriculum and Assessment Policy Statement (CAPS)³. The first post democracy curriculum was founded on the principles of Outcomes-Based Education (OBE) which encouraged a learner-centered approach to education, including the valuing of indigenous knowledge systems. While the fundamental principles of outcomes based education have been dropped and the current curriculum, CAPS, has become more content-based, the basic philosophy of the curriculum has remained unchanged. There is a continued emphasis on inquiry

and contextualization including the integration of indigenous knowledge systems (IKS) in school science. However, with each review of the science curriculum there seems to be a reduction of representations of IK in curriculum documents. In South Africa curriculum review is prompted by its perceived inadequacies in affording effective science teaching and learning as seen in persistent poor performance and low levels of achievement at school and tertiary levels. The review process therefore, tends to respond directly to the academic rather than the social transformation goals.

The inclusion of IKS in school science is a social justice issue for South Africa thus, "Indigenous knowledge systems in the South African context refer to a body of knowledge embedded in African philosophical thinking and social practices that have evolved over thousands of years. The National Curriculum Statement (NCS) acknowledges the rich history and heritage of this country as important contributors to nurturing the values contained in the Constitution"⁴

In this presentation I focus on developments in the science curriculum as a social project, as a political project and as an academic statement of the scientific knowledge to be transmitted to future generations. I use Young's notion of "powerful knowledge"⁵ to trace the role of Indigenous knowledge in the curriculum from 2005 to the latest documents of 2011.

2. The South African curriculum

Curriculum has been defined in various ways. It can be viewed as a social project; a political project; a statement of knowledge that is valued and should be taught and how it should be taught or of what is valued and should therefore be transmitted to future generations.

The South African curriculum has been defined in all of these ways at different times over the years. As the nation has progressed from the apartheid era to a democracy there has been a parallel quest to

transform education and the curriculum both as a social and a political project.

3. Methodology

The main data sources are the curriculum documents that have been advanced in South Africa in recent years. I investigate the Revised National Curriculum Statement (RNCS Grades R–9), the National Curriculum Statement (NCS Grade 10-12) and the Curriculum and Assessment Policy Statement (CAPS), the latest curriculum document³. The first two documents specified Learning Outcomes (LOs) and Assessment Standards (ASs). Learning Outcomes 1 and 3 emphasized the integration of Indigenous Knowledge Systems (IKS) with school science.

My approach is characterized by document analysis for thematic categorization of data using indigenous knowledge as a code⁶.

4. Results and discussion

The table below summarizes illustrates the data that have been identified using the key codes s.

Table 1. Prevalence of IKS referents in curriculum documents

	RNCS (2002)	CAPS GET (2011)	NCS (2003)	CAPS FET (2011)
Frequency of reference to IK	8	5	8	4

Several trends can be observed as a result of this document analysis. The main one is that there has been a reduction of mention of IKS in the new curriculum, down by 50% for both the lower secondary (GET) and upper secondary (FET) curricular documents.

There is also variation in the specific sections of the curriculum where IKS is specified. IKS is specified in the general introduction of the curriculum, both the NCS and CAPS documents (Chapter 1) and also in the definition of the subject Physical Sciences in both the old NCS and the new CAPS. IKS is also included in the explanation of the purpose of the subject Physical Sciences, in both the NCS and CAPS.

In the old curriculum, NCS, IKS was part of the learning outcomes (Los) and not specified in the content since content was to be used to achieve the LOs. One might expect that in CAPS, where Los have been replaced by aims and content is specified, IKS would be mentioned in the specific content areas where it is likely to be covered.

In the NCS, IKS was specified in LO1 and LO3, but in CAPS it is only mentioned in the Grade 11 Physics topic of Mechanics under Newton’s Laws of motion, to be used as an example of friction in traditional fire making.

Clearly the new curriculum leaves it up to the teacher to decide not just what content to use to integrate IKS but also whether or not to do it at all. With so much research pointing to teacher difficulty and/or reluctance to integrate IKS into the teaching of science, such silences in curriculum documents about IKS may lead to the total exclusion of IKS from school science. Clearly curriculum reviews in pursuit of the academic agenda have tended to sideline the social transformation goals of the curriculum.

5. Conclusions

I explored the social, political and academic messages that can be inferred from the ways in which IK is progressively included or excluded in curricular documents, the ways in which IK is articulated as a form of knowledge and as a pedagogical tool. I argued that the role of IK in the science curriculum is a social justice issue that should be continually considered by all stakeholders from policy makers to teachers.

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Table 2: IKS in the FET (NCS and CAPS/FET) curriculum documents

	NCS (2003)	CAPS FET (2011)
General introduction of NCS	List of principles guiding the curriculum: Valuing IKS as a principle page 1 Explanation of the principle of valuing IKS page 4	1.3 Introduction of SA curriculum. List of principles that guide the curriculum – Valuing IKS pages 4-5
Introduction of the Physical Sciences Definition of learning area/subject	Purpose of the Physical Sciences: page 10-11 Developing insights and respect for different scientific perspectives include mobilising of African indigenous scientific knowledge	Section 2.1 What is Physical Sciences? – Science and IKS are viewed as means of addressing societal problems. Definition of IKS is provided - page 8
Content	LO3, AS1 Grade 10-12: The nature of science and its relationships to technology, society and the environment; AS1, Evaluating knowledge claims Grade 10: Discuss knowledge claims by indicating the link between indigenous knowledge systems and scientific knowledge (page 28) Grade 11: Recognise, discuss and compare the scientific value of knowledge claims in indigenous knowledge systems and explain the acceptance of different claims Grade 12: Research, discuss, compare and evaluate scientific and indigenous knowledge claims by indicating the correlation among them (page 29) LO3, AS1 Grade 10-12: The nature of science and its relationships to technology, society and the environment; AS1, Evaluating knowledge claims Grade 10: Discuss knowledge claims by indicating the link between indigenous knowledge systems and scientific knowledge (page 28) Grade 11: Recognise, discuss and compare the scientific value of knowledge claims in indigenous knowledge systems and explain the acceptance of different claims Grade 12: Research, discuss, compare and evaluate scientific and indigenous knowledge claims by indicating the correlation among them pg 29	
	Content and contexts for the attainment of ASs (includes) ... knowledge and concepts that have relevance, such as natural products with possible IKS links to industry, nutrition p35	Grade 11 Physics – Mechanics under Newton’s Laws of motion. Example of friction in traditional fire making.

Table 3: IKS, NoS, Argumentation in the GET (RNCS and CAPS/GET) curriculum documents

	RNCS (2002)	CAPS GET (2011)
Chapter 1: Introduction section	<p>Introducing the Natural Sciences Learning area: Learning Outcome 3 (LO3): Science, Society and the Environment:</p> <p>a) Traditional technologies may reflect people’s wisdom and experience: indigenous or traditional technologies</p> <p>b) Different world-views are usually present in the science classroom: differences between modern science and technology on the one hand, and traditional and indigenous knowledge systems on the other hand ... page 10-11</p> <p>These issues create interesting challenges for curriculum policy, design materials and assessmentand for IKS these are at early stages page 12</p> <p>The assessment Standards for LO3 can be used to assess progress in ... traditional and IK page 12</p>	<p>Guiding principles for the national curriculum: Valuing indigenous knowledge systems: acknowledging the rich history and heritage of this country pg 6</p> <p>Specific Aim 3: Appreciating and Understanding the History, Importance and Applications of Natural Sciences in Society Learners must be exposed to the history of science and indigenous knowledge systems from other times and other cultures. Pgs 15 and 20</p>
Content		<p>Grade 8, Strand 4: Matter and materials, Chemical reactions. Reactions in indigenous knowledge systems: brewing page 59</p> <p>Grade 9 Strand 4: Life and living</p> <p>□ Indigenous knowledge systems: use of indigenous plants to support and improve health and to fight disease. Page 79</p>
Glossary/Ref list	IKS definition in Natural Science Learning Area glossary page 87	
Other	<p>Cultural – Introduction of LO3 page 46</p> <p>Traditional – Explanation of LO3, AS1 Grades 8-9</p>	

University Science and Engineering Faculty Perceptions and Implementation of Project Based Science: Effects of Participation in a K-12 Teacher Professional Development Program

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Abstract

While United States science standards emphasize teaching science as it is practiced, some university science and engineering faculty continue to teach science through lecture resulting in college graduates who have not adequately developed inquiry skills needed to succeed in STEM careers. This study examined the residual effects of participation in a professional development program to develop K-12 science teacher leaders through the study and practice of advanced content and project based science pedagogy. Specifically, the study explored how assisting in the professional development affected science and engineering faculty—the accuracy of their understanding of project based science and the incorporation of project based science into their own classrooms. Methods in this five year study included interviews and observations. Results showed that faculty understanding of project based science improved over time and that participation in a project based science oriented summer program had some positive effects on their own classroom teaching yet faculty continued to make distinctions between teaching science to K-12 teachers and university students .

1. Introduction

It is accepted that teaching style and strategy have an impact on student learning. Although it has been recognized that lecture as a teaching methodology is ineffective in the development of critical thinking skills and problem-solving—both vital to successful STEM-related careers—some university STEM faculty still cling to this means of teaching [1]. A *Framework for K-12 Science Education* [2] and the *Next Generation Science Standards* [3] emphasize teaching science as it is practiced. The Framework and Standards expect that K-12 science teachers will integrate scientific inquiry with engineering design into their teaching practice. And yet pre-service preparation and in-service teacher professional development in science content are frequently taught

by university science faculty who continue to utilize traditional instructional practices that treat students as passive vessels designed to collect the knowledge poured into them [4]. Resistance to altering teaching practices that embrace student generated inquiry may not be intentional but rather due to a lack of understanding what inquiry-based instruction is and involves.

2. Body of Knowledge

A U.S. National Science Foundation Math Science Partnership (Award DUE-0927996), designed to improve science education by making it relevant to students through the incorporation of Project Based Science (PBS) [4] linked to the renewable energies industry and its environmental impacts, utilizes teacher leaders to provide long term (minimum 3 years) K-12 science teacher professional development to their respective school districts. As part of their preparation, the teacher leaders attend three consecutive summer institutes taught by university STEM and STEM education faculty. Courses in the summer institute included advanced renewable energy content, PBS pedagogy, and leadership. One goal of the summer institute science content course delivery is to model PBS teaching. To do so, science and engineering faculty teamed with science educators to modify existing content courses to include PBS strategies and practice.

An expected outcome of this project was that participation in the summer institute would better inform science and engineering faculty of the fundamentals of PBS to the extent that each could provide an accurate description and examples of teaching PBS. Additionally, it was hoped that by learning about PBS, faculty would actually begin to integrate PBS into their university courses.

To determine the extent to which participation affected the faculty, all of their summer institute teaching was recorded. Each faculty member taught two summers over the five year project allowing for the comparison of short and long term effects.

Faculty understanding of PBS concepts and practices was elicited through interviews conducted annually. To examine growth or change, transcripts were compared over time. During a final interview, faculty members were also asked to identify a portion of their summer institute teaching that best incorporated or modeled PBS. Researchers then examined that segment of the recording using a project developed PBS rubric to compare faculty perception of PBS with their implementation. During the last two years of the project, a university science educator worked with science and engineering faculty to further discuss PBS and how it could be integrated into the institute as well as into their teaching. This additional resource provided the opportunity for collegial discussions of hallmarks of PBS as well as access to a resource that could work with them as they modified their courses. Reflective responses (e.g. “how would you compare your understanding of PBS at the beginning of the project to your understanding now?”) provided participant perspectives on the value of their involvement in the program with regards to their teaching practices.

3. Conclusion

Through participation in the LEADERS project, science and engineering faculty have improved their understanding of PBS although not to the level of comprehension hoped for. Major contributions to this shift can be attributed to working with science educators, reflection upon their courses through a PBS pedagogical lens, and participation in the professional learning group comprised of fellow scientists and engineers and led by a science education faculty member. All six faculty members included in this case study identified segments of their summer courses that illustrated PBS. However, in the majority of instances, the lesson was led by the

science educator assisting in the course and not by the university faculty. Taking into account initial interviews and lesson designs, change within faculty showed acceptable growth in that those who were the least knowledgeable of PBS at the beginning improved understanding considerably and altered their courses to include a strong PBS component but the responsibility for the design and implementation of PBS within the courses fell to the responsibility of the science educators. Interview responses referenced a clearer understanding of PBS over time with growth rates similar to that of the teacher leaders participating in the program itself. Indeed, understanding PBS to the extent that it can be fully implemented is a gradual process. One unforeseen outcome was the distinction the faculty made between teaching for the Institute and teaching their university courses. In their general opinion, PBS is a great way to teach science to teachers but their standard teaching practices of lecturing and conducting a series of unrelated experiments (rather than incorporating into a relevant problem to be solved) prevailed.

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Changing Butterfly Colours in the Biology Lab

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Abstract

The goal of lab exercise described in this paper is to provide biology undergraduate students with research experience comparable to graduate studies but performed during regular lab sessions. Working on regular weekly 3 hour lab projects, students dedicate a portion of time to do continuous experiments on butterfly wing pattern formation. In that way students are capable to generate experimental results superior in comparison to regular lab projects. Procedure which is stretched across several weeks includes observation of butterfly growth and metamorphosis, cold shock experiments and pupae injections with sodium tungstate, chemical which alters wild type colour patterning through the modification of cell signals. Furthermore students learn how to spread specimens, photograph them, and do comparative analysis of wild type and altered colour morphs of Painted Lady with other butterfly species from the same genus. In that way students compare induced polyphenism with the actual evolution of colour patterns, getting familiar with evo-devo paradigm.

1. Introduction

Easy rearing, rapid growth and complete metamorphosis of worm-like caterpillar into colorful winged butterfly, makes it attractive object for K-12 science projects. At the university level however, butterflies are not often seen as model system in undergraduate biology labs. What is suitable for elementary school may look “too simple” for the university. But appearance may be deceiving. Starting in mid 90’, several researchers recognized the great potential butterflies have as model organisms in developmental biology and evolution of development “evo-devo” [3,1]. Two dimensional wing surface decorated with complex colour patterns made by rows of microscopic pigmented scales, make butterflies perfect models for the study of pattern formation [7,2]. This spectacular advancement calls for additions in our undergraduate lab practices. Here I represent a 300 level undergraduate developmental biology lab which uses Painted Lady butterflies to teach students one of

the most advanced chapters of developmental biology: evo-devo.

2. Materials and Methods

Painted Lady caterpillars (*Vanessa cardui*) of 2nd or 3rd instar were obtained from Boreal Science Catalogue # 6700700 for the Fall lab and from Merlan Scientific who is the distributor for Carolina Biological. The catalogue number is RE-144070. Although *V. cardui* is a cosmopolitan species native to N. America and can be imported from USA to Canada without any wildlife permit, customs personnel sometimes is not well informed about regulations and can make delays. To avoid complications with the import of time sensitive live organisms, the best is to order them from a supplier within the country. Artificial food was supplied along with the caterpillars. Tools and supplies for spreading butterflies were obtained from Bioquip (catalogue numbers are provided and quantity should be adjusted to the number of students):

4747 butterfly forceps; 1134R pinning strip; 1146S four-hole pin holder; 1208S2 bioquip insect pins no.2 stainless 100/pack; 1206 glass headed pins pack 100; 1021 Adjustable spreading board; 1154E pigma pen black 0.20mm; 1213 blank labels 11/16 x 5/16” and 1002F box with foam pinning bottom.

Sodium tungstate dehydrate was obtained from SIGMA T2629-100G.

First week – rearing: Caterpillars were supplied as a whole brood in a deli-style container with artificial food (see Figure 1A). Each student transferred 6 caterpillars individually into small desert cups using fine brush. Before transfer, about 1-1.5 cubic cm of artificial food was added in each desert cup using spatula. Several holes were punched in the lids and a piece of filter paper placed beneath the lid. Each student labelled 6 desert cups. It takes 5-9 days for the caterpillars to turn into pupae. Students were advised to check caterpillars every day and to take notes about any observed changes (the number of moltings, the speed of growth, the size increase, the rate of food consumption, possible contamination, formation of pupa etc.).

Second week – pupation: When the caterpillars have eaten about half the food, cleaning should be performed, by opening the lid and sweeping out the frass (caterpillar droppings that look like balls) and webbings with the small paintbrush. Paper under the lid should be replaced for humidity control. Upon pupation, two pupae were used as a wild type control and transferred in “wt” rearing cage at RT (see Figure 1B). Another four pupae remaining in small desert cups but with removed remnants of food and frass, were exposed to +4°C cold-shock [6,12].

Third week – injection: Out of four cold-shock pupae, two should remain exposed to cold shock for two more weeks (21 days total) while another two should be injected with 3µl of 1M sodium tungstate [10] and transferred in “injected” rearing cage on RT. In their regular development, painted lady will need another 7-10 days to form adult body within the pupa, and to emerge as a butterfly. That process is postponed in cold-shock treatment. It is crucial to expose pupae to cold-shock within 3-8 hours after pupation [12]. The same is crucial for the success of injections but it can be postponed by keeping pupae several days on cold before injection is applied. This is very important step in order to be able to do injections during regular lab time but still have “early” pupae.

Fourth week-spreading: By this time, wt butterflies emerge and most likely injected butterflies emerge as well. About one day before butterflies emerge, wing colour patterns become visible under the pupal cuticle. It is important to allow butterflies to emerge and to spread and dry their wings uninterrupted. They have to have sufficient room to spread wings properly, for which rearing cage is optimal. Students will not be able to analyze wing patterns if wings are not developed properly. 12-24 hours after butterflies have emerged, students will take them out from the cage one by one, and anesthetize them with few drops of ethyl acetate for 10 min in a closed jar. Once butterflies are sacrificed students pin their thorax and spread them on the spreader following regular procedure for pinning and spreading butterflies. This require some skill. Appropriate labels should be kept pinned near butterfly specimens on the spreader. At the end of lab, butterflies should be transferred on spreaders and put on -20°C overnight. That will insure that no animal would recover from anesthesia and suffer being pinned alive. Next day spread butterflies should be taken from the freezer and left on RT to dry until next lab.

Fifth week-imaging: both wt and injected dry butterfly specimens were taken from spreader and put into collection box or drawer with their labels pinned under each butterfly (see Figure 2B). All four specimens (2 wt and 2 injected) were photographed on both dorsal and ventral side (see Figure 2). Students transferred digital images from lab camera to individual memory sticks or took images using their own cameras. After 21 days, cold-shock treatment also should be put into rearing cage on RT and after next 7 days those butterflies should also emerge. Spreading and imaging procedure should be repeated on them as well (see Figure 2C and D).

Seventh or eighth week – data analysis: this was the time for discussion and preparation for written assignment which was due 1-2 weeks after the last experimental procedure was performed on cold-shock group of butterflies.

3. Results and Discussion

It is well known that cold stress induces changes in colour pattern development in butterflies [13,4]. However, if particular chemical agents like sodium tungstate are injected in a developing pupa, much stronger and more frequent modification can be achieved [10]. It is important that the injection takes place only within a narrow time frame of few hours. For Painted Lady optimal time is around 6 hours upon pupation for both cold shock exposure and sodium tungstate injections [10,12]. Cell signaling responsible for species specific pattern formation occurs only briefly and the interference with natural cell signaling has to be achieved only at that time. Pattern modification cannot be achieved on old pupae. Because of that, it is important to be flexible in the lab design. Lab instructor has to be available and to monitor butterfly development outside of the regular lab schedule in order to capture that crucial period of development and place young pupae on +4 °C. The success of entire project depend on that moment. Our lab practice proved that injection can be successfully postponed until next lab time, if the pupae were transferred on cold as young.

Sodium tungstate is an inhibitor of protein tyrosine phosphatase (PTPase) [5]. By inhibiting PTPases, tungstate prevents signals from being properly received by the pattern forming scale cells (see Figure 2E and F). Since the actual dose of tungstate received by cells and the precise timing of injection are impossible to reproduce exactly, the effect is variable

but within the borders ranging from mild pattern alteration to very drastic ones (compare injected specimen on Figure 1D with the specimen on Figure 2E). Strongly affected specimens tend to “erase” natural patterns (see Figure 2E and F compared to Figure 2A and B). Cold shock usually produces less drastic effects (see Figure 2C and D), often with some small pattern elements missing on otherwise wild type like specimen. Melanisation often happens with cold shock specimens which tend to be darker than wt specimens (data not shown).

There is a certain correlation between the phenotypic effects of cold shock exposure and tungstate injections with the evolution of pattern elements within the genus *Vanessa* [8,9,11]. Figure 3 represents various *Vanessa* species which as wild types do have pattern elements which resemble altered *Vanessa cardui* patterns. Compare Figure 1D and Figure 3A and E. Also compare Figure 2F and Figure 3F. These are just some examples among many of produced *V. cardui* altered phenotypes compared with only three out of over 20 existing *Vanessa* species, most of which are shown in the drawer on Figure 4. Students appreciate the opportunity to take part in the complex experimental procedure which enriches them with new, almost artistic skills while at the same time they embark on the cutting edge of evo-devo science. They managed to visualise science on the wings of butterflies. That is experience which they will remember and treasure for long time (see Figure 4).

4. Conclusion

Here I described a new 300 level undergraduate developmental biology lab, which aims to provide students with a practical experience comparable to research on graduate level. Through experiments designed to alter natural colour patterns of Painted Lady butterfly (*Vanessa cardui*), students learn about developmental mechanisms of pattern formation. By comparing altered phenotypes with the patterns of other butterfly species of the same genus, students drive conclusions about the connection between development and evolution.

5. Acknowledgement

I would like to thank my wife Nevena and our two boys Teodor and Tasian for their patience and constant support of my work. I would like to thank biology technicians at Augustana campus: Rita Torok-Both

and Marian Forre for their assistance in preparation and organisation of this lab. I thank Augustana communications specialist Christopher Thrall for taking group picture in the butterfly lab and for collecting all student consents for public use of that picture. Last but not least, I thank all our biology students who have taken developmental biology course and participated in this lab in last three years. This lab was designed for them and improved through interactions with them.

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7. Figures

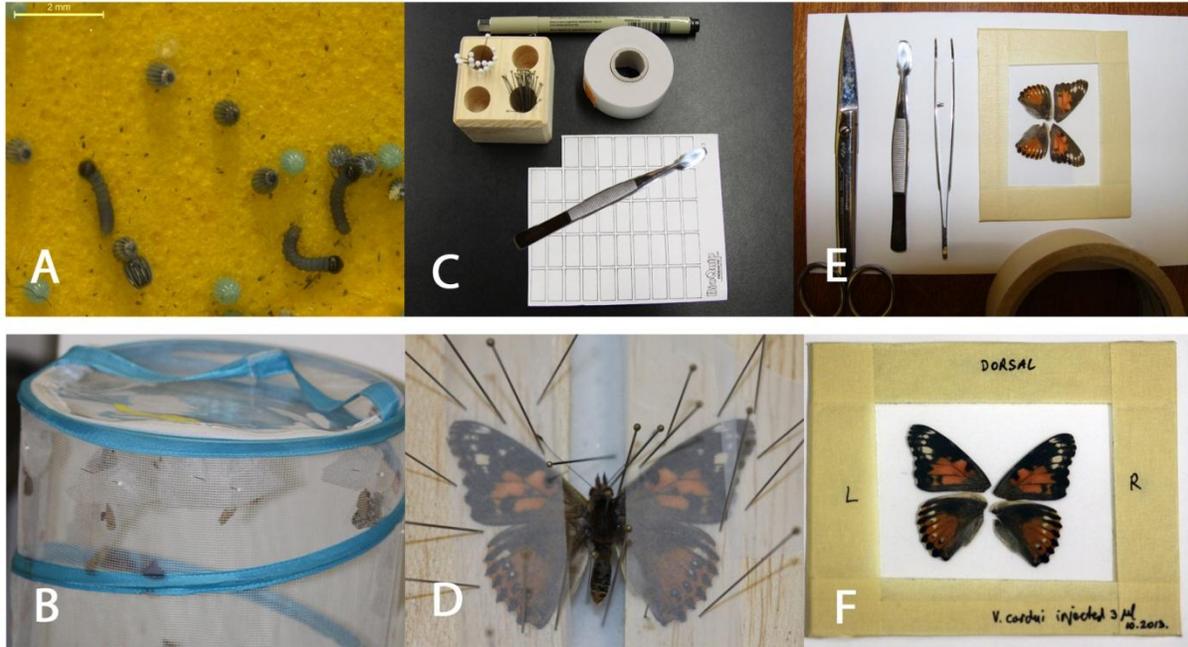


Figure 1. Rearing *Vanessa cardui* and two alternative ways of spreading specimens for the purpose of pattern analysis. Panel A first instar caterpillars emerged from eggs. Panel B after pupation specimens were transferred to the rearing cage. Each pupa is hanging on the paper transferred from the desert cup and secured with a pin. On the right is visible one emerged butterfly; Panel C tools needed for butterfly spreading. Killing jar and spreader are not represented. Spreaders are visible on Fig.4; Panel D fully spread butterfly supported by many pins.

Specimen itself is pierced only with a single pin through the thorax; Panels E and F represent alternative way of spreading wings. After specimen is sacrificed in killing jar, wings are cut in their base and positioned between two large microscope slides. Edges are connected with a duct tape. This is simpler and faster way to prepare specimens for imaging. The downside is that specimen is actually destroyed and only wings preserved. For authors knowledge, this is the first description of this methodology.

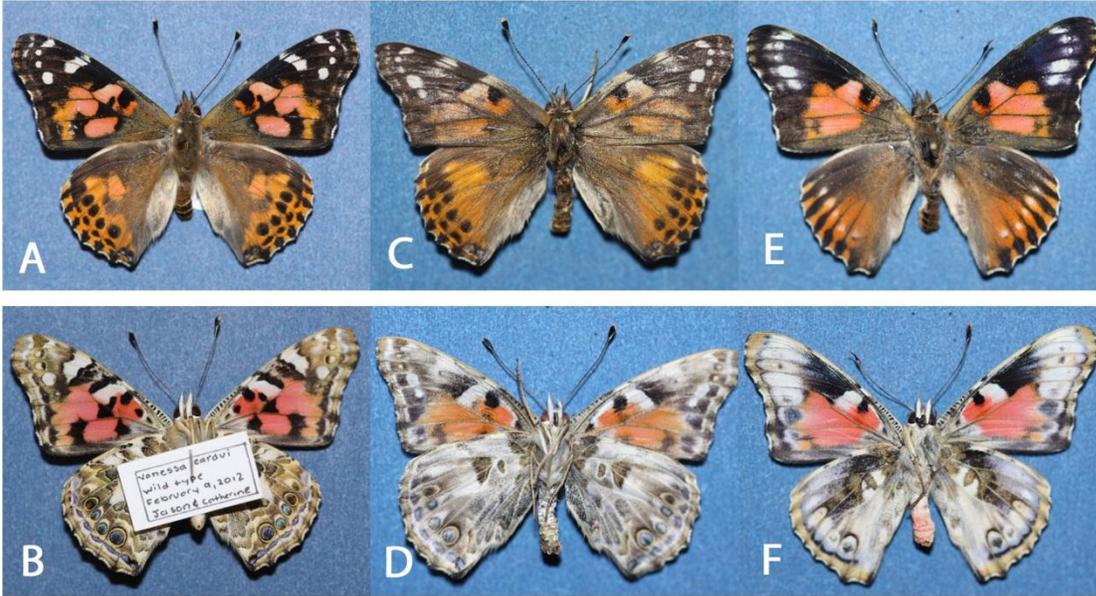


Figure 2. *Vanessa cardui* specimens produced in the lab. Vertical rows represent dorsal wing surface on the top and ventral wing surface of the same specimen on the bottom. From the left to

the right: Panels A and B wild type; Panels C and D young pupa was exposed to cold shock for 21 days; Panels E and F young pupa was injected with 3 μ l of 1M sodium tungstate.

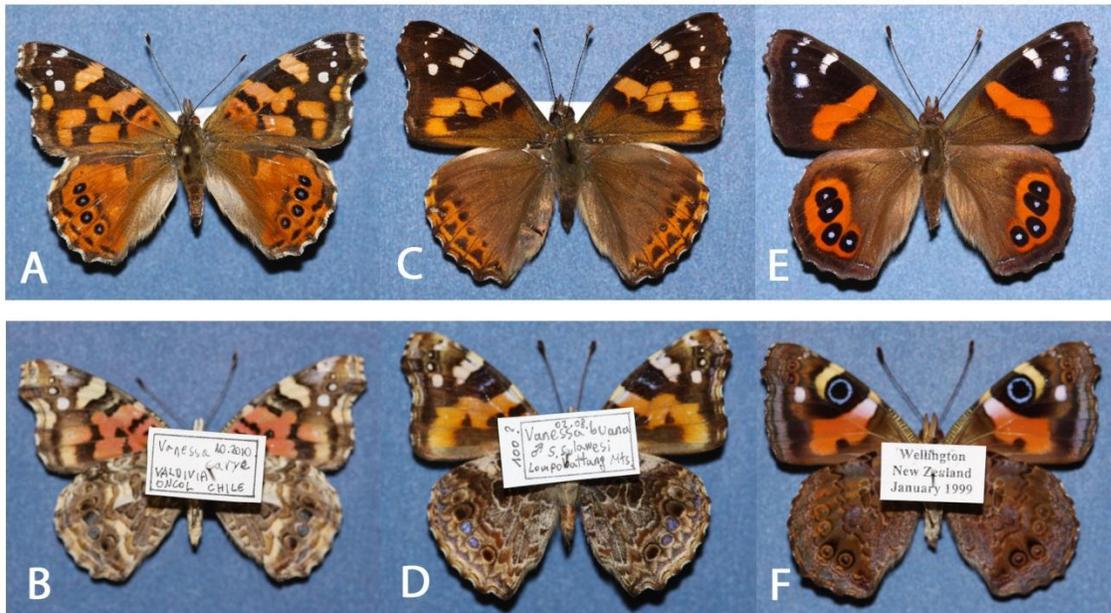


Figure 3. Three different species of genus *Vanessa*. We used them to compare induced pattern changes in *V. cardui* to possible evolution of pattern elements within the genus. Vertical rows represent dorsal wing surface on the top

and ventral wing surface of the same specimen on the bottom. From the left to the right: Panels A and B *V. carye*, Chile; Panels C and D *V. buana*, Sulawesi; Panels E and F *V. gonerilla* from New Zealand. Specimens are from authors collection.



Figure 4. Third year developmental biology students at Augustana (Winter 2012) showing their newly acquired skill in butterfly spreading. Injected and cold-shock *V. cardui* specimens were compared with wt as well as with different species of *Vanessa* genus shown in the top half of the large drawer in the center of picture held by the author. In the back row on the left from the author is lab technician Rita Torok-Both who organised all technical details of butterfly lab.

Inspiring Young Minds to Science: Exploration Sea Chests and Molecule Making Machines

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Abstract

Our initiative, “Exploration Sea Chests and Molecule Making Machines”, promotes science to elementary students (K-6) and their teachers through the development of biology and chemistry travelling kits and supporting material. The project focuses on elementary education to instill and capture the interest in science at an early age by showing relevance of biology and chemistry in everyday lives. The initiative is particularly designed to assist elementary school teachers who may have little or no science background. The kits are collaboratively developed by Science and Education faculty at Cape Breton University along with school teachers to provide P-6 teachers with effective tools to enhance their science curriculum. The kits contain indoor/ outdoor activities and resources that are locally relevant, grade-appropriate, customizable and easy to use. The biology kits, “Exploration Sea Chests”, contain individual and group activities to teach the students the concept of invasive species with a local connection; e.g. the European green crab transported to Nova Scotia through ballast tanks. The chemistry kits focus on the concepts of atoms and molecules and relate everyday phenomena to the students, such as the cycle of water and physical state as well as carbon dioxide.

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Session 11: Reading, Writing and Language Education

The Functions and uses of Nouns and Verbs in the Essays by L2 Learners of English in Japan
(Author: Yoshiyuki Okaura)

Factors Influencing Bilingualism in Nunavut
(Author: A. Katharine Bartlett)

Reading Skills Acquisition in English: A Comparison of Monolingualism and Bilingualism in Foundation Phase
(Author: Pule Phindane)

L2 Writing: Aligning the Cultural and Pedagogical
(Author: Anoud Abusalim)

The Functions and uses of Nouns and Verbs in the Essays by L2 Learners of English in Japan

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Abstract

The purpose of this paper is to analyze and assess the textual functions and uses of nouns, pronouns, and nominals, and also verb phrases shown in the essays written by 35 L2 English learners of Japanese university students from the perspective of world Englishes. First, we will consider the textual functions and uses of not only personal pronouns, indirect pronouns and such nominals as gerunds and infinitives but also the six types of nouns: enumerative nouns, advance/retrospective nouns, language activity and illocutionary nouns, interpretive nouns, resultative nouns, and vague nouns. Secondly, we will analyze the frequency of the present and past tenses and the progressive and perfect aspects. Moreover, we will consider the textual functions and uses of five types of verbs, that is, public verbs, private verbs, suasive verbs, logical-semantic relationship verbs, and expecting/wanting/tentative verbs.

1. Introduction

The purpose of this paper is to analyze and assess the textual functions and uses of nouns, pronouns, and nominals, and also verb phrases shown in the essays written by L2 English learners of Japanese university students: more specifically, how frequently they are used, and how appropriately they convey the meaning in the essays from the perspective of world Englishes. First, we will consider the textual functions and uses of not only personal pronouns, indirect pronouns and such nominals as gerunds and infinitives but also the six types of nouns: enumerative nouns, advance/retrospective nouns, language activity and illocutionary nouns, interpretive nouns, resultative nouns, vague nouns [10, 4]. Secondly, we will analyze the frequency of the present and past tenses and the progressive and perfect aspects. Moreover, we will consider the textual functions and uses of five types of verbs, that is, public verbs, private verbs, suasive verbs, logical-semantic relationship verbs, and expecting/wanting/tentative verbs. We will put more emphasis on intelligibility from the perspective of world Englishes instead of error analysis [7,5,6].

2. Procedures

2.1. Designing questionnaire and writing assessment task

In order to appropriately assess the writing by L2 English learners of Japanese university students, it is effective to combine questionnaire regarding their English learning with the writing assessment task. Okaura constructed and conducted the questionnaire in English, which we slightly revised for this research according to Dornyei [8, 3]. Furthermore, we changed the subject of the writing assessment task from (1) to the combination of (2) and (3) considering heuristic search strategies [1,2]:

- (1) Please write an English essay in one paragraph to explain three most important aspects of Japanese culture to people in other countries without using dictionaries or asking your teacher for advice. The time limit is 40 minutes.
- (2) Please write an English essay about “My Favourite Thing(s)” in 100 – 200 words without using your dictionaries or asking your teacher and classmates for advice. The time limit is 20 minutes.
- (3) Please write an English essay about “My Favourite Thing(s)” in 100 - 200 words. You can use the word list for reference to but cannot use your dictionaries or ask your teacher and classmates for advice. The time limit is 20 minutes.

The subject of “My Favorite thing(s)” of the revised writing assessment tasks in both (2) and (3) is more familiar to L2 learners of English in Japan, which we expect will encourage them to write more words in the limited time. The introduction of the word list will also lead to more words per essay, which is provided as a stimulus material [11] to help them write an English essay.

2.2. Time allotment

Time given to L2 learners of English to write an essay is 20 minutes, which I think is enough time for this writing assessment task with the help of a stimulus material of the word list, although they are given just half the limited time of Okaura [8]

2.3. Data collection

We collected data in the classroom of the Faculty of Pharmaceutics at A University (anonymous). The total number of the respondents is 35, all of whom are freshmen taking my English course.

3. Analysis

3.1 Noun Phrases

The use of personal pronouns were prominent in the essay, especially I, and my. The impersonal pronoun it was also the favorite one of L2 English learners of Japanese university students. Vague nouns were overwhelmingly frequently used such as animal, person, and people of the six verb types.

3.2 Verb Phrases

The most outstanding characteristic of the essays by L2 English learners of Japanese university students is that copula be was used most frequently. The verb type most frequently used was private verbs such as feel, find, forget, hear, know, learn, listen, see, think, and understand. Expecting/wanting/tentative verbs were the second frequently used. On the other hand, the use of public verbs was quite limited to some basic ones such as say, tell, and write. This is also the case with suasive verbs, the use of which was limited to ask, encourage, and recommend. Regarding the tenses and aspects, they often used the present tense and the progressive aspects.

4. Conclusion or Implications for Education

The characteristic use of noun phrases and verb phrases implies that L2 English learners of Japanese university students will have the high potential to use much more vocabulary in writing. In the writing assessment tasks in this paper, they used only limited noun and verb phrases, although they learned much more in junior and senior high school in Japan, and their vocabulary works more effectively in reading. Therefore, we should consider the effective practices of writing and reading and the effective literacy pedagogy.

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Factors Influencing Bilingualism in Nunavut

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Abstract

Bilingual (Inuktitut and English) education in Nunavut has a long history. Since 1971 instruction has been carried out using a combination of early transitional and paired bilingual approaches [3]. Despite this, Berger found “the schools are failing [1]. They are not producing graduates truly competent in Inuktitut [Inuktitut]; moreover, the Inuit of Nunavut have the lowest rate of literacy in English in the country” (p. iv). According to the National Committee on Inuit Education many high school graduates “find that their skills and knowledge don’t compare to that of non-Aboriginal graduates” [2]. The directive for students to become bilingual in both Inuktitut and English arises from government legislation and policy documents and is supported by the recommendations made by the National Committee on Inuit Education. There are many elements that impact the effectiveness of bilingual education in Nunavut. Issues of first language and cultural identity, school factors, home influences, and societal dynamics, will each be examined for what insights they can provide for the bilingual education of Nunavut students.

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Reading Skills Acquisition in English: A Comparison of Monolingualism and Bilingualism in Foundation Phase

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Abstract

This study is based on the findings from a study conducted to examine acquisition of reading skills of monolingual English and bilingual Sesotho-English third grade learners by evaluating their phonological and reading skills. The sample consisted of 80 monolingual English and 80 bilingual Sesotho-English pupils in Motheo District, Free State. Little research exists on how the presence of a spoken-only Sesotho (L1) could influence the English (L2) reading acquisition process. Tasks of PA were correlated with reading measures in English as an L1 and L2, but significant differences were found on all of the measures; implying overall support for use of PA measures for reading achievement in L1-English monolinguals and in the English (L2) of bilingual children, but with the understanding that L1 Sesotho spoken proficiency and L2 English-only instruction influences the underlying repertoire of PA skills used for L2 English reading acquisition, different from that of the L1 English reading acquisition process. The educational implications of these observations for L2 reading development and using phonological measures across cultural-linguistic groups are discussed.

L2 Writing: Aligning the Cultural and Pedagogical

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Abstract

The idea for this project came after years of mentoring new teachers who teach in the multicultural university where I teach. My project was to write a letter of guidance for new writing teachers preparing them for the needs of the students in the L2 classroom while also ensuring quality and standards in our instruction. This paper may be presented as a paper or as a report.

Teaching composition is not an easy undertaking. In writing classes, teachers, from different backgrounds, deal with young writers who lack voice and often feel apprehensive about writing classes.

Writing classes for L2 writers get to be more challenging since the students compound their apprehension about the writing task with their own discomfort with the language. Another aspect that complicates the difficult, and yet intriguing, process of teaching writing is the quality of teachers who teach in the L2 classroom.

First, this paper offers new composition teachers in the L2 multicultural classroom some practical, pedagogical and cultural frames that they should consider while planning and conducting their classes.

Second, the paper argues that pedagogical and cultural frames should be aligned in the L2 classroom in order to foster a conducive learning environment that responds to the students' practical needs while ensuring that the student's learning is aligned with that of their peers in an L1 classroom.

The paper also attempts to contextualize the L2 students' needs within cultural and pedagogical frames. Finally, the paper offers some practical tips that L2 teachers can use in the classroom to facilitate the students' learning.

Session 12: Curriculum, Research and Development

Effectiveness of a Proposed Training Program on Action Research Skills among Inservice Science Teachers
(Author: Tahani Al-Muzaini)

Teaching with Innovation: Enhancing Concept Understanding Through the Use of Micro Science Equipment in a Hybrid Online Chemistry Course
(Author: Ruby Hanson)

An Investigation into Teachers' Perspectives of the Factors that Facilitate the Implementation of the e-CaL Curriculum Change Initiative in Trinidad and Tobago
(Authors: Sharmila Nisha Harry, Beular Mitchell)

First and Second Year Common Projects for Curricular Integration
(Authors: Wilhelm Friess, Michael Davis, Christopher Faulhaber)

Effectiveness of a Proposed Training Program on Action Research Skills among Inservice Science Teachers

Tahani Abdulrahman Al Muzaini

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Abstract

This study investigated the effect of a proposed training program on inservice science teachers' 1) Action research understanding, 2) Action research skills.

This Experimental study used one group pretest- post test design, and the research sample was composed of (16) science teachers. To achieve the study goals, the researcher followed the experimental approach, one group pretest- post test design and developed a training program and two instruments which are: action research test, action research skills scoring rubrics. Data analysis using Wilcoxon Signed Ranks Test and Matched Pairs- Rank biserial correlation revealed significant differences in all measures.

The research has concluded that: (a) there is a statistically significant variation in the statistical functions between the participants' praxis rank average in the action research test where the participants scored higher in the posttest than the pretest. (b) a statistically significant variance in the statistical function has been detected between the pretest and posttest average of the participants in the action research rubrics scoring; their posttest scores are higher than the pretest. In light of the findings, the researcher has presented a number of recommendations and suggestions.

In light of the outcome of the search results, a number of recommendations, notably: 1) promotion of action research skills among science teachers and supervisors through training, 2) inclusion of action research concept in science teachers preparation programs, 3) Establishment of an action research unit within the ministry of education to help teachers identify and solve teaching problems.

Teaching with Innovation: Enhancing Concept Understanding Through the Use of Micro Science Equipment in a Hybrid Online Chemistry Course

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Abstract

Modern day teaching and the increasing spate of technology demands that a multi-faceted approach to teaching is adopted by teaching universities. Some of the innovations could be in the areas of introduction or harnessing of technology. This study reports on the views and experiences of teacher-trainees who participated in a summative evaluation of a hybrid online course fused with the use of micro science equipment for practical activities in their undergraduate training. The Micro Science Equipment (MSE) was distributed to 78 hybrid online chemistry teacher-trainees to use in performing MSE activities that accompanied their MSE curriculum materials at their convenience. The design and implementation of the hybrid e-learning approach was based on Salmon's e-moderation as well as Gagne's nine events of learning. The study was a design-based research which used triangulation procedures involving achievement tests, questionnaires and semi-structured interviews. Qualitative methods were used to assess the effectiveness of the intervention. Eight major misconceptions in periodic chemistry were identified. The results of the study indicated a massive improvement in students' responses to concept-based questions. It also informed that supporting online chemistry learning with appropriate accompanying resources enhance conceptual understanding.

1. Introduction

Online learning has become a popular and fascinating way of learning for both on- and off-campus students for various reasons. It has become a hub of electronic teaching and learning activities. E-learning caught on after its introduction and has become a variable alternative to traditional educational methods, especially because of massification of higher institutions. Reviewed literature comments on the success of Distance Education (DE) teaching and learning [1]. Ross [2] also reported that Indiana University integrated DE

learning in chemistry with micro-scale labs, using home chemicals and supplies at reduced concentrations, with success. However, the use of e-learning has failed in some places due to inexperience on the part of staff and students in using the various platforms as well as the problem of work overload [3]. This is supported by another report from the Dublin Region Higher Education Alliance, DRHEA [4].

One of the University of Education's, corporate strategic plans was to enhance the use of computer skills and information technology among faculty and students by the year 2013. In view of this the University of Education (UEW) and Partnership for Higher Education in Africa and Educational Instruction (PHEA-ETI) as well as South African Institute for Distance Education (SAIDE) of South Africa developed hybrid online courses alongside the existing traditional courseware. Lecturers were trained in the design of e-courseware (specifically the MOODLE), while students were also trained in its access. Students were also supplied with micro science equipment to facilitate the practical aspect of their courseware.

Research work by Hanson, Amedeker, Antwi and Oppong [5] revealed problems in pedagogy, curriculum, laboratories, equipment and consumables in teacher training institutions and the universities – UEW being no exception. Their report indicated that teachers had weak pedagogical skills while students had inadequate practical skills. They also found out that students had many alternative concepts in basic chemistry topics due to their lecturers' lecture mode of tuition coupled with inadequate practical work. In view of these findings, the need for the introduction of novel teaching methods that could solve the identified problems of non-interactive classes, lack of practical work due to insufficient equipment and consumables and alternative chemistry concepts were suggested. Few studies have integrated e-learning or distance learning with MSE. During the last decade, science

and teacher training curricula in Southern and Eastern Africa have adopted MSE activities in preference to traditional activities [6]. The time is ripe for science teachers to acquire sufficient micro scale skills to address issues related to teaching as well as to save cost [7]. This could be done in conjunction with modern technology to save not only cost but time. Brooks [8] attempted to integrate MSE to a group of 21 students in the U.S.A., in which a laboratory component was included as part of a graduate course.

The working hypothesis for this study began with the fact that open source software is cheap, flexible for self-tutoring and readily available. The integrated MSE is robust and cheap for use in all environments. This paper presents data gathered from a study of undergraduate students who benefited from the hybrid online chemistry course fused with MSE as an intervention to identified problems in the teaching and learning of chemistry in the University of Education (UEW). The views and experiences of the beneficiaries would serve as a source of encouragement to future implementers of an online course coupled with MSE.

2. Background

Tutoring and learning online are increasingly becoming popular. E-learning is different from face-to-face situations and so requires special skills and material to ensure that the purposes for which a situation is created is achieved. The provision of MSE could allow e-learners to try out or mimic e-activities at their convenience in their homes, halls of residence and classrooms to enhance their real understanding of the theories and concepts through hands-on activities without being in a conventional laboratory [10]. Working in virtual labs is also a possibility but they are not as effective as with real activities. Empirical evidence of the impact of MSE on classroom practice and e-learning to enhance concept understanding at the university is limited. Most studies on MSE have concentrated on its economic aspect [11] and its use for concept development in primary and secondary schools [12, 13]. Not much work has been done on concept development in the universities, though the few researched works have indicated poor concept knowledge in topics such as acid-base concepts, matter and molecularity [14], periodic chemistry, stoichiometry, nuclear chemistry, equilibrium reactions and the mole concepts [15]. No data on such similar research was found in Ghana; thus conducting such a study into the introduction of e-

learning coupled with MSE activities was found to be a challenging and interesting project.

The objective for this kind of review research rested on the assumption that there is always an essence in sharing of experiences with and in new situations for improvement. Teaching and transfer of knowledge was done in a hybrid mode. Hybrid learning combines asynchronous and synchronous learning and face-to-face instruction. Some reasons for the innovation were to encourage students to be able to work in groups, solve problems, demonstrate critical thinking, develop their online research skills, and reflective abilities. Other reasons were to integrate MSE- approach teacher training with concurrent real-life classroom teaching in chemistry, attempt a solution at the emerging issues of large class size in UEW, lack of laboratories, lack of equipment and consumables which have also been reported by Liu [16] in similar situations.

3. Statement of the problem

New ways are also being sought to support adult workers who wish to continue with formal education but cannot make time to be in regular institutions full time. With continuing economic pressure in education and increased environmental awareness, the need for MSE-based activities has become very important so as to save time, chemicals, and the environment as well as to allow the practice of science in all kinds of environments without standard laboratories.

The study tried to explore, design and evaluate the use of MSE as a support tool of convenience for practical activities. The main purpose of this study was to find out about the reality of infusing MSE activities into a developed hybrid chemistry e-course (Moodle) as a support tool in UEW and explore its impact and challenges on student learning – as far as the understanding of chemical concepts was concerned. These were expected to address students' in-class deficiencies, to enable them review the entire learning content in their own time and pace and to work through their problems independently or with support from peers and experts at a distance. Other reasons were for sound chemistry concept formation, flexibility in studying and assessment. The main research question that guided the study was:

How would the introduction of e-learning, fused with micro science equipment help to enhance the teaching and learning of chemistry concepts among level 100 students?

4. Methodology

A design-based research approach was used for this study. The design comprised three major phases. The first phase was to find out how feasible each of the interactive modes – the online course and the MSE- would affect students' concept understanding in chemistry. The case study tried to capture and interpret the themes and issues that emerged from the novel teaching and learning experiences of a good online delivery course. In the first phase, literature were reviewed to gain insights into the intentions and effectiveness of MSE and concept development as well as online learning in chemistry education in other regions of the world. The second phase led to the development of courseware and exemplary materials for use and its implementation. The third phase of the study focused on the effectiveness of incorporating MSE activities into the developed hybrid online course.

Participants and setting

A total of 78 chemistry students aged between 18 and 28 years participated in the study. The selection of participants was purposive as the researcher was in charge of the class [17]. Materials for various topics were prepared for topical / weekly dissemination. Lesson notes, weekly assignments and quizzes as well as all other activities were prepared and mounted online based on identified misconcepts. The MSE practical activities were adapted from the Centre for Research in Mathematics, Science and technology (RADMASTE) in South Africa's educational resources and translated to accompany the online theory lessons. Participants were supplied with MSE kits to enable them perform hands-on activities outside the conventional laboratories and classrooms.

An entire lesson/course was developed to cover a total of 30 hours. Each course credit is originally three (3) hours a week for 10 weeks. Students worked for 20 hours only online as one hour per week (that is 10 hours in all) was used for face-to-face discussions. Out of the 20 hours, students used six (6) hours to collaborate with their colleagues on chat and forum platforms. Fourteen (14) hours were used for personal research and reflection. A total of ten hours was used for lecturer-student face-to-face interactions.

Instruments

For the purposes of corroboration and triangulation, four instruments- achievement tests, observation, interview and a 12-item questionnaire were used. Simple MSE practical concept-based questions as well as online-practical based questions were developed to measure participants' understanding of periodic chemistry principles. The content of the test items included concepts related to atoms, elements, metals, non-metals, reaction of metals with water, periodic and group trends, solubility of ions in aqueous solutions and qualitative analysis of ions. The test items were validated by senior colleagues in the field of chemistry and chemistry education. The improved versions were used for both pre- and post-concept tests. The reliability of the test was 0.72. In order to assess participants' opinions on the innovation a 12-item questionnaire was administered to find out if the new approach was interactive enough, unearthed their alternative concepts, enhanced better understanding of concepts, made learning more enjoyable and gave more opportunities for virtual and real practical work practice. The cronbach alpha of the questionnaire was found to be 0.74.

Data collection

Data was gathered from completed student questionnaire, achievement test scores, an observation schedule sheet from lesson delivery, opinions from a semi-structured interview and web-based practical questions. The results of observations made in four face-to-face lesson deliveries to ascertain whether participants were engaging well with the MSE are presented in Table 1. The symbols +, -, and \pm have been used to indicate whether desired expected behaviours were observed, not observed or partially observed.

Table 1: Classroom observation results for the use of MCE for four practical sessions

Student behaviour/activity	Lessons (Month)			
	1	2	3	4
Trainees relate prior knowledge to the day's lesson	-	-	\pm	+
Trainees understand what to do and form groups to begin work	\pm	\pm	+	\pm
Trainee-trainee cooperation evident	\pm	+	+	\pm
Trainees /groups interact with teacher as expected	-	-	\pm	+

Trainees show evidence of reading with understanding	-	±	+	+
Trainees show evidence of working with apparatus and materials	+	±	+	+
Materials obtained and activities started with no fuss	-	±	+	+
Trainees discuss their outcomes in small groups	+	±	±	+
Trainees show understanding and interest in the lab procedures and activities they are doing	+	±	+	+
Trainees are able to discuss coherently their outcomes in class with their teacher	±	±	+	+
Trainees are able to work within the allotted time	-	±	+	+
Trainees are able to relate the activities with theory	-	±	+	+
Trainees are able to acknowledge wrong deductions and work around it again	-			
Trainees use the required scientific terms and language with comprehension	-	±	+	+
Trainees do a recap to confirm understanding of concept	±	-	+	+
Trainees relate the newly learned/reinforced concept in other situations to demonstrate permanent learning	+	+	+	+

+ = behaviour observed; - = behaviour not observed, ± =behaviour partially observed

From Table 1, it is evident that students acquired proficiency with the use of the MSE and were able to use it to test their conceptual understanding of the principles of identification of ions, reactivity of metals with water, and displacement reactions.

The results of pre- and post-tests which were administered to assess change in cognition with the use of MSE in the online course are presented in Table 2.

Table 2: Percentage scores for concept pre- and post-achievement tests

Scores (%)	Pre-test (%)	Post-test (%)
Above 80	0	2.56
70-79	0	6.41
60-69	2.56	32.05
50-59	19.23	20.51

40-49	26.92	25.64
Below 40	51.28	8.97

(N= 78; Number of questions =20)

From Table 2, it is clear that 78.20% of the sample scored less than 50% in a pre-test while 21.79% scored above 50%. In the post-test 34.6% had marks below 50% while 65.39% had over the 50% pass mark.

5. Some of the alternative concepts identified are shown below

1. Poor characterisation of the term 'substance'
2. Inability to distinguish between metals, metalloids and non-metals and their properties
3. Rules underlying solubility required for qualitative analysis not mastered
4. Inadequate knowledge on principles of precipitation
5. Misinterpretation of periodic table parameters

A questionnaire was administered to find out if students found the intervention useful and if conceptual gains were made. The responses of the questionnaire are presented in Table 3.

Table 3: Students' impressions about the intervention

How the MSE lessons helped to improve trainees' conceptual understanding	Positive responses (%)	Not sure /negative responses (%)
The use of MSE was enjoyable and helpful in understanding of analytical concepts	76	24
The MSE activities exposed my weakness in understanding of some concepts	70	30
The use of MSE has given me confidence in designing concept-based activities on my own	78	22
The interactive class enhanced my conceptual understanding of chemical principles	65	35
The use of MSE helped me to gain a better conceptual	83	17

understanding about Qualitative analysis		
The use of MSE helped me to understand more about the principle of separation	86	14
The use of MSE helped me to have a better conceptual understanding about displacement reactions	87	13
The use of MSE helped me to understand more about solubility principles	87	13
The use of MSE helped me to understand more about the precipitation concept	86	14
The use of MSE enabled me to confront my misconcepts and to correct them through practice	71	29
The use of MSE helped me to understand more about displacement reactions	81	19
Periodic parameters were better understood through MSE activities (metals + H ₂ O)	89	11

A further probe into trainees' opinions on the usefulness of the MSE activities in their online course was obtained through a semi-structured interview. Some of the trainees' responses are presented below:

The activities were easy to read and carry out. The small kits sharpen one's observational and manipulative skills. Because the equipment is small, less chemicals are used so reaction times are shorter. Thus you have to be extra careful and critical when using the MCE.

The activities are in many parts. By the time you finish, if you have wrong ideas it becomes obvious so it helps you to test and correct your wrong ideas

The MSE activity materials are common things found in the environment so performing activities is easy; even at home. Yet, the reflection section of the MSE activities encourages critical thinking

The MSE increased my confidence in applying my initial knowledge about some concepts and activities. When the activities are done during our face-to-face lessons it gives you an opportunity to collaborate with your colleagues. It makes our lessons very interactive/ interesting. We get help from each other to understand the topics well.

From the responses stated, it is obvious that majority of the trainees enjoyed the use of the MSE in their online course. An overall impression was that excited participants had positive impressions and experiences with the new approach and saw it as a pathway for concept formation. This could be an indication of the success of the new approach-combining the MSE approach and e- learning into UEW's educational curriculum. They were happy at getting the opportunity to engage in chemistry activities at their convenience and on a reduced scale. They were particularly happy with the embedded safety of the MSE and felt encouraged to try out other activities on their own. Responses from the semi-structured interview also revealed participants' own experiences with the MSE approach.

Students' assessments about the hybrid Moodle were quite positive. They said that the Moodle 'enhanced their ICT competencies'. They added that it increased learner engagement with the course content, exposed them to a variety of learning and teaching skills and increased collaboration with their colleagues. More importantly, it enhanced their cognition and reflective capabilities. The following responses were given by some of the students:

The introduction to the online course increased my access to learning. It made it possible to get closer to my lecturer than before.

The hybrid course increased my awareness and demand for educational technology. It introduced me to various ICT techniques

The new course exposed me to great opportunities for improving my reflective capabilities and learning skills. I never did any reflection before. It has been very worthwhile considering the in-depth skills gained and prospects in the future with course development

Because we could go online to do a lot of research and add new materials to what we were given in class, I got more learning materials which helped me to understand my course very well this semester. My scores on tests were all very high. I am so happy.

Learning online was more or less practical base, you are not just being taught but you also partake in that you interact with your colleagues and the instructor in a very interactive way each step of the lesson so that at the end of the day I realise that I have gained a better understanding than in the normal class.

6. Findings and discussion

From the data gathered it was apparent that the new approach offered trainees newer, faster, easier to understand and exciting ways of conducting practical activities without a proper laboratory and standard equipment. It actively engaged them in the learning process and stimulated their interest in e-chemistry as well as the face-to-face theory and practical activities. These observations about the MSE are consistent with findings of Kombo [13] and Mafumiko [12]. Positive experiences on the use of the e-learning platform are again consistent with findings from Hanson and Nsiah Asante [20] in contrast to DRHEA's [4] observation. An analysis of the test data showed that learning gains were made for majority of the intended concepts to be learned thus integrating MSE and online teaching into the traditional method would be viable and beneficial and promote active learning environment. The observation also supported work done in micro scale chemistry by Bradley [7] and was consistent with work by Dermircioglu, Ayas and Dermircioglu [21] which showed that students' involvement in practical activities led to greater understanding and interest in chemistry. In all there was a significant quantitative increase of 33.60% improvement in trainees' scores which could be translated into a positive gain in their conceptual understanding from the intervention used.

What participants said they gained from the study

Easier to learn about the MSE and learn new ways of doing activities

Tried out the labs and designed own activities; Repeated experiments at own pace and saw results very quickly

Accessed experiment results in shorter time as compared to the traditional macro activities

Changed variables without fear of explosion in the absence of the teacher

Provided opportunity for learning and carrying out many activities, which would have been impossible

Enjoyed the electronic discussions; provided with valuable learning opportunities

Better access to instructor and received immediate feedback; Student-centred class

Discovery of own wrong concepts for onward correction; Correction of erroneous (alternative) concepts; chemical concepts increased greatly

Problems encountered

A few problems were encountered with the online course in general. Some participants lacked the necessary computer skills to be able to navigate through the course with ease, regardless the pathway

instructions given to the class. The semi-structured interview with the group showed that a few participants exhibited a lot of procrastination and tackled their activities much later.

7. Conclusion

This study was undertaken to explore the possibilities of introducing MSE activities and blended learning in order to promote an active learning environment so as to improve on students' understanding of concepts. It could be concluded from the studies carried out that the introduction of the hybrid online course and MSE exposed pre-service teachers to new ideas, opportunities and resources for enhancing learners' concept understanding of chemistry concepts. Pre-service teachers were able to give better reasoning answers to observations made in their study of the periodic table. They would be expected to teach chemistry in the high schools in Ghana, so it is of paramount importance that they eliminate their alternative conceptions through the help of their instructors who will also employ new teaching strategies based on conceptual change models [23]. Integration of a course in teaching education programmes based on the identification of students' alternative conceptions as well as methods to correct them would imply the application of conceptual change strategies. This would go a long way to break the non-interactive way of learning chemistry concepts and the result of a consequent cycle of alternative concept formation in chemistry education.

The findings so far suggest that using hybrid online tutoring coupled with MSE curriculum materials and activities are feasible for use in teaching institutions. They are also effective in providing positive and enhanced learning experiences for pre-service chemistry teachers. Almost all the participants developed better science process skills. Findings from this research attest that online teaching and learning addresses more learning outcomes which override challenges which may be encountered in its practice. The hybrid approach to teaching and learning was appraised as an effective teaching mode by all participants. The additional information found in the MSE curriculum materials afforded the participants an added advantage of convenient lab work. This further enhanced their practical skills and learning potentials.

8. Recommendation

It is recommended that more courseware should be deployed by other lecturers to make the innovation a success. However course goals, content and activities should be explicitly defined to avoid confusion in students' attempt to interpret the course instructions. There should be an efficient support system. Also, all chemistry online students should not only be supplied with the MSE kits but replacement parts and chemicals be supplied to them when necessary. Websites and links should be checked regularly to ensure their availability for student access. It is recommended that further work be carried out on how online learning alone or e-activities could enhance concept learning in chemistry so that this can spread to other departments and faculties.

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An Investigation into Teachers' Perspectives of the Factors that Facilitate the Implementation of the e-CaL Curriculum Change Initiative in Trinidad and Tobago

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Abstract

Education is acknowledged as one possible means of improving the economic status of a country and thus, moving the country forward. (Cutajar, Bezzina and James, 2013). Central to this view are the people of the nation who are recognised as a critical resource. Improvement in education and increased student performance therefore remain an area of deep interest. Technology integration is viewed as one means of ensuring same (Bebell & Kay, 2010) and thus, in countries all over the world, educational reform initiatives target the integration of technology into instruction (Zhou, Zhang and Li, 2011). Trinidad and Tobago, a small developing nation state, is no exception and its endeavours in the area of technology integration, at the secondary level, dates back as far as the late 1990s when the country, through its Ministry of Education (MOE), engaged in a number of initiatives aimed at integrating technology into the curriculum

The latest endeavour was the eConnect and Learn Programme (e-CaL) (2010 - a one-to-one computing initiative through which every student on entering the secondary system, as a result of the Secondary Education Assessment placement examination, is given a laptop for use as a learning tool. The (e-CaL) consists of four major components. One of these components is Educational System, the focus of which is the alignment of the technology with curriculum development and content creation as well as appropriate training and pedagogical support. Through this component, attempts were made to prepare teachers for the implementation of the eCaL curriculum initiative (GORTT, 2010). The goals aligned to this component were to improve the quality of instruction and support the infusion of ICT in teaching and learning and the development of 21st century skills in students; to raise student achievement through specific interventions such as improving students' understanding through the use of education software; and to facilitate the development of collaborative teaching and learning between peers within the school, among schools and between teacher and student. (MOE, 2010, pp. 3 -4).

The initiative is in its fifth year but there has been little attempt to gather from teachers their views of the implementation of the initiative. As in most school-based curriculum initiatives, the teachers are the frontline implementers and are therefore significant actors who are pivotal in the implementation process. (Kin-Sang Chan, 2010; Fullan, 2001). The study therefore seeks to capture, through the experiences of the teachers who are experiencing some measure of success at implementing the (e-CaL) curriculum change initiative, what they perceive to be the facilitators which made this possible. When assessing the implementation of initiatives, more often than not the tendency is to conduct an investigation into barriers to successful implementation. (Yih-Shyuan Chen and Selwood 2009). Yet in the same environment, invariably, there are instances where the initiative is being implemented with some measure of success. This seems to suggest that indeed should initiatives be supported; should the educative environment be facilitative, that successful implementation can be experienced. Research studies have revealed various factors that can facilitate the implementation of curriculum change, which fall within the realm of teacher-related factors such as teacher attitude, teacher understanding and professional development; innovation-related factors, for instance, need, and complexity; and contextual factors which include principal leadership, examinations and infrastructure and resources (Yan, 2012; Chang, 2011; Fullan 2001). The purpose therefore of this study is to gain insight into the factors which can facilitate

implementation of the e-CaL curriculum change initiative. The research study is located within the sphere of curriculum policy implementation. A qualitative case study approach was chosen for this study. Purposeful sampling was used to ensure that schools chosen were information-rich sites. Eight teachers from across the eight educational districts in Trinidad and Tobago were chosen. Data collection consisted of semi-structured interviews and an open-ended questionnaire was also administered to the eight teachers. It is anticipated that the study would reveal the factors critical to successful curriculum policy implementation as well as the unearthing of significant learnings for policy makers in the Trinidad and Tobago context. Furthermore, it is hoped that the study would augment knowledge in the curriculum policy arena.

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First and Second Year Common Projects for Curricular Integration

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Abstract

The new Brunswick Engineering Program (BEP) at the University of Maine has developed an integrated curriculum that teaches mathematics and sciences in the context of engineering applications to first and second year students. The material has been sequenced to provide a multimodal learning approach, applying theoretical, simulation, and experimental components to core topics, all in a project based learning (PBL) environment. In order to increase the measure of topic integration, a sequence of projects has been developed to provide a common simulation and experimentation platform. In addition to addressing the learning objectives, each project is designed to develop behavioral skills by explicitly including behavioral components such as teamwork, time-management and communication. Measured summative outcomes attest to a reinforcement of course specific learning, while formative assessment indicates improvement in soft skills during the project. In addition, students report high levels of perceived learning and enhanced motivation to become engineers.

1. Introduction

The University of Maine at its Brunswick site (Brunswick Engineering Program, BEP), has developed a unique integrated curriculum for the first two years of the bachelor of engineering in Mechanical, Electrical, Computer or Civil Engineering, and conveys math and science foundations within the context of engineering applications, as opposed to instructionally compartmentalizing the disciplines. The integrated curriculum developed at the BEP strives to present multiple learning modes (theoretical, simulation and experimentation) for the core topics, and utilizes horizontally integrated projects for the second half of semesters 1, 2 and 3 to provide a reality based context for the simulation and experimentation learning modes.

Project based learning is a well-founded and researched approach, that has been applied in a multitude of contexts and with good results[1]-[3].

In addition to project based learning, the BEP strives to continuously increase curricular integration in an evolutionary manner [4]. Curricular integration has received significant attention over the past two decades, and has been developed and applied in a variety of ways, ranging from simple individual course integration, to first year program integration (perhaps the most popular - references), to first and second year, and even for full 4 year programs [5]. Examples of large scale applications include the Foundation Coalition [1], [6], [7], Southeastern University and College Coalition for Engineering Education (SUCCEED), and the Gateway Coalition [8]. A different approach to curricular integration, displaying the perhaps most comprehensive redesign of the entire curriculum, has been carried out at Olin college [5], where a brand new curriculum was designed from a fresh start in 2003.

All the integration approaches follow the same paradigm; to move the student into the center of the learning effort, and make him an active participant by engaging him through appropriate pedagogical techniques. Typically employed approaches include Problem Based Learning, experiential learning [9], [10], flipping the classroom and concept based learning [11]. These techniques are increasingly applied in the traditional classroom environment, however their application benefits the most when they are applied in a multidisciplinary context [9].

Utilizing capstone and cornerstone projects as stand alone courses that synthesize the acquired theory is a widely applied [12], [13], even required component of an ABET accredited program. The difficulty in an mre widespread application of cornerstone courses lies, amongst others, in its significant credit hour cost. Departments are under pressure to reduce the cost of the undergraduate degrees, and incrementing the credit hours by increasing the project course credit requirements beyond the necessary capstone requirements faces strong opposition. It is thus uncommon in the first two years to see projects of greater scope than those present in existing courses.

The approach pursued at the BEP introduces projects of significantly bigger scope that are composed of the otherwise stand-alone project components of the individual courses they span.

These projects have a minimal credit hour cost (2ch over the first two years), and provide an integrated picture of the multidisciplinary components of the curriculum. The strategies, topics, and first results of the delivery of these projects in the context of the integrated curriculum at the BEP represent the topic of this work.

2. Discussion

The underlying philosophy of the BEP's integrated curriculum introduced project based work in each newly developed integrated course. While the option of carrying these project components out individually was considered initially, the strong collaboration of the faculty created an opportunity to develop a common project for the first semester. The student feedback and results were highly positive, and thus a systematic approach to continue developing horizontally integrated projects that address the target learning outcomes of the individual courses was devised.

2.1. Problem statement, objective, and common outcomes

The objective is to design and implement a series of projects that synthesize the materials presented in the individual courses, thereby reinforcing the "simulation" and "experimentation" learning modes of the curriculum. In addition, the projects aim to expose the students to the necessary university readiness skills, sequenced to allow a specific and incremental building of these skills. In particular, communication is stressed from the very beginning, by requiring the students to present their work both orally and in writing. This component generated a set of common objectives for all projects, that in turn expand the learning outcomes of the participating courses:

- Students will be able to work effectively as part of an engineering team
- Students will be able to communicate results in a design report to predetermined standards
- Students will be able to communicate results orally in a presentation to predetermined standards
- Students will be able to apply a Gantt chart to plan an individual or teamwork project

2.2. Project development strategy

The design strategy for each project is initiated with an analysis of the composing course's learning objectives and outcomes. Each course instructor develops suitable project proposals that illustrate how his or her chosen course outcomes can be integrated into a project [14]. Upon completion of these individual proposals, an appropriate common

project is selected by the participating faculty members. The next step is to build a prototype and develop the appropriate problem statement, including the specific metrics and rubrics to assess the students in each course (they are separate – specific grades of project components will be allocated to specific courses). One criterion for the design of the problem statement is to create an even design space, with no obvious solution.

The timeframe for the projects is approximately 7 weeks. Typically the projects are launched mid-semester, with a completion date the week before the last week of classes.

2.3. Projects

While each project represents a coherent entity, they are designed such that different components of each project correspond to specific learning outcomes of individual courses, and can thus be assessed as part of that course.

At the BEP, the following specific projects were developed:

2.3.1. Semester 1. First semester project bridges calculus and Newtonian physics concepts with engineering design and CAD. This project consists of a Newtonian mechanics based sequence of steps of a Rube Goldberg Machine [14].

The problem statement is for the students to define the physical dimensions of a series of Newtonian mechanics interactions in order to optimize an empirical design equation supplied as part of the problem statement. This design equation forces an exploration of the design space, and ensures that a variety of possible solutions to the problem exist. The suitable physical environment used for this project consists of a number of steps of a Rube Goldberg type machine, composed of a projectile launcher, a collecting tube, a collision with a cart (and depending on the year also an Atwood's machine), and a ramp.

The students apply calculus to ascertain the optimum launcher/collecting tube geometry (the projectile ideally passes the tube without contact – any bouncing inside the tube is detected with a microphone and deducts from the overall points possible), then apply vectors and kinetics to estimate the velocity of the cart after collision (they can set the mass of the cart), and again Newtonian mechanics to estimate the kinetic energy of the cart at the bottom of the ramp. In addition, the engineering design process is stressed (this project represents the first introduction to engineering design), as well as a high level of guidance in the teamwork process and common outcomes listed in section 2.1, is provided. The project also includes a

significant CAD component, where the students model and assemble the ramp.

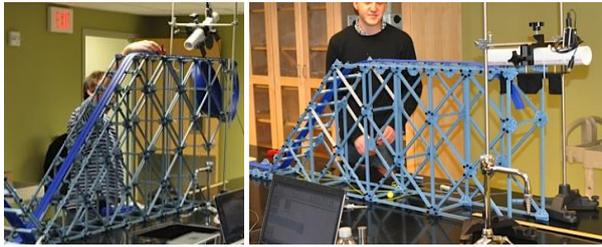


Figure 1a and 1b: Steep shot, short flat and tall ramp, vs. Flat shot, long flat and short ramp [14]

The learning outcomes specific to this semester's project include:

- Apply mathematics and physics to an engineering problem
- Apply professional engineering software tools
- Understand that simplifying assumptions of physical systems need to be made to allow mathematical modeling of the system, and assess the validity of these assumptions
- Experience the contradictory nature of design requirements and the iterative nature of the design process. Recognize the need for a structured approach.
- Recognize the importance of testing assumptions with prototypes of subassemblies
- Develop the ability to bound and explore the design space to better understand system behavior
- Recognize the need for and be able to develop appropriate simulation tools using the computational tools studied

2.3.2. Semester 2. The second semester integrates statics, engineering design, numerical methods, robotics, and computer programming.. This project is based on the development of an autonomous robotic crane, combining truss structures with numerical integration and programming logic.

The problem statement for the crane-robot is to autonomously locate an object located within a predefined region, move to the object, and then pick it up and return to the starting point. Robot programming is accomplished with a VEX Robotics Cortex microcontroller, which allows for programming in C while including high level functions for handling I/O with motors and sensors. This allows for the programming challenge for the students to focus on the control logic for the task, rather than on low level I/O addressing.

Each student design team is provided with a base robot platform, capable of 2D locomotion and equipped with a basic sensor suite. The sensor suite

consists of an ultrasonic range finder for detecting the object, and optical shaft encoders for determining distance travelled. The shaft encoders are configured to give a signal proportional to shaft rotation speed, which must then be integrated numerically in software to calculate total shaft revolutions. The design tasks are then split into two distinct sub-units:

- 1) The team must design a tower crane based on statically determinate truss structures that is then attached to the base. The truss structure is to be designed to maximize the load that the crane can pick up while also maximizing the working arm length.
- 2) The team must design the software for the robot micro-controller to locate the object, maneuver to its location, and actuate the crane to pick the object up.

Deliverables for the project include a completed crane-robot (both hardware and software), a design report, and an oral presentation in the form of a design review. As part of the report, a prediction of what the maximum load that the crane will be able to lift in addition to what the truss member loads are for the maximal loading condition are required.

Learning outcomes specific to this semester's project include:

- Ability to write and debug computer programs in C
- Ability to formulate logic for controlling an autonomous robot
- Ability to numerically integrate real-time sensor data
- Ability to accurately predict CG location for a physical system
- Ability to determine member loads for a simple truss structure
- Ability to apply the equations of static equilibrium to the overall structure

2.3.3. Semester 3. The third semester combines differential equations and linear algebra with introductory circuits, embedded system programming in C. This project is a microprocessor-based thermostat.

The problem definition is to regulate an environment suitable to incubate an egg. A temperature of 99.5°F is considered to be ideal for chickens.

Each team is provided is a wooden box prewired with a venting fan and a heat source. A 32-bit ARM microprocessor is used to control the fans and heat sources, however the connections to the microprocessor, design of a thermistor circuit and controlling software is omitted. Programming the microcontroller is more in depth at this point, requiring an understanding of Analog to Digital Converters (ADC) and General-Purpose input and

output (GPIO) ports. Interfacing these ports with high current devices as a heat source or fan is beyond the capability of most microprocessor to drive directly, thus bridging or driving circuits are required.

Each team must research a strategy to heat and then maintain the temperature in the space. Space heating is a very common problem with many well-documented design approaches to choose from. The incubator temperature response along with the control logic is modeled and simulated in MATLAB. Once a suitable design is determined each team is encouraged to iteratively design, evaluate and test each component; the fan, thermistor, heat source and software.

In the final stage each team combines these discrete components into the provided wooden box to test the controlling software and system as a whole.



Figure 2. Egg incubator project.

Deliverables for the project includes a functional egg incubator, a design report, an oral presentation and demonstration. The report will defend the design choice against alternatives, detail component circuitry and an analysis of the incubators performance over many minutes.

Learning outcomes specific to this semester's project include:

- Ability to design and utilize various low level microprocessor interfaces, including ADC and GPIO ports.
- Ability to model and simulate the governing first order differential equation for the temperature response.

- Ability to design controlling logic for a thermostat
- Ability to design and build a thermistor circuit
- Ability to design and build bridge or driving circuits

3. Assessment

The formative assessment of the project is based on a series of design reviews, with both cognitive components (project deliverables), and behavioral components in the form of presentations and teamwork exercises being assessed in a faculty and peer assessment format. Summative assessment is carried out on final reports and presentations, and is consistent with the indications of adequate skill developments obtained during the formative phase. Over the first iteration of the project sequence, the assessment has shown adequate skills development in alignment with individual course outcomes. In addition, the students manifest (summative survey) a high measure of perceived learning, and an increased understanding of the engineering profession. Currently an expansion of the assessment process is under development to include both formative and summative assessment of the student metacognitive awareness (awareness of their own learning success), and results will be presented in future publications.

4. Conclusion

A sequence of half semester long engineering projects that address the learning outcomes of the individual courses that contribute to the projects has been developed and applied in the context of the Integrated Curriculum developed at the BEP. The projects provide the experiential component of the multiple learning mode strategy, and have shown to enhance student learning, motivation, self-confidence, and facilitate the synthesis of the material (much in the spirit of the integrated curriculum). In addition, a clear advantage of the integration over multiple courses of common projects is the low credit hour cost, as no separate cornerstone design courses needs to be established. At the BEP, the credit hour cost is 2 credit hours over the first two years, which are included as a lab component with the "engineering studio" course. Results to date indicate a high measure of perceived learning, a successful exposure to a different learning mode, and a high level of developed student motivation.

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Session 13: Educational Foundations

Unpack the Suitcase: Proposing a New Model for Teacher Professional Learning and Perspective Transformation
(Author: Jennifer I. McGrath)

ICT in the Early Years: the Situation in Ghana Schools
(Author: Joyce Nsiah Asante)

Factors Influencing the Uptake of Voluntary Counseling and Testing Services among Primary School Teachers in Nakuru County, Kenya
(Authors: Carolyne C. Tangus, Paul A. Odundo, Charles M. Rambo)

Twin Factors' Relationship with the Attitude to Work by Academic Staff of Public Universities in Edo and Delta States of Nigeria
(Authors: R.I. Osarenren-Osaghae, E.O. Omoregie, D.O. Omoike, F.I. Olusi, Q.O. Irabor, C.D. Aigboje)

Unpack the Suitcase: Proposing a Hybrid Model for Teacher Professional Learning and Perspective Transformation

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Abstract

This paper begins with an exploration of the large body of current research that considers the ways in which teacher values or perspectives manifest in classroom practice. Subsequent discussion will consider the plethora of research-based strategies for teacher professional learning with a focus on which methods have proven effective in bringing about transformation in teacher thought. A particular emphasis is placed on the activities which contribute to breaking down barriers to teacher professional learning through the lens of Mezirow's (1981) Critical Theory of Adult Learning. Ideas are synthesized in order to propose a hybrid model for professional learning, designed to bring about self-consciousness and self-awareness in teachers, specifically in regards to the ways in which their prejudicial or stereotypical views of their students' cultural, ethnic, or socioeconomic characteristics may be impacting student engagement and achievement.

1. Introduction

Recently, in my capacity as an Instruction and Assessment Facilitator (IAF) for my school board, I led a workshop on growth mindsets as put forth by [4]. It was a professional development (PD) day, and the teachers at this particular secondary school were engaged in a round-robin of workshops (traveling as a group of 25 teachers to each of four workshops). Near the end of the workshop, I challenged the participants to consider the language they use in their classrooms. Do their words reflect a growth mindset—for both themselves as teachers and for their students? I offered an example: what if, instead of saying “Do you have any questions?” we said, “What questions do you have?” (the implication of course, to students, is that having questions is not only appropriate, it is good!). I had several teachers come up to speak with me after the workshop with a shared sentiment that they simply “had not thought of it that way before”. They had not considered the ways in which their language choice might be sending messages to the students regarding their

expectations of them or how they value hard work. Challenging these teachers to be conscious of their words and behaviors in the classroom allowed them to consider the correlation between what they think, and how they act.

In another experience I encountered in my role as an IAF, a teacher asked me for assistance in co-planning an activity that offered multiple modes of representation. The colleague she had been paired with to support a student success initiative, had resisted the notion on principle—he did not see why a lesson should be differentiated. This was important learning for me as I discovered that it was simply not enough to bring a teacher into a special project and give him resources and tools for differentiation, without recognizing and addressing his attitude toward this significant pedagogical approach. Ultimately, according to this teacher, he would “jump through the hoops” for the project, but would revert back to his own “way of doing things” after the project ended.

Teachers are creatures of habit, and sticklers for what they know and how they view the world and the students they teach. Teachers are also the products of the contexts in which they were reared. Generally speaking, the world of teaching is highly structured and cyclical. After several years of teaching, it would be easy to fall into the traps of habit. As such, despite best efforts to provide professional learning opportunities, in my experience, many teachers will leave a session and return to their classrooms to do what they have always done; default actions and strategies. For professional learning to be transformative, then, to actually permanently alter teacher thought and, consequently, teacher practice, single-serving sessions of professional development (PD), simply do not work. Current models of PD, however, have attempted to dig deeper into teacher perspectives, by embedding the learning in the school context, sustaining it over time (beyond one session), and emphasizing collaborative, teacher-driven inquiry. While these activities can provide engaging opportunities to share best practices, and to create common tools for assessment, they fail to “unpack the suitcase”, and therefore, do not bring about actual learning which is, according to Katz and Dack, “a

permanent change in thinking and behavior” [6]. The metaphorical suitcase is what every teacher brings to their teaching practice. It is the culmination of values, perspectives, attitudes, behaviors, and, even stereotypes and prejudice, derived of the teacher’s lived experience. As teacher educators, we can provide ample opportunity to explore strategies in, for example, multi-modal assessment, in meaningful and interactive ways, but without unpacking the suitcase, and deliberately examining and challenging its contents, real, sustainable learning will not occur.

In this paper, then, I will examine the most effective ways to unpack the teacher suitcase. I will frame this discussion within the context of the ways in which teacher expectations may impact student achievement and how the racial and ethnic views held in the teacher suitcase may affect classroom practice and student learning. To be clear, however, teacher expectations related to their students of colour, is only one way the teacher suitcase may manifest in the classroom. Similarly impactful upon student achievement are teacher views on differentiation, multiple intelligences, student-centred pedagogy, and even the use of technology. However, for the purpose of focus, within the narrow confines of this paper, I will use as the catalyst for change the prejudiced and stereotypical perspectives held by teachers of their minority students.

This examination will begin with an exploration of the large body of current research that considers the ways in which teacher values or perspectives can manifest in classroom practice. An analysis of studies addressing the ways in which White teachers discuss race in connection with their students will also be put forth. Subsequent discussion will consider the plethora of research-based strategies for teacher professional learning with a focus on which methods have proven effective in bringing about transformation in teacher thought. A particular emphasis will be placed on the activities which contribute to breaking down barriers to teacher professional learning through the lens of Mezirow’s Critical Theory of Adult Learning. Ideas will be synthesized in order to propose a hybrid model for professional learning, designed to bring about self-consciousness and self-awareness, as well as to alter or shift teacher paradigms, specifically in regards to the ways in which their prejudicial or stereotypical views of their students’ cultural, ethnic, or socioeconomic characteristics may be impacting student engagement and achievement.

2. Statement of the Problem

It is widely accepted that teacher expectations can impact student achievement [1], [3], and [22]. When those expectations are propelled by prejudice and stereotypes regarding the cultural and ethnic backgrounds of our students, the problem becomes even more complex and dire. With a prevalence of White teachers, particularly in the United States, which has a racial composition of teachers of 90 per cent White, and with 50 per cent of all American schools having not a single teacher of colour on staff, it has never been more important to alter teacher paradigms and perspectives [14]. But, how can deeply embedded, and frequently incorrect, value-based views be modified in teachers who may or may not be conscious they hold them? The problem, then, rests in the actual processes necessary to bring about transformation in teacher thought and practice. Mezirow’s Critical Theory of Adult Learning defines three domains of learning including the technical, the practical, and the emancipatory [11]. While, traditional models of professional learning are designed to effectively target the first two domains, the same cannot be applied to the third—that of emancipatory or perspective transformation. Current models of professional learning, however, of collaborative inquiry and the Professional Learning Cycle (PLC), also fall just short of perspective transformation, as these often bring together colleagues who are like-minded, and *like* working together. Like-mindedness, while seemingly ideal, will not incite challenge; without challenging ideas, real learning cannot occur. Adult learners, like their younger counterparts, view the world based on scaffolded experiences and categorizations of those experiences in order to determine future behavior, however in adults, the categories and typification of the world in which they live become progressively more unshakeable. Beliefs, for adult learners, are embedded in multiple layers of typifying which makes perspective, or paradigm transformation, both complicated and crucial. To bring about, as Mezirow describes as “critical reflectivity”, as a self-awareness or consciousness, that would allow teachers to recognize and challenge their beliefs and assumptions, particularly in regards to their students and classroom practices, requires an enormous amount of “messy work”[11]. For this, a new model of sustained, embedded, and intensive professional learning is critical.

3. Theoretical Framework

For a theoretical framework for this paper, I looked to Mezirow's (1981) Critical Theory of Adult Learning as it speaks directly to the primary barrier to teacher professional learning which is the deeply embedded motivations and value systems of the teachers themselves. As social constructs, teacher values and perspectives are derived from extensive observations, dialogue, and influences from family life, peer group, colleagues, geographical context, socioeconomic status, ethnicity, and even media. Adult learners, much more than our young students, are predisposed to protect, defend, and preserve their beliefs because to not do so would lead to discomfort. As Katz and Dack explain, "people have a natural propensity to surround themselves with others who are similar to them and tell them what they want to hear. In contrast, they put distance between themselves and those who would challenge their cognitively comfortable status quo"[6]. As Segall and Garrett observed, "difficult knowledge is that which destabilizes our understanding about how the world works" [18]. Mezirow's Critical Theory of Adult Learning frames this particular notion in a context that would support teacher educators in facilitating change in teacher practice and thought.

3.1. Mezirow's (1981) Adult Learning Theory.

The Japanese have a word for what is critical to change in teacher perspective, and that is *kizuki*, which, when translated, implies a "sudden feeling of inner understanding, "becoming aware of", "noticing", or "realizing" [16]. According to Mezirow's Critical Theory of Adult Learning, *kizuki*, or what Mezirow called "critical awareness", is essential to teacher change and perspective transformation [11]. As Mezirow asserted, "critical consciousness represents a uniquely adult capacity" which allows the learner to not only become aware of and increasingly in control of, but actually reflective of their "habits of perception, thought and action, as well as the cultural assumptions governing the rules, roles, conventions and social expectations which dictate the way [they] see, think, feel and act" [11]. Mezirow described many levels to reflectivity with which adult learners must engage in order to bring about actual perspective transformation including judgmental reflectivity (making value judgments about our beliefs as in positive or negative), discriminant reflectivity (assessing efficacy of our beliefs), and affective reflectivity (acknowledging the way we feel about our beliefs). According to Mezirow, teachers must work to develop a "mind that

watches itself", in so far as they acknowledge and therefore may begin to address the values and beliefs that may be impacting their classroom practices [11]. The concept of consciousness is critical. If teachers are not conscious of their values and the beliefs they may hold that are prejudicial of their students, then they simply cannot address them—if they cannot address them, then they will not be able to overcome them. Teacher practice is not just a collection of learned strategies and approaches. A teacher cannot entirely separate their personal self from their teacher self. Teaching a teacher how to use differentiated instructional strategies or effective classroom management techniques may alter practice, but only superficially, and therefore, temporarily. When faced with a scenario that is unexpected or disruptive to the use of that approach, the teacher's view will prevail, and they will likely default to what they know and what they are used to. As Mezirow explained, "one's system of constructs sets the limits beyond which it is impossible to perceive" [11]. To permanently shift teacher pedagogical approaches, then, and to closely examine and deconstruct the teacher's system of constructs, teachers must lift the veil, pulling back the layers, to deliberately and meaningfully challenge the beliefs that lie beneath. The primary difficulty, however, in addressing the teacher suitcase is that in the context of professional learning or of educational research, teacher attitudes are usually measured using self-reports despite the fact that, according to van den Bergh et al., these measures reflect deliberate processes and thus can be influenced by social desirability and self-presentation effects" [22]. Teachers are likely to want avoid the appearance of holding racist or prejudiced views, and therefore will not state such views (if they are even cognizant of them) in an explicit way. In the classroom, however, where the teacher's attention and demands on her time are being optimized by a group of students, even when she is clearly motivated to act in unprejudiced ways, the judgments and prejudiced attitudes may manifest unintentionally. So, then, to address the unintentional, and the behaviors and judgments that emerge from the unintentional, teachers need to make the unconscious, conscious.

4. Literature Review

In order to facilitate a discussion regarding the necessity of a model of professional learning that reaches deep to the core of teacher value systems, it is essential here to consider the ways in which teacher values, and consequent behaviors, are not only hidden, but potentially harmful to student achievement. This brief review of current literature will first consider the concept of Whiteness in

teachers, as well as the ability or willingness of White teachers to explicitly address matters of race, while acknowledging the ways in which White teachers may bring their values and prejudicial beliefs into their classroom practice. What follows is an examination of models of professional learning for teachers that attempt to delve into the deeply embedded, but otherwise unexamined, values of the teacher.

4.1. Whiteness, Race, and Teacher Expectations

Based on an examination of the expansive body of literature surrounding the concept of Whiteness, and in particular, teacher Whiteness, a clear consensus emerged. For teachers, Whiteness is generally an unconscious state of being, “allowing them to be blind from their own privileges but also to their group membership” [14]. For many teachers studied, race is not acknowledged in an explicit way. Picower, proposed that White teachers hold a series of hegemonic understandings of the world concerning race including fear (based on previous experiences or media depictions), a deficit construction (of urban schools, students and families), a view of Whites as victims (for example, through affirmative action), as well as “tools of Whiteness” including emotional (I never owned a slave!), performative (“I just want to help them!”), and ideological (“I don’t even see colour!”). According to Marx, “research on Whiteness has shown that Whites often consider White cultural attributes too complex to essentialize or even characterize” however, “in contrast, they often define cultures of color through stereotypes that are overly simplified” [9]. Marx utilized Critical Race Theory (CRT) as the lens through which she considered the ways in which White teachers relate to their students of colour. Marx determined that the teachers in her study believed themselves to be “colour-blind” in the classroom and that while there may be differences outside of the classroom, in the classroom, the students are “just kids and [race] doesn’t matter” [9]. Despite the insistence to the contrary of the teachers in her study, Marx discovered that the White teachers held deeply embedded, highly prejudicial, essentialized views of their students’ families and home life. For example, Ms. Green and Ms. Alexander, believed that “Latino/as did not value education,” that they “did not respect women”, and lucidly “lamented the machismo of Mexican culture” [9]. It became clear to Marx, that “even as [the teacher participants] contributed to the warm environment where students felt cared for, they continued to hold very negative images of the

students’ homes and cultures that were rooted in racism” [9]. These teachers maintained that they were colour-blind to their students and treated every child the same. It should be noted, here, that the teachers within Marx’s study found it “incredibly difficult” to discuss race in an explicit way as it made them feel that they may be “criticized as ‘racist’” [9]. Segall and Garrett found similar reluctance in their teacher participants to explicitly discuss matters of race, and determined that “teachers - especially White teachers - tend to avoid discussing race and, in the rare occasions they do, minimize its importance and relevance in education” [18]. Their teacher participants, as observed, went to great lengths to resist the idea that race may influence their perspectives or behaviors in the classroom. As Segall and Garrett noted, this response requires “a great deal of active (though not always conscious) concealment, repression, and avoidance on behalf of teachers in order to maintain a stance of not seeing colour” [18]. Resistance or avoidance in discussing race as it pertains to the classroom or to teaching practice generally allows teachers to pretend the point is moot. Surely it is a difficult, emotional experience to acknowledge our own limitations as teachers - difficult, but highly necessary. The work of van den Bergh, Denessen, Hornstra, Voeten, and Holland revealed that the teachers of Marx’s study were naïve to the power and impact of the misassessments they held in their suitcase. In their study, van den Bergh et al., determined that “teachers will more or less automatically attend to a student’s membership in such a fundamental category as ethnic background” [22]. Furthermore, van den Bergh et al. discovered that “stereotypes can be activated when a teacher perceives a student as belonging to a particular category, and these stereotypes can influence teacher judgments and behavior” [22]. Teachers holding prejudiced or stereotypical views of either the ethnic and cultural backgrounds of the students, or the socioeconomic contexts in which their students reside, may send messages in their “spontaneous, non-verbal behavior” that they hold differentiated expectations of the academic potential of their stigmatized or minority students, from that of their non-stigmatized peers [22]. These messages, as van den Bergh et al. determined, were a strong indicator that teachers are not always conscious of their attitudes, and therefore that these attitudes and judgments are free to permeate when the teacher is not conscious of their own actions - for example, when offering spontaneous responses to students, or presenting with body language or facial expressions whilst listening or observing a student with an expectation that eyes are not on them or the focus is not on them. The threat, however, of permeating

teacher beliefs, goes beyond facial expressions. As van den Bergh et al., discovered, “when the teacher already has in mind that a minority student will probably perform poorly at school, he or she may more or less unconsciously evaluate the student’s performance in accordance with this assumption or expectation” [22]. The manifestation of these implied prejudicial values, can have negative and lasting impacts upon student achievement. In their study of the correlation between student first names and teacher expectations, Anderson-Clark, Green, and Henley discovered that “some teachers’ perceptions of children’s behaviors, characteristics, and academic achievements may be systematically associated with stereotypes,” and that the resulting prejudicial perspectives impacted student achievement [1]. As Anderson-Clark, Green and Henley asserted, “although [teachers] regard themselves as nonprejudiced, they may nevertheless hold negative feelings and beliefs about [minority groups]. Such negativity could be expressed in [both direct] and subtle, indirect ways” [1]. Similarly, Dallaire, Ciccone, and Wilson’s examination of teacher expectations of students with incarcerated parents, revealed that “because teachers expect certain outcomes from some students, they may behave in ways that support that outcome” for example they may give more encouragement to some students or call on some students more than others [3]. Strand examined the achievement gap between White British and Black Caribbean students and determined that “minority ethnic students are less likely to be entered by their teachers to the higher test tiers” and therefore unable to reach the highest testing outcomes for national testing in math and science [21]. Even after controlling for gender and test score, Strand determined that Black Caribbean students are 2.0 to 2.5 times more likely than White British students to have a behavioral plan, and that “students who were perceived as exhibiting bad behavior were judged to be poorer academically than those who behaved satisfactorily” [21]. Our actions in the classroom, along with our behaviors and the unintended communication of our values, can have a significant and negative impact on our students. That our most vulnerable students, most at-risk students, may be more susceptible to permeated teacher values, make efforts to address and modify these values that much more important.

4.2. Professional Learning for Experienced Teachers

Professional learning activities for experienced teachers have been widely researched for effectiveness and sustainability of learning. A myriad

of options allows for teacher learning occurring in the classroom, in the school context, and, more traditionally, off site. The movement in the past decade, however, has been for professional learning activities to be embedded in the school context, sustained over time (as opposed to the single-serving session), and teacher-driven (as opposed to top-down dissemination). Despite best efforts to engage teachers in the processes of their own learning, and to provide not only release time but resources with which teachers may explore the urgent student need in their classrooms, actual, sustainable change to teaching practice and perspective transformation, remain elusive. For specific and significant value-based perspectives such as those which impact White teachers working with students of colour, the consensus amongst educational researchers is that in order for growth or improvement to occur, the hegemonic understandings need to be “interrupted” [14]. As Picower asserts, the key is to develop a program “designed to help [teachers] analyze their own belief systems and personal experiences, discover how these strategies influence the way they see their students, and re-envision the role of a teacher” [14]. To this end, I considered the following three professional learning activities (reflective journaling/narrative inquiry, intensive mentoring, and video analysis) as the type of intensive, embedded, sustained, and potentially transformative activities necessary for teachers to begin the process of unpacking their suitcase.

4.2.1. Reflective journaling and narrative inquiry.

Reflective journaling is not a new idea, and certainly teacher candidates are frequently engaged in the activity, as are many newly inducted teachers. Experienced teachers, however, have likely forgotten or disregarded the process of deliberately recording their own thoughts and observations of their daily practice as a classroom teacher. The use of reflective journaling is “informed by a shared belief that teachers’ lived practice and experience is a valuable source of wisdom and knowledge that can be mined to improve individual, collective and institutional professional practice” [20]. As McDougall and Davis, determined, the process of reflective journaling is like “we are standing outside of our practice to see what we do from a wider perspective” [10]. While the process may take some teachers beyond their comfort zone, the act of writing itself can be highly cathartic. The real learning, however, is not simply in the writing of the journals but in reading the journals at a later time in order to identify trends and connections. As Hardman discovered, “a later narrative inquiry into the story being told by the journals can allow a teacher to see, and critically

examine, the picture made by those jigsaw puzzle pieces” [5]. Narrative inquiry can be seen as the process of “making connections that give meaning to experience” [5]. To be meaningful, however, and to support the later narrative inquiry, journal writing needs to be deliberately reflective and observant, and should go well beyond questions like “what did I do today?” or “did it work well?”, but rather should try and “disclose the power relations and unquestioned assumptions that structure our teaching practices, particularly those that we may not have been aware of previously” [10]. To effectively reach this required level of depth in critical reflectivity, Miller recommends adopting Stephen Brookfield’s Four Lenses, including the autobiographical, the colleague/mentor, the student view, and the scholarly view [12]. With the input of these four lenses, the reflective writing takes on a highly enriched, purposeful dimension. Similarly purposeful, Smith proposed and studied the implementation of the use of cases and vignettes as possible starting points or prompts for writing. As an introductory exercise to the process of reflective writing, cases, for example, would allow the teacher to explore their own thoughts and observations about circumstances that may feel to be at a comfortable arm’s length, that is, not about their classroom or about their students. From there, the writing can begin to address the actual experiences and observations of the participating teacher with an emphasis on the dilemmas, issues, and tensions that they encountered [20]. Mentors can support the process by regularly responding to and providing insight into the writing as well as supporting the narrative inquiry process by which they assist and support the teacher in making connections between scenarios and assumptions, while offering the wisdoms derived of their own teaching experiences.

4.2.2. Mentoring. While mentoring is a commonly accepted and widely utilized practice to support pre-service or early career teachers, the notion of using school or district-based mentors to support experienced teachers is relatively novel. Due to the sensitive and complex nature of the mentor-mentee relationship, it would be easy to assume that most experienced teachers would recoil at the prospect of being mentored by a colleague, but as an avenue to potential professional growth, “mentoring has been linked to the retention of teachers, increases in job satisfaction, diversified, pedagogical strategy use, and greater student learning” [13]. Killian explored the concept of school or district-based mentoring of experienced teachers in the context of the introduction of a new curriculum or ministry initiative. In her observations, we encourage our new

teachers to “seek out mentors, to ask questions, and to believe they have more to learn” in their careers as teachers, but “we often don’t seem to mentor each other” [7]. Quite rightly, Killian asks “why not?” [7]. Through conjecture, we may assume that our colleagues may believe that they should know everything and that it is perhaps a sign of weakness or incompetence to ask colleagues for assistance, but what if we removed that stigma? To move from the traditional model of mentoring, that of the “expert” mentoring the “novice”, to a more collaborative, peer-mentor approach, would allow teachers the opportunity to explore the experiences of others, as well as pedagogical approaches and strategies. Chitpin, heralds the “important role of dialogue” as a vehicle for teacher growth and development, as “we come to be who we are through conversations with others” [2]. According to Chitpin, research has identified “mentoring as one of the key methods in assisting teachers in their professional growth since it provides mentees with practical support that helps them gain self-confidence, solve problems and apply critical thinking skills to situations affecting student learning” [2]. Mentoring, in a traditional one-to-one format or in a group, can extend the critical thinking and analysis of the journal writing and can provide the context for the narrative inquiry.

4.2.3. Video analysis. The experience of watching ourselves teach has the potential to be profoundly insightful. According to Kleinknecht and Schneider, “classroom videos activate prior knowledge and experience” by being able to “capture reality in an authentic and relevant way” [8]. To engage in the process of deliberately deconstructing the behaviors, language, body language, and implied attitudes of ourselves as teachers is an imperative in the journey of critical reflectivity. Unlike the process of reflective journaling, which is the retelling of our stories as we remember them, the condition of watching a recorded video of ourselves is undeniable—allowing us to clearly recognize that which we actually do in our classrooms. I may believe myself to be equitable in my interactions with my students, but does the recording affirm or deny that belief? Kleinknecht and Schneider determined that video analysis as a tool for teacher professional learning is particularly effective as it targets the specific cognitive process of “noticing” [8]. When we *notice* ourselves as teachers, and identify actions and behaviors that we were unaware of previously, we begin the process of better understanding what drives the decisions we make in the classroom. We do this by challenging our perspectives and our often taken-for-granted beliefs. Video analysis is a unique tool for critical reflection as it allows for pausing, play-back and multiple

viewings. Video analysis, however, to be truly meaningful and enriching, requires facilitation and multiple attempts - perhaps individually at first and then later as part of a group in a collaborative setting.

5. Synthesis and Recommendations

It is incredibly difficult to separate, in the teacher, the personal from the professional. Teachers are the sum of their own lived experiences and, as such, enter the classroom with a suitcase full of the derivatives of their social context, childhood and early experiences, and even their interactions with news and social media. That suitcase may also contain deeply-embedded values and perspectives regarding the capacity of their students to learn and to achieve. Now, while these values may be positive, there is also the potential that they are negative and even prejudicial (particularly in regards to student characteristics such as race, ethnicity, gender, ability, socioeconomic status, and home environment). These values can impact student achievement and therefore must be addressed. The challenge, however, lies in the often subconscious and unintentional nature of these values. How, then, do you address and reshape deeply woven values and perspectives in teachers that may or may not even be aware that they possess them?

Current models of professional learning, such as collaborative inquiry and research-based activities, while meaningful, fail to explicitly address the deeply-embedded values and assumptions that make up the personal and professional self of the teacher. With an abundance of research to support that teacher expectations impact student achievement, particularly in the context of working with students of stigmatized groups (including race, ability, and socioeconomic station), an explicit, deliberate recognition of teacher expectations and their formative roots, has become the imperative. To this end, I propose a hybrid model of professional learning for experienced teachers called the RMV Model. With an objective of critical reflectivity, this model includes three intensive, structured, research-based activities of reflective journaling and narrative inquiry, school or district-based intensive mentoring, and video analysis, in order to facilitate the development of self-awareness and the ability for teachers to make explicit their assumptions and perspectives so that they may directly challenge them and ignite the process of perspective transformation. I further contend that the RMV Model for professional learning be directly attached to the Teacher Performance Appraisal system in Ontario. I propose that in the six months prior to the commencement of a teacher's TPA year, they are systematically

enrolled in the RMV Model wherein they concurrently move through each branch of the model. Conclusions and discoveries of learning would be shared by the teacher participant in the form of a final report to be presented to her appraisal supervisor at the initial meeting for the TPA. The connection to the TPA would allow for all teachers to have the opportunity to move through the RMV Model, but also to provide a specific starting point for the appraisal process with key, teacher-identified areas for growth put forth.

6. Conclusion

There is some hesitancy among educational researchers and teacher educators to use the term "transformative" as it implies a reality-altering, groundbreaking revelation. While I believe this would be ideal for all teachers, I will defer to McDougall and Davis who borrowed from Stephen Brookfield, that transformative learning is the development of "self-awareness through consciousness-raising activities" [10]. To provide the context for the RMV Model of Professional Learning, tied with the TPA, so that teachers may develop as critically reflective learners and practitioners, is to open the gateway for more enriched learning in Mezirow's learning domains of the technical and the practical, but also to allow for teacher growth in self-awareness. This consciousness will permeate classroom practice. This habit of critical reflectivity will encourage teachers to approach future learning activities and professional development opportunities with a mindset of potential growth, as opposed to resistance, thus not removing but more meaningfully engaging the perhaps single greatest barrier to teacher professional learning - the teacher.

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ICT in the Early Years: the Situation in Ghana Schools

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Abstract

The study explored the availability of some technological resources in two hundred and fifty (250) schools from three regions in Ghana. It was to understand the current state of technology integration in the early childhood classrooms. Two hundred and fifty (250) teachers from each school in the three regions were conveniently selected to respond to a questionnaire, out of which fifty were purposively interviewed. The study revealed that the integration of ICT in Ghana's early years' classrooms is not encouraging especially in the public schools. The computer was identified as the most used technological resource available in the various schools. 67% of participants teaching at the early years have no knowledge in ICT to enable them integrate it in teaching. It is recommended that pre service teachers and teachers be purposively trained on the integration of ICT in teaching.

1. Introduction

In today's world, ICT is a ubiquitous component of our life. Most of the things we use incorporate ICT. Technology use now plays a major role in education. Currently, ICT and "e-learning" have become important concepts in Primary, Senior High Secondary, and tertiary education in Ghana. Though Ghanaians are not well advanced in technology use as compared to the advanced countries, Ghana can be counted among the nations which see the integration of technology in education as very essential. In its tertiary education, students are being engaged in on-line learning [1], [2]. Learning platforms such as online educational videos, virtual classrooms, webcasting and an array of access to research, all compiled on the internet provides convenience for both students and lecturers and this, in its own way, has reinvented the way Ghanaians view education [3]. Many tertiary and second cycle schools employ the use of technological resources like projectors, internet, computers and microphones to enhance lesson delivery [4]. In addition, basic school students are assessed on ICT as a subject in their final exams.

However, the situation seems to be different at the lower level of education in Ghana especially at

the early years. Early Years generally refers to children from birth to age eight, and the community of educators and various sites associated with the care and education of this age group. For the purposes of this paper, children's classrooms in the age range of 3 to 8 years are the focus group.

2. Background

ICT matters in early childhood education; this is because it already has an effect on the people and the environments that surround young children's learning and well-being [5]. This implies that from their earliest years, children should be finding out about and identifying the uses of technology in their everyday lives [6]. They should also be made to using computers and programmed toys to support their learning. Children need the opportunity to explore and play with computers as well as other forms of ICT, such as cassette recorders. This kind of play acts as the foundation for more structured use of applications later on. It means that ICT must be integrated across the curriculum.

ICT allows us as a people to get information, to communicate with each other, or to have an effect on the environment using electronic or digital equipment. ICT in early childhood education (ECE) could include different types of hardware and software [6]. It includes computers (including desktop, laptop, and handheld computers); digital video cameras and digital cameras; creativity and communication software and tools; the Internet; telephones, fax machines, mobile telephones, tape recorders; interactive stories, simulated environments, and computer games; programmable toys and "control" technologies; videoconferencing technologies and closed-circuit television; data projectors, electronic whiteboards, and more.

From the above, it is therefore to ensure that Ghanaian children have access to ICT which offers them opportunities to develop general skills and also extend their specific knowledge of that technology. Meanwhile observation made by the researcher in a number of schools around the country does not suggest much is being done. It is against this background that the researcher explored to find out how many of the named

technological resources are available in most Ghanaian schools, whether teachers are able to integrate ICT at the lower level of education precisely the kindergarten through to primary 3.

2.1 The debate - Current Trends of ICT in Early Childhood Education

A look at researches [5], [8], [9], [10] in education over the years as well as several similar ICT frameworks [11]; [12] in other countries indicate the emphasis being made on ICT in the Early Years. It can be seen from literature that a number of the studies [13]; [5] express safety concerns with respect to integration of ICT in early childhood education and warn of several risks in this area. Some critics [14]; [15] contend that technology in schools wastes time, money, and childhood itself by speeding up the pace and cutting down on essential learning experiences. An argument opposing early introduction of ICT is that since children learn through their bodies, computers are not developmentally appropriate [16]. This is because as a screen-based medium, activities at the computer are not as effective as manipulative in developing understanding and skills in the early years [17]. [18] also in his Curriculum Corporation commissioned report cautions about introducing computer-based learning into Preschools and the first years of school. He instead recommends that the developmental needs of young learners (whole-body movement, sensory interaction, focus on language, development of personal agency and the importance of relationships) take precedence in structuring effective early learning programs.

In contrast to the above, current case studies and action research, such as the Children of the new millennium ICT research project, refute this view. It is widely accepted that appropriate use of ICT in settings, where there are skilled practitioners and quality ICT resources, has the potential to greatly enhance and support learning and development of young children [19]. For example, [20] considered the appropriateness of tablet computers for three- to six year old children with drawing.

In countries such as the UK, early childhood education may actually be leading the way in developing best practice in the use of ICT to support positive learning experiences for children. The UK Foundation Stage (3 to 5 years) curriculum states that as part of their early childhood education, children should find out about and identify the uses of everyday technology, and that children should have opportunities to use ICT to support their learning [11]. Similarly, Scotland has developed ICT strategies for the early childhood education sector [12].

A large portion of studies have highlighted the opportunities language use and social interaction that technology offers, along with increased motivation. For instance, [21] have illustrated many ways in which ICT can make rich contributions to children's literacy development, in the four interrelated areas of speaking, listening, reading, and writing. For instance they have discussed how "talking" word processors support young children's experimentation as they play with language. They highlight that these tools offer possibilities for children to compose and write without needing to have mastered the production of letters by hand. They also suggest using computers and printers to help children make signs, banners, and other props for pretend play, all of which will add interest and basic literacy skills to children's play and decisions, which will give children opportunities to use language.

Computers also make possible experiences and representations that cannot take place in the real world, providing new experiences and improved understanding. [22] explored how kindergarten and first grade students created and reflected upon digital photograph journals. [23] study focuses on the use of computers to enhance social, language, and cognitive skills. Some researchers like [24] believe that children should be given opportunities to experience ICT as a tool with vast possibilities for communication and information retrieval/sharing. [25] observed that Children's early literacy and play experiences are shaped increasingly by electronic media, so in order to empower children and assist them in becoming competent and active participants in their environments, they must be given opportunities to develop "technological literacy", a new form of literacy, which is increasingly considered to represent an essential curriculum entitlement in any broad and balanced curriculum for the 21st century.

Children today live in a communication-rich environment. The models of communication they encounter in their everyday lives include a whole range of electronic and digital methods of communication [26]. Ghana is seen to be doing well in ICT, for instance, mobile penetration is about 106% with internet usage penetration increasing to 40.7% [27]. But how does this improvement reflect on education for it to be meaningful to the masses in Ghana? The ICT in Education Policy of Ghana requires the use of ICT for teaching and learning at all levels of the education system but silent on its use at the preschool and kindergarten level. Meanwhile the emphasis of the official curricula at the basic level of education is on the development of students' skills in operating ICTs but not necessarily using the technology as a means of learning subjects other than ICTs. The researcher's own checks and observation made over the years in some schools

visited around the country do not show much integration of ICT is being done in the classrooms. There is also very little data on the availability of ICT tools and its usage in early childhood education in Ghana, this is because not many studies have been done in this area. For instance, background checks done at the Ministry of Education indicated that there is not much data on the use of ICT tools in the early year's classrooms.

The study therefore sought to explore the situation in Ghana's early years classrooms. It was to find out the type of ICT resources available in the various schools as well as to understand the current state of technology integration and to describe access, as to how the schools acquire their resources, whether they are available for children's use and to find out how well teachers are trained to integrate ICT in teaching.

3. Methodology

3.1 Design/Sample

The sequential exploratory design was used in order to gain insights into the availability and use of ICT tools in the early years in some Ghanaian schools as well as teachers' views on the integration of ICT in the early years. The design used both qualitative and quantitative methods in the data collection and analysis. This design was used in order to gain familiarity with the phenomenon of ICT in the early years in Ghana to inform further studies.

A cross section of early years teachers from two hundred and fifty (250) schools in three regions of Ghana were conveniently selected during supervision (teaching practice) period of the University for the study. The schools used represent both the Private and Government owned schools in Ghana. This is because the schools found all over the country are either Government (Public) owned or privately owned. Moreover public schools across the nation all follow the same curriculum and seem to have similar characteristics, for instance, teachers who teach them are trained from the Colleges of Education as well as the kind of textbooks and materials being used in lessons delivery.

The study employed the use of questionnaire which had closed and open ended questions as well as interview as the main instrument. The questionnaire sought to find out the type of technological resources available in the schools and whether they are available to the pupils, whether teachers are well trained to use and integrate ICT in their lessons. Fifty (50) out of the two hundred and fifty participants' were purposively selected and interviewed on the use and integration of ICT in early childhood education. The data collected were quantitatively and qualitatively analyzed.

4. Results and Discussion

The data collected were coded and keyed in SPSS and analyzed using simple percentages and frequencies for the quantitative data and the responses of the teachers' views on the use of ICT were analyzed qualitatively. It was noted that out of the 250 responses representing 250 schools, 145 (58%) of them were public schools whilst 105 (42%) were private. The results also showed that 155 representing (62%) respondents are females with 95 (38%) being males. The results of the responses were analyzed based on the research questions. All the three regions used for the study were not equally represented since the number of schools identified in one region (urban) visited was more than in the other regions (rural).

4.1 Kind of technological resources available in the school

Here, list of ICT resources were identified for participants to tick those that were available in their schools. For the purpose of this research, the technological resources were grouped according to frequency of use as well as familiarity. It was recorded that a greater number of the schools did not have all the technological resources to help in the integration of ICT in teaching and learning as shown in Table 1. Forty four (44) participants representing (19%) indicated they did not have any of the technological resources in their schools. It was seen that the most common resources recorded (65) among all the schools is the computer (laptop or desktop) representing 28%. Both private and public school participants ticked the computer as the only resource found in their schools.

It was revealed that only fifteen (15) schools had all the technological resources, and these schools were all identified under private schools in the cities mostly in Greater Accra and Ashanti regions (Urban areas). Some Proprietors and teachers of such schools were of the view that they understand the need for children to be introduced to ICT because of its numerous advantages and for the fact that most of the children in their schools are coming from elite homes where they are already exposed to some of the resources like the computers, digital cameras as well as the internet. Among the 44 schools that indicated none resources, more than half of the number were public schools. Some reasons given for not having the technological resources were lack of electricity in their communities, with some indicating they do not have classrooms. Some of these schools, were mostly found in the small towns implies they do not even have classrooms.

Table 1. Type of Technological resources found in School

Type of ICT resources	Number of Schools
computer, tape recorder, radio	17
computer, camera, radio, programmable toys	13
computer, closed circuit-television set, computer with internet, simulated environments, electronic whiteboard, interactive stories, computer games, programmable toys, projectors, internet	14
computer (desktop & laptop)	65
radio and tape recorder	15
computer, tape recorder, radio, closed- circuit television, internet	28
computer, mobile phones, computer with internet use, interactive stories	19
computer, closed - circuit television, Projector	22
computer with internet access, computer games, creativity and communication software and tools, closed-circuit television	13
None	44
Total	250

4.2 Acquisition of technological resources

When asked how the schools are resourced with their technological tools, it was noted that all 42% who indicated their tools are school owned are all private schools. 31% of participants indicated that the Government resource them with the computers. This the Government does through its 'Better Ghana Agenda program.' 'The Better Ghana Agenda' is the current Government's policy of giving laptops to schools in Ghana to enhance the learning of ICT. This implies that all the public schools that identified themselves as having computers are all resourced by the Government. Nonetheless some teachers have seen the need for integration of ICT so they use their own personal resources in teaching. The pie chart in Figure 1 illustrates how the schools are resourced with technologies.

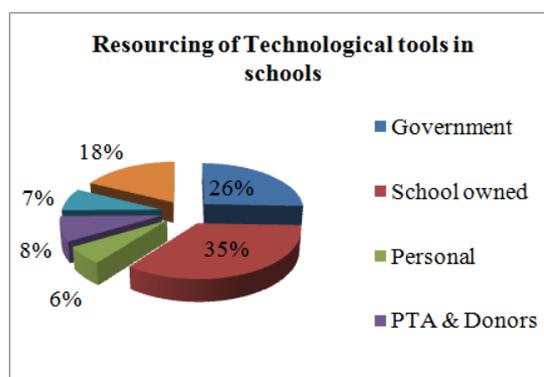


Figure 1. How the Schools are resourced with technological tools

In response to the question on whether the technologies are available to the children for learning, some participants responded they are available only when the lesson is on ICT. However, some mentioned that especially those who had the closed circuit television, are not used by the children but rather the teachers use it for entertainment. Others were of the view that the only ICT tools (computers) available in their schools were not adequate to ensure adequate access by all the children.

On the issue of whether teachers are adequately trained to using ICT technologies (as shown in Figure 3) the mode on the responses, 'Not at all' was 98 (39%). 53 (21%) indicated they were not well trained, however the total number of 99 who indicated they are well, very well and very well trained is somehow assuring though not adequate. It was noted that the age range of most of the teachers teaching at the early years is between 41-50, and some of them find it difficult to learn how to use ICT tools in their teaching. Out of this 98 participants identified as not trained at all in the use of ICT technologies, 90 of them were found in the public schools. When asked about whether they would want to integrate ICT in their lessons, some of them commented; "how can I learn at this age to use ICT?", "I was born before computers, so it will be difficult for me to use technologies".

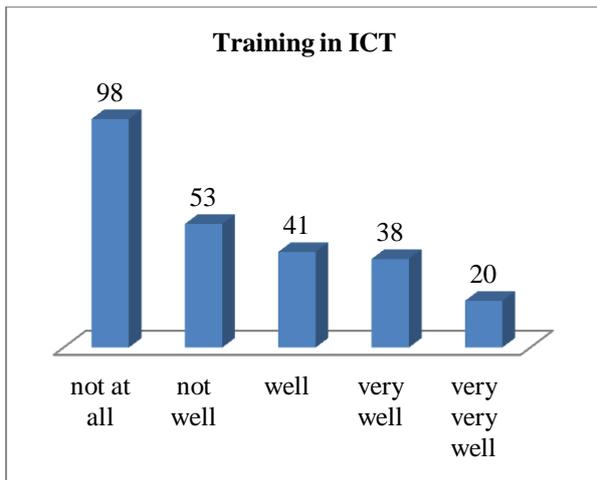


Figure 2. Responses on how trained teachers are in ICT

From these perspectives, it can be said that some of the teachers might not be ready to learn to use technology let alone integrate it in lessons. This could be seen from the data asking the teachers on how they integrate ICT. Out of the 250 responses a total of 123 representing (49%) indicated they do not integrate ICT at all. This data is in line with the study done by [4] on the use of computers and internet as the supplementary source of educational material. Their study showed that less than 15% of teachers used the internet as an innovative way of improving teaching and learning. Here, only 7% fully integrated ICT. Figure 3 gives more highlight to the data.

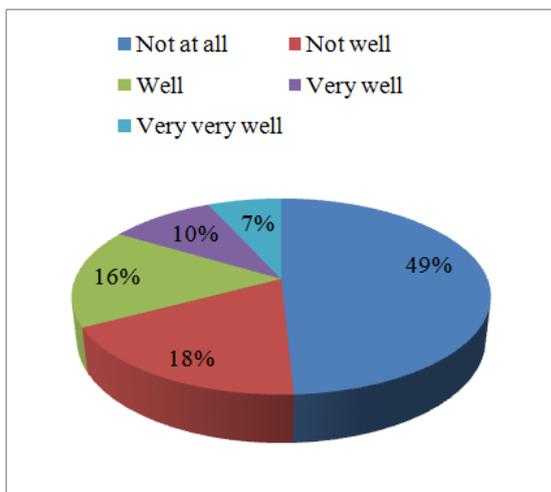


Figure 3. Integration of ICT in lessons

Teachers' views were sought on the use of ICT in the early years and 97% of them indicated that it is good children are introduced early since it might help them fit in the era of communication. Some of the older women jokingly mentioned that it is good for the children to be exposed very early for them

not to be like them. Here are some of the views of the teachers interviewed;

*Because they are proven tools to help pupils learn
Children need to know about the computer*

I believe integrating ICT in education stimulates the learning process

I use it because pupils understand concepts best when they are given the right opportunity in understanding them better, which ICT tools offer

The use of the tape recorder and computer for example help in reinforcing concepts taught, especially in language and literacy class.

5. Conclusion

The results of this study suggest that the integration of ICT in Ghana's early years classrooms is not encouraging especially in the public schools. The technological resources needed to help the integration are not available and the most common resource available in the schools is the Computer which is even not adequate. It came to light that most of the teachers are not trained in the use of ICT to enable them integrate it in their lessons. Though it is assuring to learn that some schools have acknowledged the need to integrate ICT in education, much is needed to be done. From the literature, it has been established that Children's early literacy and play experiences are shaped increasingly by electronic media [25], it is therefore important that our children are empowered and given opportunities to develop "technological literacy", which will make them competent and active participants in their environments.

6. Recommendations

Though ICT forms part of the subjects found in the Ghanaian basic school curriculum there is no policy binding schools to use and integrate its teaching at the preschool and the kindergarten level. It is therefore recommended that a curriculum policy be put in place to bind the use of technological tools in the classrooms. It is recommended that pre service teachers and teachers be trained purposely on how to integrate ICT. This is because some of the teachers have the basic knowledge of ICT but do not know how to integrate it in their lessons. Also the Government should increase the number of computers being given to the various schools to reach all the schools. Teachers in Early Years are to be educated on other technologies available for teaching children other than the micro computers.

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Factors Influencing the Uptake of Voluntary Counseling and Testing Services among Primary School Teachers in Nakuru County, Kenya

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Abstract

The HIV and AIDS pandemic remains a critical public health and development challenge in Kenya. In the education sector, prolonged teacher absenteeism, AIDS-related mortality and understaffing are some of the documented challenges. Voluntary Counseling and Testing (VCT) is an important component of the national response to the pandemic. It marks the entry point for early treatment; as well as provides information for behavior change and stigma management. A review of pertinent literature reveals a dearth of information on teachers' response to VCT services. This study was conducted to determine factors influencing service uptake among teachers, with a view to informing policy deliberations. We applied a cross-sectional survey design to source data from 600 teachers. The analysis generated cross-tabulations with Chi-square statistic, beta co-efficients (β) and odds ratios [Exp (β)]. The study found that only 157 (26.2%) participants had voluntarily taken HIV test. The uptake of VCT services significantly associated with factors such as gender, residence, alcohol use, knowledge of a VCT facility and frequency of radio listening, among others. The study found that teachers not using alcohol were about 1.8 times as likely to take voluntary HIV testing as those using alcohol frequently ($\beta = 0.637$, C.I. = 1.010-3.542); teachers knowing at least one VCT facility had about 3.3 times the odds of taking voluntary HIV testing as those not knowing any facility ($\beta = 1.200$, C.I. = 1.668-6.607); while teachers having multiple sexual partners were about 3.3 times as likely to take voluntary HIV testing as those having one partner ($\beta = 1.183$, C.I. = 0.723-4.749). In conclusion, scaling-up information dissemination is likely to improve knowledge and service uptake. The study calls for more media campaigns through radio; mobile VCT outlets and integration of VCT facilities in schools.

1. Introduction

By the end of 2011, about 34.3 million [31.4-35.9 million] people globally were living with HIV. During the same period, about 2.5 million [2.2-2.8 million], new HIV infections and 1.7 million [1.5-1.9 million] AIDS deaths were reported (UNAIDS,

2012). According to the United Nations (UN) report on global HIV and AIDS response, HIV prevalence among adults aged 15-49 years in Africa stands at 4.7 percent (UNAIDS & WHO, 2011). The report further reveals that sub-Saharan Africa (SSA) bears the heaviest burden of HIV prevalence, accounting for 69% of the people living with HIV globally.

By the end of 2011, about 22.5 million adults in the SSA were living with the virus; about 1.8 million new infections were recorded, while AIDS-related deaths were estimated at about 1.3 million. Kenya is one of the six HIV 'high burden' countries in Africa, where about 1.6 million people were living with HIV infection by the end of 2011. The Kenya Demographic and Health Survey (KDHS) report 2008/09 places the HIV prevalence among adults aged 15-49 years at 6.3 percent (KNBS & ICF Macro, 2010), slightly lower than the 7.2 percent reported by the Kenya AIDS Indicators Survey (KAIS) Report of 2012 (NASCOP & MoH, 2013). The Kenya County HIV Service Delivery Profiles Report confirms significant variations in HIV prevalence across the regions and counties. By the end of 2011, Rift Valley region which houses Nakuru County had a prevalence rate of 5.6%, with about 57,794 people estimated to living with the virus in Nakuru County alone (NASCOP, 2012; NACC & UNAIDS, 2013).

2. Effects of HIV and AIDS pandemic on teachers

One of the most devastating features of HIV and AIDS pandemic is its effect on the labour force (Kiragu, Mackenzie, Weiss, Murungaru & Gachuhi, 2008). Existing literature reveal that HIV infection is highest in the 24-55 years age bracket, which form the bulk of the workforce and where investments in education begin to pay off. More still, AIDS-related morbidity and mortality strike at the prime years of life, which impairs the earning capacity, with far-reaching socio-economic devastation at the individual, community and national levels [10], [26]. The effect of HIV and AIDS pandemic is particularly pronounced in the education sector, where AIDS-related morbidity and mortality among teachers has decreased staffing levels and reduced teachers' ability to deliver the expected outputs [10]. Although

reliable data regarding AIDS-related deaths among teachers in Kenya is scarce, it is estimated that between 1995 and 1999, the number of deaths among teachers tripled, with AIDS being the largest hypothesized contributor [8], [10].

As noted by Kimani, Kiragu and Manathoko [9], teacher morbidity has significant implications in terms of learning quality and achievement. Prolonged absenteeism due to AIDS-related illness leads to a loss of learning time and an overall decrease in the quality of teaching. Each AIDS death is often preceded by about 18-20 months of disability [5], [10]; suggesting that the education sector has to support a large number of unproductive individuals, which may have significant macro-economic implications [5]. At the individual level, HIV contributes to a great deal of stress among teachers, which in turn, affects their personal and professional lives. HIV and AIDS-related stress is a key factor influencing the quality of instruction in the classroom, curriculum coverage and may strain teacher-community relationships [9].

2.1. The role of VCT intervention in HIV prevention

The Voluntary Counseling and Testing (VCT) intervention is an indispensable component of a response strategy to the HIV and AIDS pandemic, especially targeting prevention of new infections. VCT services provide personalized support to influence the change of risky sexual behaviors, prevent the transmission of HIV and serves as an entry point for treatment and care.

A study conducted by Taegtmeier, Kilonzo, Mung'ala, Morgan and Theobald notes that the knowledge of HIV status encourages individuals to reduce risky sexual behaviors [25]. In this regard, individuals who test positive for HIV virus benefit from further diagnostic investigations, treatment, care and support. The testing process also empowers individuals to begin the process of disclosing their HIV status to partners and family members. VCT clients also gain skills on how to cope with social and health challenges associated with their condition. Knowledge of one's HIV status can also decrease anxiety and stigma associated with being HIV positive. Test results help people to build hope and develop skills to deal with ensuing challenges [25]. In addition, VCT facilities serve as important conduits for passing health information on behavior change and modification [13].

Even though the VCT program has been operational in the country for nearly two decades, the KAIS report 2012 shows that among adults aged 15-64 years, only 34% had been tested for HIV and received test results. The KAIS results imply that about two-thirds of Kenyans aged 15-64 years had not utilized VCT services. Nonetheless, there is a

dearth of information regarding the uptake of VCT services among primary school teachers and factors influencing such initiatives.

2.2. Factors influencing the uptake of VCT services

The high prevalence of HIV in the SSA associates with many factors; however, lack of awareness of HIV status takes a centre stage in influencing the prevalence rate [29]. This state of affairs poses a critical challenge in the prevention of new HIV infections and provision of effective care to infected persons. Globally, only about 10 percent of the infected persons know their HIV status. In the SSA, fewer than one in ten people know their HIV status [12]. In Kenya, a study conducted by Pikard [23] points out that the high prevalence rates reported in some regions of the country, including Nakuru County may be attributed to the fact that most people are unaware of their HIV status. This has been a key challenge to the prevention of HIV transmission, as well as timely provision of care and support to the infected, including teachers.

Prior to 1999 when the Government of Kenya declared HIV and AIDS a national disaster, HIV prevention campaigns mainly focused on awareness creation and sexual behavior change; the knowledge of one's HIV status did not receive as much attention. As a result, only 14% of the then 30 million Kenyans had taken HIV tests at the turn of the century. By the year 2000, only three stand-alone HIV testing facilities had been established in the country. The following year, the National Guidelines for Voluntary Counselling and Testing was formulated to standardize the delivery of VCT services in the country [14]. In the subsequent years, VCT services were integrated in public health facilities and by the end of 2004, more than 350 VCT centres were operational countrywide. Another three years down the line, more than 700 public VCT facilities were running and had served an estimated 1.2 million Kenyans [23].

Empirical investigations conducted in various countries have attempted to explore factors influencing individual's decisions regarding the uptake of VCT services. In Nigeria, the uptake of VCT services is influenced by the fear of getting positive results, location of VCT facilities, perceived quality of services as well as stigma and discrimination (Iliyasu, Abubakar, Kabir & Aliyu, 2006). Personal factors such as education level, age and gender and awareness of facilities providing VCT services also influence decisions to utilize VCT services [7].

In their study, Bwambale, Ssali, Byaruhanga, Kalyango and Karamagi [4] found that the uptake of VCT services is influenced by individual perceptions of VCT services, stigma and discrimination,

knowledge of health facilities providing services, perceived ease of accessing the facilities, the cost of services, waiting time and confidentiality as well as the fear of being seen by acquaintances at VCT facilities. The negative role of stigma and discrimination on the uptake of VCT services has also been documented by Parker and Aggleton [22].

Huchinson and Mahlalela [6] found that the utilization of VCT services in South African is a function of factors such as education level, place of residence, perception about the confidentiality of information on their health, individual perception of being at risk. Four years earlier, Boswell and Baggaley [2] found that men were discouraged from using VCT services by the perceived poor quality of such services. The quality of interaction between clients and service providers, especially as regards confidentiality also influences the acceptability of VCT services.

Still related to quality of services, Van Dyk and Van Dyk [31] found that the utilization of VCT services among South African men was inhibited by factors such as long waiting time at the facilities before services are provided, inadequate privacy and inadequate follow-up support. In the same country, Kalichman and Simbayi found that the utilization of VCT services positively associated with educational attainment, household resources, discussions with sexual partners about HIV prevention and condom use at the last intercourse.

In Kenya, a few studies have assessed factors influencing the uptake of VCT services [15]. However, their focus was on service utilization by the youth. There is a dearth of academic literature regarding factors influencing the uptake of VCT services among primary school teachers [10]. This study was initiated to address the following question: what factors influence the uptake of VCT services among primary school teachers?

3. Data and Methodology

To address the research question, we applied the cross-sectional survey design to guide the research process, including planning, training and pretesting, data sourcing, data processing and analysis, as well as reporting. The study targeted male and female teachers in public primary schools in Nakuru County (See the map below). More specifically, the study targeted teachers aged 20-50 years, who had been in service for at least two years, whether employed by the Government or Parents-Teachers' Associations.

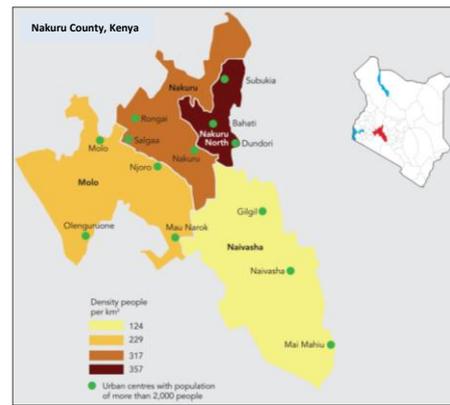


Figure 1. Nakuru County, Kenya

A sampling frame of all the primary schools in the County was prepared with the assistance of the County Education Office. A systematic random sampling procedure was then applied to determine the schools to be included in the sample. At the time of the study, the County had a total of 1,614 public primary schools (N). This was used to determine a representative sample size (n) based on fishers' formula for sample size determination from finite populations, which resulted to a sample size of 612. The sampling interval was determined as a quotient of population (N) and determined sample size (n).

Within the sampled schools, male and female teachers aged 20-50 years who had been in service for at least 2 years were sampled purposively, taken through the consenting process and issued with self-administered questionnaires. The approach was meant to enhance confidentiality and encourage participants to share information about their sexual and HIV testing life. A total of 650 questionnaires were issued out; however, after 20 days of data collection, 612 were collected. During data processing, we noted that 12 questionnaires had various issues, including logical inconsistencies, information gaps and non-observance of skip instructions. These questionnaires were omitted from analysis. Primary data was collected in May 2012 and the process involved identification and prequalification of potential participants, consenting, questionnaire issuance and follow-up.

Quantitative and qualitative approaches were used to process and analyze the data. Quantitative analysis generated frequency distributions with percentages and cross-tabulations, we also transcribed, clustered into nodes and explored qualitative data for patterns of factors influencing the uptake of VCT services. Data processing involved coding open-ended and multiple responses, digitalization and cleaning for misplaced codes. For some variables, we transformed the scale of measurement to suit the chosen analysis techniques. Quantitative analysis techniques included cross-tabulations with Chi Square statistic for nominal and ordinal-scaled

variables. We further applied binary logistic regression to determine the odds of teachers seeking VCT services, based on a host of socio-demographic, economic, cognitive and psychosocial attributes. Binary logistic regression predicts the proportion of variance in a dichotomous variable from a set of independent variables (Wuensch, 2006). The predicted variable takes the value 1 with a probability of success q , or the value 0 with a probability of failure $1-q$. The dependent variable in this study was the uptake of VCT services, with only two possible values – voluntarily tested (yes) or not tested (no). The model takes the form: -

$$\text{Logit}[\theta(Y)] = \log\left[\frac{\theta(Y)}{1-\theta(Y)}\right] = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_i X_i + \varepsilon_i \quad (1)$$

Where Y = dependent variable (uptake of VCT services); $\theta(Y)$ = the probability that a teacher had taken a voluntary HIV test; $1 - \theta(Y)$ = the probability that a teacher had not taken voluntary HIV test; α = the constant term of the equation; $\beta_1, \beta_2 \dots \beta_i$ = partial regression co-efficients associated with independent variables; $X_1, X_2 \dots X_i$ = independent variables and ε = the error term. The logistic regression generated beta co-efficients (β), odds ratios [$\text{Exp}(\beta)$], Hosmer-Lemeshow test of goodness-of-fit and Nagelkerke's R^2 . Detailed description of the design and approaches that we used in this study are available in following publications, including Nachmias and Nachmias [16]; Bryman and Cramer [3]; American Statistical Association [1]; Rindfleisch, Malter, Ganesan and Moorman [24].

The Institutional Research and Ethics Committee (IREC) of the University of Nairobi approved the study. The study was also approved by the then Ministry of Education, Science and Technology and the Ministry of Health. All participants were consented by fully explaining purpose of the study, potential benefits, and the fact that their participation was voluntary. Participants were also informed about their right to withdraw consent at any time during the process without a penalty. Participants were further assured that the information sourced would remain confidential and used for the purpose the study only. They were requested not to indicate any personal identifiers on the questionnaires. Furthermore, participants were assured that the report would be shared with MoEST and other stakeholders to inform interventions designed to improve the uptake of VCT services by teachers.

4. Results

We sourced the requisite information from 600 teachers, including 187 (31.2%) in Nakuru Town, 218 (36.3%) in Nakuru North, 116 (19.3%) in Molo and 79 (13.2%) in Naivasha Districts. Of the 600 teachers, 157 (26.2%) had voluntarily taken HIV test, while the majority, 443 (73.8%) had not. The results show that Nakuru Town had the highest proportion of those who had voluntarily taken the test, 65 (41.4%); followed by Nakuru North, 56 (35.7%); Molo, 21 (13.4%); and Naivasha, 15 (9.6%). The analysis obtained a computed χ^2 value of 13.184, with 3 degrees of freedom and a p-value of 0.004, suggesting up to 99% chance that the proportion of teachers who had taken HVI test varied significantly across the four districts.

4.1. Background Profile of Participants

The study covered a number of background attributes, including age, gender, education level, residence, religion, marital status and alcoholism. The results show that 226 (37.7%) participants were in the 20-29 years age bracket and 190 (31.7%) reported being aged between 30 and 39 years. The proportion of those who had voluntarily taken HIV test was highest in the 20-29 years group, 64 (40.8%), but lowest among those aged 50 years or higher, 6 (3.8%). However, the analysis revealed lack of significant variation in voluntary HIV testing across the age groups (computed χ^2 value = 1.656, $df = 3$ and p -value = 0.647).

The results presented in Table 1 further show that participants included 349 (58.2%) males and 251 (41.8%) females. Among those who had voluntarily taken HIV test were 56 (35.7%) males and 101 (64.3%) females. The analysis obtained a computed χ^2 value of 42.988, with 2 degrees of freedom and a p-value of 0.000, which is significant. The results suggest up to 99% chance that the uptake of voluntary HIV testing services varied significantly between male and female teachers.

Regarding education level, Table 1 shows that most participants, 383 (63.8%) reported having college education, while 201 (33.5%) participants indicated secondary school education. Those who had voluntarily taken HIV test included 103 (65.6%) college graduates and 50 (31.8%) teachers with secondary school education. However, the analysis revealed lack of significant association between voluntary uptake of VCT services and educational attainment (computed χ^2 value = 0.371, $df = 3$ and p -value = 0.946).

Table 1. Participants' background attributes and voluntary HIV testing

Background attributes	Tested		Not tested		Total		Chi Square Tests Results		
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Computed χ^2	df	p-value
<i>Age</i>									
20-29 years	64	40.8	162	36.6	226	37.7	1.656	3	0.647
30-39 years	47	29.9	143	32.3	190	31.7			
40-49 years	40	25.5	112	25.3	152	25.3			
50 years +	6	3.8	26	5.8	32	5.3			
Total	157	100.0	443	100.0	600	100.0			
<i>Gender</i>									
Male	56	35.7	293	66.1	349	58.2	42.988	2	0.000***
Female	101	64.3	150	33.9	251	41.8			
Total	157	100.0	443	100.0	600	100.0			
<i>Education level</i>									
Primary	2	1.3	5	1.1	7	1.2	0.371	3	0.946
Secondary	50	31.8	151	34.1	201	33.5			
College	103	65.6	280	63.2	383	63.8			
University	2	1.3	7	1.6	9	1.5			
Total	157	100.0	443	100.0	600	100.0			
<i>Residence</i>									
Urban	85	54.1	165	37.2	250	41.7	13.612	1	0.000***
Rural	72	45.9	278	62.8	350	58.3			
Total	157	100.0	443	100.0	600	100.0			
<i>Religion</i>									
Protestant	57	36.3	167	37.7	224	37.3	0.107	2	0.948
Catholic	92	58.6	253	57.1	345	57.5			
Muslim	8	5.1	23	5.2	31	5.2			
Total	157	100.0	443	100.0	600	100.0			
<i>Marital status</i>									
Single	8	5.1	25	5.6	33	5.6	3.844	4	0.427
Married	88	56.1	253	57.1	341	56.8			
Separated	24	15.3	60	13.5	84	14.0			
Divorced	16	10.2	28	6.3	44	7.3			
Widowed	21	13.3	77	17.5	98	16.3			
Total	157	100.0	443	100.0	600	100.0			
<i>Alcohol use</i>									
Never	98	62.4	126	28.5	224	37.4	59.573	2	0.000***
Occasionally	37	23.6	157	35.4	194	32.3			
Always	22	14.0	160	36.1	182	30.3			
Total	157	100.0	443	100.0	600	100.0			

Of the 600 participants, 250 (41.7%) were urban dwellers, while 350 (58.3%) resided in rural settings. The proportion of those who had voluntarily taken HIV test was higher among the urban dwellers, 85 (54.1%) than among rural folks, 72 (45.9%). Based on this, the analysis indicated significant association between voluntary uptake of VCT services and the place of residence (computed χ^2 value = 13.612, df = 1 and p-value = 0.000).

Table 1 further shows that of the 600 participants, 341 (56.8%) were in marital unions at the time of the study; 84 (14.0%) were separated from their spouses; while 98 (16.3%) were widowed. The analysis yielded a computed χ^2 value of 3.844, with 4 degrees of freedom and a p-value of 0.427, suggesting lack of significant relationship between voluntary uptake of VCT services and teachers' marital status.

The results show up to 224 (37.4%) were non-users of alcoholic beverages, while 182 (30.3%) used alcohol always. The results further show that among those who had taken voluntary HIV testing, 98 (62.4%) were non-users of alcohol, while 22 (14.0%)

were regular users. The results indicate a significant relationship between the uptake of VCT services and alcohol use (computed χ^2 value = 59.573, df = 2 and p-value = 0.000).

4.2. Access to mass media and uptake of VCT services

The survey gauged access to mass media in terms of frequency of radio listening, frequency of newspaper reading and frequency of television (TV) watching. The results in Table 2 show that up to 163 (22.1%) participants were frequent radio listeners, while 85 (26.7%) never listen to radio. Among those who had taken voluntary HIV test were 54 (33.1%) frequent radio listeners, 91 (47.2%) occasional listeners and 12 (19.7%) non-listeners. The analysis obtained a computed χ^2 value of 10.495, with 2 degrees of freedom and a p-value of 0.005, suggesting up to 99% chance that the uptake of VCT services significantly associated with the frequency of radio listening.

Table 2: Access to mass media and voluntary HIV testing

Background attributes	Tested		Not tested		Total		Summary of Chi Square Tests		
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Computed χ^2	df	p-value
<i>Radio listenership</i>									
Always	54	33.1	109	18.3	163	22.1	10.495	2	0.005***
Occasionally	91	47.2	261	52.6	352	51.2			
Never	12	19.7	73	29.1	85	26.7			
Total	157	100.0	443	100.0	600	100.0			
<i>Newspaper reading</i>									
Always	80	51.0	185	41.8	265	44.2	16.007	2	0.000***
Occasionally	64	40.8	137	30.9	201	33.5			
Never	13	8.2	121	27.3	134	22.3			
Total	157	100.0	443	100.0	600	100.0			
<i>TV Watching</i>									
Always	22	14.0	160	36.1	182	30.3	24.372	2	0.000***
Occasionally	37	23.6	157	35.4	194	32.3			
Never	98	62.4	126	28.5	224	37.4			
Total	157	100.0	443	100.0	600	100.0			

The results further show that 265 (44.2%) participants were frequent newspaper readers, while 134 (22.3%) said they never read newspapers. In relation to the uptake of VCT services, the results show that of the 157 participants who had voluntarily taken HIV test, 80 (51.0%) were frequent newspaper readers, while 13 (8.2%) were non-readers. The analysis revealed a significant association between the uptake of voluntary HIV test and the frequency of newspaper reading. Table 2 further reveals a significant association between the uptake of VCT services and the frequency of TV watching (computed χ^2 value = 59.573, df = 2 and p-value = 0.000). The results suggest the regular radio listeners, newspaper readers and TV watchers are more likely to access information on HIV testing, which is likely to influence their attitude and decision to seek testing than non-listeners, non-readers, non-watchers.

4.3 Knowledge, perceptions and practices associated with uptake of VCT services

Table 3 shows that 293 (48.8%) participants knew at least a VCT facility, while slightly more than one-half, 307 (51.2%) did not. Of those who had taken voluntary HIV test, 153 (97.5%) indicated knowledge of a facility providing VCT services, while 4 (2.5%) did not. The results suggest up to 99% chance that the uptake of VCT services significantly associated with knowledge of facilities providing such services (computed χ^2 value = 61.166, df = 1 and p-value = 0.000).

Those who reported knowledge of at least a facility were requested to indicate perceptions about distance to the nearest VCT facility from their residences. The results in Table 3 show that 151 (51.5%) described the distance as 'too far', while 59 (20.2%) stated that the distance was 'not far'. In relation to the uptake of VCT services, the analysis

revealed a significant relationship between uptake of services and perceptions about distance to nearest VCT facilities (computed χ^2 value = 6.649, df = 2 and p-value = 0.036).

The results in Table 3 further show that up to 286 (47.7%) participants perceived that HIV testing was a 'very important' initiative, while 101 (16.8%) believed that it was 'not important'. Among those who had taken voluntary HIV testing, up to 92 (58.6%) indicated that HIV testing is 'very important', while 22 (14.0%) felt that it is 'not important'. The analysis obtained a computed χ^2 value of 10.277, with 2 degrees of freedom and a p-value of 0.006, suggesting up to 99% chance that the uptake of VCT services significant associated with perception about the importance of HIV testing.

Participants were requested to indicate the number of sexual partners over the preceding 12 months period. The results summarized in Table 3 show that 331 (55.2%) participants indicated having only 1 partner over the reference period, while 94 (15.6%) reported having more than 2 partners. In relation to voluntary HIV testing, the results reveal a significant association between the uptake of VCT services and the number of sexual partners (computed χ^2 value = 30.660, df = 2 and p-value = 0.000).

Of the 600 participants, 269 (44.8%) reported having multiple sexual partners. They were requested to indicate if they used condoms during sexual relations with non-marital partners over the preceding 12 months period. The results show that 164 (61.0%) used protection, while 105 (39.0%) did not. Among those who had taken HIV test, 40 (40.0%) used protection while 60 (60.0%) did not. The analysis revealed significant association between the uptake of VCT services and consistent use of protection during sexual relations with non-marital partners (computed χ^2 value = 28.017, df = 1 and p-value = 0.000).

Table 3: Knowledge, perceptions and practices associated with uptake of VCT services

Background attributes	Tested		Not tested		Total		Summary of Chi Square Tests		
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Computed χ^2	df	p-value
<i>Knowledge of a VCT facility</i>									
Yes	153	97.5	140	31.6	293	48.8			
No	4	2.5	303	68.4	307	51.2	201.166	1	0.000***
Total	157	100.0	443	100.0	600	100.0			
<i>Perception of distance from the nearest VCT facility</i>									
Not far	34	22.3	25	18.0	59	20.2			
Far	51	33.3	32	23.1	83	28.3	6.649	2	0.036**
Too far	68	44.4	83	58.9	151	51.5			
Total	153	100.0	140	100.0	293	100.0			
<i>Attitude towards HIV testing</i>									
Very important	92	58.6	194	43.8	286	47.7			
Important	43	27.4	170	38.4	213	35.5	10.277	2	0.006***
Not important	22	14.0	79	17.8	101	16.8			
Total	157	100.0	443	100.0	600	100.0			
<i>No. of sexual partners over the past 12 months</i>									
1 partner	57	36.3	274	61.9	331	55.2			
2 partners	66	42.0	109	24.6	175	29.2	30.660	2	0.000***
>2 partners	34	21.7	60	13.5	94	15.6			
Total	157	100.0	443	100.0	600	100.0			
<i>Used protection during sexual relations with non-marital partners (past 12 months)</i>									
Yes	40	40.0	124	73.4	164	61.0			
No	60	60.0	45	26.6	105	39.0	28.017	1	0.000***
Total	100	100.0	169	100.0	269	100.0			

*, **, *** represents significance at 0.1, 0.05 and 0.01 error margins, respectively

4.4 Factors influencing the uptake of VCT services

Bivariate analysis results in the preceding subsections indicated that the uptake of VCT services significantly associated with teachers' background attributes, including gender, residence and alcohol; as well as mass media access factors, including frequency of radio listening, newspaper reading and TV watching. The uptake of VCT services is also significantly associated with knowledge, perceptions and practice factors such as knowledge of a VCT facility, perception of distance to the nearest VCT facility, attitudes towards HIV testing, number of sexual partners over the preceding 12-months period, as well as consistent use of protection during sexual relations with non-marital partners over the same reference period. To determine the influence of each variable on the uptake of VCT service, we incorporated the independent variables and the background attributes in binary logistic regression model, using stepwise likelihood ratio method. The analysis generated the model, whose output is summarized in Table 4.

4.4.1 Collinearity diagnostics

We tested the interrelationship between independent variables for Collinearity indicators. Using the default outlier value of 2.0, we examined the standard errors (S.E.) associated with regression coefficients (β). In this regard, standard errors larger than 2.0 indicated the existence of multicollinearity effects. We noted that the inclusion of frequency of radio listening, frequency of newspaper reading and frequency of TV watching inflated the standard errors, with last two having a stronger effect. Based on the tests the two variables were dropped from the regression model.

4.4.2 Odds ratios

The results summarized in Table 4 suggest that female teachers had about 3.4 times the odds of taking voluntary HIV test as male teachers (p -value = 0.000, β = 1.228, C.I. = 1.975-5.905). The results suggest that the female teachers were more likely to take VCT services than male teachers.

Table 4 further shows that urban dwellers had about 1.5 times the odds of taking voluntary HIV testing as those stationed in rural areas (p -value = 0.142, β = 0.414, C.I. = 0.871-2.631). The results suggest that stationing teachers in urban schools is

likely to increase their uptake of VCT services. The results further show that teachers not using alcohol were about 1.8 times as likely to take voluntary HIV testing as those using alcohol frequently (p -value = 0.001, β = 0.637, C.I. = 1.010-3.542); thus, suggesting that alcohol use is a critical factor reducing the chances of teachers up taking VCT services.

The analysis further indicated that teachers knowing at least one VCT facility had about 3.3 times the odds of taking voluntary HIV testing as those not knowing any facility (p -value = 0.002, β = 1.200, C.I. = 1.668-6.607). This implies that knowledge of a VCT facility is likely to increase the uptake of VCT services among teachers. Teachers perceiving the distance to nearest VCT facility as 'not far' were about 1.6 times as likely to take voluntary HIV testing as those perceiving the distance as 'too far' (p -value = 0.068, β = 0.501, C.I. = 0.810-3.358).

Teachers perceiving HIV testing as 'very important' had about 1.5 times the odds of taking HIV testing as those hinting that it is not important (p -value = 0.075, β = 0.407, C.I. = 0.681-3.310). People tend to accept prescribed health services when they believe such new services will decrease their chances of developing a disease. Table 4 shows that teachers having sexual relations with multiple partners over the preceding 12 months period were about 3.3 times as likely to take voluntary HIV testing as those having one partner over the reference period (p -value = 0.003, β = 1.183, C.I. = 0.723-4.749).

More still, teachers who did not use protection during the last sexual relations with non-marital partners had about 2.8 times the odds of taking voluntary HIV testing as those who used protection (p -value = 0.000, β = 1.042, C.I. = 1.634-4.919). This finding may also be attributed to the perception of risk, given that non-use of protection during sexual relations with non-marital partners is a risky behaviour.

4.4.3 The Model's Goodness-of-fit

We tested the goodness of this model using Nagelkerke's R^2 and Hosmer-Lemeshow (H-L) goodness-of-fit statistic. In this regard, the analysis obtained a Nagelkerke's R^2 of 0.445 implying that the model predicted up to 44.5% of variance in the uptake of VCT services; suggesting that the model generated by this study is a fair estimation of factors influencing the uptake of CVT services among primary school teachers in Nakuru County. The H-L goodness-of-fit statistic shows that a logistic regression model is well fitting the observed data at an acceptable level when the resultant p -value is greater than 0.05; further indicating that the model prediction does not significantly differ from the

observed frequencies. In this study, the H-L table obtained a χ^2 value of 4.684, with 8 degrees of freedom and a p -value of 0.191, which is higher than 0.05. This result confirms that our model was a fair fit. In addition, omnibus tests of model co-efficients obtained a computed χ^2 value of 87.526, with 13 degrees of freedom and a p -value of 0.000, which was significant at 0.01 error margin, confirming up to 99% chance that the model-fit was statistically significant.

5. Discussions, Conclusions and Recommendations

The aim of this study was to identify and document factors influencing the uptake of VCT services among primary school teachers in Nakuru County, Kenya. The results show that female teachers had about 3.4 times the odds of taking voluntary HIV test as male teachers (p -value = 0.000, β = 1.228, C.I. = 1.975-5.905). Existing literature suggest that women are highly vulnerable to HIV infection because of biological morphology, low education levels and economic status, which make them dependent on men and in other cases, engage in commercial sex work to earn a living (USAID/FHI, 1996; KNBS & ICF Macro, 2010). Besides, the relatively higher risk of infection, women are more responsive VCT services because the enormous responsibility of raising children. However, the death of men also constitute a serious economic and social tragedy in the lives of the surviving family, friends and employers as well as the nation at large, with implications extending well into the future (USAID/FHI, 1996). Consequently, it is important for appropriate interventions to target men with information and incentives to enable them seek VCT services and live a more responsible life.

Urban dwellers had about 1.5 times the odds of taking voluntary HIV testing as teachers stationed in rural areas (p -value = 0.142, β = 0.414, C.I. = 0.871-2.631). The variation may be attributed to the advantages that urban settings have over rural areas in terms of concentration of VCT facilities and greater confidentiality. Confidentiality is quite critical because of the high level of stigma associated with being HIV positive. Hence, no one would like to be seen by fellow villagers hanging around VCT facilities. However, this is wrong and interventions should consider dissemination of more information to de-stigmatize HIV testing. It should be considered normal like any other routine screening for other ailments. Besides, teachers stationed in rural communities should be targeted with mobile VCT facilities and better quality of care in terms of confidentiality.

Teachers not using alcohol were about 1.8 times as likely to take voluntary HIV testing as those using alcohol frequently (p -value = 0.001, β = 0.637, C.I. =

1.010-3.542). The results suggest that alcohol use is a critical factor reducing the chances of teachers seeking VCT services. This may be tied to perceptions of risk, which is impaired by frequent alcoholism. Consequently, a non-user of alcoholic drinks is more likely to feel at risk of HIV infection than a frequent user, hence the variation in the odds of voluntary HIV testing. In view of this, interventions should target alcohol users with appropriate information and incentives to increase uptake of VCT services. Mobile VCT facilities should collect information about geographical variations in terms of alcohol use and set aside specific days for timed and targeted services for frequent alcohol users.

Teachers knowing at least one VCT facility had about 3.3 times the odds of taking voluntary HIV testing as those not knowing any facility (p -value = 0.002, β = 1.200, C.I. = 1.668-6.607). This implies that knowledge of a VCT facility is likely to increase the uptake of services among teachers. Logically-speaking, action is always preceded by knowledge. Branding VCT facilities to increase their visibility in the community, as well as appropriate public campaigns are key options that should be considered to increased knowledge and uptake of services.

Teachers perceiving the distance to nearest VCT facility as 'not far' were about 1.6 times as likely to take voluntary HIV testing as those perceiving the distance as 'too far' (p -value = 0.068, β = 0.501, C.I. = 0.810-3.358). Perception is a psychosocial orientation of the mindset that may significantly influence intervention or health-seeking behaviour of individuals. Negative perception of distance to the nearest VCT facility decreases the chances of service uptake among teachers, which should be approached through mobile outreaches and establishing service outlets within residential areas and schools, for easy physical access.

Teachers perceiving HIV testing as 'very important' had about 1.5 times the odds of taking HIV testing as those hinting that it is not important (p -value = 0.075, β = 0.407, C.I. = 0.681-3.310). People tend to accept prescribed health services when they believe such new services will decrease their chances of developing a disease. Thus, positive perceptions about the importance of HIV testing are likely to increase the uptake of voluntary HIV testing services. Targeting teachers with relevant information is likely to re-orient negative perceptions towards HIV testing.

Teachers having sexual relations with multiple partners over the preceding 12 months period were about 3.3 times as likely to take voluntary HIV testing as those having one partner over the reference period (p -value = 0.003, β = 1.183, C.I. = 0.723-4.749). Having multiple partners is a risky sexual behaviour. Perception of risk is a powerful element influencing the uptake of health services. When

people perceive that they are at risk of infection, they are likely to prevent it from happening by adopting prescribed measures. However, when people believe that they are not at risk, the adoption of preventive behaviours remains low. Given that teachers engaging with multiple partners were about thrice as likely to take voluntary HIV testing; this is a positive indicator of behaviour change, which should be amplified through advocacy and other channels of communication.

More still, Teachers who did not use protection during the last sexual relations with non-marital partners had about 2.8 times the odds of taking voluntary HIV testing as those who used protection (p -value = 0.000, β = 1.042, C.I. = 1.634-4.919). This finding may also be attributed to the perception of risk, given that non-use of protection during sexual relations with non-marital partners is a risky behaviour. Again this result is indicative of behaviour change among teachers and should be amplified in favour of the uptake of VCT services.

Enhancing the uptake of VCT services among teachers is important for ensuring quality education, which is not only one of the fundamental rights of children as stated under Article 43 (1)(f) of the Kenyan Constitution, but also, and more importantly, a crucial tool for sustained socio-economic development and hence, an important exit route from poverty. As Kenya strives to achieve Millennium Development Goal (MDG) number 2 on enhancing universal access to basic education and also makes effort to acquire the status of a newly industrialized nation by the year 2030, teachers have an enormous task to synergize the process through delivery of quality education. Therefore, scaling up the uptake of VCT services among primary school teachers is central to national development.

6. Limitations of the Study

All the variables that were significantly associated with the uptake of VCT services were incorporated in the regression model as independent variables, regardless of whether they are background attributes or proximate variables such as sexual practices. Although Collinearity tests were performed, the analysis did not control for the potential effect of proximate variables on the relationship between background attributes and uptake of VCT services, which may affect the robustness of partial regression co-efficients and model's goodness-of-fit.

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Twin Factors' Relationship with the Attitude to Work by Academic Staff of Public Universities in Edo and Delta States of Nigeria

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Abstract

The study examined the relationship between motivation factors and academic staff attitude to work in the public universities in Edo and Delta States, of Nigeria, for the purpose of determining whether motivation factors such as university autonomy and academic freedom, have relationship with the attitude to work by academic staff. To guide this study four (4) research questions were asked out of which three (3) hypotheses were formulated to cover the dependent and independent variables. The study adopted the correlational survey design. The population consisted of all the academic staff in the four public universities in Edo and Delta States, which amounted to 2793. An approximated sample of 700 which represented 25% of the population were administered copies of the questionnaires but only 685 were retrieved out of which 680 were found usable. The content validity was applied to validate the instrument and the reliability of the instrument was found to be 0.77. The statistical methods used to analyze the data were the mean (\bar{X}) for the one research question one and Pearson Product Moment correlation coefficient (r) for the three hypotheses, which were tested at 0.05 level of significance, after analysis, some of the findings amongst others were that:

- (1) Attitude to work of academic staff in Edo and Delta States public universities was negative.
- (2) Twin factors were found to have significant relationship with academic staff attitude to work in the Edo and Delta States public universities in Nigeria.

Based on these findings, recommendations were proffered.

1. Introduction

Every organization is established to accomplish predetermined goals and objectives, education

organizations are not left out. It is often said that education is an instrument of change and as World Bank would put it education is fundamental to the development of knowledge, economy and society in all nations^[37]. However the actualization of these laudable goals especially in the higher education of some developing nations like Nigeria are thwarted by various problems ranging from inadequate resources such as human, materials, financial, technology, e.t.c, to corruption to interferences from outside community, and attitude to work by academic staff of these institutions.

One of the fundamental conditions for effective realization of goals in any legal entity is the adequate welfare of staff. A well-managed organization usually sees an average worker as the root source of quality and productivity gains. The astronomical increase of schools in every level of education sector in Nigeria and the limited resources available to tackle these increases leaves stakeholders worried about the quality of output from these institutions. The study however is concerned about the academic staff in these universities. Shulman identified the teacher as a major factor in student learning and upon their number, quality and devotion lies the success of any educational system^[29]. In the university, teachers have three basic functions (1) to teach (2) to carry out researches and (3) to render community services. These basic duties are anchored to the actualization of university goals and they can only be realized by adequate provision of needs which Vroom called motivation^[34]. In this study, needs are seen from Vroom's perspective, therefore regarded as any factor or factors that will make a worker exert force or energy to take action to actualize goals (personal and organizational). The goals of the university amongst others are students learning and production of skilled graduates to help champion the nations development, how can the university reach these targets when the cornerstone (teachers) attitude towards their basic responsibilities are not favourable? An organization is effective to the degree that it can achieve its goals; an effective

organization will make sure that there is a spirit of cooperation and sense of commitment and satisfaction within the sphere of its influence. Becker, Randal and Riegal defined commitment in three dimensions:

- a strong desire to remain a member of a particular organization
- a willingness to exert high levels of efforts on behalf of the organization
- a defined belief in an acceptability of the values and goals of the organization^[6].

People come into work situation with various expectations, when they arrive at the work place; they meet other people who also have their own expectations. Positive individual and group expectations serve as positive factors for the workers. The essence of this is to ensure a situation where the individual's needs are met while the organization is achieving established goals/objectives. Behaviour is encouraged basically through positive reinforcement by those who occupy management positions taking into cognizance the needs and aspirations of its workers.

Attitudes are put up by workers based on the situation at workplace. Attitudes are determinants of behaviour because they are linked with perception, personality and motivation. They have three components of emotions, cognition and behaviour. Job satisfaction is an attitude that individuals have about their jobs, it results from the perception of their jobs based on factors of the work environment such as working conditions, policies and procedures etc. Negative attitude in most cases, is a by-product of dissatisfaction which could manifest itself in various ways (Adepoju)^[1]. Indiscipline and generally apathy are some negative attitudes displayed by workers to buttress their stand and to be able to manage these traits, it is important to understand the individuals involved and the society itself.

2. Statement of the Problem

In Nigeria, government has made commendable efforts to increase access to university education; for instance, the number of universities that were just 37 in 2005 has increased to 127 as at December 2013. To encourage the development of the universities, management policies and staff conditions of service have been so reviewed in such a way as to make the universities attractive and supportive to all stakeholders, especially the academic staff, one way the government has done this is to grant autonomy to the universities in teaching, research and administration, additionally, the salaries, allowances and other entitled benefits of staff particularly the academic staff have so improved not only to positively impact on job performance but also on attitude to work, it is however regrettable from

observation and studies by Adepoju^[1], Okecha^[20] Haastrup and Adedokun^[11] and Youngberg^[38] that several university staff especially academics have negative attitude to the work they are employed to do. Personal interaction with students in Nigerian public universities in Edo and Delta States, revealed that academic staff come to lecture halls to teach, evaluate students' performance and even course advise with unprecedented reluctance, researches are only embarked upon for the purpose of their official promotion and politics have replaced community service. This attitude has adverse effects on graduates produced that will take over the development of the nation.

This worrisome situation brought about this research that has look at two vital factors which are silent but needful to the effective management of the universities and the actualization of set goals. These twin factors are university autonomy and academic freedom and are regarded in this study as motivation factors, because they are vital needs to the university. They are viewed in relationship to the attitude to work put up by academic staff and how they affect university management undoubtedly, there are other factors that are also responsible for the decadence of the public universities in Nigeria but this study was only interested in looking at the two important factors that are core to the very idea of "The University". In carrying out this research, the following research questions were asked:

- (1) What is the attitude to work by academic staff in public universities in Edo and Delta States of Nigeria?
- (2) Do motivation have any relationship to their attitude to work?
- (3) Is university autonomy significantly related to their attitude to work?
- (4) Is academic freedom significantly related to their attitude to work?

Hypotheses were formulated from the above research questions so as to guide the study successfully, these were:

- (1) There is no significant relationship between motivation and attitude to work by academic staff of public universities in Edo and Delta States of Nigeria.
- (2) There is no significant relationship between university autonomy and attitude to work by academic staff of public universities.
- (3) There is no significant relationship between academic freedom and attitude to work by academic staff of public universities.

These hypotheses were formulated to find out the implication(s), and the effects that the twin factors have on the attitude to work by academic staff and the university management. The scope covered the four public universities in Edo and Delta State of Nigeria namely:- University of Benin (UNIBEN), Ambrose Alli University (AAU) Ekpoma, Delta

State University (DELSU) Abraka, Federal University of Petroleum Resources (FUPR) Efurun.

3. Literature Review

3.1. The Concept and Erosion of University Autonomy and Academic Freedom

University autonomy is defined according to Fehnel as giving universities the freedom to govern themselves, appoint key officers, determine the conditions of service of their staff, control their students' admissions and academic curricula, control their finances and generally regulate themselves as independent legal entities without undue interference from outside community which include the government and its agencies^[9]. The role of universities in human capital development, research and technological innovation and advancement cannot be over emphasized. All over the world investment in university education is a critical component of national development effort. Nations today depend increasingly on knowledge, ideas and skills which are produced in the universities (Oni)^[22]. Nations invest in university education because society expects it to contribute to national development in three principal ways. First, society expects its university to produce the highly skilled personnel in technology, engineering, management and other professions, secondly, universities have the responsibility of producing their own crop of academic personnel that is, the intellectual resource pool that will, through scientific research generate new knowledge and innovation to solve developmental problems. Thirdly, universities produce teachers, administrators and managers for other levels of human resources development institutions. The history of university education in Nigeria started with the Elliot commission of 1943 which moved the establishment of University College Ibadan (UCI) in 1948. UCI was an affiliate of the University of London, when Nigeria attained independence in 1960, the need to train skilled manpower to take over from colonial expatriates heightened (Ike)^[16]. Universities were later established based on felt needs as advised by the Ashby commission of 1959 (Utile)^[33]. In spite of the tremendous expansionary growth of the university system in Nigeria, the system lacks adequate academic freedom, facilities and infrastructures to absorb the teeming number of applicants each year (Utile)^[33]. The inadequacy of autonomy and academic freedom in the nation's ivory seems to be an impediment to the full realization of the goals of the university. It also appeared that the whole university system had been politicized because of the erosion of the autonomy in the nation's universities. This has a negative effect on the quality of graduates being produced from the ivory tower (Babalola,

Jaiyebor and Okediran)^[5]. University autonomy is a highly significant substructures that is integral to the idea of a university. Universities have always regarded the idea as indispensable values and have defended it due to its inestimable value, Onyeonoru, posited that for autonomy to be fully practiced, there should be no dictatorship from outside the university as to what its standard should be^[23]. University autonomy is essential to the advancement, transmission and application of knowledge. It has often been said that for universities in Nigeria to play a meaningful role and discharge its responsibilities effectively, the system must enjoy high degree of autonomy in addition to the academic freedom of its academic staff. While citing examples of France, Japan, the Netherlands, Chile, Thailand and Vietnam, the world bank demonstrated how financial and spending autonomy served as incentives for quality improvement and efficiency of various higher education systems (Babalola et al.)^[5]. The best universities according to recent rankings are very autonomous (Weber)^[35].

Every university has its own laws or edicts which spells out the functions of the various organs in the institution such as the governing council, senate, congregation, committee of Deans, Faculty, Department, Institute and so on, for all these organs to succeed in the accomplishment of the organisational goals, the system needs to be autonomous. The system must have the freedom to run its own affairs without external interference it must have the right to organise its internal affairs, to make decisions and to establish its own academic programmes. University autonomy will create a more flexible and responsive management in the areas of teaching and research. Disputes over university autonomy and academic freedom can be traced back to the 1970s where the university college Ibadan came under military dictatorship. A trade dispute between the governing councils of Nigerian universities and the local branches of the National Association of University Teachers in 1973 on the review of conditions of service (Onyeonoru)^[23]. History recorded that the federal Ministry of Education opposed vehemently the improved pay and improved condition of services approved to the aggrieved teachers' association by their local councils. The senate of the University of Ibadan also experienced an erosion of its statutory powers in 1978 when a query was issued on it by the Federal Ministry of Education to explain why so many students failed in the 1977/78 academic session Adesina in (Oyeonoru)^[23]. The academic Staff Union of Universities (ASUU) that has been at the forefront of the reforms in the Nigeria universities has also been met with stiff oppositions from the federal government. Many times ASUU have been banned and unbanned. Many academics have been dismissed, retired and unjustly jailed for teaching

what they were not employed to teach (Arikewuyor)^[3]. Forty-nine academic staff of the University of Ilorin were dismissed in 2001 for participating in the nation-wide strike called by the Academic Staff of Nigerian Universities (Utile)^[33]. A vice chancellor of Ambrose Alli University was unilaterally sacked by the governor in 2010 and acting vice chancellor was appointed by same, the bursar and registrar of same university was removed in 2011 by the state house of assembly without due process.

There are many universities in Nigerian today controlled by the Federal Government, and the State Government and some by Private individuals and corporate organisations. However, in spite of the autonomy entrenched in laws setting up these universities, government and its agencies and proprietors have continuously imposed conditions of service and bureaucratic and autocratic rules on how the universities should be managed. The following are some of the areas by which the university autonomy has been eroded. The appointment of the vice-chancellors had hitherto been the sole responsibility of the governing councils of universities (Onyeonoru)^[23]. However, the decree No. 23, of 1975 when the Federal Government took over the regional universities, the power to appoint and remove vice-chancellors was vested in the head of state or the Federal Military Government as the case may be. Since that time the appointment of the Vice-chancellor has become a political affair and the university visitor (Head of State or Governor of the State) has the final say. (Mgbekem)^[19]. As a result of this change vice-chancellor over time became increasingly accountable to the visitor. (1) **The introduction of the National Universities Commission (NUC)**. The senate which consists of the Registrars, all professors, all heads of departments and faculty representatives deals with all academic decisions and their execution. (Mgbekem)^[19], (Oyene)^[24]. However, with the establishment of NUC in 1962 and its reconstitution in 1974 through Decree No. 1 of role of NUC shifted from mere ensuring orderly development of university education, maintaining standards and ensuring adequate funding, to an agency with the power to dictate what to teach and the number of students to be admitted into the universities. The decree 16 of 1985 and its amendment in 1988 dismantled what was left of university autonomy by expanding the functions of NUC. Section 10 of the decree vested in the commission the “power to lay minimum standards for all universities and other institutions of higher learning in the federation and the accreditation of their degrees and academic awards (Onyeonoru)^[23]. (2) **The introduction of quota system was another erosion**, the quota system otherwise known as “federal character” is another way by which the autonomy of the university

has been eroded according to (Babalola, Jaiyeola and Okediran,^[5]. The quota system was entrenched in the 1979 constitution with the aim of rectifying the recruitment imbalances which in the past, made one ethnic group/state to supply the entire personnel into federal parastatals (universities inclusive). It was also to ensure equity and fairness in the admission process, the university is therefore under obligation to admit students not entirely on merit but on the quota system as stipulated by the government. (3) **Joint Admission and Matriculation Board (JAMB)** and the Admission Process is another erosion Utile believed that this organisation was another effort by the government to thwart university autonomy^[33]. JAMB is an examination body that was put in place in Nigeria by the Military government in 1978 with the responsibility of conducting entry examinations into the Nigerian universities, but as the years rolled by corruption crept into it, and in order for the universities to re-gain their integrity which was almost lost with the introduction of Jamb, the idea of post Jamb was introduced and operational today. The idea was to re-examine the candidates who passed Jamb examinations in order to admit qualified candidates. This process is stressful on the candidates and their parents but it is the only way of ensuring the right candidates were admitted. As laudable and desirable as these agencies are, their functional roles tend to impinge on the statutory functions of Nigerian universities, these and other agencies controlling the universities emphasize quality over funding, instead of ensuring adequate funding that will ensure quality (Utile)^[33]. Can Universities be totally autonomous: in conditions like these, the answer is emphatic No.

Usman’s study of the consequences of inadequate university autonomy found out that (1) academic staff unrests was significantly related to inadequate university autonomy. (2) inadequate funding, human and material resources and research facilities were also found out to be significantly related to inadequate university autonomy^[32], similarly when Okon sought to know how satisfied the academic staff were with university autonomy and academic freedom, in their universities, his findings were that: 25% of his respondents agreed they had autonomy but was inadequate for effective management of the universities, 75% of his respondents agreed they had no autonomy in their universities^[21]. Ekhaton also in his study, sought to know the perception of academic staff regarding university autonomy and its effects on seven job facets which included job satisfaction, attitude to work, welfare of staff, university management, leadership, achievements and advancement and he found out among other findings that attitude to work was related to university autonomy. University autonomy and academic freedom was ranked first position by academic staff^[7].

Academic freedom has been defined as: “The principle designed to protect the teacher from the hazards that tend to prevent him from meeting his obligations in the pursuit of truth” (Kirk)^[18]. This definition, however, appears to be in favour of the scholar. The goals of teaching, research and public service certainly requires an academic setting in which the scholar can express himself freely and without inhibitions. University autonomy and academic freedom are conceptualized as twin factors which are regarded as motivation. The twin factors can not work without each other.

3.2. The Academic Staff Attitude to Work

The primary duties of the academic staff can only be carried out effectively in a conducive environment. From observation and interviews of students it was deduced that academic staff are hardly found doing their primary duties but are involved in non-academic duties such as money making ventures, politics, corrupt practices of various magnitude, low attendance to lectures, assigning students to mark examination scripts, compile results and work on fellow students files, some even seek greener pastures both home and abroad they have become very materialistic. Incessant strikes is what the university academic staff is known for these days. The effects of these are so numerous that it has so brought the university system to a state of decay that the respect and honour it use to connote very many years back has virtually vanished into the thin air (Okecha)^[20]. First of all, students don't read anymore, the consequence of this is the production of half-backed graduates. Secondly, in the political terrain, the academic staff are easily tongue lashed and sacked at will.

The universities have been politicized to the extent that moneys meant for certain projects are diverted, materials are not available to teach and carry out research instead plagiarism takes centre stage in publications, autonomy of both academic staff and the university has been taken over by the government of the day, students involve in outrageous practices with their lecturers, it may be of interest to know that no Nigerian university was listed among the world's top 500 university infact the best universities in Nigeria ranked 5,834th position (Okecha,^[20]). The significance of sound university education and vigorous research with regard to the economy cannot be over emphasized. Academic staff are faced with problems that may explain the reason why the universities are faced with problems, for a start, adequate facilities are not there to teach nor carryout researches, remuneration though increased are not paid promptly and not commensurate to effort put in neither can it be compared to other lucrative professions such as banking, oil, Engineering, medicine etc. Government

incessant interferences in the running of the university is absurd. Findings from the genuine researches carried out by these academics are not looked at, neither are they used for national development nor recommendations implemented, this situation has discouraged alot of academics making them to think twice about carrying out genuine researches that will not be upheld,. Agreement reached between academic staff and their employers, (in this case the federal and state governments) are not implemented, agreements reached and signed are effective on paper but when it comes to the implementation of the agreement, the government backslides and start to put up another behaviour as if the matter never had an earlier agreement. These and more have brought disappointments, lack of confidence on employers, frustration and outright rebellion of the academic staff and this has brought untold hardship to the university system, that going on strike is a solution to some critical problems. The needs of academic staff met are integral to the attitude they put up at work as confirmed by Aminiye and Asuquo who found out after investigating the university workers perception of the organizational retirement plan and their attitude to work that workers had very low perception of their universities organizational retirement plan therefore the workers attitude was largely unfavourable perhaps because they were not carried along in the plan^[2]. One of the most important areas of the work situation that influence attitude, is “work itself” which is often overlooked by managers when addressing the issue of attitude to work. Hofstede collected data from 67 countries and found that the data grouped into four major dimensions and that countries systematically varied along these dimensions. The four cross-cultural dimensions were (1) individualism collectivism (2) uncertainty avoidance versus risk taking (3) power distance or the extent to which power is equally distributed and (4) masculinity/femininity, more recently called achievement orientation, for example the United States was found to be high on individualism, low on power distance and low on uncertainty avoidance, thus high risk taking, Whereas Mexico was high on collectivism, high on power distance and high on uncertainty avoidance^{[12][15]}. The four dimensions have been useful framework for understanding cross-cultural differences in employees attitude, as well as recognising the importance of cultural causes of employees' attitudes, more recent analyses have shown that country/culture is a strong predictor of employees attitude as the type of job perse as (Saari)^[26], (Saari and Erez)^[27], (Saari and Schneider)^[28] and (Jackson)^[17], Hongping^[14] also in a related study of motivating teaching staff in times of change in Chinese universities, found out that motivating teaching staff in times of change will

minimize unrest and boost positive attitude to work, listed below are other determinants of employees attitude according to human resources practitioners (HRP) work itself, Staw and Ross^[30], individual workers disposition, Arvey, Bouchard, Segal and Abraham^[4], Cultural influences, Erez^[8], House^[15], Triandis^[35], Saari^[26], Saari and Erez^[27], Saari and Schneider^[28] work situation influences Fried and Ferris^[10] Parisi and Weiner^[25], Weiner^[36], environmental factors, individual and organisational factors.

4. Method of Study

This study adopted the correlational survey design, with the population of all academic staff in all four public universities across Edo and Delta States of Nigeria which amounted to 2793. A sample of 698.25 (25%) was randomly selected but was approximated to 698 academic staff used for this study. 698 questionnaires were given out but only 685 were retrieved and 680 were found usable. These were analyzed using the statistical tools of “mean” to answer the question and Pearson Product Moment Correlation coefficient (r) to test the hypotheses. To determine the mean; the 4-point rating scale, Strongly Agree (SA), Agree (A), Disagree (D), Strongly Disagree (SD), was multiplied by the total number of Ten items in the attitude questionnaire which was thus: 4 x 10 = 40, therefore, 4 was minimum and 40 was maximum points. The maximum point was equally shared such that 1 -20 was regarded as negative attitude and 21-40 was regarded as positive attitude, after analysis the finding was 19.66 which fell within the range of negative attitude, Table 1 shows this.

5. Analysis and Interpretation

Question One: What is the attitude to work by academic staff of public universities in Edo and Delta States of Nigeria?

Table 1: The mean of the attitude to work by academic staff in public universities in Edo and Delta States

Variable	N	X	Decision
Academic Staff Attitude	680	19.66	Negative

According to Table 1 above, the academic staff of public universities in Edo and Delta States of Nigeria had a mean of 19.66 which represented a negative attitude to work, therefore academic staff of public universities in Edo and Delta States of Nigeria have negative attitude to work.

Hypothesis One: There is no Significant Relationship between Motivation and Attitude to

Work by Academic Staff of Public Universities in Edo and Delta States of Nigeria.

Table 2: Pearson’s correlation analysis between motivation and attitude to work by academic staff of public universities

Significant at $p < .05$

Variables	N	Calculated value (r)	df	Critical Value	Level of sig.	Decision
Motivation	680	0.248	678	0.1946	0.05	Significant
Attitude to work						

According to table 2, Pearson Product Moment correlation coefficient (r) of .248 is greater than the critical value of .1946, that is to say that the hypotheses was rejected because the calculated value was greater than the critical or table value as relevant to hypothesis one. Result further showed in a post Hoc analysis that a positive and significant relationship exist between motivation and attitude to work by academic staff of the public universities in Edo and Delta States of Nigeria. Thus hypothesis one was rejected at $p < .05$ therefore the conclusion was that, there is a significant relationship between motivation and attitude to work by academic staff of public universities in Edo and Delta States of Nigeria.

Hypothesis Two: There is no Significant Relationship between University Autonomy and Attitude to Work by Academic Staff in Public Universities in Edo and Delta States of Nigeria.

Table 3: Pearson correlation analysis between university autonomy and attitude to work by academic staff of public universities in Edo and Delta States of Nigeria

Variables	N	Calculated value (r)	Df	Critical Value	Level of sig.	Decision
University autonomy	680	0.281	678	0.1946	0.05	Significant
Attitude to work						

Significant at $p < .05$

According to Table 3, Pearson correlation coefficient was found to be .281 which is greater than the table value of .1946. Result further showed in a post-hoc analysis that a positive and significant relationship exist between attitude to work by academic staff and university autonomy. Thus, hypothesis two was rejected at $p < .05$, the conclusion therefore was that there is a significant relationship between university autonomy and attitude to work by

academic staff of public universities in Edo and Delta States of Nigeria.

Hypothesis Three: There is no Significant Relationship between Academic Freedom and Attitude to Work by Academic Staff in Public Universities in Edo and Delta States of Nigeria

Table 4: Pearson correlation analysis between academic freedom and attitude to work by academic staff of public universities in Edo and Delta States of Nigeria

Variable	N	Calculated value	df	Critical Value	Level of sig.	Decision
Academic freedom	680	0.302	678	0.1946	0.05	Significant
Attitude to work						

Significant at $p < .05$

According to Table 4, Pearson correlation coefficient of .302 relevant to hypothesis 3 was found greater than the critical value of .1946 which automatically means that this hypothesis has been rejected. Result further revealed from a post-hoc analysis that a positive and significant relationship exist between attitude to work by academic staff and academic freedom. Thus hypothesis three was rejected at $p < .05$. It was the conclusion of this study that there was a significant relationship between academic freedom and attitude to work by academic staff in public universities in Edo and Delta States of Nigeria.

6. Discussion and Conclusion

From the findings above, it can be deduced that academic staff of the public universities in Edo and Delta States of Nigeria have negative attitude to work, it was also found out that motivation was related to academic staff attitude to work and was further found out by this study that university autonomy and academic freedom was related significantly to academic staff attitude to work. This negative attitude to work put up by academic staff of public universities in Edo and Delta States of Nigeria could be as a result of so many intervening variables such as leadership, inadequate and dilapidated teaching and learning facilities, policy and procedures, school community relationship and so on. This study is however concerned about university autonomy and academic freedom as it relates to academic staff attitude to work. A lot has been said earlier about the these twin factor which are indeed inseparable and an integral part of the success of the university system if it has to achieve its set goals and be managed effectively. The academic staff negative attitude to work could be as a result of the insufficient autonomy granted to both the academic staff and the universities. The interferences of the

outside community such as the Federal and State governments, who are the proprietors, the reigning political parties in the nation makes it impossible to do meaningful academic work and run the universities effectively and efficiently. Every year, the university calendar is frequently altered perhaps this is one of the reasons why academic staff put up negative attitude towards their primary assignment of teaching, research and community services. Undoubtedly, university autonomy and academic freedom may not be the only factors that contribute to academic staff negative attitude. Academic staff do not seem to have enough power to run the universities. Negative attitude by academic staff could also be due to non-implementation of agreements reached between them and their employer. Strikes both local and national have been embarked upon severally because of this problem which also relate to government over-control and over regulation of the university.

In teaching, comments from students interviewed proved that academic staff reluctantly go to class and from observation appeal letters from the school authorities requesting that academic staff to go to class, monitoring teams have been set up to monitor classes to make sure academics go about their lawful duties in other words academics are threatened to go to class or face the consequences. In research, academic staff only carry out researches for the purpose of their own official promotion and really not for nation building, this is due to the fact that, the findings of studies carried out over the years which ought to have been used by government for nation building are hidden in the pages of the books in library, theses work etc. In the National Policy on Education the Federal government of Nigeria claims to have high regards for education as a veritable tool for nation building and development. The total disregard paid to findings have resulted in academic staff reluctance to carry out researches that will not be upheld. Academic staff is not also found doing their community service rather they engage in politics, hustling for official positions, appointments and other businesses besides academic work. These negative attitude may be borne out of inadequacy of university autonomy and academic freedom, for reiteration these are powers, total freedom, given to the university to run itself and the academic staff to do research and publish findings unhindered and unharrassed but the reverse is the cases, government incessant interference will not allow the university environment to be conducive for the academic staff to do their job effectively neither will the university management be allowed to manage the university. The university autonomy bill in Nigeria operates in theory not in practice perhaps this is the reason why the cornerstone of the university have negative attitude to work.

The implications of these findings to educational management are that negative attitude to work by academic staff is a pointer to the fact that workers are unhappy and dissatisfied, and according to this study inadequacy of university autonomy and academic freedom which can also be regarded as work situation influences, was found out to be significantly related to academic staff attitude to work. The academic staff want to be in charge of the universities destiny, they want to be in control of the running of the university, the implication therefore is that the amount of power given them to contribute adequately to the university destiny also determine their attitude to work and achievement of goals. The amount of power also given them to carry out all types of researches (classified and unclassified) and publication of the findings of same without hindrances also determine their attitude towards researching publication, conference attendance etc. secondly, the negative attitude to work by academic staff of universities will continue if the motivation factors are not drastically, vigorously and appropriately addressed to produce positive attitude that will change situations around in the universities and consequently in the nation.

7. Recommendations

1. For the sake of the students who are the future of the nation and who are the major reason why they are employed, academic staff should try to have a positive attitude to work. They must realize that government can not and never will be able to shoulder all responsibilities regarding motivating them.
2. Since motivation is significantly related to attitude to work by academic staff, it is then imperative that universities proprietors should motivate academic staff to solicit their positive attitude to work. Government must look into the plight of academic staff and take drastic steps to revamp the public universities.
3. University autonomy should not just be a bill, it should be practiced to its fullest. Outside communities such as the political godfathers and Government of the day should hands off the day to day running of the universities, this may help to boost morale and bring about positive attitude to work by academic staff.
4. Academic freedom is essential to the “calling” of academic staff, therefore government must resist the temptation of trying to clamp it down by allowing academic staff the freedom to carry out academic activities that will enhance teaching and learning in the school.
5. To encourage academic staff in their academic pursuit, findings from researches carried out by them must be sought for and implemented for the sake of national development.

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Session 14: Business Education

A Crisis of Confidence: Seven Perceived Barriers to Graduate Employment
(Authors: Emily Beaumont, Sharon Gedye, Samantha Richardson)

An Interdisciplinary Business Case: A Means to Getting Students Step by Step into Contact with the Corporate World as of Their First Year Professional Bachelor Studies
(Author: Kathleen Leemans)

Introduction of Group Projects in an Introductory Statistics Course: Enhancement of Student Learning or Wastage of Time
(Author: Fouzia Baki)

Incorporating Entrepreneurship Education into Social Studies
(Author: Flora O. Nkire)

A Crisis of Confidence: Seven Perceived Barriers to Graduate Employment

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Abstract

This paper addresses the important issue of employability among undergraduate students in the UK [1]. It focuses on Marine Sport Science students and their confidence in gaining graduate employment after having careers education embedded within their programme. Mixed method surveys were used to question 69% of students across three Marine Sport Science programmes. Results showed that confidence in gaining graduate employment decreased year on year and that a general lack of confidence from Marine Sport Science students in gaining graduate employment is due to seven barriers: experience, confidence, economy, competition, location, qualifications, and degree quality. Media representation was found to have a significant role in shaping these barriers.

1. Introduction

Graduates in Sport programmes have an ability to 'be well prepared for the wide range of professional and vocationally orientated careers in this still growing and maturing sector' [2:p130]. However, there are concerns expressed about the employability of sport graduates in the UK 'fuelled by the rapid growth of undergraduates studying sport' and concerns over 'the appropriateness of those graduates to employers' needs' [3:p67]. More generally, Margaret Dane (Association of Graduate Careers Advisory Service) also highlights that there is a need for employability to be 'right up there on the agenda, especially in the light of increased tuition fees [in England] that have raised student and parent expectations' [4].

This paper therefore focuses on the growing issue of employability within Higher Education, specifically addressing Marine Sport Science student's confidence in gaining graduate employment after they have had careers education embedded within their programmes. This action was taken in 2010 in recognition of the growing concern of employability within Higher Education in the UK, and through guidance from the QAA that stated that 'Careers education can be taught via discrete modules ... or embedded across a programme of

study' [5]. This study presents the results of a formal impact evaluation of the careers education interventions of three Marine Sport Science programmes at Plymouth University, a post-92 HE institution in England.

2. Why focus on employability?

Employability is a persistent and significant theme in HE in the UK [1], and has been a topic of concern for many academics [6][7][8][9][10]. In particular the enhancement of student employability has become significant due to the pressure of stakeholders including government [11][12], employers [13], and students [14].

Known as 'massification', there has been a rapid enrolment growth in Higher Education [15] leading to increased competition for traditional graduate employment and accordingly a reduction in the currency of a degree [16]. Although there has recently been an expansion in the variety of graduate employment available [17], demand for graduate jobs remains high. As an outcome, graduates now find that possessing a degree is only a pre-requisite for their employment and that they must also deliver other 'value added' experience, skills and qualities. The troubled economic situation of recent years has further contributed to the imbalance between graduate supply and demand. As the 'the relationship between higher education and the economy is longstanding' [18:2], the recent turbulent economic climate of the UK has placed renewed emphasis on this aspect of HE provision.

Increased competition in the graduate labour market combined with the recent increase in tuition fees, means that employability is one of the most significant factors that affects a student's choice about where to study [19]). Significantly, the 2012 Sodexo University Lifestyle Survey reported that 74% of students who took part felt their main reason for attending university had been to improve their job prospects [20]. Institutional reputation, as well as employment opportunities are both components of the 'employability' choice being made by students [16] and in the UK, increased transparency of data on graduate employment prospects through mechanisms such as the Key Information Statistics

(KIS), assists students in making informed choices about the anticipated return on their degree investment.

3. Why Marine Sport Science students?

Plymouth University currently offers three Marine Sport programmes: BSc Applied Marine Sport Science (AMSS), BSc Surf Science and Technology (SST) and BSc Marine Sport Sciences (MSS). Before September 2010 employability was not directly addressed in modules within Marine Sport Science programmes but was covered in a series of one off lectures given by the central Careers Education team, a popular and traditional mode of delivery across many HEI's. However, the Destination of Leavers in Higher Education (DLHE) data for the Marine Sport Science Programmes - data which can be used as a measure of employability and is publicly available - showed that students who were able to gain employment, did not achieve graduate positions that require a degree, or more specifically a degree in Marine Sports Sciences. This prompted an exploration of various curriculum initiatives to improve their ability to achieve graduate positions.

In recognition of the growing concern for employability within HE, in 2010 the Quality Assurance Agency (QAA) addressed the topic within a revised code of practice for the assurance of academic quality and standards in higher education within a section entitled: Career Education, Information, Advice and Guidance (CEIAG). Within this section it states that 'Career education can be taught via discrete modules...or embedded across a programme of study' [5]. Following this recommendation the Marine Sport Science programmes adopted an approach to embed employability across all three years of the curriculum.

Although Higher Education institutions are not able to reach directly into students' extra-curricular activities, they can, through co-curricular activities such as career development, help students to recognise the significance of those activities and represent to best effect achievements that can be supported with evidence from extra-curricular activities.

From the QAA's [5] guidance a strategy to utilise the resources within the Careers and Employability service within the Marine Sport Sciences programmes was developed [21] [22].

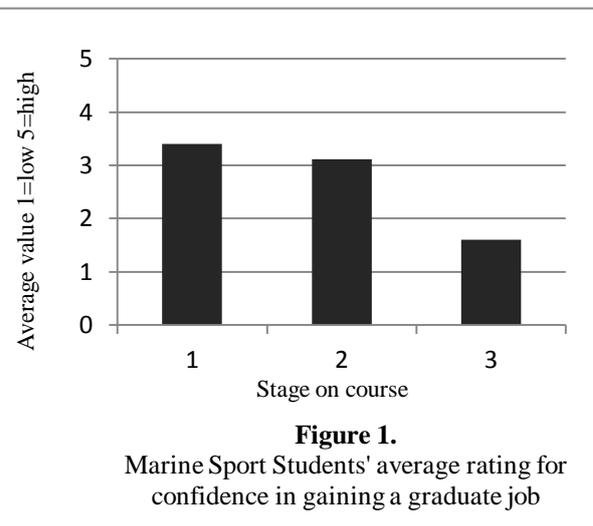
4. Methods

Data was gathered using a questionnaire designed using a mixed methods (qualitative and quantitative) format, a method which goes some way to neutralising the limitations of quantitative and

qualitative research [23]. Participants were asked to quantify their confidence in gaining graduate employment through the use of a simple scale. The remainder of the questionnaire was based on 'My Vocational Situation' [24], a tool which aims to investigate difficulties in career decision making, in particular personal barriers and environmental barriers, which were of interest in this study. A total of 57 Marine Sport Science students (69% of the population), participated from all three years of the three undergraduate programmes in 2012.

5. Results

The questionnaire in this study asked students to rate their confidence in gaining graduate employment. Figure 1 shows that Marine Sport Science students lose confidence year on year, with a particularly significant drop in their third and final year.

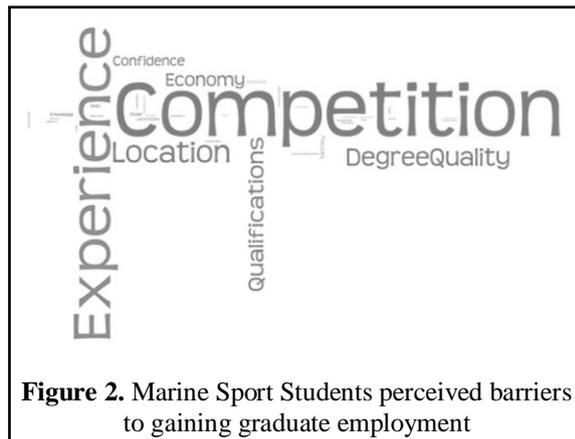


Increased levels of specialism in training should give students a better indication of their career choices, making them more confident [24]. Therefore undertaking a degree within in Marine Sport Sciences, particularly in a situation where careers education is embedded within all programmes, should make a student more confident. Yet this is not what the results show. A one way ANOVA test showed that there was a statistically significant difference between the results for confidence rating for each stage ($0.011 < 0.05$). It can therefore be said that stage three students show a statistically significant drop in the rating of their confidence in gaining graduate employment.

A link between these findings can be made to a statistically-based study focused on second year Business Studies undergraduates from three different universities [25]. This demonstrated a general lack of confidence in employability across the three

institutions in relation to how well the students perceived they would fair with their employability.

In order to further explore issues of confidence, students were asked what they felt the barriers to gaining graduate employment were; a question which might help explore why confidence decreased year on year [26]. Figure 2 is a word cloud which displays what Marine Sport students perceived as the barriers to gaining graduate employment. The larger the word is, the more commonly it was mentioned by students.



From Figure 2 there are clearly seven common perceived barriers to employment: experience, confidence, economy, competition, location, qualifications, and degree quality. These can be categorised as either being course specific (location and degree quality) or more generic (experience, confidence, economy, competition, and qualifications). Location is viewed as being course specific because it was very much related to students need to be located somewhere where they could perform their Marine Sport. For example students commented that barriers were ‘not wanting to work in a city’ (Stage 3 Student), ‘being able to enjoy my passion, surfing’ (Stage 3 Student), ‘no jobs in chosen locations’ (Stage 3 Student) and ‘Location where work is’ (Stage 3 Student). Degree quality is a further course specific barrier which has occurred principally through the Media’s reaction to Marine Sport Science programmes, specifically BSc Surf Science and Technology. Throughout the programme’s existence, but more specifically during the recent media coverage of the tuition fee rise, BSc Surf Science and Technology received significant negative media attention. For example in 2004 the BBC News reported ‘Hobbies such as surfing are being turned into "Mickey Mouse" degree courses, a teachers' union conference is to be told [26]. Commentry in the tabloid press suggested that ‘the names alone are enough to raise an eyebrow, if not two. Students getting their A-levels can choose from courses including surf science and technology at the University of Plymouth, hairdressing and salon

management at the University of Derby and stained-glass window studies at the Swansea Institute’ [27]. Supporting statements such as ‘A degree in surf science and technology - is this a silly degree? Of course not, it was launched because of demand by local employers in Plymouth for the graduates it delivers’ [28], do exist but are not as frequent as those which attack the quality of the degree. Sadly it seems the deluge of negative comments surrounding the quality of the BSc Surf Science and Technology impacted the students and led them to believe that the quality of their degree was a barrier to gaining graduate employment.

The media also carries some responsibility for bringing about further barriers to employment, but in this case barriers that are not specific to Marine Sport Science programmes but are generic and could be perceived by all students. They are the economy and competition, which on consideration also leads to the barrier of confidence. The current economic climate which has led to high levels of unemployment, particularly for graduates has been frequently reported by the media. Statements such as ‘one in five graduates out of work as unemployment rates for university leavers doubles’ [29], ‘new graduates face tougher struggle in their search for jobs’ [30] and ‘thousands more graduates forced to accept menial jobs as bosses demand degrees for low-skilled work’ [31] only increase concerns over the economy and competition for graduate employment which in turn creates a lack of confidence among the student population and places these three elements (economy, competition and confidence) firmly in their minds as a barrier to gaining graduate employment.

The remaining barriers of experience and qualifications possibly stem from the students definitions of employability. In this study students were also asked to define employability and the word cloud in Figure 3 highlights what terms were most frequently used within their definitions. The two most common terms are quite clearly qualifications and experience. As the students view these as an important element to employability they therefore quite logically view not having these as being a barrier to gaining graduate employment.



Figure 3. Marine Sport Science students commonly used terms when defining employability

6. Conclusion

This study focused on Marine Sport Science students' confidence in gaining graduate employment and the perceived barriers to employment. Results showed that Marine Sport Science students lost confidence year on year in, particularly significantly in their third and final year and a link was made to the findings of Rothwell *et al* [25] whose second year Business Studies undergraduates demonstrated a general lack of confidence in employability in relation to how well the students perceived they would fair with their employability.

In order to further explore issues of confidence, students were then asked what they felt the barriers to gaining graduate employment were. They expressed seven common perceived barriers to employment: experience, confidence, economy, competition, location, qualifications, and degree quality. These were categorised as either being course specific (location and degree quality) or more generic (experience, confidence, economy, competition, and qualifications).

It was found that the media played a significant role in these barriers, both course specific and generic. There was a significant amount of negative comments surrounding the quality of the BSc Surf Science and Technology which could have impacted the students and led them to believe that the quality of their degree is now a barrier to gaining graduate employment. More generically, the media's coverage of the economy and the effect on graduate employment and therefore competition for employment has led to further barriers being envisaged by students.

As students move closer to what they may feel is the precipice of graduate employment, the seven barriers identified here would appear to be generating a crisis of confidence.

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An Interdisciplinary Business Case: A Means to Getting Students Step by Step into Contact with the Corporate World as of Their First Year Professional Bachelor Studies

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Abstract

This article describes an interdisciplinary business case in which enterprises and professional associations are involved. At University College Ghent, we have been able to develop the students' professional competences, by gradually introducing them into the corporate world.

We present a conceptual analysis of the procurement project in the first year, and the case in the second year of the Professional Bachelor in Business Management, demonstrating Vygotsky's pedagogical zone of proximal development. We will demonstrate how the projects gradually enhance students' professional competences in practice, necessary for their internships and the job market.

An interdisciplinary business case is a powerful means to getting students step by step into contact with the corporate world. The project presented here applies to any curriculum involving an internship. This essay about course management and best practices, could appeal to all academicians and professionals in education.

1. Introduction

In professional Bachelor Studies, it is of the utmost importance that students can quickly come into contact with corporate culture. However, only too often, students only discovered this world during their internships. Unfortunately, some students proved to be unprepared in the third bachelor year and eventually had to retake this essential part of their curriculum. In order to avoid these disappointments and lack of training, lecturers and assistants could lead the students towards a real-life business context gradually. Here, Vygotsky's pedagogical 'zone of proximal development' comes into play [1]. His pedagogical zone of proximal development implies that only by taking one little step at a time, the student is enabled to reach the goals and competences necessary in everyday working environments.

Competences that have not yet emerged but could emerge in the students, should be stimulated throughout their professional bachelor. Full immersion at an internship in the third bachelor level, while students have not yet been introduced to the corporate world, has not always been an unqualified success.

At University College Ghent, Belgium, lecturers have been able to develop the students' competences for the job market, by gradually introducing them into the corporate world, from the first bachelor year onwards. The project presented in this paper applies to any curriculum containing an internship. The components included, the method, the process and the evaluation are put into a 'template'. Both the procurement project and the case are embedded in Logistics Management - studies offered within the Bachelor of Business Management - but can easily be transferred to any other field of professional bachelor in Business Management, Applied Computer Science, Office Management, etc. This essay about course management and best practices, could appeal to all academicians and professionals in education. Since our experience is linked to a project in Logistics Management, we will specifically talk about this procurement project. Within this project students are being introduced to the corporate world from the first year onwards.

This paper offers a conceptual analysis and elaboration upon the procurement project in the first year, and the case in the second year of the professional bachelor Logistics Management. For the procurement project in the first bachelor year, we will give an overview per week. We approach the case in the second bachelor year differently, emphasizing in particular the surplus value of the case and the complementary competences students acquire, in addition to the competences achieved during the procurement project in the first year. We will demonstrate throughout this paper how students gradually reach their professional competences in practice.

2. Procurement project in Logistics Management

In the first year, students immediately practice the theoretical knowledge they have gathered during the first term. At the beginning of the second term, they start off with an interdisciplinary procurement project. The students test their knowledge by practical experience. The project balances between the student's level of independent performance and the student's level of assisted performance, respecting Vygotsky's pedagogical zone of proximal development. In interaction with knowledgeable others and supportive contexts, the students can develop their talents.

On the job market, employers in transport companies, distribution centers, a company's warehouse or import / export departments, expect more of an ordnance manager than simply sending customs forms or having a fluent knowledge of English and their mother tongue. Companies expect general competences and want to recruit employees that can work independently and can co-ordinate a tangible situation when it comes to integral logistics. Students integrate the knowledge they have acquired in courses as Excel, Logistics Management I and Communication Skills in a first practical experience, two years before being dropped in the real corporate world during their internship. As regards content, students are being initiated into the purchasing policy of one specific company.

The goal of this program component is to refine and professionalize students' talents and skills. It is interdisciplinary since they have to combine different competences in different fields, both theoretical and practical. Students learn how to collect data by means of studying the source material, planning, taking interviews, researching the purchasing process of a company, designing business process diagrams and evaluating information. Introspection and self-assessment take a key role.

2.1. Objectives

The procurement project in the first bachelor is a partial module in Logistics Management project I. The objectives for this partial module are defined in the ECTS-file (European Credit Transfer System) of this module:

In team as well as individually, students must be able to recognize, formulate, analyze and solve a concrete problem concerning integral logistics. Also, they must be able to frame a desirable optimization in a virtual or real-life logistical business context. Students are hereby encouraged to work mostly independently on an effective solution and / or implementation in a structured manner. In order to do this, they need to be independent and critical,

develop their problem-solving skills and reflect on their own and others' performance.

A virtual or real-life case is used as a starting point for integrating the acquired theoretical knowledge on logistical aspects (logistics management, transport management, consignments, ERP (Enterprise Resource Planning), etc.) into a second practical experience in a professional and project-based way.

Within a given time frame, students must write a clear report on their findings. Students explain the results of their research and defend their views during a formal presentation [2].

In practice, first-year students work individually and second-year students work in team. They are gradually trained to acquire new competences. First of all, students contact a company and in doing so train their communicative skills. In the first year, they are still allowed to look for a suitable company within the comfort zone of their family network, choosing a company that appeals to them. As it is their first contact with the corporate world, they do not have to limit themselves to the logistics sector. As soon as their choice has been made, they contact the purchasing agent or one of the assistants. They must then take an interview of this person in order to get an idea of how the purchasing department works in reality.

During the learning process, students are being stimulated to work on the case according to the standards given. We as lecturers, provide the students with a few sessions about making a Gantt chart, asking relevant interview questions, telephoning, writing emails and writing business reports. In this program component, two lecturers closely work together. After these sessions, students are enabled to put the theory into practice within the company of their choice. After each single step in the learning process, we organize sessions for feedback. (By sending an email to the author, it is possible to obtain the planning we followed last year.)

2.2. Proceedings of the project

In the ECTS-file, a brief description of the contents of the procurement project is given:

Depending on the project, the focus is more on aspects of logistics or on aspects of transport. Communication is either written (telephone scripts, emails, minutes, brochures, reports) or oral (telephone conversations, meetings, presentations), again depending on the type of project. Students use various computer programs (web browsers, e-learning environment, office suite in order to write minutes, reports, design a brochure, ...) to achieve their goals [2].

In this paper, we will elaborate in detail on how the procurement project is carried out both technically and practically.

We deal with the procurement project in weekly sessions. The project is 'work- in-progress' during the second term, consisting of twelve weeks, according to the calendar of our University College. The students define the concrete project assignment, carry out a research, draw up a report and present their results. Communication, coaching and corrective feedback happen partially via the learning environment, and partially during consultations. In the first year, two lecturers are involved. The lecturer Communication Skills is responsible for developing communication skills throughout the project and the lecturer Logistics is familiar with the content such as BPM (Business Process Management using appropriate software), incoterms, procurement and purchasing policy.

2.2.1. Week 1. During the first class, students get an oral and written clarification concerning the program component. They immediately get necessary guidelines to draw up a Gantt chart. A Gantt chart is a bar chart, invented by Henry Gantt in the 1910s [3]. The Gantt chart is important in two ways: first of all students learn how to plan the proceedings of their project. Secondly, students immediately put into practice how to handle Gantt charts, which are also being used in logistic branches of industry, to indicate the start and finish dates of tasks. The Gantt chart can function as a template to record the student's progress. After the first class, students' quest for a suitable company starts. Once they have chosen a company, they look for more information about this company on the internet or several other sources. Some students were even allowed a look at the year reports of previous years. Subsequently they arrange a meeting with the purchasing agent.

2.2.2. Week 2. In the second week of the project, we teach them how to telephone and email correctly. They immediately hand in the first version of their Gantt chart after which they get feedback. This feedback is evaluated in particular by the content-substantiated lecturer. At every feedback session, both lecturers are present, in order for the lecturer Communication Skills to be abreast of the students' proceedings. Planning the writing of their interview questions, mails and reports, is equally important to be successful. To respect our timing, we evaluate each Gantt chart with the student, in ten minutes' time.

2.2.3. Week 3. In week 3, students have to hand in their mails with their appointment and confirmation for the interview and / or their telephone scripts.

2.2.4. Week 4. Students digitally hand in a short report of their company (maximum one page), in duplicate. Each lecturer evaluates the short report, emphasizing respectively content and

communication skills. The short report must contain these subtitles, commented on in a quick-witted text:

- Name of the company (if possible registered office and legal form);
- Mission of the company (if possible vision and more specific objectives);
- Business activities;
- Economic importance of the enterprise:
 - Employment,
 - Innovation,
 - Sustainability,
 - Turnover,
 - ...

2.2.5. Week 5. Students get instructions on how to prepare and take an interview, on structuring and phrasing of their interview. They learn how to write an assessing report, because they must incorporate a brief assessing report in their e-portfolio. They must evaluate the interdisciplinary case continuously, by evaluating the feedback sessions and the process of the project. This eventually shows their introspection in their e-portfolios. In week 5, students hand in an updated Gantt chart, followed by a second feedback session with both lecturers.

2.2.6. Week 6. Another deadline must be met. Students hand in their questionnaire for the interview.

2.2.7. Week 7. They first get feedback about the questionnaire, in order to compose interesting reports. During this session, students ought to bring an assessing report about the sequencing of the case and the individual feedback sessions. This one page-document is an integral part of their e-portfolio.

2.2.8. Week 8. We offer a course on designing a Business Process Diagram in Excel.

2.2.9. Weeks 9 and 10. Students write an exploratory report. They learn how to write such a report, supported by a template. The research report should contain these data in a maximum of ten pages, excluding title pages and bibliographical references:

- Short outline of the company;
- Description of the purchasing department (structure of the department, purchasing budget, organization chart);
- Description of the purchasing process for one or two products (by means of a Business Process Diagram and accompanying clarification).

The Business Process Diagram is drawn up in Excel, but the exploratory report in Word according to the

guidelines and house style of University College Ghent.

2.2.10. Week 11. In week 11, lecturers can provide free consultation for students, in order to adjust and perfect students' final versions, on their initiative.

2.2.11. Week 12. During the last meeting students hand in their e-portfolio, consisting of:

- Gantt charts;
- Telephone scripts and emails;
- The interview;
- Research report;
- Intervening feedback reports (week 7 and 12).

Students present their project individually. During a conversation with the lecturers, students clarify and illustrate the competences they have acquired at every single step such as collecting data, telephoning, emailing, taking the interview, drawing up Gantt charts, writing the research report and feedback reports. Their performance assessment is mainly based on the development of a critical attitude and on formulating their experiences and conclusion fluently and correctly. Students are also expected to comment on the obstacles they had to clear away in order to carry out the research.

2.3. Engagement and study guidance

More than a cognitive series of tasks, students are also being evaluated upon the above mentioned competences, which are expected during contacts with businesses and during internships. Being actively involved by means of an interdisciplinary case, they learn and experience infinitely more than they would by just taking theoretical classes. Their attitude and manners must be professional, both in contacts with companies, and in contacts with their fellow students and lecturers. After all, this is of major importance in the corporate world.

Of course, students are never left to their own devices:

All lecturers involved give instructions and provide guidance and feedback. Guidance is provided through announcements via the electronic learning environment and through advice and feedback given during staff consultation hours and compulsory consultations [4].

2.4. Evaluation of the student's case

50% of the marks is awarded by the lecturer Communication Skills and 50% by the lecturer Logistics. The following criteria are considered:

- Has the student met the intervening deadlines?

- Has the student respected the guidelines for reports?
- Has the student exerted the subject matter concerning logistics and purchasing policies?
- Has the student applied the communication skills (planning, structuring, phrasing, layouting, overhauling)?

These competences - respecting deadlines, employing guidelines and house styles, planning, overhauling - are essential for successful internships in the third year. Evaluation of this interdisciplinary case, leads students step by step into the business world, in order to experience successful internships in the third year of their professional bachelor.

2.5. Indicators and final objectives

This case is scheduled over a weekly four-hour course. The accreditation is limited to 3 credits in the first bachelor. To conclude the best practices of this procurement project, students reach the final objectives, as enumerated in the ECTS-file:

In group, students can analyze a real or virtual problem or answer a question for optimization in a business context.

Students can come up with alternative solutions that integrate acquired knowledge and insight into the entire supply chain.

In group, students can deal with complex tasks in a professional and organized manner (drawing up a plan, reports, project portfolio and final report).

Students can communicate effectively and can handle the internal as well as external communication of the project, both orally and in writing.

Students can work as part of a team [4].

All these indicators and final objectives are achieved during the project. First-year students who succeed, prove to be successful in the case during the second bachelor year. The first step in the learning process towards their professional internship is taken.

2.6. Critical analysis of our first experience

The students progressed clearly, which some of them mention during their feedback. We quote three students, whose feedback was relevant and informative. First of all, we quote feedback by Katty Blanchaert, second-year student in Logistics Management at University College Ghent:

'The project is a first, important introduction into the further curriculum of Logistics Management, as well as a significant case providing insight into the shop floor. The project reaches further than just field-testing the earlier achieved knowledge, by means of analyzing the purchasing policy and by reporting, using several resources. [...] I have

learned to think along, to understand what a purchasing policy implies, why a delivery service is essential and what the anticipated pitfalls are.

Also personal skills are being developed. Am I accurate enough to bring the project to a favorable conclusion? Do I have the required flexibility to put myself in another position, to think problem-solving or progressive and to handle according to feedback and introspection? Finally, these aspects take a key role in the curriculum, but also on the job market. I think it is positive that the project is run in the first bachelor.

Although there is a drawback, in my opinion. If I would be in the lecturers' shoes, I would relate the project to production. Production, import and export are the main branches of logistics. If the project would be related to these pillars, we would have been able to apply the knowledge we have attained in Logistics I and II. I think of import requirements, appraisal of suppliers, incoterms... Indirectly, English and French could also be included (logistics is mostly an international event), as well as transport, mobility and sustainability. According to me, it is an important project. After 7 years in the field, I notice that I am still gaining new knowledge during the project.'

As we have learned from our students' feedback, the project would make a good international case, involving French and English courses. In a next phase, the first-year project could be incorporated in the international passport.

Other students pointed out some problematic areas while working on the case. This is shown in the Sophie Decroix's feedback, second-year student in Logistics Management at University College Ghent:

'Some companies do not want to give the information we need, because it is too confidential. They only provide general information. Other companies do not want to spend time on our questions. Some enterprises kept us waiting for an answer. All in all, taking the interview was instructive, as we could have personal contact with the corporate world for the first time. I think it is difficult to assemble the correct information and had to ask colleagues for advice to carry out tasks correctly. The assignments are at this point too broad and more detailed instructions would be helpful. I believe that the project will be more efficient if there are some adjustments in the future.'

Brecht De Groote, second-year student in Logistics Management at University College Ghent, endorses Sophie's feedback:

I regret the fact that this project absorbs much time, in proportion to the result. The report is not presented in public. (Note: Students did send their reports to the businesses they had investigated.) The procurement project is opportune for promoting our organizational skills and we learn to know the corporate world a little bit better.'

A critical analysis of last year's experience with this interdisciplinary business case made clear that some aspects were subject to improvement such as the timing of the interviews and the relevance of the results.

2.6.1. The timing of the interviews. The first time we organized this program component, students could take the interview during week 8. Experience showed that this moment was too late to process their data into professional business reports. Thus we decided to plan the interviews earlier in the term. Now students must take the interview before week 6, which enables them to meet the written professional paper deadline.

2.6.2. The relevance of their results. Students ought to present their report to the company they have investigated. The case in second bachelor meets students' expectations, as they present their report, based on an authentic subject of inquiry, to external companies.

2.6.3. The international passport. In the long run, the program component can be embedded in the international passport. It is possible to involve international businesses, with English or French as official language.

The lecturers' learning process resulted in the above improvements made, based on experience.

3. Interdisciplinary case in the second bachelor Business Studies (Logistics)

In the second year, the degree of complexity is slowly built up. Accreditation and study load expand from 3 to 5 credits. Students now represent University College Ghent in a case they present to an external public, in week 12 of the second term. In the first bachelor year, their presentation of the project was limited to two lecturers, in the second bachelor year they present their investigation to an authentic panel of companies from the field of action. As professional delegates of the University College they take care of public relations.

The lecturers involved give instructions and provide guidance and feedback. Guidance is provided through announcements via the electronic learning environment and through advice and feedback given during staff consultation hours and compulsory consultations [5].

In the academic year 2013-2014, the second bachelor Logistics Management at University College Ghent cooperated with Port of Ghent. Port of Ghent inspired research, starting off with a company visit, firing students' imagination. They gave the second-year students a research program in consultancy; investigating the role of customs in the different businesses in Port of Ghent. Students had to

write an assessing and comparing report on the role of customs, primarily in Port of Ghent, besides other Belgian ports (Antwerp and Zeebrugge). Students were divided into groups of maximum four students and investigated one of these subjects, related to Port of Ghent:

1. Customs;
2. Green Lane, Blue Lane, Blue Belt, AEO (Authorized Economic Operator);
3. Maritime Single Window by way of NCTS (New Computerized Transit System);
4. Phytosanitary certificate;
5. Licenses and deposits.

This investigation had never been done before and made this case absolutely innovative for our students and more complex than the project in the first bachelor.

In the academic year 2013-2014, the case was set up for the first time at the beginning of the first term. Experience from previous years had taught lecturers that starting early is the formula for success. Students are immediately immersed in the case and know how to plan and manage their assignments. Obviously, the work load of this project is not to be underestimated. (To have an idea of our timing, a schedule and template can be obtained by sending an email to the author.)

Another difference from the procurement project in the first bachelor year, is the team work. This will have an impact on organization, communication skills and assessment (peer assessment). In sessions concerned with communication skills, students learn how to send a summons to a meeting, how to assemble and how to take minutes.

Last but not least, they have to vouch for the final result. Together with the lecturers, they must guarantee a qualitative report and professional presentation. Representatives of all teams confer on who will execute which tasks. All students are responsible for the invitations, the text in the newsletter of our University College, the professional presentation for the panel of company representatives, catering during the presentation, renting of the rooms, and so on.

Many steps from the first-year project are repeated at the students' level, so they can work individually or in team, supervised by the lecturer. For some other steps such as taking minutes, assembling, BPM (Business Process Management), additional sessions are organized. Every step in the case becomes more complex, and this again endorses Vygotsky's 'zone of proximal development'.

3.1. Additional competences

Students attain several additional competences in the case during the second bachelor:

- Aptitude for organizing;

- Communication skills (emailing, telephoning, interviewing, reporting, sending a summons to a meeting, assembling, taking minutes, presenting, communicating orally);
- BPM (Business Process Management using appropriate software);
- Working in teams.

Step by step, students are gradually prepared for their internship in the third bachelor year.

3.2. Team work and peer assessment

Students are evaluated on their process and product. The product is the final report in which all preliminary enquiries of all teams are joined together in one template. This report is delivered to Port of Ghent and other companies involved. Students' performance at the end of the second term, is evaluated as well.

Peer assessment encourages students to give each other feedback and to support each other, when there are gaps in the different skills. The team members challenge each other to perform better, than they would have if left on their own.

4. Conclusion

In this paper, we have pointed out the surplus value of projects for first- and second-year students. They acquire many competences, before starting their internship in the third bachelor year. We have offered a conceptual analysis and elaboration upon the procurement project in the first year, and the case in the second year of the professional bachelor Logistics Management. We also demonstrated how students gradually reach their professional competences in practice. Thus students prove to be more successful and business-minded once they enter the work field by means of an internship. Vygotsky's pedagogical zone of proximal development proved to be invaluable in offering us the tools to set up this procurement project and case.

We will continue and extend several projects in different study programs at University College Ghent in future. The procurement project in the first bachelor year and the case in the second bachelor year, open up new perspectives. The link with the international passport is obvious. Involving international businesses in Belgium, with French and/or English as official language, could offer new prospects to our students. Getting students ready for the corporate world, remains one of the most challenging objectives in professional bachelor studies. Accomplishing the procurement project and case, justifiably gives both students and lecturers satisfaction.

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Introduction of Group Projects in an Introductory Statistics Course: Enhancement of Student Learning or Wastage of Time

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Abstract

After reading numerous research articles on teaching elementary statistics, I was fully convinced that group projects increase student learning experience. The primary goal of group project in my second year statistics class was to teach students how to resolve real life problems using statistical analysis. My experience and students' reaction to the group projects are evaluated and discussed in this article. Future plan to overcome some of the challenges will also be reported.

1. Introduction

I do not like the way my students commonly respond to learning statistics. Research identified that many students learn statistical techniques without knowing how these techniques can be applied [1]. So, I have been taking initiatives to make the course more hands on. After teaching applied business statistics designed for second year undergraduate students for a few times, I introduced a group project. Group projects were designed to meet the following goals established for statistics education [2]:

- Learn to apply statistical theory to real data set
- Acquire training in the use of both statistical analysis and word processing software
- Develop communication and problem solving skills by working in collaborative groups
- Improve organizational and writing skills

To make projects authentic [3], I gave students freedom to define a research question, select variables, collect and/ access relevant data, make conclusion after relevant analysis. I was convinced that the group project might shift my teaching at least partially from lecture based to student centered. Because of the size of my classes, it was an ambitious task for me. Carrying out group projects in a huge class did not go without multiple setbacks. This *reflection* will serve as one of the building blocks of my continuous efforts to enhance student learning experience in my statistics classes. In the following sections, I will discuss the way group project was carried out, the difficulties related to the project, future changes that are coming to projects to tackle current challenges.

2. Introduction of Group Project

My initial plan was to find answer(s) to the research question(s), students could use one of the following methods:

- collect data by designing and implementing survey techniques discussed in class
- use secondary data that are available in authentic databases.

Before preparing the project outline, I had to apply for research ethics board's (REB) clearance to allow students to carry out survey to gather data. The board asked for examples of projects that students might be doing. But, at that moment I did not have any example to show because that was the first time I was introducing projects. So, in the project outline I mentioned that students *only* use secondary data for their projects. I dropped the plan of allowing students to gather primary data by survey.

The project outline and rubric were prepared in detail to eliminate as much confusions as possible. I engaged teaching assistants (TAs) in preparing the project outline just to make sure that we did not miss to see future confusions. But, later I realized that we could not totally achieve the goal.

Students were asked to form a group of 3 to 4 within 3 weeks of class. The next task was to come up with a research question. I wanted to give students freedom in selecting project idea (research question). Students also had to figure out what data to access and where to get them. To help them get familiarize with available data sources, the experts from the library were invited to give a talk in class about the available data sources that can be accessed through the library website.

Project outline did not have detail information about what statistical techniques they need to use to analyze data. My goal was to give students options and freedom. My assumption was to find right techniques to analyze data, students might *think* about the techniques. In the project outline, they were asked to use at least three statistical methods in their projects. They also had to figure out how to use Excel to analyze data. Teaching Assistants and I had office hours to help students with project related questions. The actual data analysis is only one step of the entire process. The primary goal of the project is not only analyzing a set of data. The steps that

students follow to finish the project were evaluated in addition to the result of data analysis.

3. Executing Group Project: Gap between My Assumptions and Student Experience

In this section, I am going to focus on some of the setbacks that indicate gaps between my assumptions and student experience. I am also proposing some actions to tackle those issues in coming semesters.

3.1. Too much freedom caused frustrations

After reviewing numerous articles written by expert teachers regarding group projects in introductory statistics classes [4, 5, 6, 7], I believed that by doing projects students learn that statistics is more than just summarizing data. To maximize the benefit of group project, I gave students lots of freedom from beginning to end of the project. Unfortunately, at the very beginning of the semester, students started showing frustrations for not having definite project themes or ideas given in the course outline. Some of the students became clueless just to come up with a topic for the project. This setback made me realize that the future project guideline should contain some steps to help students selecting a topic. For example, a group must meet a teaching staff by the third week of class to discuss about tentative project topic(s). If I allocate a point or two for having this meeting on time, students might be motivated to sit down as a group to come up with ideas before this mandatory scheduled meeting. I will also include weblinks to previous student projects in the project guideline.

3.2. This much work for *what* percentage of grade

I did not want to allocate a huge chunk of grades to group project. I assumed that less grade was equal to less worries! I wanted students to appreciate steps like exploring different ideas, looking for relevant data, etc. without fearing of losing lots of marks. But course evaluation shows that students had complaints about not allocating a big chunk of grade to project. They identified that the assigned grade was not enough to compensate their time and efforts. After discussing this issue with my colleagues, I have decided to increase the marks allocated for future projects.

3.3. Really, an entire project needs to be done just to get familiarize with data analysis software

Ledolter [5] identified that project is a good way to motivate students to know at least one statistical software. But in reality some of my students in the course evaluation mentioned that it was not worth to spend so much time for learning some features of statistical software. Their argument was that this goal could have been achieved with one or two small assignments instead of a project. I am still not very convinced to change anything about the use of data analysis software for project.

3.4. Project as important tool to improve writing

When I started preparing project outline, I thought that project would serve as a writing tool. But in reality most of my teaching assistants just came from foreign countries to start their graduate studies. After open discussion with my TAs, I realized that they were not comfortable to give weight on writing skills. They wanted to give emphasis on how students put quantitative information into a written framework to communicate to an audience. So, I did not give emphasis on checking grammar or writing skills in project rubric. I will do the same in coming years.

4. Conclusion

In this article, I discussed my experience with introduction of projects in introductory statistics course. I found that authors of the research papers written on similar topic felt very good [5, 6, 7] about introducing projects, but my experience was not quite similar. As the semester went on I started regretting my idea of introducing projects in statistics course. My overall teaching evaluation took a hit. Students commented that with projects I made their lives complicated. They also mentioned that previous years' students did not have this much pain in my course because they had midterm instead of project. Next time, to make this effort worthwhile, we need to have mandatory scheduled meetings between groups and teaching staffs throughout the semester as opposed to leave it to the students to schedule meetings as necessary. Meeting with teaching staffs will make students feel that they are not alone in the process.

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Incorporating Entrepreneurship Education into Social Studies

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Abstract

Lack of jobs and rise in poverty are the major forces propelling Nigerians to entrepreneurship education. Recently the Nigerian government created and adopted policies promoting entrepreneurship education. The policy states that the Government will provide affordable quality education for all Nigerians, the Universal Basic Education and mass Adult Literacy programmes will be pursued in earnest. As a core, problem-solving, interdisciplinary and integrated discipline in Nigerian schools Social Studies curriculum offers the basic contents, learning activities/experiences that could form the bases for solving the nation's unemployment and poverty problems. This paper articulates the various indigenous food types in Nigeria, their processing styles and their various processed end products as ways of incorporating entrepreneurship education into Social Studies with the view of empowering the learners with skills that will enable them become self-employed members of the society.

1. Introduction

Food types constitute part of the features of the peoples' cultural pattern in Nigeria. Other features include language, occupation, leadership style, shelter, dressing, greeting, worship (religion), festivals and ceremonies [1]. These are so widely discussed in the Nigerian Social Studies classrooms that some have erroneously formed the opinion that the discipline is all about the study of human culture. Social Studies however goes far beyond the study of culture. The most simple but very concise definition of Social Studies in Nigeria states that it is the study of human being and his interactions with the environment. This definition in a very simplified manner presents a sharp direction to the ultimate focus of Social Studies. Thus, in Social Studies we undertake a wholistic study of the nature of human being. Incidentally a human being is not only a cultural being by nature. There are proven evidences

that a human being is at the same time a political being, social being, religious being, economic being, educational (learning) being, legal (Law-related) being, science and technological being by nature [2].

In Social Studies all the aspects of the nature of human being are studied in relation to their complex web of interactions with every aspect of the environment both the natural (water bodies, atmosphere, land forms, micro-organisms, plants and animal species) [3]; and the human-made environment. The human made environment is basically the product of the human/natural environment interactions which in Social Studies may be broadly categorized into the economic environment, political environment, Social environment, cultural environment education (learning) environment, legal (law related) environment, and science and technological environment.

The concept of 'study' in the definition of Social Studies may be seen as an emphasis on the approach to be adopted in the study of human being, environment and their complex web of interactions. According to [4] who cited the age long Expository method as well as the Problem-solving and activity method as the three basic methods of teaching Social Studies however argues that since both the expository and problem-solving methods in the context of Social Studies are activity-oriented it may be rational to claim that Activity Method is the only teaching method in Social Studies. Real life activities must characterize both the Social Studies classroom with walls and the Social Studies classroom without walls 5 (Aina, 1982; 6 Amadi, Mezieobi and Joof 1994). This paper therefore attempts to articulate the food types in Nigeria and to present a sample of a variety of wealth generating products obtainable from some of them. This will serve as a way of equipping the youths with adequate information and knowledge that would enable them to attach high value to and develop the required interest necessary for turning

back to the Nigerian agricultural products as a veritable wealth creating avenue.

2. Social Studies and Entrepreneurship Education

It is on the Basis of the broad conception of the meaning of Social Studies the scholars who introduced the discipline into the Nigerian school curriculum stipulate that in the final analyses every learner who is exposed to the field of Social Studies should fundamentally:

- become aware as well as have an understanding of the evolving environment as a whole, in its natural and man-made resources, together with the rational use and conservation of the resources for national development.
- develop a capacity to learn and to acquire skills, including not only the basic skills of listening, speaking, reading and writing and of calculating, but also those skills of observation, analysis and inference which are essential to the forming of sound judgment.
- acquire the relevant body of knowledge as an essential prerequisite to personal contribution to the betterment of mankind.
- develop a sympathetic appreciation of the diversity and interdependence of all members of the local and international community.
- develop positive attitude of togetherness, comradeship and cooperation towards a healthy nation, the inculcation of appropriate values of honesty, integrity, hard-work, fairness and justice at work and play as one's contribution to the development of the nation [7].

Social Studies thus sets out to empower the learners not only with functional knowledge, information and right type of attitude and values but also the skills of problem-solving, creativity, critical thinking, sound judgment, self confidence, courage, boldness and construction and manipulation of objects which are the major ingredients for producing self-reliant citizens being emphasized in the newly introduced Entrepreneurship Education Moreover [8] ranks Entrepreneurship Education foremost in their list of ways of ensuring an effective implementation of a transformative Social Studies curriculum in Nigeria. Furthermore as part of the contemporary issues in the field of Social Studies [9] and [10] note that Entrepreneurship Education basically

involves the acquisition of skills, knowledge, values and competences that make the learners well-equipped in the areas of business. This is mainly because the real life skills acquired in the Entrepreneurship Education via the Social Studies curriculum as [11] in [12] assert will prepare learners to develop positive mindset, positive self-efficacy, productive self-reliant and have a sharp focus to earn more for themselves and for society at large.

In 2006, the Presidency directed all Nigerian Higher Education Institutions to include

Entrepreneurship Education (EEd) as a compulsory course for all students. This was to take effect from the 2007/2008 academic session. Entrepreneurship Education in Nigeria aims at inculcating in the learners the ability to:

- Identify and solve problems using critical and creative thinking;
- Work effectively with others as a proactive team member and cultivate the ability to resolve conflict
- Organize and manage one-self and one's activities
- Collect, analyze, organize and critically evaluate information (to make decisions that must be carried through);
- Communicate and negotiate effectively;
- Reflect on experiences and explore various strategies for effective learning learning to learn at all times;
- Become curious leading to readiness to experiment and innovate (being never satisfied with the status quo); and
- Consider self-employment as a viable option upon graduation from their institution [13].

Placing the objectives of Social Studies side-by-side the objectives of Entrepreneurship Education [14] notes that both are interwoven. Currently agitation on making the acquisition of entrepreneurship capabilities the end product of Social Studies is on the increase. [14], [15] and [16] affirm that this is the most effective way of producing functional citizenry. This like never before creates an additional responsibility on the part of both the teacher and learners to make every lesson in Social Studies activity-oriented. Real life practical processes must be brought into virtually every teaching/learning period irrespective of the nature of the topic or content to be learnt.

3. Food Types in Nigeria

The geographical territory known as Nigeria is the outcome of the 1914 amalgamation of the originally existing Northern and Southern Protectorate by the British colonizers. The name

Nigeria was taken from the Niger River running through the country. It is located in West Africa and shares land borders with the Republic of Benin in the west, Chad and Cameroon in the east, and Niger in the north. Its coast in the south lies on the Gulf of Guinea on the Atlantic Ocean. It occupies a total area of 768sqkm. Nigeria has an estimated population of about 175 million by 2013 [17]; 36 states including Abuja the capital territory, 774 Local Government Areas, over 250 ethnic groups and about 400 language groups, six geo-political zones South-East, South-West, South-South, North-West, North-Central and the North-East.[18]. Its pluralistic and heterogenic nature therefore cannot be over-emphasized and food types from the various parts of the country are in much diversity [19]. Table 1 presents the food types grown in Nigeria and their distribution in the different states of the six geo-political zones of the country.

Tables 1a - f: Food Types from Different States in the Six Geo-political Zones in Nigeria

a. South – East

S/N	STATE	FOOD TYPES
1.	Abia	Cassava, Yam, Maize, Plantain, Coco-yam, Melon, Bread Fruit, Mushroom, Garden eggs, Fruits, Palm Fruits, Coconuts, Palm – wine.
2.	Anambra	Bread Fruit, Palm – wine, Maize, Okra, Vegetables, Fruits.
3.	Ebonyi	Yam, Rice, Palm wine, Palm fruits.
4.	Enugu	Yam, Rice, Plantain, Bread fruit, Pepper, Cashew.
5.	Imo	Cassava, Yam, Coconut, Breadfruit, Palm fruit, Three -leaf - yam.

b. South – South

S/N	STATE	FOOD TYPES
1.	Akwa Ibom	Fish, Crayfish, Nails, Periwinkles, Salt, Crab, Cassava, Yam, Potatoes.
2.	Bayelsa	Fish, Crab, Crayfish, Coconut, Plantain, Banana, Snails, Cassava, Yam,

		Potatoes.
3.	Cross River	Fish, Crayfish, Palm Fruits, Maize, Vegetables, Fruits.
4.	Delta	Cassava, Fish, Crayfish, Plantain, Cocoyam, Yam, Banana.
5.	Edo	Snails, Cassava, Yam, Plantain, Banana, Palm fruits.
6.	Rivers	Fish, Crab, Snails, Crayfish, Cassava, Yam, Plantain, Banana.

c. South – West

S/N	STATE	FOOD TYPES
1.	Ekiti	Cassava, Cocoa, Maize, Yam.
2.	Lagos	Fish, Crayfish, Crab, Maize.
3.	Ogun	Rice, Kola-nut , Fish, Cocoa.
4.	Ondo	Fish, Cocoa, Kola- nut, Yam, Cassava.
5.	Osun	Cocoa, Fish, Maize.
6.	Oyo	Fish, Cassava, Corn, Kola-nut, Cocoa

d. North – Central

S/N	STATE	FOOD TYPES
1.	Abuja	Guinea corn, Millet Cassava, Cow, Yam, Melon
2.	Benue	yam,...?
3.	Kogi	Yam, Fish, Maize
4.	Kwara	Cassava, Cocoa, Kola-nut, Fish, Guinea corn
5.	Niger	Beans, Guinea corn, Millet, Groundnuts
6.	Nassarawa	Sweet potatoes, Irish potatoes, Onions, Rice, Beans, Cucumber, Groundnut.
7.	Plateau	Carrot, Cucumber, Beans, Maize, Plateau, Sugar –cane, Potatoes.

e. North – West

S/N	STATE	FOOD TYPES
1.	Jigawa	Beans, Maize, Sugar – cane.
2.	Kaduna	Rice, Guinea corn, Sugar –cane.
3.	Kano	Cow, Beans, Millet, Guinea corn, Groundnut, Sugar –cane.
4.	Katsina	Groundnut, Maize, Sugar –cane.
5.	Kebbi	Beans, Maize, Sugar-cane, Carrot, Tomatoes, Pepper.
6.	Sokoto	Rice, Beans, Guinea corn, Soya bean, Cow, Groundnut.
7.	Zamfara	Beans, Rice, Groundnut, Pepper.



Figure 1 (a). Yam tuber and its processed products

f. North – East

S/N	STATE	FOOD TYPES
1.	Adamawa	Cassava, Corn, Groundnut, Millet, Guinea corn, Rice ‘achi’.
2.	Bauchi	Yam, Maize, Guinea – corn, Tomatoes.
3.	Bornu	Fish, Millet, Guinea – corn.
4.	Gombe	Beans, Groundnut, Soya beans, Pepper, Tomatoes, Maize, Cotton.
5.	Taraba	Cotton, Melon, Millet, Guinea –corn, Maize, Groundnut.
6.	Yobe	Cow, Beans, Rice, Millet, Groundnut, Guinea –corn.



Figure 1 (b). Cassava tuber and its processed products

Agricultural products constitute the peoples food types and these formed the economic base of Nigeria before the discovery of crude oil in 1958. This is symbolized by the green-white-green colours of the Nigerian flag where green stands for agriculture and white purity. As a traditional agrarian society each ethnic group produces a variety of food crops as enabled by the geographical condition of its location

In their natural forms there is hardly any of these crops that cannot be further processed into a variety of other food resources in the modern day Nigeria. Sample of Nigerian food types and their respective processed products are pictorially represented in Figures 1 (a – i).



Figure 1 (c). Coco yam Tuber and its processed product



Figure 1 (d). Bunch of Plantain and its processed products



Figure 1 (e) Maize (Corn) and its processed products



Figure 1 (f). Beans and its processed products

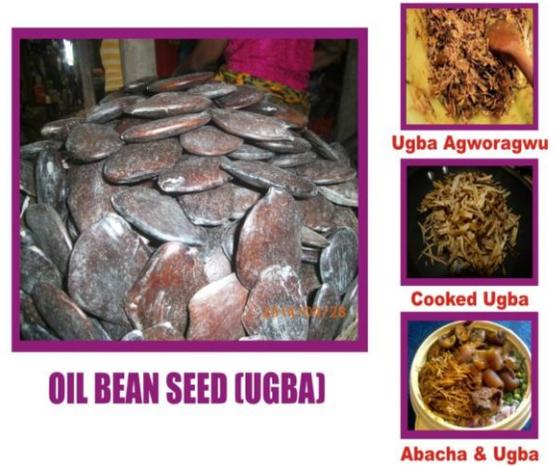


Figure 1 (g). Oil Bean and its processed products



Figure 1(h). Bread Fruit (Ukwa) and its processed products



Figure 1(i). Palm Fruit and its processed products

4. Availability of Resource Materials for the Teaching of Entrepreneurship in Social Studies

The task of an effective incorporation of Entrepreneurship Education into Social Studies calls for a well equipped Social Studies laboratory, resource rooms and libraries with all categories of what [20] refers to as indigenous Communicative Technology (ICT) as well as modern day learning resources. However in spite of the accelerated level of development in information communication technology (ICT) which has its root in the use of the computer and the inherent benefits in instructional delivery, scholars still assert that the social studies classroom is still dominated with the use of conventional method where the teacher plays a domineering role in the teaching-learning processes [21]. [22] and [23] study reveals non-utilization of educational technology resources by Social Studies teachers in Nigeria. In the same vein the study by [24] reveals acute scarcity of computer based instructional packages in Social Studies.

5. Conclusion

If Social Studies as a field of study must realize its stated objectives and contribute meaningfully in the nation's rescue mission on reversing the current economic meltdown its teaching/learning processes must go beyond the current classroom practice of mere making learners to become aware of the numerous food types and their producing areas. Practical efforts should be directed at empowering the youth with creative skills of articulating and harnessing these products as a means of generating and creating wealth for themselves and the Nigerian nation at large.

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Models and Approaches towards the Recognition of Foreign Vocational Qualifications and Competences (MoVA) - Principles, Design and Implementation
(Authors: Christiane Eberhardt, Silvia Annen)

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Models and Approaches towards the Recognition of Foreign Vocational Qualifications and Competences (MoVA) – Principles, Design and Implementation

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Abstract

In Germany the recognition of foreign qualifications and competences is of high political relevance due to the severe problem of a skills shortage. Thus, in April 2012 the “Federal Recognition Act” entered into force in order to improve the assessment and recognition of vocational qualifications achieved abroad. The presented research project MoVA accompanies the implementation of this act by analyzing the strategies, concepts and practices of other countries regarding recognition of vocational competences and qualifications. In this contribution we focus on the present status in Germany and counter it with the approaches implemented in Denmark, Canada and Australia.

1. Introduction

The objective of the MoVA project is to identify strategies and concepts for the recognition of vocational qualifications acquired abroad which are applied in selected European and non-European countries. The aim of focusing attention abroad is to show the significance attached there to the recognition of vocational qualifications with regard to economic, policy and/or societal targets and how relevant models are conceived and institutionally integrated. Alongside this monitoring approach anchored at the level of educational systems, the procedures applied, and thus a consideration of the specific level of implementation, form a further main focus of the project.

2. Methodology

The MoVA Project will be implemented via several research phases.

- In the first project phase, existing regulations in at least four European countries and four non-European countries will be monitored and defined in specific

terms. This will form the basis for the stipulation of four countries, the models of which will be subjected to a more detailed analysis.

- “Detailed case studies” will be drawn up for the four selected countries.

- The case studies will be backed up by interviews with “key persons” from the fields of policymaking, practice and research.

- The interviews will be coded and evaluated. In methodological terms, our approach will be aligned towards the qualitative content analysis in accordance with Mayring 2002 [12].

A further stage will involve the exchange and synchronisation of the codes with other academic researchers involved with the project. The collation of the results will lead to the identification, systematisation and classification of the models and procedures deployed in the countries for the recognition of professional and vocational qualifications acquired abroad and of their methodological conceptual principles, the prevailing institutional conditions and of their de facto use. The final stage will involve relating the approaches identified in exemplary form and reflection with representatives from the areas of policymaking, practice and administration.

3. Assessment and recognition of foreign qualifications in selected countries

The MoVA Project is still in its initial phase. We present our first impressions below.

3.1. The European perspective – recognition of qualifications acquired abroad on the basis of occupational standards

The debate surrounding the recognition of qualifications obtained abroad is nothing new across Europe. Approaches towards bilateral and/or multilateral regulation of such recognition extend all the way back to the 1950’s. A series of European

Directives stretching from the 1960's and culminating in the EU Recognition Directive 2005/36/EC form the "milestones" along the way. This Directive applies to regulated occupations only. An occupation is deemed to be "regulated" if the access to and the exercising of such an occupation is linked with the necessity to provide evidence of a certain qualification via the legal and administrative provisions of the member states. Around 800 categories of regulated occupations currently exist in the member states. Access to these occupations is frequently governed by individual state legal provisions in the countries. In 2011, "Directive 2005/36/EG on the recognition of professional qualifications", the provision that had applied thus far, was updated. The aim is for this to be implemented in national law by 2014. The objectives include facilitating mutual recognition of professional and vocational qualifications in Europe via the use of a voluntary electronic European professional card (EPC) associated to a recognition procedure carried out within the Internal Market Information System [10]. Member states decide autonomously on whether an occupation is regulated or not. The necessity for a formal procedure for the recognition and evaluation of professional and vocational qualifications is to this extent dependent on whether the respective professional or vocational qualification is regulated or not in the target countries (i.e. in the countries in which utilisation of the professional or vocational qualification on the labour market is being sought). Below we present two countries from Europe in which assessment and recognition of professional and vocational qualifications acquired abroad is the object of statutory regulation – Germany and Denmark. The two countries border each other and are close both geographically and in terms of the structuring of their vocational education and training and labour markets.

Germany

The "Law to improve the assessment and recognition of professional and vocational education and training qualifications acquired abroad" (referred to in abbreviated form as the "Recognition Act") has been in force in Germany since 2012. It is aimed at German nationals and residents with qualifications acquired abroad and at foreigners intending to migrate to Germany. The law covers only occupations that are governed by Federal law. These encompass 84 regulated occupations (including the craft trades where a licence and possession of a master craftsman qualification is required in order to operate a company) and 519 non-regulated occupations (i.e. the 330 dual training occupations and 180 advanced training occupations that are governed by the Vocational Training Act and the Crafts and Trades Regulation

Code). For the first time, the Recognition Act provides skilled workers in non-regulated occupations who do not require formal recognition with an opportunity to have their qualification assessed and thereby improve their chances on the labour market [2: 6]. "Recognition" in terms of the Act is understood as the assessment of the foreign qualification towards the German reference occupation. Assessment takes place at competent authorities such as the Foreign Skills Approval Competence Centre of the Chambers of Industry and Commerce (IHK FOSA) and the regional chambers of crafts and trades. The "equivalence check" takes place on the basis of stipulated formal criteria such as content and duration of training. The procedure itself is subject to a charge from €100 to €600 depending on the amount of time and expense incurred. If the required evidence cannot be submitted, it is possible for a skills analysis to be carried out for the purpose of ascertaining occupational competences (e.g. via a specialist oral examination or work sample). In such cases, an applicant may incur further costs. In case there are substantial differences between the foreign and the German reference qualification, "partial equivalence" will be confirmed. Such an assessment notice lists existing qualifications and the significant differences between the foreign and German qualifications. This means that applicants may be able to compensate for any deficits by undertaking continuing training and then be in a position to apply for full equivalence.

Although the implementation of the law is judged to be successful, the Report on the Recognition Act, which supports enforcement and was adopted by the Federal Cabinet on 2 April 2014, describes areas in which further action is required. Aspects referred to include the following.

- The development of uniform standards for equivalence assessment, basic criteria for the exercising of the occupation, uniform regulation of requirements regarding language knowledge and consideration of occupational experience.
- The standardisation of administrative structures at the competent bodies and in the federal states in order to guarantee efficient implementation of the law.
- The expansion of existing information provision.
- The stipulation of a standard scale of fees for the carrying out of the procedures which does not deter those interested in seeking recognition whilst also not jeopardising the "highly demanding and quality-assured recognition procedure" [2: 16].

Denmark

The assessment of foreign qualifications has been on the Danish agenda since 2001. In order to integrate skilled workers at the medium and higher

qualifications level into the Danish labour market, procedures that make it possible to evaluate foreign professional and vocational qualifications have been developed. The legal basis is formed by two laws.

Since 2010, the recognition of qualifications which fall into the category of regulated occupations in Denmark has been covered by the “Act on the Right to Exercise Certain Professions in Denmark” (Consolidated Act No.189). Procedures for the evaluation of non-regulated occupations have been in existence since 2001 and are governed by the “Assessment of Foreign Qualifications etc. Act” of 2007 and the associated decree from 2003 “Assessment of Foreign Qualifications etc. Order”.

All persons who have acquired an education or training qualification abroad may claim the right to an assessment. Furthermore, the right to obtain an assessment lies with any employer who requires assessment in order to decide whether or not to hire somebody with foreign qualifications, any authority that requires an assessment for its administrative procedures, any educational institution and unemployment insurance fund considering an application for admission from a holder of a foreign qualification (Part 2.2.2, LBK). The assessment is free of charge normally takes between 1 and 2 months.

The “Danish Agency for Universities and Internationalisation” is the central institution commissioned with the task of conducting recognition procedures. The assessment issued by the Agency declares whether a qualification acquired abroad corresponds with a Danish qualification. If this is not the case, supplementary measures necessary for the achievement of full occupational equivalence are stated.

Interestingly, the law for the assessment of foreign qualifications is also targeted at connections and transitions within the Danish educational system rather than merely focusing on improved labour market access. The result of an assessment may be that the qualification completed is categorised with regard to access to further education and training programmes [11: 6]. The Danish Assessment Law thus also focuses on the expansion of the employment and training prospects of applicants. Unlike in Germany, the main emphasis is on the “fundamental comparability” of qualifications rather than on the assessment of equivalence – i.e. assessment is issued on the basis of a comparison of learning outcomes. According to the view of a representative of the Danish Agency for International Education, this focusing on learning outcomes makes it easier to assess qualifications acquired abroad (“even though there may be many differences in content in the education and training courses”) [14]) whilst admitting that there are various pathways towards achieving the same learning

outcomes. In Denmark, there is robust application of the principle that an education or training qualification that has been assessed results in the same entitlements as a qualification obtained in the country itself. For this reason, assessment leads to both de-facto and de-jure recognition and opens up access to higher education, further training and unemployment insurance [14]. The assessment of foreign professional and vocational qualifications is also used as a means of active recruitment policy for nationals of third states as well as being offered as part of special programmes [9].

Nevertheless, action is also required in Denmark. As in Germany, verification of the authenticity of certificates has proved to be time consuming [8: 43]. With regard to duration of processing, it has been identified that in Denmark, where training-related final qualifications (“learning outcomes”) are assessed, an average of two applications can be handled per day. In comparison to this, the German equivalence assessment is much more time consuming. Nevertheless, representatives of the Danish Ministry of Education believe that the country and occupational profiles developed for the recognition process in Germany (see www.bq-portal.de) are instruments that will facilitate acceleration of the procedures in the medium term. There is an absence of such internal tools in Denmark.

3.2 The perspective beyond Europe – recognition of foreign qualifications on the basis of existing labour market requirements

In Australia and Canada, the recognition of occupational competences acquired abroad is aligned towards the needs of the labour market and is the expression of an active migration policy. The examples of both countries show that elements like a points-based system, regional migration programmes and a certain adjustment towards the endemic occupational skills shortages especially via shortage occupation lists are quite common elements of the national approaches. Still the institutional structures, the involved stakeholders and their roles as well as the concrete methods used differ. One clear difference at the specific implementation level is the fact that Australia has a National Qualifications framework that is used as a standardised reference value for recognition. No uniform standard of this kind is currently in place in Canada.

Canada

Migration in Canada has been steered by a points-based system since 1967. On this basis, migrants are chosen depending on their education, work experience and language competences. [4: 1]. In 2008, the Government imposed a general restriction on this

points model. Since this time, applicants have been required to be a qualified skilled worker in one of the 29 shortage occupations, be in possession of a job offer in Canada or intend to complete a programme of doctoral studies in Canada. The introduction of this restriction to admission shows the importance of labour market requirements for access and the usability of foreign qualifications and competences by the immigrants. Assessment criteria were added to the points system in categories such as age and adaptability accordingly. Alongside this approach located at a national level, the so-called „Provincial/Territorial Nominee Programs“, which are aligned towards regional labour market requirements [1: 18] are becoming increasingly significant.

Within the area of regulated professions, the recognition is mainly carried out provincially post-immigration by the regulatory bodies. Regarding unregulated occupations the employers are mainly responsible for the recognition post-immigration [13: 31]. The vast majority of occupational activities in Canada falls within the area of non-regulated occupations, which are also the focus of the MoVA Project. Non-regulated occupations do not require any licensing from a regulatory authority. Skilled workers, employers and other organisations can seek the assistance of the „Canadian Information Centre for International Credentials“ which provides support for the recognition and assessment of certificates and qualifications. Credential assessments prove whether the foreign credentials are equivalent to the Canadian standards, determine whether the applicant needs more training, education or Canadian work experience, helps him to understand the types of jobs for which he might be qualified and makes the foreign qualifications more understandable for potential employers. Credential assessment organizations, especially the five provincially mandated assessment organizations, adhere to the so called General Guiding Principles for Good Practices in the Assessment of Foreign Credentials and the Recommendation on Criteria and Procedures for the Assessment of Foreign Qualifications [5: 241].

In Canada, it is noticeable that many levels of government and organisations with various roles and responsibilities are involved in the recognition process – 13 jurisdictions, 55 ministries, more than 50 regulated occupations, more than 400 regulatory bodies, 5 assessment agencies, more than 240 post-secondary institutions, and a large community of immigrant service agencies, as well as numerous employers [TASC, 2010 quoted after 5: 232]. There is, however, clearly a need to standardise the recognition process. This requirement has found its expression in the “Pan-Canadian Framework for the Assessment and Recognition of Foreign Qualifications”, which has

been agreed between the Federal and Provincial governments and the governments of the territories. Alongside this framework the so-called “commitment to foreign credential recognition” and the “Foreign Credentials Recognition Program” also act as essential elements for the recognition of foreign qualifications and competences.

Australia

The political background for the recognition of foreign qualifications in Australia is to meet long-term workforce demand through expanded domestic training, medium-term demand through the General Skilled Migration programme, and short-term demand through employer- or state-sponsored temporary migration [Government of Australia, 2008; Rudd et al., 2007 in 6: 204]. Three main pillars have formed within the area of permanent migration since 1988 – the “skill stream”, the “family stream” and the “Humanitarian Program”. Increasing focusing on economic policy aspects caused the skill stream to grow from about 20 percent in the mid-1980’s to 68 percent in 2012, whilst the proportion taken up by the family stream declined accordingly [7: 1]. Skill stream and family stream together form the Migration Program. Every year in May, precise target figures are published for all three streams [7: 1 and 4]. The skilled worker requirement is expressed in the so-called Skilled Occupation List (SOL), which is drawn up on an annual basis by the Australian Workforce and Productivity Agency in consultation with the federal states and territories and the social partners. The SOL is the key specification both for employer-sponsored and workplace-independent migration within the scope of General Skills Migration. Potential labour migrants receive points for school and vocational qualifications, occupational experience, age, knowledge of English and further skills of relevance to the labour market. Every year, a minimum number of points which applicants need to achieve is stipulated [3: 2]. Due to the large number of applications, the skill stream procedure was altered on 1 July 2012. Within the framework of the new process, which is called “SkillSelect”, foreign skilled workers now only have the opportunity to indicate their interest in a place in the skill stream. They are not permitted to submit an application until called upon to do so by the Department of Immigration. For this reason, the various shortage occupation lists for the skill stream have been collated into one list, the so-called Consolidated Sponsored Occupation List (CSOL) [7: 6]. Alongside consideration of the companies, since 2011 a certain number of places within the Migration Program have been allocated to the federal states and territories, which are able to undertake sponsoring

within the scope of their own State Migration Plans and on the basis of their own lists of shortage occupations [7: 5].

The central characteristic of limited migration is the strict limitation to workers who are in particular demand on the basis of so-called 457 visas, which are awarded to “fast-track workers” on the basis of the SOL [6: 202]. For this employer-driven migration category there is no cap and it allows work rights of up to four years [6: 204].

There are a total of 450 assessment authorities in Australia. The National Office for Overseas Skills Recognition (NOOSR) is of particular significance for occupations that require formal recognition in accordance with the levels of the Australian Qualifications Framework (AQF). The NOOSR compares foreign education and training certificates and occupational experiences with the domestic training standards of the AQF either on a paper or a competency base (depending on jurisdictional requirements) [6: 213].

4. Results and conclusion

In all four countries, the recognition of qualifications acquired abroad is originally linked with a shortage of skilled workers. Against this background, recognition and assessment serve the purpose of formalising within the host country the occupational skills and competences that someone has acquired in another country and which can be demonstrated by qualifications and certificates with reference to the host country’s existing occupational standards or to the labour markets. The pathways and underlying principles via which this takes place differ.

In Europe, the aims of the recognition of professional and vocational qualifications are to secure freedom of movement of labour, support the creation of the European common market, drive forwards skills competition and dynamise the European labour market in overall terms [15]. Regulated occupations are subject to a European Directive that is implemented into national law and is thus recognised *de jure* in all EU member states. In addition to this, Denmark and Germany have laws in place that give the holders of qualifications that are non-regulated in the respective countries the right to recognition or assessment. The laws perform a double function. On the one hand, they exert an external effect by appealing to persons intending to migrate (recruitment function). To the same extent, however, they also target people who already live in the countries and who have not as yet been adequately able to exploit their qualifications on the respective labour markets (integration function). The formalisation of how this recognition takes place differs in Denmark and Germany.

The principles can be contoured by the question, whether the approaches/regulations are directed towards the verification of a full equivalence to the reference qualification/occupation or whether a more “basic comparability” shall be confirmed. However: having the foreign qualification assessed against the reference qualification can deliver some benefits for the applicant; i.a. the foreign qualification becomes “readable” and understandable for the employers by comparing it to the German and/or Danish qualification. First and foremost the notice of “basic comparability” or equivalence confers the same legal rights as a German or Danish qualification – which is of great importance on labour markets that are structured by occupations and characterized by collective bargaining agreements. In Canada and Australia, the recognition of professional and vocational qualifications is an essential criterion for the receipt of a work and residence permit. Commonalities are displayed with regard to the following aspects.

- The clear alignment of migration policy to the requirements of the labour market (“recognition as a steering element”)
- The expansion of temporary migration at the expense of permanent migration
- The use of similar instruments to control migration (points systems, lists of shortage occupations, bridging programmes)
- The diversity of the stakeholders integrated into the recognition process
- The central role of the employers for recognition in the area of non-regulated occupations – supported by national assessment institutions in each case
- The use of credential/paper-based as well as competence-based assessment methods

To this extent, the recognition of foreign professional and vocational qualifications is the instrument of an “active immigration policy with an integrated selection mechanism”. The relevant prevailing skilled worker requirements are decisive for recognition rather than primarily the qualification.

From the perspective of the MoVA Project, the country examples listed reinforce two of the assumptions guiding our research.

(1) In terms of supporting the implementation of the German Recognition Act, particular relevance is attached to countries which have a national recognition law and/or in the past have recruited high levels of skilled workers from third countries. The supposition is that these countries intend to go much further than Germany in applying “low-threshold” competence assessment procedures (i.e. procedures located below the regulatory policy level) which are also aligned towards the identification of informal competences.

(2) The political will for more professional and vocational recognition of qualified nationals, residents

and immigrants conflicts with protection of the occupational structure and the quality standards associated with this (Germany/Denmark). For countries which have a different idea of “occupations” or “qualifications”, recognition models are predominantly based on criteria exploitable on the labour market and/or inclusive criteria (Canada/Australia).

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Sexual Education for Reducing the Prevalence of Teenage Pregnancy among In-School Adolescents in Nigeria

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Abstract

This study investigated the issues relating to the teaching of sexual education in Nigerian schools and how it could be used to curtail the prevalence of teenage pregnancy among in-school adolescent students in Nigeria. The study also studied the influence of sexual education in the enhancement of healthy sexual behaviours among the students. Three hundred students and sixty teachers were drawn from ten (10) schools in urban and rural areas of Ondo state, using a self constructed rating scale to collect data from them. The data were collated and analysed using t-test and percentage statistical analysis to test the two hypotheses generated for the study. The results of the findings revealed that there was significant influence of sex education on secondary school students sexual behaviours and that a significant majority of the students are curious to get information about their sexual life. A significant majority of students in the urban setting have higher level of awareness on sexual activities than their rural counterparts. Majority of the students agreed that sex education will assist them to develop a wholesome sexual behaviour. Based on the findings, it was recommended that concentrated efforts should be made by the government, parents, school administration and religious groups to provide information and services to help the adolescents to understand their sexuality and protect themselves from unwanted pregnancies, sexually transmitted diseases and subsequent risk of infertility.

1. Introduction

Sex education is a global issue which now attracts the attention of parents, teachers, the general populace in the contemporary society and, especially in the developing countries. In Nigeria, the incidence of teenage pregnancy, unwanted pregnancies, abortion and incidence of sexually related diseases

such as sexually transmitted diseases, sexually transmitted infections and cases of HIV and AIDS among the young ones have been on the increase in the recent times.

In Nigeria, and other African cultures the subject of sex is considered sacred and not intended to be loosely discussed especially by the young ones. In most homes, when a child carelessly talked about sex, the parents could reprimand the child for talking about a subject considered sacred. Unfortunately the lack of information on the subject has made many of the young ones to be unprotected in their sexual exploration which has endangered the life and future of many adolescents.

The period of adolescence is a unique stage in the life of every person. Adegoke describes the stage as a stage when a lot of physiological as well as anatomical changes take place resulting in reproductive maturity in adolescents [2]. Kirby observes that many adolescents manage the transformation in adolescence successful while others experience major stress and find themselves engaging in negative sexual behaviours such as sexual experimentation, exploration and promiscuity that place them at risk [6].

Kirby opined that the phenomenon of teenage girls getting pregnant is a contemporary social issue in some nations especially in Nigeria where it has now become a common occurrence [7]. A number of reasons may be adduced for incidence of teenage pregnancy. Okafor and Nnoli identify lack of affectionate supervision of parents and guardians as a factor in adolescence or teenage pregnancy. They also observed that about 13 million children are born from teenage girls living in underdeveloped countries and that USA also top the list in pregnancy and teenage abortion across the world [9].

A number of factors were identified as the cause of teenage pregnancy and lack of sex education tops the list presented by Okafor and Nnoli [9]. With this astonishing revelation, it is expected that the young ones should be given enlightenments on sexual

matters and parents should provide sex education for their children right from home. It is believed that with information on sex education, the adolescents would be better prepared against unguarded sexual exploration and its consequential hazards.

Eseré alerts that the consequence of lack of information on sex related issues and questions make Nigerian adolescents boys and girls to find answers to sex related questions on their own, and often they receive answers from questionable sources that are likely to give them wrong information and make them indulge in reckless and unguarded sexual experimentation [5]. Abogunrin states that lack of adequate communication and assertive skills to negotiate safer sex among adolescents make many of them unable to refuse unwanted sex or feel compelled to exchange sex for money [1]. Many young people also experiment sexual activities, many fall victim of physical consequences such as premature loss of virginity, unwanted pregnancy, illegitimate child, forced marriage, abortion and sexually transmitted diseases. Beyond the tragic physical effects, some devastating psychological and relational problems that follow premarital sex include emotional distress, self hatred, sexual addiction and spiritual bondage result.

Adepoju is of the opinion that sexuality education acquaint the youth with factual and accurate sexual information about the dimension of sexual knowledge that will enable them understand and clarify their personal values and improve their knowledge which will in turn assist them in sexual decision making [4]. Obiekea, Ovri and Chulwuma are also of strong believe that sexual education enables the adolescents to be well guarded and better able to face challenges related to sex and sexuality [8].

Against this background, there is the need to mount sex education programmes geared, towards enlightenment and appropriate education about sex and sexuality which now form the main thrust of this study. The study was therefore carried out to examine the importance of sex education and the effect of sexual education with the view of pointing out the effect it could have on the sexual behaviour of adolescent students in Secondary Schools in the study area.

2. Purpose of the Study

The objectives of the study are to:

- i. Determine the extent to which sexual education can influence the sexual behaviour of in school adolescents and

- ii. Examine the level/extent to which teachers and students embrace the inclusion of sex education in the school curriculum.

3. Hypotheses

In order to achieve the stated objectives, the following hypotheses were carried out.

1. There is no significant influence of sex education on secondary school students' sexual behaviour?
2. There is no significant difference in the attitude of rural and urban adolescents to sexual activities.

4. Research Methodology

The study adopted a descriptive survey. The researcher adopted a simple random sampling to select 300 students and 60 teachers, male and female from secondary schools in Ondo State, Nigeria. Two structured questionnaire types for teachers and students, titled Problems and Prospects of Teaching Sex Education (PPTSE) in secondary schools, designed by the researcher was used to elicit information on the need for sexual education and effect on sexual behaviour of students. The responses were scored ranging from Strongly Agree = 4, Agree = 3, Disagree = 2 and Strongly Agree = 1. The instrument was administered to the students by the researcher after she has encouraged them to complete the instrument individually. The validity was ensured using expert's judgement and the reliability was also ascertained using split-half method to analyse the data collected. Pearson product moment correlation method was used to analyse and the coefficient obtained was 0.87, which was deemed high enough to be used for the study.

The data collected was analysed using mean, standard deviation and t-test.

5. Results

Two hypotheses were tested using t-test as indicated on the tables below:

Hypothesis 1: Is there any significant influence of sex education on secondary school students' sexual behaviour?

Table 1: t-test analysis on the influence of sex education on adolescents' sexual behaviour

Variables	N	X	SD	DF	T-Cal	T-table	Decision
Support for sex education	188	58.2	5.15	298	7.68	1.96	Reject
Curiosity to get information on sexual life	112	52.7	6.45				

Table 1 shows that the calculated t-value (7.68) was greater than the t-table value (1.96) at 0.05 level of significance. This indicates that there was significant influence of sex education on secondary school students' sexual behaviour. The findings revealed that majority of the students are curious to get information about their sexual life and that sex education should be taught in secondary schools. The null hypothesis was therefore rejected.

Hypothesis 2: There is no significant difference in the attitude of urban and rural adolescents to sexual activities.

Table 2: t-test comparison of urban and rural teenagers' attitude to sexual activities

Variables	N	X	SD	D.F	T-Calculated	T-table	Decision
Urban	160	40.73	5.57	298	0.926	0.355	Reject
Rural	140	40.48	5.40	-	-	-	-

From table 2, it could be seen that the calculated t-value (0.926) was greater than the t-table value (0.355) at 0.05 level of significance. This indicates that there was greater awareness of sexual activities among teenagers in urban areas as against those in rural setting. The differences in the attitude of urban and rural teenagers towards sexual activities could have been environmental factors. The null hypothesis was therefore rejected as there was significant influence of setting on sexual activities.

Table 3: Teachers' response to teaching of sex education in secondary schools

Items	Agree	%	Disagree	%
Early sexual activities have negative effect on young people.	60	100.0	0	0.0
Early sexual activity	60	100.0	0	0.0

causes secondary infertility and development of cervical abnormalities in adolescents.				
Secondary school teachers cannot handle sex education class effectively.	0	0.00	60	100.0
Sex education in secondary schools will enhance sexual harassment, rape, teenage pregnancy, promiscuity and sexually transmitted diseases.	0	0.00	60	100.0
Adolescents are curious to get information about their sexual life.	60	100.0	0	0.0
Sexual education will prevent young people from being victim of sexual harassment, rape, promiscuity teenage pregnancy and sexually transmitted diseases.	60	100.0	0	0.0
Sex education in secondary schools will reduce rate of abortion mortality.	60	100.0	0	0.0
Sex education class should be organised for both male and female students.	60	100.0	0	0.0
Sex education will reduce divorce rate, poverty and unwanted children.	60	100.0	0	0.0

As indicated in table 3, 60(100%) of the teachers agreed that early sexual activities have negative effect on young people. 60(100%) agreed that sex education should be taught in secondary schools. 60(100%) of the teachers disagreed with the fact that secondary school teachers cannot handle sex education class effectively. While 60(100%) of them also agreed that sex education class should be organised for both male and female students. 60(100%) agreed that teaching of sex education in secondary schools will reduce the rate of abortion mortality, divorce rate, poverty and unwanted children in the society.

6. Discussion of Findings

The results of the findings revealed that there was significant influence of sex education on secondary school students behaviours and that a significant majority of the students are curious to get information about their sexual life. A significant majority of the students agreed that early sexual activities have negative effect on young people. Oke also corroborated the fact that sex education is necessary to prepare the young ones for the task ahead. According to him, some kind of planned sex education is necessary [10].

These findings also revealed that there was significant influence of learning on sex education at an early age as to when teenagers become involved in sexual activities. A significant majority of students disagreed with the fact that teaching about sex education in secondary schools will enhance sexual harassment, rape, teenage pregnancy and promiscuity among secondary school students. International evidence suggests that certain aspect of sex and relationship education taught before puberty has a positive effect on issues such as teenage pregnancy [12].

The findings also revealed that a significant majority of the students agreed that sex education class should be organised for both male and female students without any discrepancy. Based on these findings, it is clearly stated through the analysis, that the consequences of early sexual activities on adolescents causes secondary infertility and development of cervical abnormalities in adolescents and that lack of sex education knowledge caused many adolescents to be sexually harassed, indulge in rape activity, being promiscuous, victim of unwanted pregnancy and sexually transmitted diseases which place their well-being at risk of HIV/AIDS that leads to physical and emotional damage. Adolescents display sexual behaviours and developmental characteristics that place them at risk for Sexually Transmitted Diseases (STDs), risk of HIV/AIDS and other problems resulting from unprotected and indiscriminate sexual activities. By the time they are 18 years old, most adolescents in Nigeria are sexually active (Kirby) [6].

A study on early sexual intercourse shows that childhood sexual intercourse is associated with several potentially serious indicators of distress and health-compromising behaviours among the young, such as lower academic performance, gang involvement, unprotected and more frequent sexual intercourse, pregnancy, emotional distress, and suicidal involvement (Resnick and Blum) [11]. The findings also affirmed that majority of the

respondents agreed that sex education should be taught in secondary schools and that their parents, religious groups, traditions and cultures of their community would allow them to attend sex education class. Child abuse is a problem among teenage parents because they tend to lack adequate parenting skills and are under the additional stress caused by poverty and lack of a job or a low-paying job [3].

7. Conclusion

The findings of the study have led the researcher to conclude that sex education is a must to fortify the adolescents with adequate information on sex and sexuality. This is more urgent because young ones are daily bombarded by information on sex and sexuality from various avenues and it is evident that formal teaching on sex and sexuality will simply assist to enlighten them to acquire wholesome attitude and bring about social adjustment needed to fortify them against wrong attitude.

8. Recommendations

In order to effectively cater for adolescents' need of sex education, the following recommendations are considered beneficial:

- Sex education should be incorporated into the school curriculum at the secondary level to keep the adolescents informed on sex related issues.
- Counselling should be organised in all secondary schools to provide necessary information on sex and sexuality.
- Parents and guardians should monitor the activities of the teenagers, they should also provide guidance on sex and sexuality
- Religious groups should also endeavour to give information on sex to the young ones. If they are well informed, there is the likelihood that incidence of unhealthy sexual exploration and teenage pregnancy would be reduced.

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Teaching the Diversity of Islam in World History

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Abstract

Islam is often treated as a monolith in History that is usually associated with Byzantium, The Iberian Peninsula, or as a reaction to The West. Rarely, do we see it treated as a topic on its own as most texts and lessons will show it as reaction. Often it is covered as just some type of military experience that pops up in Spain, the Mediterranean, or India. A fuller coverage in World History showing the diversity of Islam as that seen via the Mughal India or the influence of Sufism can help us develop a stronger narrative that is also cognizant of the voice of the historical "other" in World History. I will address the following issues:

- A. *Non-Arab interpretations of Islam (Sufism)*
- B. *The Empires of South Asia (The Mughals)*
- C. *The Merits of Islam as significant section of the human experience in giving voice to the historical other.*

1. Introduction

Islam is often treated as a monolith in World History that was commonly associated with Byzantium, The Iberian Peninsula, or spoken as a reaction to The West. Rarely, in the coverage of Islam did we see it treated as a topic on its own as most texts and lessons will show it as a reaction. Often it was covered simply as a type of military experience that burst out in Spain, the Mediterranean, or India. A fuller coverage in World History showing the diversity of Islam as

that seen via the Mughal India or the influence of Sufism can help us develop a stronger narrative that is also cognizant of the voice of the historical "other" in World History.

I will address these issues by offering potential themes that could be covered while teaching Islam including:

- A. Non-Arab interpretations of Islam such as Sufism
- B. The Empires of South Asia such as The Mughals as a counterweight
- C. The Merits of Islam as significant section of the human experience in giving voice to the historical other.

These themes can be used to develop an innovative approach to teaching Islam and its role in World History. As instructors we often have very difficult schedules and departmental requirements that factor into what we can or cannot teach in any given semester. However, time issues and requirements do not mean we can-not provide our students with an innovative interpretation of the people that we study in history. The way we design a course and our execution of lessons can provide our students with a first class education. This can be global in its scope and answer vital questions of "agency" when speaking of the historical "other" which helps our students understand the importance of the narratives of societies and people throughout history as "Global Citizens." I have provided a short glossary guide that will help in making sense of the different types of schools, philosophies, and social systems one would encounter in the study of Islam in World History.

Table 1. Glossary/guide

Comparison of Different Schools of Thought				
Name	Geography	Practice	Empire	Notes
<i>Sunni Hanafi</i>	Indian Sub-Continent, SW. Asia, SE. Asia, W. Africa, E. Africa, Turkey, Caucas, Syria, Iraq, & Sub-Saharan (African Transition Zone).	The Oldest School. The Most Liberal School. Majority of Sunnis.	Ottomans Abbasids Mughals Delhi Sultanate	Founded by 9th Century Persian Scholar Abu Hanifa who was a student of Jafar As-Sadiq a famous Shia

				Scholar.
Shias	Modern Iran, Iraq, Afghanistan, and Azerbaijan.	The First of the Orthodox Branches. (before Hannafi-Sunnis) -The 12 Imams (Hereditary/Ali) Majority. -Belief in the Ayatollah. (Pope like figure)	Safavids	The region was once Sunni-Hannafi before the Safavids.
Wahhabi/Salafis	Saudi Arabia and Gulf Region.	Strict militant interpretation of Islam. In a struggle with the West. (Ideologically not of the Orthodoxy)	Ibn Saud Ibn Wahabb	Actively engaged in a struggle against the West. Open Madrasas throughout developing world to re-interpret Islam. Intolerance towards Shias, Moderate Sunnis, and Sufis.
Sufism	Throughout, Asia, Africa (E/W and Sub-Saharan), Middle East, and Caucasus Region	Very liberal Interpretation of Islam emphasizing the love of the Prophet Muhammad. A belief of a universal brotherhood of all people.	Ottomans Mughals	Sufis can be both Shia and Sunni. Sufi Saints coming along with traders in East Africa and India for example spread the religion beyond the Hejaz. Absorbs the culture and traditions of the locals fusing it with the Monotheism of Islam.

2. Non-Arab Interpretations: Sufism

Sufism is a dynamic interpretation of Islam that would be more of a universal understanding of Islam that emphasized the ideas which originated in the idea of the ultimate love of The Prophet. This universal love symbolized our common humanity and rejected the vanities of the materialistic world. Sufism stressed the importance of a concept of Sadaq-e-Rasul that came from many famous Sunni Hanafis who included the major Sufi Poets such as Rumi, Saadi, and Qayyam. Sadaq-e-Rasul was a concept that emphasized Sadaqa or charity in Arabic and one of the five major pillars of Islam that the Prophet espoused because of his background as an orphan Mecca [10]. They emphasized the importance of the human experience versus the orthodoxy of the Shias and Sunnis.

This more liberal interpretation of Islam was vital in our understanding of Islam because Sufism

was a major vehicle for cultural exchange and the spread of Islam. There were no armies or horses coming into the Indo-Malay region. However, Islam did spread very rapidly into the Indo-Malay region covering from India, Malaysia, and significant portions of South Asia, as well as through the Middle East, the East African and West African Region also experienced the rapid spread. The role of major Sufi poets, saints, and writers who brought a less theologically inclined understanding of Islam has been missed in the traditional World History class coverage. The works of people such Khwaja Moinuddin Chisti in India, Rumi's Poetry, Saadi's Gulistan (The Rose Garden), or Qayyam's epic Rubbairyat (The Vineyard), and the travels of the young Moroccan world traveler Ibn Battuta can give incredible insights into the human experience of Islamic societies. Islam was not a monolith, not every-one was Arabic and the Sufis carried the difficult task of having brought Islam into regions like South Asia where Hindu/Buddhist practices had become

common, or West Africa where animist traditions had been practiced from even before Judaism.

Sufism would be the vehicle through which Islam would spread its message but, in contrast to the stereo-type of the Arab Bedouin rising out the desert with his sword. Rather teaching the importance of Sufism by ascetics who brought a passionate interpretation of Islam that emphasized social justice, human rights, and absorbed the practices and traditions of the communities they preached in we could develop a fuller narrative to understand the diversity of Islam [10]. This contribution is essential in explaining the diversity of Islam and counter stereo-typical interpretations of it being spread by the sword by foreign Bedouin invaders. The Islamic experiences in the Indo-Malaya and African regions were uniquely influenced more by contributions of Sufis saints and poets than Arab Bedouins.

Why is it important to include Sufism in explaining the diversity of Islam when teaching Islam in World History? It is vital to explain the diversity of Islam, because Sufism enables us to critically delve into many of cultural and social dynamics of Islam. According to Renard, "Sufism, emphasizing a direct relationship with God was very effective in regions of the world where people did not speak Arabic as their native such as India, Indonesia, and Swahili/East African Coast thanks to the work of Sufi Saints" [10]. The majority of the world's Muslims were Sunni Hanafis who were the most liberal of the schools of Sunni thought and many of the Sufis belonged to the this school of thought which was tolerant to the interpretation of Islam which was tolerant of other cultures. It was, this softer interpretation of Islam that had the unique ability in places in India to absorb traditions from when the native populations or Hindus or Buddhist via Sufism.

3. Empires of South Asia: The Mughals

The Mughal Empire in South Asia was an empire represented some important developments in Islamic History because the Indian Sub-continent practiced Sunni-Hanafism which was the oldest and most liberal school of Sunni Islam. However, they were separated from their Sunni brethren in The Ottoman Empire by the Safavid Empire in Persia who were Ismaili Shia. The Mughals had a tenuous relationship with the Safavids as the Kabul side of Afghanistan was Sunni and Herat remained Shia, this was a buffer for Sunnis to contain the spread of Shia Islam.

Ironically the version of Islam practiced in Mughal India was Sunni Hanafism, the language Farsi (Persia), and Kanun/law (secular) represented a break from the traditional Islamic empire[9]. While Arabic was venerated for the Quran and the language of the Prophet the majority of the Muslim

population had a uniquely Asian flavor. For example, the marriage of Akbar the Great to Jodh Bhai who was the Queen of the Hindu Rajputs would never be possible in The Umayyad Empire. Beyond being blasphemous this marriage would not be allowed by strict Islamic law interpretations in the Umayyad Administration just to highlight so key philosophical differences of Mughal India as well as the rejection of Jizya tax for non-Muslims [9].

Furthermore, the Mughals' Siraj ud-Daula was nineteen at the Battle of Plassey fighting the British represented a critical juncture in World History where there was a major shift in global power. The fall of the Mughals, now European colonialism would arrest the spread of Islamic power in South Asia. Moreover, it represented the checking of the initial spread and dominance of Islam in the region which was increasingly secular and non-Arab. As instructors of World History we can benefit greatly by teaching this episode because it allowed us to explain the diversity of Islam and why it should be afforded a space in teaching World History to our students.

4. Merits of Islam: The Historical "Other"

Finally we teach a student population that is more diverse and dynamic today than years past. The students we have today are "Global Citizens" who are impacted by events such as the recently United Nations vote to give Palestine observer status at the United Nations seated next to The Vatican. Our students live in a world that is shrinking and the interactions between societies have come into closer focus.

We need to develop a fuller dialogue that brings into the classroom the need to give voice to the Historical "other" and give "agency" to those who had been previously left out in history. This requires vision and innovation in our teaching which is not impossible as long as we plan to teach Islam as a social movement that was more than the rise of Arabian Bedouins out of the desert to conquer foreign lands. Rather, we must develop a dialogue that emphasizes the human experience and gives voice to a more "global" interpretation on the development and evolution of Islam and why it should be afforded a place in World History on its own as topic for examination and research.

5. Conclusion

I will also put together a short set of recommended readings, and videos to help with executing lessons for a typical undergraduate course.

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Rural Education in Post-Apartheid South Africa: Bridging the Divide between Policy and Reality

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1. Scope

In the aftermath of the discriminatory political dispensation of Apartheid in South Africa, came the advent of true democracy in 1994.

Inherited from the Apartheid Regime, however, were serious socio-economic problems and educational inequalities among South Africa's previously disadvantaged communities.

Against this background, policies were put in place to reform the education system of South Africa. The rationale was to address the gross inequalities of the past and its effects, such as, *inter alia*, low levels of literacy and numeracy, and access to quality education.

Most notably of these policies were Outcomes-Based Education (OBE) (1997), the National Curriculum Statement (NCS) (2012), and thereafter the Continuous Assessment Policy Statement (CAPS), with the said policies indicated to be interpreted against the framework of the over-arching Education White Paper 5, the latter of which was seen as meeting the challenges of Early Childhood Education in South Africa.

However, two decades later, Government's commitment to redress the inequalities of the past seems to have had little impact, especially in terms of literacy and numeracy levels in rural South Africa.

In 2011, Government implemented the Annual National Assessment (ANA) in order to establish a benchmark framework which were to serve as an indicator of actual levels of literacy and numeracy.

This PhD research study focuses on functional aspects related to Grade 3 learners, and as such in rural Mpumalanga Province of South Africa. The ANA results of 2011/2012 showed the Grade 3 literacy and numeracy rates of rural Mpumalanga province to be 27% and 19% respectively, which is the lowest of all 9 provinces in South Africa – the National

Average being 35% and 28% for literacy and numeracy respectively.

Scholastic-academic performance, as measured by the ANA, with exceptionally low levels of literacy and numeracy in the lower grades particularly, remains cause for concern.

2. Objective and Motivation

This doctoral research study constitutes a comprehensive investigation into the developmental status, educational background, and socio-economic circumstances of a representative group of Grade 3 learners in rural Mpumalanga Province of South Africa, **with the objective to** establish whether there are correlations to be found in terms of the assessed performance profiles rendered by the McCarthy Scales of Children's Abilities (MSCA), that of the Annual National Assessment results, and that of the actual scholastic performance of research participants.

The motivation for this study is to explore and illuminate the possible reasons why, with a sophisticated education policy framework, aimed specifically to address the gross inequalities of the past and its devastating effects, and a policy set to truly reform the education system in South Africa, the **reality** remains, two decades after full democracy, that in rural South Africa specifically, levels of literacy and numeracy are in the 20% and lower than 20% bracket.

In terms of a **constructive contribution to the field of study**, it is envisaged that the outcomes of this research will, by way of empirical research-based findings, contribute meaningfully to the existing body of knowledge about possible correlations between developmental delays of learners in the Foundation Phase in rural South Africa, their actual scholastic performance, and government education policy.

Session 16: Art Education

It's All Greek to Me: Teaching German Art Song to English-Speaking College Students
(Author: Leslie Jones)

Cross-disciplinary Discourse Study of the Educational Formation and Development of a Specific Study Programme in Higher Education: A Methodical Approach
(Author: Bolette Rye Mønsted)

Putting Yourself "Out There": Safe Sounds in the Music Class
(Author: Verne Lorway)

It's All Greek to Me: Teaching German Art Song to English-Speaking College Students

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Abstract

The study of German Art Song is a critical component of classical vocal music education. Undergraduate college students learn to perform songs in German, French, and Italian, as well as their native English. However, for many students, this becomes an exercise in memorizing random disjointed syllables and perhaps a few key words. Much of the depth of the interpretation is then lost, both to the student and to the audience. This paper offers an alternative approach, incorporating literary aspects of learning a song in German along with the strictly musical aspects. These musical aspects, such as pitches, rhythms, and musical phrases, are enhanced by knowledge of historical context, poetic form, rhyme, and interpretive possibilities. Together, a much more complete and meaningful performance is possible.

Cross-disciplinary Discourse Study of the Educational Formation and Development of a Specific Study Programme in Higher Education: A Methodical Approach

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Abstract

This extended abstract presents a methodical approach to the study of Cross-disciplinary discourse study of the educational formation and development of a specific study programme in Higher Education. The author relates various areas of educational research, media, society, technology and sociology. It is argued that in order to understand the educational formation and development of a specific study programme in Higher Education, it is necessary to develop a methodological and theoretical based design in which this can be explored. The author draws upon a theoretical review in order to present a methodological overview of the relations between the areas of interest and the specific area of concern.

1. Introduction

Researchers have over the years studied, analysed and concluded on different aspects of university education [2] [3] [5] [8]. However none of them seems to have dealt specifically with the formation and development of a specific educational programme, as this extended abstract seeks to do [8] with Denmark as a case in point. In order to do so it is necessary to develop a cross-disciplinary discourse study in which it can be examined how university education in Denmark has evolved over recent years and how this can be used as a foundation to work strategically with the future of Higher Education [5] [9]. More specifically: If we work from a thesis that the formation and development of an individual educational programme to a certain extent can be generalized across other Higher Educations and universities, the framing of such generalization is missing. The purpose of this extended abstract is therefore to create a cross-disciplinary discourse study, which enables the study of educational development in relation to the perspectives such as sociology, media, society, technology and communication [1] [4] [6] [7]. These perspectives are closely linked to the educational formation and development and it is therefor necessary to

incorporate the connection between them in the making of a cross-disciplinary discourse study.

2. Contributions and originality

The extended abstract seeks to present a methodically based collaborative cross-disciplinary discourse study in witch the formation and development of an education in Danish Universities can be made: How can we study the educational formation and development in Higher Education in relation to the context of educational sociology, political demands and the general society. Not much research is undertaken that deals with the methodical aspects of this area, as this extended abstract seeks to do. The contribution of this extended abstract is therefore to provide a methodologically based cross-disciplinary discourse study in which the study of educational formation and development in individual educations at Danish Universities can be investigated:

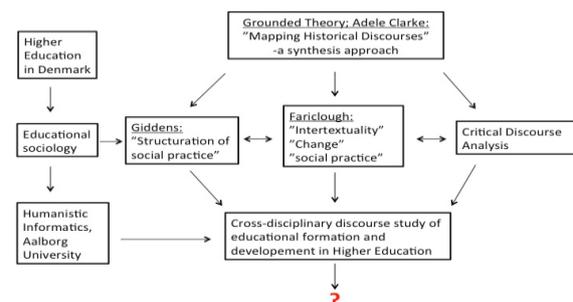


Figure 1. A methodological approach to the study of educational formation and development in Higher Education

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Putting Yourself “Out There”: Safe Sounds in the Music Class

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Abstract

This research is a description of a concept emerging from my doctoral dissertation in Educational Studies at the University of Prince Edward Island. The study was a performed ethnography of youth-attuned, musical performance processes in which twenty-five student participants articulated their perceptions and ideas of engaged music making in public school music education programs. In a series of interviews between themselves and me, the notion of “safe” music making practices emerged. Twenty-five students met once a week in an after school Song Writer’s Club for one school year to write songs, perform them, and record them in the school studio. As the music teacher in situ, my role was collaborative. I assisted them to deconstruct current practices in music education in order to reconstruct those which were “safe”. This presentation describes how the students collaborated with me to arrive at these insights through musical performance.

1. Introduction

Reviewing the literature on “classroom safety” reveals major concerns currently surrounding its implementation in public schools [1]. These concerns were discussed by the students and myself during the initial set-up of their after school song writer’s club. This group was developed as the research group for my doctoral dissertation. It was comprised mainly of students from the school band and choir. However, it was also comprised of students who had no formal training in school music programs. The study was concerned with gathering rich descriptions of the music making processes of these young people which might lead to more engaged, inclusive music education practices in public school settings. The ideas of safety which emerged from the student participants in collaboration with myself, the classroom music teacher, were applied to the running of the Song Writer’s club in an ongoing process of “safe” music making practices.

2. Performing safety

The students performed a series of concerts in a community venue as part of their club activities. During the performance-production process, the students revealed concerns they had around feeling safe about “putting themselves out there” through musical performance. In particular, they spoke of the tendency of the commercial industry model of music making in the media, to reproduce certain stereotypes which might affect the self-concepts of themselves and others in oppressive ways [2]. The students had a discussion with myself during one of the after-school club meetings to find a solution to the problem of how this very model might be affecting the members of the club, and preventing them from performing their work for others.

At the heart of the interrogation of these students was a deconstruction of the “musical genius” [3]. According to these students the “musical genius” is the driving force behind the commercial, industry models of music making within society, and reproduced in the public school model of music education. From the vantage point of the students, this model places the greatest value in those individuals who “look” and “sound” a certain way, which diminishes the contributions of others involved in the music making process. Through their music making processes, the students revealed how the concept of the “musical genius” might perpetuate single-minded notions of musicians which are deeply embedded in the cultural practices of the community. The analysis of the students revealed how structural inequalities in music education might persist, even in the midst of the more youth-attuned “informal” learning paradigm in music education.

Through dialogue with myself, these young people strove to effectively reconstruct current music making practices in the club to include more diverse notions of “the musician”, which from the perspective of the students, led to “safe” music making in their after school club. The presentation will feature some of the ideas of the students, as well as their [performed] ways of resisting stereotypes of the “musical genius” while maintaining truth to themselves. In dialogue with one another and with myself, the students revealed performed ways of

pushing back against stereotypes in music through ethical engagements in power relations.

The research methodology integrated theoretical strands from critical pedagogy [4] and performance ethnography[5]. Within an art-informed paradigm, ours was an effort to document both the process and product of musical performance from start to finish in a manner which was recursive and reflexive. From the perspective of myself, the music teacher, I documented those moments of discomfort as the teaching and learning methods of the club often deviated from my own formal training within the Western, Eurocentric paradigm of music education. These points of “dislocation” underscored both the presence of student voice in the project, and the collaboration between these young people and myself[6].

3. Conclusion

These young people have revealed through their musical performances, some of the ironies surrounding classroom safety as interpreted within the Canadian public school music education paradigm. The texts contained in the presentation are youth-attuned, and aim to re-tell a portion of the story of our research in the voices of the students. The methods of data collection included audio, digital recording of student work in the school studio, video specimens, still images, and interview data. All video, images, and audio specimens were gathered, selected, and analyzed by the students themselves with my guidance and facilitation. As the teacher, my role was multiple and varied, which gave room for the emergence of some innovative teaching and learning practices lead by the students as revealed in a series of safety tips for music teachers designed by these young people. Their successes shaping the Song Writer’s Club towards greater inclusion through interjecting ethical and diverse musical performance processes, assisted them in putting themselves “out there” in the school and greater community.

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Session 17: Learning / Teaching Methodologies and Assessment

Improvement of the Attitudes and Their Familiarity with Terminology of a Programming Course with a Blended Learning Structure
(Authors: Isao Miyaji, Kouji Yoshida)

Teachers as Jugglers: Research Students' Perspectives on Combining Study with a Busy Job
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Improvement of the Attitudes and Their Familiarity with Terminology of a Programming Course with a Blended Learning Structure

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Abstract

In a programming course, lectures were given using a slideshow, and syntax and example programs from a textbook were explained. Afterward, students received worksheets with example programs and problems for practicing syntactic elements, and the professor explained the worksheets. The students then performed an exercise where they created a program based on example programs as an assignment. They were instructed to finish as much of their program as possible during class and to submit their program file and a report file over an e-learning site. They could learn either in class or through lecture slides uploaded to an e-learning site. Students' attitudes and their familiarity with terminology were assessed before and after the course. This educational information was analyzed with significance tests, and cluster analysis, the results of which are reported in this paper.

1. Introduction

Blended learning is currently being used to make classes more effective, more efficient, and more attractive to students, particularly at institutions of higher education [2][7]. The author of this paper promotes a university education that includes creating things and evaluating them in order to build problem-solving skills [6]. It is advocated that in addition to lectures, learning opportunities for a variety of students should be created through classes that take individual students' situations into account and allow them to prepare for class and review "anytime and anywhere."

One way of doing this is blended classes that combine methods such as lecture organizing notebooks, e-learning (learning with lecture slides, learning with exercise problems, collaborative learning and peer review of student-generated learning materials), and quizzes, which have been demonstrated effective in a previous report by the same author of conducting such a course [3] [5]. The author also found that using comprehension surveys

and increasing interactions between students and faculty can further enhance results [4].

Several methods to deepen students' understanding in programming class have been proposed [10]. One method that has been reported to be effective is blended learning classes [9]. There are also reports of students collaborating on projects and then evaluating them [11].

In this study, a professor conducted blended classes that utilized e-learning while considering what media are required for a programming class. The format of the class was as follows. Problems and answers from the previous class were explained, and then a lecture was given with slides based on the day's syntax elements and processing details. Next, students were given a worksheet with example problems and assigned problems that included the information taught that day, and the professor explained the worksheet with slides. Afterward, they performed an exercise where they created an assigned program while referring to syntax, processing details, and example programs. There was also a collaborative learning element to this. At the midpoint and end of the course, students created a program as an independent project, peer reviewed each other's programs, and revised their program based on the review. Students were surveyed about their thoughts regarding this system and results were reported [8]. No previous study has measured students' scope of knowledge using a metric such as familiarity with terminology. This paper reports the results of conducting and analyzing pre- and post-course surveys of students' attitudes and their familiarity with terminology.

2. Course design and content

The blended course was a programming elective for second-year students in the Faculty of Information Sciences at A University. Each class was 90 minutes long and 15 classes were held. The contents of the lectures and lecture plans are shown in Table 1. A final examination was held after the fifteenth class to motivate students to learn and to assess their understanding. Twenty-seven students

took the course. Exercises were led by the instructor and a TA.

2.1. Course objectives and goals

In web services that run on the current Internet, programs such as CGI dynamically run on the web server and change web pages. The objectives of this course are to learn PHP, which is a language often used in CGI, as well as to learn how to execute basic programs and to be able to create a dynamic website. The achievement goals are as follows: (1) understand the relationship between a server and a client, (2) understand web services, (3) learn how to use PHP, and (4) learn how to generate CGI.

Students will also engage in researching, thinking, creating, evaluating, and revising activities during the course and will build problem-solving skills that they will need as members of society.

2.2. Class format

The format of each class was as follows. First, answers to problems from the previous class were explained (approximately 10 minutes). Next, a lecture based on the day's syntax elements and processing details from the textbook [1] was given using slides (approximately 30 minutes). Students were then given a worksheet with example problems and practice problems that included the content from that day. An explanation of this worksheet was given using slides (approximately 10 minutes). Afterward, students were instructed to perform an exercise where they created a program while referring to syntax, processing details, and example problems (approximately 40 minutes). Students were allowed to download example programs, run the programs, and observe the processing flow as well as the result of running the program. Students who finished their practice program were instructed to submit the program with a report file.

2.3. Description of assignments

As assignments, students were instructed to create one related PHP program for each chapter discussed in the lecture. After they finished their program, they were instructed to paste it into a report form outline on A4 paper and to submit it along with the program file. The items on the report form were a program list, result of execution, and observations. Grades were determined comprehensively from submitted work such as exercises and assigned problems as well as from the final examination.

On the seventh and eighth weeks as well as the fourteenth and fifteenth weeks, students were assigned to independently design and create a program for another person to use, for example, a card game, a fortune-telling program, or a math learning program using elements such as control statements and arrays. The process for completing this project was as follows. On the first week of the project, students (1) created a program, (2) ran their created program, (3) underwent peer review, and (4) revised their program based on peer review. On the following week, they (5) ran their revised program, (6) did another peer review, (7) assessed whether they had revised the program properly, and (8) filled out a report. Report forms for submitted independent projects were uploaded so that others could view them.

3. Results of analysis

Students' familiarity with terminology was assessed to understand how their knowledge changed after they took the programming course and their attitudes toward their abilities were assessed to understand how their attitudes changed. Data from these surveys were analyzed with significance tests

Table 1. Design of the programming course

Week	Contents	Lesson							e-learning					
		No. of slides	Distributed documents	Textbook	Examples and assignments	Self-imposed assignment	Survey of term recognition	Survey of attitude	Learning by lesson slides	Downloading	Program	Reports	Evaluation sheet	
1	Before beginning PHP	36	Document of lesson plan					Pre	Pre					
2	Basic program	25	How to create PHP program	Chapter 1	Example 1					Chapter 1	Reprt			
3	Variable	28		Chapter 2	Example 2					Chapter 2	Evaluation sheet	Assignment 1	Assignment 1	
4	Condition sentence	42		Chapter 3	Example 3					Chapter 3		Assignment 2	Assignment 2	
5	Repetition sentence	40		Chapter 4	Example 4					Chapter 4		Assignment 3	Assignment 3	
6	Array and control sentence	27		Chapter 2	Example 5	Specification 1				Chapter 2	dependent proj	Assignment 4	Assignment 4	Self assessment
7	Mutual use of self-imposed assignment 1, Evaluation, Correction					Program						Assignment 5	Assignment 5	Peer assessment
8	Mutual use of self-imposed assignment 1, Evaluation				Example 6	Correction								Peer assessment
9	Function	32		Chapter 5	Example 7					Chapter 5		Assignment 6	Assignment 6	
10	Use of the regular expression	27		Chapter 6	Example 8					Chapter 6		Assignment 7	Assignment 7	
11	Use of the character string function	23		Chapter 6	Example 9							Assignment 8	Assignment 8	
12	Use of the file	22		Chapter 8	Example 10					Chapter 8		Assignment 9	Assignment 9	
13	Access to a database	30		Chapter 8	Example 11	Specification 2						Assignment 10	Assignment 10	Self assessment
14	Mutual use of self-imposed assignment 1, Evaluation, Correction					Program			Independent project			Assignment 11	Assignment 11	Peer assessment
15	Mutual use of self-imposed assignment 1, Evaluation					Correction		Post	Post					Peer assessment

and the results of this analysis are explained below. Changes in attitude and familiarity with terminology were analyzed using multivariate analysis.

In the following results, a significance level of 5% was considered to indicate a significant difference. The symbols m, SD, t, and p indicate the mean, the standard deviation, the test statistic, and the p-value, respectively. Significance levels of 0.1%, 1%, 5%, and 10% are indicated with ***, **, *, and +, respectively.

3.1. Results from the survey of familiarity with terminology

As shown in Table 2, pre-course (Week 1) and post-course (Week 15) surveys [6] were given to assess students' familiarity with 60 terms. These 60 terms were important terms that appeared in the textbook, were related to the content of the programming classes, and were selected from the index.

Three levels of familiarity with terminology were used: 1. "Do not know," 2. "Do not know well but have heard of it," and 3. "Know it." The mean level of familiarity with terminology was 1.7 before the course and 2.4 after the course. Twenty-five students each responded to the pre-course and the post-course surveys.

Analysis with paired t-tests revealed a significant difference between the overall pre-course and post-course levels of familiarity with the 60 terms (last line of Table 2). Students' overall level of familiarity was significantly higher after the course, which showed that students' overall knowledge of programming increased after the course.

Analysis with paired t-tests revealed a significant difference between pre-course and post-course levels of familiarity with 50 individual terms (Table 2). These terms were as follows: 1-9, 13-23, 25-32, 34, 37-40, 42-48, 50, 51, 53-60. Knowledge of these 50 terms was found to have increased after the course. In addition, there was a trend toward significance for three terms (10, 24, and 33). This indicates that knowledge of these three terms tended to increase after the course. There was a significant difference or a trend toward significance for 88.3% of terms, indicating that familiarity with almost all terms had improved.

No significant difference was found for the following seven terms: 11, 12, 35, 36, 41, 49, and 52. Knowledge of these 7 terms was found not to have increased after the course.

3.2. Results from survey of students' attitudes toward their abilities

As shown in Table 3, pre-course (Class 1) and post-course (Class 15) surveys including 55 items

relating to students' attitudes toward their abilities were also conducted [4]. The following nine-point scale was used to evaluate attitude: not at all confident/interested (1 point), not very confident/interested (3 points), somewhat confident/interested (5 points), quite confident/interested (7 points), and very confident/interested (9 points). Twenty-four students each responded to the pre-course and the post-course surveys.

Table 2. Significance tests for familiarity with terms relating to the course

No	Technical term	Pre		Post		t-test	
		m	SD	m	SD	t	p
1	Apache	1.2	0.5	1.9	0.8	4.6	***
2	array	1.4	0.7	2.6	0.6	7.6	***
3	break	2.0	0.9	2.6	0.6	3.8	***
4	case	1.8	0.8	2.4	0.6	3.9	***
5	CGI	1.7	0.8	2.1	0.6	2.4	*
6	CHECKBOX	1.4	0.8	2.5	0.5	7.2	***
7	chop	1.2	0.4	1.8	0.7	4.5	***
8	continue	1.6	0.7	2.2	0.7	3.5	***
9	date	2.0	0.9	2.5	0.7	2.4	*
10	define	2.4	0.7	2.6	0.6	1.7	+
11	do~while	2.6	0.6	2.7	0.6	0.8	
12	else	2.8	0.5	2.8	0.6	0.0	
13	elseif	2.1	0.9	2.7	0.6	3.3	***
14	endforeach	1.1	0.3	1.8	0.7	5.3	***
15	endif	1.2	0.5	2.0	0.8	4.7	***
16	exit	1.7	0.7	2.2	0.8	3.0	**
17	fclose	1.0	0.2	2.1	0.9	6.7	***
18	feof	1.0	0.2	1.9	0.8	5.9	***
19	fgets	1.0	0.2	1.9	0.9	5.6	***
20	file_exits	1.2	0.5	1.8	0.8	3.9	***
21	filesize	1.5	0.7	2.1	0.8	3.2	***
22	float	1.4	0.7	2.2	0.8	4.6	***
23	fopen	1.1	0.4	2.0	0.8	6.2	***
24	for	2.6	0.6	2.8	0.5	1.8	+
25	foreach	1.0	0.2	2.2	0.8	8.9	***
26	form	1.6	0.7	2.4	0.7	4.9	***
27	fputs	1.0	0.2	2.2	0.8	8.1	***
28	FTP	1.8	0.8	2.4	0.7	3.2	***
29	function	1.9	0.8	2.6	0.6	3.9	***
30	GET	1.6	0.6	2.2	0.7	3.8	***
31	global	1.5	0.6	2.1	0.7	4.0	***
32	GUI	1.5	0.7	2.1	0.7	3.6	***
33	HTML	2.6	0.6	2.8	0.4	1.8	+
34	HTTP	2.4	0.7	2.7	0.4	2.5	*
35	if	2.7	0.5	2.8	0.4	1.5	
36	include	2.3	0.8	2.5	0.7	1.1	
37	MySQL	1.3	0.7	2.1	0.8	4.7	***
38	NULL	2.0	0.8	2.6	0.6	3.5	***
39	print	2.4	0.8	2.8	0.4	2.9	**
40	require	1.1	0.3	2.1	0.7	7.9	***
41	return	2.6	0.7	2.6	0.6	0.0	
42	round	1.4	0.6	2.2	0.8	5.0	***
43	SELECT	1.8	0.8	2.5	0.6	4.2	***
44	STDIN	1.0	0.2	1.8	0.6	7.3	***
45	STDOUT	1.1	0.3	1.8	0.6	6.7	***
46	SUBMIT	1.3	0.6	2.1	0.7	5.0	***
47	switch	1.8	0.7	2.5	0.6	4.8	***
48	TEXT	1.8	0.8	2.3	0.7	2.9	**
49	URL	2.7	0.7	2.8	0.5	0.9	
50	VALUE	1.8	0.8	2.5	0.6	4.6	***
51	Web server	2.4	0.8	2.8	0.4	2.7	**
52	WWW	2.8	0.5	2.8	0.5	0.7	
53	XAMPP	1.1	0.3	2.8	0.4	22.8	***
54	Regular expression	1.2	0.4	2.5	0.6	11.4	***
55	Session	1.4	0.6	2.4	0.6	7.1	***
56	Transmission button	2.0	0.7	2.7	0.5	4.7	***
57	Here document	1.2	0.4	1.9	0.7	5.7	***
58	File handle	1.2	0.4	2.0	0.8	6.0	***
59	Radio button	1.4	0.7	2.8	0.4	11.1	***
60	Associative array	1.1	0.3	2.0	0.8	6.4	***
Average		1.7	0.8	2.4	0.7	3.6	***

*** p<.001, ** p<.01, * p<.05, + p<.1

The mean overall score for the 55 items was 4.3 before the course and 4.9 after the course. Analysis with paired t-tests revealed a significant difference between overall pre-course and post-course scores for the 55 items (last line of Table 3). This showed that overall, students' attitudes toward their abilities improved after the course.

Results of paired t-test analyses of pre-course and post-course attitude scores for each ability are shown in Table 3. Analysis of each item with paired t-tests revealed a significant difference between students' pre-course and post-course attitudes toward the following 20 items: 2, 3, 16, 27, 32, 36, 38–44, 46–48, and 52–55. This showed that students' attitudes toward these 20 items improved after the course. In addition, there was a trend toward significance for five items (5, 8, 11, 37, and 45). This showed that students' attitudes toward these five abilities tended to improve after the course.

A significant difference in attitude or a trend toward significance was observed for 25 abilities, which indicates that students' attitudes improved after the course for 45% of the 55 items. No significant difference in attitude or trend toward significance was observed for 30 items.

3.3. Categories of attitude determined by cluster analysis of attitudes toward programming abilities

Twenty-five items relating to programming were used as the rows and 24 students as the columns. A 25 row x 24 column spreadsheet was created to assess increases in attitude scores for programming. This table was analyzed by cluster analysis with Ward's method using attitudes as cases and students as variables. Based on the obtained dendrogram, attitudes were classified into five clusters (Figure 1). These groups are numbered I–V. The x axis of Figure 1 shows non-similarity and the y axis shows attitudes.

Group I comprised attitudes toward seven items: “37. Ability to think about algorithms,” “38. Ability to review the flow of an algorithm,” “36. Ability to express an idea as an algorithm,” “32. Knowledge of programming,” “35. Ability to think about a problem in stages,” “43. Ability to work to improve a program,” and “51. Ability to keep working on a problem until it is finished.” For each item, significance levels are indicated with a symbol after the result of the t test (***) $p < .001$, (**) $p < .01$, (*) $p < .05$, (+) $p < .1$). The mean attitude score for these seven items was 0.91, which is somewhat lower than the overall mean score but still a moderate score. Of these, scores for items 36 and 38 were relatively higher. Based on its constituent items, Group I can be characterized as “I. Abilities relating to expression and flow of algorithms.”

Group II comprised attitudes toward five items: “49. Ability to collaborate on problems,” “50. Desire

to learn about programming through problems,” “33. Desire to learn about programming,” “34. Desire to try problems,” and “31. Interest in programming.” The mean score for these five items was 0.06, and this was the lowest-scored group. There was no significant difference between attitude scores for any of these five items before and after the course, indicating that attitudes did not improve. Based on its constituent items, Group II can be characterized as “II. Ability to work on problems.”

Group III comprised attitudes toward three items: “40. Ability to express ideas with PHP,” “41. Ability to debug PHP programs,” and “52. Knowledge of PHP syntax.” The mean attitude score for these three items was 2.5, and this group had the highest score. Attitudes toward each of the three items significantly increased, indicating that attitude improved. Based on its constituent items, Group III can be characterized as “III. Ability to express ideas with PHP.”

Group IV comprised attitudes toward four items: “54. Knowledge of correcting program errors,” “55. Knowledge of programming techniques,” “39. configure test data.” The mean attitude score for these three items was 2.05, and this group had the second-highest score. Attitudes toward each of the four items significantly increased, indicating that attitudes improved. The score for item 42 was relatively higher. Based on its constituent items, Group IV can be characterized as “IV. Knowledge of programming techniques.”

Group V comprised attitudes toward six items: “44. Ability to write reports about programs,” “53. Knowledge of basic algorithms,” “46. Ability to read other people's programs,” “48. Ability to express personal ideas using a computer,” “45. Ability to understand other people's ideas,” and “47. Ability to read other people's reports.” The mean attitude score for these six items was 1.46, and this group had the third-highest score. Attitudes toward five items

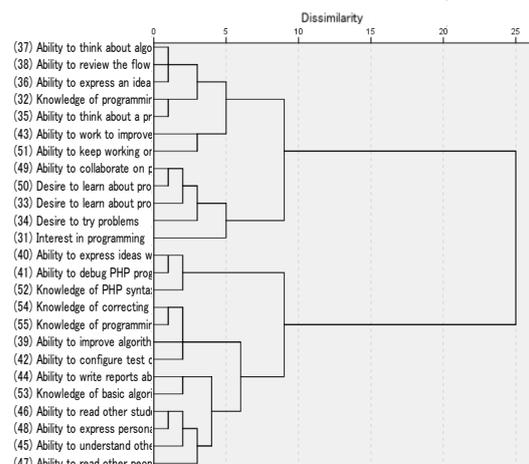


Figure 1. Dendrogram showing attitude clusters obtained through cluster analysis

significantly increased, indicating that attitudes improved. There was a trend toward significance for attitude toward the remaining item (45), which tended to improve. The attitude scores for items 47

and 46 were relatively higher. Based on its constituent items, Group V can be characterized as “V. Ability to read other people’s programs and reports.”

Table 3. Significance tests for attitudes toward abilities

Attitude items	Pre		Post		Difference		t-test	
	m	SD	m	SD	m	SD	t	p
(1) Interest in and curiosity about computers	7.0	2.0	6.0	2.2	-0.58	2.9	0.9	
(2) Understanding of computers	4.4	1.6	5.1	1.7	1.04	2.2	2.1	*
(3) Computer operation skills	4.5	1.7	5.5	1.8	1.29	2.3	2.5	*
(4) Computer usage methods and broadening of situations	5.1	1.9	5.8	2.1	0.96	2.5	1.7	
(5) Ability to set challenges, ability to discover problems	3.9	2.2	4.8	1.7	1.12	2.5	2.0	+
(6) Ability to plan, to do things in a planned manner	3.9	1.8	4.5	2.1	0.89	2.5	1.6	
(7) Cultivation of understanding of knowledge learned	4.2	1.4	4.6	2.0	0.64	2.3	1.2	
(8) Ability to study by oneself, ability to learn	4.3	1.8	4.9	1.7	0.87	2.1	1.8	+
(9) Ability to gather information, ability to conduct research	4.7	2.0	5.0	2.0	0.64	2.4	1.2	
(10) Ability to sort through related information or data	4.5	1.5	4.8	1.7	0.67	2.1	1.4	
(11) Ability to analyse information	4.2	1.9	4.8	1.7	0.79	2.0	1.7	+
(12) Ability to express thoughts in writing	4.2	2.1	4.6	2.1	0.65	2.5	1.2	
(13) Ability to express thoughts through media other than writing	4.7	1.9	4.9	1.9	0.47	2.5	0.8	
(14) Ability to speak and explain things to others in an easy-to-understand manner	4.4	2.0	4.2	1.8	0.11	2.1	0.2	
(15) Ability to make presentations	4.0	1.9	4.2	1.8	0.47	2.7	0.8	
(16) Ability to listen to what people are saying and ability to ask people questions	4.3	1.8	5.3	2.1	1.25	2.5	2.2	*
(17) Communication ability	4.3	2.4	4.7	2.1	0.64	3.3	0.9	
(18) Ability to appropriately self-evaluate one’s thoughts	4.2	1.7	4.7	2.1	0.71	2.2	1.4	
(19) Ability to appropriately evaluate other people’s thoughts	5.1	1.9	4.9	1.6	0.17	2.4	0.3	
(20) Ability to correct and improve on one’s own thoughts	4.6	1.8	4.5	1.9	0.23	2.5	0.4	
(21) Ability to pursue matters deeply, ability to explore matters	4.5	1.5	4.9	1.9	0.71	2.1	1.5	
(22) Ability to execute, ability to practice, ability to put into action	4.6	1.5	4.8	1.9	0.45	2.4	0.8	
(23) Ability to cooperate with others, ability to study in cooperation with others	5.2	1.4	4.7	1.6	-0.15	2.2	0.3	
(24) Sense of accomplishment, sense of satisfaction	5.2	2.0	4.8	2.0	-0.09	3.3	0.1	
(25) Sense of fulfilment, sense of achievement	5.2	1.9	5.0	2.0	0.21	3.2	0.3	
(26) Ability to solve problems	4.5	1.8	4.9	1.7	0.70	2.0	1.6	
(27) Ability to construct and create knowledge	4.0	1.7	5.0	1.9	1.22	2.5	2.2	*
(28) Ability to think, consider and come up with ideas by oneself	5.0	2.1	5.1	1.9	0.46	3.0	0.7	
(29) Creativity/ability to create	4.6	1.8	4.9	2.1	0.57	2.5	1.0	
(30) Interest in and curiosity about this field	5.7	1.8	5.2	1.8	-0.06	2.5	0.1	
(31) Interest in programming	6.2	1.8	5.5	2.2	-0.25	2.9	0.4	
(32) Knowledge of programming	4.2	1.6	4.7	1.7	0.80	1.6	2.2	*
(33) Desire to learn about programming	5.8	1.5	5.3	2.2	-0.09	2.6	0.2	
(34) Desire to try problems	5.6	1.9	5.0	1.7	-0.27	2.8	0.4	
(35) Ability to think about a problem in stages	4.5	1.7	4.8	1.7	0.58	2.3	1.1	
(36) Ability to express an idea as an algorithm	3.6	1.9	4.6	1.8	1.23	2.2	2.5	*
(37) Ability to think about algorithms	3.7	1.9	4.5	1.6	1.06	2.4	2.0	+
(38) Ability to review the flow of an algorithm	3.6	1.8	4.5	1.6	1.15	2.1	2.4	*
(39) Ability to improve algorithms	3.3	1.9	4.8	1.8	1.74	2.3	3.3	**
(40) Ability to express ideas with PHP	2.6	1.9	5.1	1.9	2.60	2.7	4.2	***
(41) Ability to debug PHP programs	2.2	1.5	4.8	1.9	2.64	2.5	4.8	***
(42) Ability to configure test data	2.5	1.9	5.0	1.8	2.65	2.2	5.3	***
(43) Ability to work to improve a program	4.0	2.2	5.2	1.7	1.41	2.7	2.3	*
(44) Ability to write reports about programs	3.3	2.2	4.5	1.6	1.35	2.3	2.6	*
(45) Ability to understand other people’s ideas	4.2	1.6	4.8	1.7	0.88	2.3	1.7	+
(46) Ability to read other student’s programs	3.5	1.9	4.9	1.7	1.56	2.4	2.9	**
(47) Ability to read other people’s reports	3.5	2.2	5.2	1.8	1.93	2.8	3.0	**
(48) Ability to express personal ideas using a computer	3.4	1.8	4.9	1.5	1.70	2.2	3.5	**
(49) Ability to collaborate on problems	5.0	1.7	5.0	1.8	0.35	2.5	0.6	
(50) Desire to learn about programming through problems positively	4.9	1.7	5.1	1.6	0.56	2.0	1.2	
(51) Ability to keep working on a problem until it is finished	5.4	1.9	5.1	1.8	0.11	2.6	0.2	
(52) Knowledge of PHP syntax	2.9	1.8	5.0	1.9	2.27	2.6	3.9	***
(53) Knowledge of basic algorithms	3.6	1.6	4.7	1.4	1.33	2.1	2.8	*
(54) Knowledge of correcting program errors	3.4	1.9	5.1	1.6	1.86	2.4	3.5	**
(55) Knowledge of programming techniques	3.0	1.9	4.8	1.6	1.96	2.1	4.3	***
Total	4.3	2.0	4.9	1.9	0.87	1.8	2.2	*

*** p<.001, ** p<.01, * p<.05, + p<.1

3.4. Categories of student determined by cluster analysis of attitudes toward programming abilities

Attitude scores for programming items were analyzed in the 25 row by 24 column table from Section 3.3 with Ward's method using students as cases and the attitudes as variables. Based on the obtained dendrogram, students were classified into four clusters as shown in Figure 2. These groups were numbered 1–4. The x axis of Figure 2 shows non-similarity and the y axis shows students.

Group 1 comprises three students whose attitude score decreased and is called “1. Worsened attitude.” Group 2 comprises three students whose attitude scores greatly improved and is called “2. Greatly improved attitude.” Group 3 comprises ten students whose attitude scores slightly improved and is called “3. Slightly improved attitude.” Group 4 comprises eight students whose attitude scores did not change and is called “4. No change in attitude.”

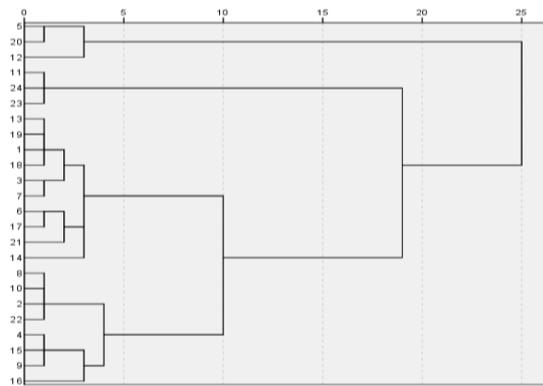


Figure 2. Dendrogram showing student clusters obtained through cluster analysis

5. Conclusions

Students were taught with lectures and exercises, reviewed concepts with lecture slides on an e-learning site, and submitted assignments as part of programming education at a university. Students' attitudes and their familiarity with terminology were assessed with surveys conducted before and after the course. Data from these surveys were analyzed with significance tests and multivariate analysis.

The following was found after conducting the course. These findings could also be a useful resource for other courses.

- (1) Students' overall familiarity with programming terms was significantly higher after the course, indicating that their overall knowledge increased after the course.
- (2) Students' familiarity with approximately 83% of the 60 terms increased after the course.
- (3) In general, students' attitudes toward their abilities improved.

(4) Students' attitudes toward about approximately 45% of the 55 items improved after the course.

(5) A significant difference or a trend toward significance was observed for 23% of items in the category of attitudes toward general abilities and 72% of items in the category of attitudes toward programming abilities. The reason for this is likely that the increase in attitude scores was greater for programming abilities.

As a future challenge, the author of this paper would like to study how to apply the findings of this study to his teaching.

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Teachers as Jugglers: Research Students' Perspectives on Combining Study with a Busy Job

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Abstract

This qualitative case study examines the experiences of a cohort of masters by research students who are teachers from a single school. Our paper sits within the broad context of research training, and the comparatively lower completion rates within the field of education in Australia, especially for part-time students. Our Education Faculty is seeking to address the high attrition rate from research degrees of part-time students who work full-time. The model employed to support this cohort was multi-layered and resource intensive, including small group and individual supervision, as well as regular seminars throughout the research phase of the degree. There are questions about the suitability of an arduous research degree for busy teachers in a demanding workplace. Based on the analysis of interview and questionnaire data collected from some of the students, this paper will discuss their perceptions about the barriers to and enablers for the completion of their research projects.

1. Introduction

Attrition rates of research students have long been, and remain, a concern in Australia and elsewhere [1, 2, 3, 4, 5, 6] and researchers speak of the value of community [7, 8], and difficulties students face with a change of supervisors [9].

In 2010, the Faculty of Education at an Australian university enrolled a cohort of teachers from Glenhope, a large private school, into a masters degree by research. Previously, the Faculty had established cohorts promoting community in order to address a pattern of high attrition, but with patchy success. The model devised for Glenhope is multi-layered and resource intensive, including two academic co-ordinators (ourselves), small group and individual supervision, as well as regular seminars throughout the research phase of the degree, supported by the university's mandated learning management system, Moodle. Glenhope is a demanding workplace, and most of the teachers (our higher degree students) are in positions of responsibility in the school, which involve both

administrative and considerable extra-curricular activities - this in addition to trying to enjoy a personal life. Four years down the track, a number of students have graduated or submitted their theses for examination, some are still persevering, and a few have withdrawn – either completely, or have transferred to coursework.

Following previous work in which we looked at the Glenhope cohort from a coordinating perspective, this study seeks to explore the experiences of the students from Glenhope and examine what effect, if any, this highly scaffolded structure has had on successful completion of a research degree.

2. Methodology

We collected data from numerous artefacts such as emails, telephone logs, progress grids, meeting/seminar notes, and recorded conversations between ourselves through the duration of the course delivery. These data suggested several themes which we used to guide the creation of survey and interview questions.

Online questionnaires were sent to 31 teacher-students who had originally enrolled, from which there were eight responses, and interviews conducted with seven participants who volunteered to have further involvement. Following several passes through the interview recordings and transcripts, themes were identified and coded [10].

3. Outcomes

3.1. Previous research

In 2012, we reported about our discomfort with the complex layers of institutional, organisational and interpersonal demands which have an impact on the competing needs of students, supervisors, school and university, in the delivery of this research degree. Experienced teachers seeking to examine teaching practices for the professional growth of themselves and their school communities, often enrol in a higher degree by research, only to find that the demands of the research project are too great for the time they can devote to it. This may lead to

frustration and disappointment with their lack of progress.

There were a number of themes which emerged in this 2012 paper. We found that student motivation was in many cases extrinsic – the school strongly encouraged participation in the course, even providing financial incentives; not many students were intrinsically motivated. This was exacerbated by the work demands imposed by Glenhope, with no time release to support the research. The research training units, which included small relevant tasks, for example a literature review, gave them an unrealistic understanding of the breadth of reading and writing required to demonstrate a knowledge of their field. They were also faced with the time management required for a research project, compared with short coursework assignments. They tended to evade supervisors if they hadn't advanced; they didn't mention work or family problems or illness, and were unaware of the administrative provisions for leave or intermission (despite information provided through their Moodle site). In part, as a result of these difficulties, a third of the students have not completed the research degree.

3.2. Current research

Our current research seeks to compare these themes with the lived experience of the supervisors and students, and this study explores the student perspectives. Following are some initial findings.

We talk in research training programs about the process of undertaking a research project, and the thesis as a part of that whole. However, for these students, the experience is about the thesis itself, and how to write it, how to make connections between the different elements in flowing prose, and learning and using academic language and conventions appropriately. In other words, knowing what the end product should look like is important in keeping them on task and reaching their goal.

Time management is particularly difficult for part-time students. Coursework makes this simpler, because of straightforward tasks and deadlines. Writing a thesis is more problematic, unless there are clear timelines set by the supervisors and students together. This is aggravated when there are changes in supervision, including new methodological approaches which can set the work back by some months, as students struggle to reconceptualise the thesis framework. Handing over supervision, for example when staff leave a university, should be a collaborative process involving new and old supervisors and the student, not simply an administrative procedure.

Intrinsic motivation is essential for success; passion for the research is vital on the part of both student and supervisor. Teachers know that they should give themselves time to reflect and allow

space for professional learning, but they are rarely able to do this. Undertaking the research makes that time. In addition, new understandings flow into their teaching and change pedagogical practices.

4. Conclusion

This research is a work in progress. We are hoping that our findings will suggest some strategies and procedures to improve outcomes for our faculty's research students, particularly the vulnerable group of part-time students who have only "spare" time to devote to their study. Some of the findings may be relevant for academics in other institutions.

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Leadership Styles of Department Chairs at King Saud University in Saudi Arabia (Transformational Leadership)

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Abstract

The study aimed to identify the degree of practicing transformational leadership by academic departments chairmen at King Saud University. Multifactor leadership Questionnaire (LMQ) was utilized as an appropriate data gathering method. The population selected for this study consisted of all faculty members (3499) holding PhDs at King Saud University. The total number of participants in this study was 246.

1. Introduction

Academic department chairs play import role for success or failure of universities. In addition, they are the key direction in leading faculty of their department to achieve organizational goals. Because higher education will be different in the future, its leaders will also need to behave differently and assume different philosophies about leading. Specifically, they need to know and remain true to their personal and professional values as they make decisions and as they work to clarify, affirm, and regenerate values for their universities at large. Understanding the principles of leadership is an important element in the success of all components within an institution and thus to the institution itself [5]. To achieve efficient performance, there is requiring expanding the empirical research base addressing leadership styles. By measuring the perceptions of department chairs. Leadership style could significantly provide the accurate results. To realize and understand Saudis public higher academic professional leadership and their leadership style adaptability, this research could help the performance of chairs leadership styles.

The study of transformational leadership has been and continues to be the focus of numerous academic research studies [2], [3] and so on. The significant aspect of the present study might provide support for the application of the Transformational Leadership Theory in identifying effective leaders for Saudi Universities. In addition, findings of this study may assist higher academic leadership to acquire awareness of their own leadership styles as a step

toward becoming effective academic professional leaders.

2. Operational definitions

Leadership is as process of influencing a group towards the achievements of goals and a leader as someone who can influence others and who has managerial authority [8]. Those managers are considered successful who can adjust their behavior in accordance with the requirements of the organization or according to the demand of the situation that prevails. These managers can adopt a leadership pattern as per needs of the time [6]. The environment of business in recent times requires leaders and leadership abilities spread all over the organization [10].

Transformational Leadership

One of the theories which are enjoying importance and continuous research and development is the theory of transformational leadership. This theory of leadership practices is called *cutting-edge leadership theory* by Professor Robbins [8]. The theory suggests that the leaders who are charismatic and motivate employees by inspiring them, consider them individually, and stimulate their intellectual needs are transformational leaders. Transformational leadership style has five dimensions or factors included that are: Idealized Influence (attributed), Idealized Influence (behavioral), Inspirational Motivation, Intellectual Stimulation, and Individualized Consideration. The description of these five factors is as follows.

3. Methodology

Multifactor leadership Questionnaire (LMQ) was utilized as an appropriate data gathering method. The population selected for this study consisted of all faculty members (3499) holding PhDs at King Saud University. The total number of participants in this study was 246. In analyzing data tabulations, frequency distributions, means, percentages, and standards deviation were used. A t-test and One Way ANOVA were also used.

4. Data Analysis

Table 1: Demographic characteristics of respondents

university of graduate			Designation			Specialty		Gender	
Foreign	Arab	Saudi	Professor	Associate Pro	ASSISTANT Pro	Science	Humanities	female	Male
168	39	39	36	78	132	117	123	51	195
768.3	715.9	715.9	714.6	731.7	755	748.8	751.2	720.7	779.3

Table 2: Scores (mean, Standard Deviation) of practicing Transformational leadership

Characteristics	Means	SD	Ranking
Idealized Attribute	3.799	.75412	2
Inspirational Motivation	3,834	.76272	1
Intellectual Stimulation	3.5585	.84549	4
Individualized Consideration	3.6646	.95047	3
Total	3.7250	.75684	

The mean score of the transformational leadership style is 3.7 which indicates that this style is practiced often by department chairs at king Saud University. Only the score on the dimension individualized consideration is lower than the remaining 3 dimensions of the transformational leadership style.

5. Conclusion

The result of the study indicated that the degree of practicing transformational leadership by academic departments' chairmen from faculty members perspectives was high and the mean was (3.72). The result showed also that there were significant differences between faculty members attributed to gender and specialization (human study or science). However, in gender was in favor of male in factor of charisma inspiration and it was in favor of scientific field in factor of intellectual inspiration. Finally, the study recommended that the king Saud University should pay more attention in

training departments' chairmen on transformational leadership skills as well as providing them feedback on their education leadership style.

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What Happens When Writing Experts Choose to Write about Their own Trauma?

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Abstract

This paper reports the findings of a ten-year qualitative study focused on how language and literacy experts voluntarily used writing and imagery to deal with emotional and psychological trauma (e.g., terminal cancer diagnosis, the sudden death of a spouse). This paper focuses only on participants' thinking and composing behaviors, including audience awareness, writing fluency and processes, genre issues, thinking processes, connecting local with global concerns, balancing conceptual oppositions, engaging in simultaneous differentiation and integration, and using internal and external imagery.

1. Introduction

Claire, a young teacher, could not engage in writing about the single trauma that was most eating away at her: the sexual abuse that she and her two sisters suffered at the hands of their brother. She overcame her reluctance, and for the next ten years, resumed her career as a successful educator. Ten years later, we re-connected. Here is an excerpt from Claire's recent note to me:

Just so you know, I don't think I'll EVER forget you or your class. I still talk about what I experienced in your class to this day, to other educators, and to my family and friends. I actually have one friend who is experiencing a very traumatic divorce. She came home one day from work, and the whole house was empty, including the cabinets, the linen closets and the refrigerator. He also drained her bank account and left her with nothing. We would often talk about what was happening, but that never seemed like enough (for whatever "enough" means). It never seemed like talking gave her any solace or comfort. So I introduced writing to her. She said she didn't like to write because

she's "not good at it." (Personal Communication, September 9, 2013).

While Claire was unable to convince her friend that sustained writing was worth a try, Claire had enough experience and belief in writing to strongly recommend it. She has worked for the past ten years to "spread the word."

Two messages reside at the heart of this study. The first one is intended for people like Claire's friend, who choose not to write because they are "not good at it." Claire's friend could not be considered a "language expert," but she doesn't have to be. She only has to write and keep writing. To be entangled in a web of severe trauma and never write just because you're "not good at it," is, through and through, tragic. The second message of this project is that language experts who know and understand the powers of composing must nurture this practice in their own colleagues, students, and others, however they can. Some of them, like Claire, will carry the ball forward. Small changes, by even a few people, can lead to qualitative changes.

No definite "conclusions" are possible for this study because everyone's work herein is starkly unique. The profound individuality that drives composing through trauma is the most powerful argument for advocating its integration into many areas of our daily lives - into our education, our work, our creativity, our culture. However, this unrelenting focus on the individual is also its chief limitation. For many people and institutions, from schools, to businesses, to governments, the valuing of people's individuality is time-consuming, expensive, messy, ambiguous, and threatening - sometimes even scary. This is the central conundrum of this chapter. But I don't think we have any choice except to take the side of the angels, to insist that we compose our way through traumas, as individuals and as a culture.

The language, imagery, and people in this study differ in many significant ways: in age; in the stages of their careers; and in their cultural and educational backgrounds; in the types of traumas; dealt with; in the kinds of discourse created. While there can be no hard conclusions about the exploratory language and imagery used by these writers, there are, nonetheless, some commonalities. First, I'll focus on some common issues of thinking and composing, which are

bound up within the larger rhetorical issues of audience, genre, and rhetoric (not included here).

2. Common Threads in Thinking and Composing

Much of this study focuses on the varied, often complex thinking processes of writers who struggle to understand their unique traumas. In attempting this, I've included their written texts, their written and spoken reflections on this work, and their spoken and written language collected from personal interviews and correspondence, I have tried to identify and describe their thinking and writing—a complex web of different personalities, purposes, audiences, texts, processes, and contexts. In the case studies on Lucy and Kate, I focused first on characteristics that were unique to each, such as Lucy's public writing and Kate's reliance on the personal letter genre. I then described elements shared by both writers, ranging from fluency, to simultaneous differentiation and integration, to connecting local issues with global issues. While these are my choices and categories for clarifying what people do when they compose about trauma, many *other* metrics are useful for gauging thinking and written discourse.

One easily applied rubric, for example, is Lee Odell's "Assessing Thinking: Glimpsing a Mind at Work" [1], which describes and defines six features of writing that identify thinking processes: 1) dissonance; 2) selecting; 3) encoding and representing; 4) drawing on prior knowledge; 5) seeing relationships; and 6) considering different perspectives. The author offers a series of questions to guide analysis for each category. For instance, with "dissonance," he asks if writers point out things, which puzzle them, and if they notice ways in which people's actions seem inconsistent with their words. In sum, I believe that the vigorous thinking and writing that occurs when people focus on trauma can be validated through many approaches. After all, the writers explored herein are mature, unique individuals. The multiple ways in which different traumas affected them, along with their myriad written, spoken, and visual ways of responding to these challenges, increase the level of complexity and uniqueness of each case. Despite these extreme idiosyncrasies, this section describes several important commonalities in these writers' thinking and composing processes.

2.1. Writers Felt Overwhelmed, but Soon Gained More Control

When some of these writers first wrote about significant trauma, they felt overwhelmed. When other people were part of the process, such writing was

sometimes overwhelming for their readers. Many of these writers reported "how hard it was to write," and a few people experienced physical nausea and nervousness. Invariably, though, they were glad they began the process, because the more they wrote, the better they felt about it; the more they wrote over time, the more "distanced" they became from their topic, thus allowing them to more actively explore their thoughts and options for *how* they might regard their trauma in the future.

The main reason for these writers to feel overwhelmed is that such writing asks them to stand smack in the middle of a frenetic traffic intersection, where powerful forces madly crisscross each other, cars zooming by from all directions, in deafening chaos. Such composing demands that words collide with images; past collides with present and future; public and "knowable" facts merge with private thoughts; emotion melds with reason. As would be true for a real cop at a congested and chaotic intersection, it takes sustained practice and patience, over time, to slow things down, to impose some pattern and order.

2.2. Motivation for Composing about Trauma Sometimes Differed from Other Kinds of Writing

By its very nature, writing about trauma has to be internally motivated. Lucy and Kate are not writing in order to earn a grade, to submit to a publisher, or to gain any kind of reward. Their motivation instead comes from an authentic, deep-down desire for understanding, for making meaning from chaos. If we think of the other extreme, we find student writers who harbor precious little motivation for writing about issues to which they see no connection. While internal motivation solves the problem of student writers who often harbor precious little desire to write reports and research papers, other problems arise. For instance, it's not always easy to tap into internal motivation, because it can be buried beneath several layers of social and cultural conditioning. Many people have internalized from teachers and others that they dare not use the word, "I," much less write about being raped.

2.3. Other People and Creative Activities Supported Writers

Feelings associated with trauma are fragile and place us face-to-face with our own vulnerability. It only makes sense that the most human of feelings require the support of other humans. This human link provides the needed grounding, contact, and feedback. In short, other humans give reality to the unreal

situations writers find themselves in. Family members and close friends were indispensable for enabling these writers to gain measures of comfort and control through composing in word and image. Lucy, for instance, found strength in her husband, children, colleagues at work, and especially one close friend. She also found hope in her students, but always in ways that were professional in nature and focused on *their* learning.

The most common (and powerful) theme in these writers' interactions with people is that of "helping themselves through helping others." Lucy relentlessly worked to raise thousands of dollars for "The Lucy Fund," to support research in metastatic breast cancer. Kate has become a Peace Corps volunteer. Another writer, not included in this report, founded a non-profit organization to promote children's literacy.

The writers in this study often engaged in other creative activities, which were not highlighted here, but certainly seemed to have a positive effect. These activities included growing grapes, writing poetry, traveling, studying music, painting, and creating non-profit organizations. At the least, these activities served as a "counter-point" or relief or diversion from writing. Creating in any way has to be considered a healthy activity. For many years, art, music, and poetry therapy have continued to gain acceptance in many cultures. For example, there are now approximately 72 music therapy programs (approved by the American Music Therapy Association), at the bachelor's through PhD levels, across the United States.

2.4. When Writers Doubted if Composing Helped Them, They Accepted this Questioning as Natural and Found Ways to Continue

The writers in this study were experienced educators, trained to constantly question not just facts but nearly everything else—from broad values, to detailed procedures. As committed to writing and expressive language as these people were, each of them had moments of uncertainty. Such doubt is a natural phenomenon or "stage" for most writers, regardless of their topics, purposes, and readers. Experienced writers deeply know that any writing is a proverbial crap shoot—or at least starts out this way. And, of course, they also know that some writing is sabotaged or no longer relevant or sufficiently motivating to continue, so they will abandon it—but never completely discard it, because they know that it may "fit" another context, at a later time.

Here's another complication: the feelings we experience when composing through trauma can be quicksilver and seemingly "magical" in its perceived results. One writer owned a long history of child abuse and flashbacks that interfered with her or his daily life. When he began writing about his personal experiences, including but not limited to traumas, these flashbacks suddenly disappeared. Such instant changes are not typical. More often, writers gradually gain control over the varying degrees of beastliness that had controlled them. Many shades of gray color this issue, and these veteran language experts have internalized this reality. They know that feeling confident their writing is helping them on Tuesday may not be true on Wednesday. They know that they may experience these same extremes within a single day or even an afternoon.

My concern is for people who do *not* yet realize that this question, "Is composing helping me or not?" is cemented as a two-valued, yes-no question. They believe that if composing is not helping on Monday afternoon, that it will never-ever help. This is thinking that's frozen in time. In such cases, writers must be patient, wait, and dig deeper. As a matter of fact, writing itself may be the best or only way to resolve this issue, this "trauma-within-a-trauma."

2.5. Writers Occasionally Encountered a Unique Form of Writer's Block

As discussed earlier, it's relatively common for people who write about trauma to feel uncomfortable, sometimes even ill, when initially writing such topics. Most writers improve relatively quickly, and continue doing so over time. More often, these initial feelings of discomfort seemed to be subtle ones, to the point that it took writers some time and to recognize their existence. Such feelings gradually "swelled" into a positive realization that writing clarified the dimensions of their trauma and shifted them into an overall, considerably more positive frame of mind. In all, it seems to me that few feelings have such a dualistic nature.

As well, these writers were well acquainted with the common variety of writer's block: becoming easily distracted; simply not feeling up to it, trying, but producing little, like they were pulling the proverbial teeth. We may have too many ideas swirling about in our heads about what we want to say, or we may want to cover too much ground—and become stymied, not knowing where to start. Other times, we may have no trouble putting words together and often have a "global" idea of where we're headed, but we may get stuck at a "middling" level, such as not knowing where to take a specific

paragraph. At such times, the writers in this study did things that they knew from experience usually worked for them: they switched to writing something for a different purpose, audience, or genre; they took a walk; they did household chores; they gardened, read, watched television, or listened to music.

Once in a while, though, writers experienced a qualitatively different form of writer's block, in that it was a combination of some or all of the blocks described in the previous paragraph, in addition to--at the same time--feeling helpless to stop the stream of words and images rushing into their consciousness. One writer, who had lost her teenaged daughter in a car accident, described this intermingling of different forms of blocking:

If the flow of images is too upsetting (such as picturing my child's last few seconds in that car), I do have to consciously stop that line of thinking. I have developed "safe" places in my mind and do make myself turn my thinking to one of those safe places.

I think I'm more frustrated with myself when I have images and words that need to be written about and I choose not to do it. Why? Am I lazy? Am I avoiding? Do I think it's not important enough since I don't think I'm a good writer? Do I use time as an excuse? Sometimes I do. If I choose not to get out of bed and write thoughts that seem to be begging for paper, often I can't retrieve that particular slant and then again feel a bit of frustration, or perhaps, even a loss. (Personal Communication, July 6, 2009)

While I was curious about exactly what these "safe" mental places were, I did not ask. It felt too intrusive. The writer's "consciously stopping that line of thinking," seems to be an example of "suspending" her inner stream of thought. It's also interesting that the less intense forms of blocking seem more troublesome for this writer. I suspect that the intense and more mundane forms blocking are somehow connected, but that question will have to wait.

2.6 Faith in the Act of Writing Itself Created and Sustained Success in Exploring Trauma

The writers in this study believed that sustained writing will work its way to a resolution or balance of some kind. Nora (who appears here for the first time) clarified her notion of writer's block and her faith in the process itself:

Sometimes, late at night, there's a stream of words and images that I can't stop. My solution is to get up and write them down. Then I can sleep. Other than this, I have trouble even relating to the question. I always want to write, and where there's a stream of

words and images, my primary impulse is to write it down. Times when I cannot write? Yes, there must be some, but generally, if I truly cannot write (I'm making a presentation, for example), I'm so focused on something else that I don't think about writing. I often interrupt what I'm doing if that flow of language begins in my head. If I'm driving, I pull over. If I'm riding a bicycle, I stop. --Oh, I remember once when there was a powerful stream of language in my head and I could not stop. I was on a 100-mile canoe trip, the weather was bad, the current was strong, and both my paddling partner and I were having to work as hard as we could to keep the canoe moving in the right direction. I was nearly in tears, wanting to write, and finally I called to Holly, "I have to write!" It was a nuisance, but we maneuvered the canoe out of the channel, tied up to a mangrove, and I wrote. If it's an incessant voice that I don't want to hear, writing is what frees me of it. When I write it down, it's no longer inside me. ---I've made a life of externalizing internal speech.

Nora is also a seasoned language expert—a university professor and well-published author who focuses on writing about the natural world, especially through poetry. It seems natural that writers would solve the problem of writer's block by writing.

These writers have long-since internalized the notion that composing occurs in rough stages, a highly recursive or cyclical process in which their words and thoughts constantly shuttle back and forth, each changing the other. There are three primary reasons that these writers (consciously or unconsciously) know that composing through trauma is effective. One reason for their faith is that they know directly or strongly intuit that writing and thinking are tightly braided together, that visible words lead to more or different thinking, which in turn leads to more or different words, as the cycle continues. The first reason for their faith is that trauma has prompted these writers to abandon most of their preoccupations with plodding earthly concerns, which allows them increased energy and time to devote to thinking and writing. When everyday life's trivial concerns have been shaken off of us, larger, human issues surge into sharp relief.

The second reason for this faith in written and spoken informal language is that people knew that it would not be formally evaluated. If this were the case, they would "censor" themselves and avoid saying things that their reader may not accept. Striving to please one's audience, then, cannot be considered expressive language. When writers detect varying degrees of distrust with their readers, they not only censor themselves, but they also write considerably fewer words, in total, as well as fewer words per

minute [2]. This *lack of fluency* often means that writers do not allow themselves sufficient time and language to arrive at their intended meaning. That is, visible language generates more language and more thinking, in turn extending the thinking-writing cycle. Writers need to generate enough ideas in their writing for them to discover exactly what it is they want to say, what they most want or need to write about. As well, fluency must be practiced and learned, where writers are allowed to compose whatever they want, as fast as they can, for, say, ten minutes.

The third reason that writers maintained faith in the writing process itself is that they enjoyed the times when thought and language flowed in parallel streams, so as to be nearly indistinguishable. It's not just the sheer rush and burn of fluency that writers know and feel, but also the sense that they are engaging in serious intellectual activity, such as reconciling oppositions, solving problems, asking and answering their own questions, and connecting and interweaving concepts. Beyond this heat and fun of intellectual fluency, some writers will enjoy revising and fine-tuning their work, while others will enjoy different stages, such as re-reading their prose to project ideas for future writing.

2.7 Writers Allowed Oppositions to Surface, Faced them Head-on, and Pursued Them over Time

This, of course, is natural to the genre, if writers choose to deal with trauma, because trauma includes many types of conflicts, therefore carrying opposing forces with them. A few writers consciously communicate that they are writing about trauma, but then find many ways to *avoid* doing so. Most often, such writing takes the form of circling around and around the issue at hand, dealing out a series of vague, general, and abstract phrases. With some writers, this approach turns out to be a natural stage they must go through before they lessen sometimes subconscious defenses and start facing issues more directly.

Kate best exemplifies the dogged pursuit of oppositions. Such writers grapple with words and ideas, tugging and pulling between many types of *oppositions*, including 1) the whole idea, tone, or attitude they wish to convey vs. the individual parts (e.g., words, phrases, and sentences); 2) the past time period in which the traumatic experience occurred vs. the current time period; 3) the need to focus on negative experiences vs. the impulse *not* to sound completely negative; and 4) the experiences they wish to *show* in their writing (i.e., sensory images and details objectively conveyed) vs. the more general statements of the experience's overall effect.

2.8 Manipulating Images Helped Writers to Think Broadly and Deeply about Trauma

In "Healing Images: Historical Perspective," Anees Sheikh [3] summarizes historical and recent research (clinical and experimental) that explores the uses of imagery to treat numerous physical and mental issues, including obesity, insomnia, phobias and anxieties, depression, cancer, and chronic pain. He further notes that this research often verifies what has been recorded in many ancient cultures throughout history. Sheikh credits Carl Jung for defining mental imagery as a dynamic process: "Jung remarked that when we 'concentrate on a mental picture, it begins to stir, the image becomes enriched by details, it moves and develops . . .'" [4]. The active, flexible nature of mental imagery is especially potent and "combustible" when it interacts with language.

In my own work, actual representations of artwork and photographs significantly helped writers to understand their trauma. I encourage people to draw and paint their own images for use in various writing assignments focused trauma. Short of this, manipulating personal photographs (or finding "stock images" on the Internet if none were available), it was especially effective in helping writers actually "see" and consequently unpack their traumas with language. Writers changed their image's foreground, background, facial expressions, color, positions of people, and other pictorial elements. Manipulating actual images to depict "what is," and especially, "what *should* be," helped writers gain more ownership of--and hence control--the image and associated trauma. Such visual and verbal interactions were especially useful.

Many years ago, I became so convinced of this phenomenon that, in my class, I began requiring students to actively manipulate pieces of art or personal photographs in ways that paralleled and extended or "fed" their written text. (Since then, considerable research evidence has accumulated to support the benefits of combining word and image. Everything they wrote in language had to be accompanied by a visual text as well, and that their writing had to thoroughly reference their visual text. I encouraged them to develop these in tandem with each other, though some writers found it easier to complete one or the other first. Though not included here, other forms of media, such as video, music, and graphics have also proven to be fertile fields for interactions with spoken and written language.

Many writers used images to help them consider alternative scenarios to feeling victimized by trauma. A few, such as graduate students, Khanh and Minji, created original drawings and paintings in tandem with their writing about trauma. Most others, though, chose

to use computers to manipulate personal photographs. I also include in this category the imagistic language. Generating and manipulating *all* forms of imagery seemed to help writers understand that 1) their trauma can have more than one reason or explanation; 2) they are not the only one experiencing the trauma; and 3) they can project into their future, to hypothesize scenarios which may reduce their trauma's grip on them. For example, Lucy, a veteran language expert, imagined a specific future scene with her family, gathered at their farm, as her own children, now grown, lovingly tended to their own small children. In effect, Lucy tried to place herself there, as she lived with the knowledge of her terminal illness.

2.9 Reading Widely Helped Writers Understand the Larger Context of Specific Traumas.

Reading widely is crucial to understanding. “We are not alone” in whatever trauma we’re facing. Discovering larger contexts helped not just the writers, themselves, but also helped them assist others in their small response groups. Most of the people explored in this project were active readers. If they were in my class, they read and discussed numerous publications focused on research linking writing to wellness. Those writers not in my class vigorously searched out all manner of readings they deemed relevant to their trauma. With no exceptions, they reported solid gains from such reading and talking about their reading with others.

Students in my course seemed to benefit from the imagery found in readings from professional writers who focus on trauma in their fiction and literary nonfiction. For example, Maya Angelou’s *I Know Why the Caged Bird Sings* details her grandmother taking young Maya to see Dentist Lincoln when she had a severe toothache. This chapter’s imagery is both real and imagined, as Angelou creates a powerful alternative scenario of how her grandmother stood up to the racist dentist. As well, George Michelson Foy’s essay, “Burning Olivier: The Brief Life and Private Burial of an Infant Son” [5] articulates the author’s experiences in an unflinching narrative, laced with potent imagery. In short, robust imagery within the complete context of written discourse vividly illustrates the intense powers that language can exert on trauma. Thoughtful and well-crafted fiction and nonfiction can communicate the “lived” of trauma more persuasively than any other genre.

Reading fiction also helps us to be more empathetic with other people. Especially for readers who are writing about trauma, it’s important that they identify with the main characters, that they are “emotionally

transported” to the characters’ place, time, feelings, and experiences [6]. Among other effects, reading fiction helps writers about trauma understand (in intellectual and emotional ways) that they are not alone in their suffering. Fiction can powerfully teach us about these issues because we have to vicariously (but actively) *participate* in the making of meaning afforded by the text. Reading to make sense of trauma is the reciprocal side of writing to make sense of trauma.

Writers also benefitted from using *informational* nonfiction, which contains a more straightforward and “objective” accounts of its subjects. Lucy and Kate, the oldest writers included in this study, instinctively sought out credible information from secondary sources related to their trauma. Lucy, for example, investigated metastatic breast cancer from many perspectives—its past, present, and future research agendas, its sources of funding, and journal articles and web sites reporting clinical studies. She also read about the concept of death from literary and philosophical perspectives.

However, the younger writers in this study were less inclined to automatically seek external and more objective sources of information, which is why I began to require students to conduct outside research for some of their writing projects. The chief benefit of their integrating objective information into their writing is that it starkly clarified that “they were not alone” in their particular trauma. The person who harbored unresolved feelings about her adoption researched the laws and number of adoptions that prevailed in the same location and time as her own adoption. She also investigated prevailing attitudes and values of the time, from the viewpoints of childless parents, adoption agencies, and others. The student who felt guilt over a drug arrest in his small town discovered that, in the broader context of different areas of the country, which bear different laws, attitudes, and values, his worries stemming from his small town did not seem so tragic after all. Widening, opening up, the private and restricted context proved to be invaluable in fostering writers’ sense of wellness.

2.10 Three Major Thinking Processes Most Influenced Writers’ Composing about Trauma

These different yet overlapping thinking processes seemed to contribute the most to these writers’ success: 1) simultaneous differentiation and integration; 2) witnessing, focusing, and suspending the inner stream of thought; and 3) ignoring boundaries. All of these habitual thinking strategies

are clearly visible in actual writing samples. When we try to make sense of a new, sudden reality, such as a serious trauma, we work hard to re-adjust or re-orient our new state to our previous “normal” selves. It seems logical, then, that we would constantly search out how and why these two states of mind are different and alike. This simultaneous differentiation is occurring not just within us, but also between us and other people and contexts.

The second common thinking process--witnessing, focusing, and suspending the inner stream of thought - allowed writers to sit back and absorb, as objectively as they could at any given time - what was happening to them. What they may witness from actual experience or from their own flow of thought, could then become an object for interrogation or reflection—an object or idea to focus upon. The suspension of the inner stream of thought is difficult to notice in writing, if not impossible, but we do see this at work in how writers “switched off” troubling or scary images that entered their consciousness.

The third major thinking strategy or habit is that writers often ignored “boundaries”--of time, space, topic, and relationship with others. Writers focused on the past, present, and projected into the future, and did not feel restrained from doing so, even within a single piece of discourse. This is mainly a function of private, close-to-the-self writing, even though we see this freedom in more public writing about trauma, as well. I should note that this “ignoring of boundaries” is a rhetorical “stance” that writers chose and did not deviate from in the middle of their writing. They were certain of what they wanted and what they were doing. Finally, these major thinking processes are each abetted by the basic cognitive strategy of *ranging* up and down the “Ladder of Abstraction” [7] and *connecting* general and abstract ideas to specific and concrete examples and illustrations.

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Session 18: Curriculum, Research and Development

Experimenting Extended Courses in Languages and Cultures for Science and Engineering Majors
(Author: Yibo Yang)

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(Author: Loyiso C. Jita)

Experimenting Extended Courses in Languages and Cultures for Science and Engineering Majors

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Abstract

This study explored a 3-year experiment of implementing extended courses in both languages and cultures for students majoring in science and engineering at one research-intensive university in China. Extensive reading, building vocabulary skills, writing, academic writing, translation skills in the field of science and engineering, North American culture, European history and culture, Australian culture and etiquettes in communication are among the courses popular with students. It is found after six teaching cycles that this pattern could benefit those who are normally isolated in their own areas of research, with not only advanced skills of mastering the languages, but an opportunity of analyzing and understanding other cultures. Another benefit is that these courses might cultivate positive emotions and perspective towards the world by integrating liberal education with their professional education. Nevertheless, the motivation of learning and how to facilitate the policy might be among the major obstacles in expanding the mode.

1. Introduction

The English course at tertiary level in China has been experiencing a dramatic change in the recent decade in response to the advancement of international communication and the requirement of the society for bilingual talents proficient at both the specialty and English.

This round of English curriculum reform began in 2004 when the Ministry of Education issued the new guideline of transferring the traditional way of focusing on a single textbook to a variety of extended courses in culture and communication as well as language skills (Ministry of Education, 2004).

With the profound gap in the elementary education between the developed areas such as Shanghai, Beijing or other metropolitan cities, and the underdeveloped areas such as the vast majority of countryside, remote places or smaller cities, the English proficiency of the students enrolled into universities are actually quite diverse due to their different exposure to the language at primary or secondary schools. This study experimented to

implement extended courses to enrich language learning and culture education for sophomores majoring in science and engineering so as to better cater for different needs of learners at one research-intensive university in northeast China.

2. Need Analysis

The students in science and engineering majors are quite distinctive from those in other majors due to their study objectives, contents, learning styles and the environment they are supposed to work in which throw an impact in the formation of their general characteristics as followings on which is the need analysis of this study based:

Superior in reasoning. Because of their special training in the studies and researches, the majority of them are prominent at logical reasoning and practical assignment which demands for accuracy and precision.

Field-independent. From the very early stage they are taught to be independent and take initiative in critical thinking in order to remain competitive in innovation and research.

Focusing on the knowledge in science and technology. The students in a research-intensive university are normally under great pressure of their disciplines in science and engineering with rich resources of readings and time-consuming drawings, calculation or field work. Their professors and lecturers usually aim high in the field with abundant funding and research projects which strongly attracts the students to conduct research out of interest and curiosity.

The characteristics unique to the science and engineering students together with the advancement of Chinese industry have raised the issue of the reformation on English education. Because there presently is a shortage in China of the technical talents who can be sufficiently competent in the international communication, the pressure of effective English education for these students is particularly acute. When the courses requires to consult references or communication with the outside part of the world in English, the motivation drives them to seek for better mastery of the language as well as the cultures behind the language. The motivation becomes even stronger when the students pursue to have further education overseas or

work for international enterprises. Although a good proportion of students are still at the stage of struggling with very basic knowledge of English, their inner ego urges them to conquer higher levels as well as the fundamentals.

3. Course Implementation

The overall reformation was aimed at the sophomores who were guided to choose one course each semester from a list of subjects which was compiled in full detail of the introduction and presented on the online enrollment system of the undergraduate school office towards the end of the first year integrative English course. As autonomous learning in language centers was highlighted during their first year English study, the students have had the chance to think critically about where the gap was which could help them to make rational choice for the next stage.

Considering the finite resources of the faculty and the courses they could offer, the amount of classes each course offered was flexible for language skills but generally inflexible for those related with cultural knowledge. A pilot study was made before the enforcement to understand the needs of students for each type of classes. Those who kept their choice at the first round of the pilot study were given the priority in the enrollment. The program started from the fall semester of 2009, and after six teaching cycles in the school year of 2009, 2011 and 2013, the curricular were generally settled in the 13 subjects shown in Table 1 which also presents the class numbers and student numbers of the spring semester 2014.

Table 1. Extended English courses for science and engineering students

Classification	Courses	Classes	Students
Language Skills	Extensive Reading	28	697
	Building Vocabulary Skills	21	527
	Practical Writing	12	242
	Academic Writing	4	77
	Listening of News Report	5	131
	Reading of News	12	236
	Practical Translation	20	483
	Advanced Word Power	5	148

Cultural Knowledge	English in Communication	16	375
	North American Culture	8	152
	European History & Culture	12	286
	Australian Culture and Etiquettes	4	95
	International Communication	4	119
Total	13	151	3568

(Spring Semester 2014)

The proportion of students for language skills and cultural knowledge is 71.1% to 28.9% in the spring semester of 2014 which clearly indicates the students' preference to the specific training of different aspects of the language. It also shows those with higher expectations were offered proper opportunities to dive into the knowledge they longed for.

Formative assessment was generally adopted for each course with 50% for the final, 30% for the mid-term, and 20% for the class presentation or assignment. However, there was a controversial issue over how to set the final examination to make the final scores fair enough to each student scattered in different courses because the name presented for the courses on their academic transcript would be unified as "Extended English Course". For the first two years we used English proficiency tests for the final and then in the third year we resorted to individual tests for individual courses to evaluate the achievement of both learning and teaching.

4. Feedback

A random sample investigation by issuing questionnaires was made two weeks before the end of the 2013 school year. In this study, the sample (N=875) was from six schools, namely Astronautics, Mechanical Engineering, Automation, Chemical Science, Electronics and Computer Science. Of these, the majority were from the school of Astronautics (n=196) and Mechanical Engineering (n=182). Interestingly, the male were prevalent (n=636), which was generally equivalent to the overall structure of the proportion of males and females at this university (1:7).

On comparing with the comprehensive English course they had for the first school year, a dominant ratio of 93.3% revealed that students acknowledged

that having the extended courses in the second school year resulted in more achievement than the traditional integrative courses did (see Table 2). The vast majority (82.7%) agreed that this way of intensive classification catered well for their different needs in mastering the language and understanding diverse cultures, which is in sharp contrast to the result that only 4% thought there was actually no practical meaning in changing the overall course structure (see Table 3). An amazingly interesting figure of 45.7% of students applauded for the choice of having the extended courses in both years instead of the present second year only (see Table 4). Considering that the sample students taken in the survey have just had experimented the courses in both years, the above figures strongly illustrated the students' acknowledgement and positive attitude towards implementing the extended English courses.

Table 2.

<i>I achieved more by taking extended courses than doing the integrative course in the first year.</i>				
Strongly Agree	Slightly Agree	Agree	Slightly Disagree	Strongly Disagree
51.7%	32.5%	9.1%	4.7	2%

Table 3.

<i>How do you think when the English course is split into specific skill training and cultural content?</i>	
A. Better. Because students can choose subjects in accordance with their needs.	82.7%
B. Worse. Because students are still at the stage of basic learning.	13.3%
C. Useless. No better than the traditional integrative course.	4%

Table 4.

<i>Which of the following do you agree about the design of the curricula?</i>	
A. Integrative course in the first year and extended course in the second year as it is now.	30.6%
B. Integrative course for both years because the extended courses are too difficult for some students.	10.7%
C. Extended courses for both years to meet the individual needs.	45.7%
D. Integrative course for both years so as to enhance the overall English level.	6.5%
E. Extended courses for some elite students in the second year, while others keep studying the integrative course.	6.5%

5. Discussion

After six teaching cycles each lasting for 16 weeks, we found that this pattern could benefit those students majoring in science and engineering who are normally isolated in their own areas of research, with not only advanced skills of mastering the language from various aspects and conquer the challenges to the target, but an opportunity of analyzing and understanding other cultures which could be especially useful for them as it is inevitable for them to communicate with people or information from other countries. Another benefit is that these courses might cultivate positive emotions and perspective towards the world by integrating liberal education with their professional education by observing the world from a point afar from the country itself. In the classes, they would make comparisons between cultures and formulate their own judgment for various events during the evolution of human beings.

However, the obstacles existed were from three facets: learners, teachers and policy makers. Since it is the students who were bestowed with the freedom of choosing from the course list with detailed course instructions, do they really have the motivation of working hard on the content? The research result showed that although they do have the inner motivation, there is a shortage of instrumental motivation. As some schools have changed the nature of the extended courses from mandatory to optional while some have not, the situation gradually grew to be chaos. The data showed 75% of our sample had the course as mandatory, another 25% as optional. The majority of 63.6% agreed that whether it is mandatory will surely have an influence on their effort thrown in the course, which might be one of the reasons why some of the students were seen as lacking motivation and passion by the teachers. At the second year of the university study, their schedule has been filled with study of knowledge in science and engineering field work. The time spared for other courses is quite limited which explains the indifference to the course when the English course is set as optional with one credit for 16 weeks of study.

Teachers generally have more difficulty to adjust to this fundamental root-deep reformation. After six teaching cycles, there are still complains about the splitting up of the course and the overall curricular. With their experience and knowledge structure, they are more used to the traditional way of having an integrative class instead of having a class in a certain single aspect of the language. Those who taught cultural knowledge have much better enthusiasm, however, because they could embrace more freedom in the content teaching classrooms.

This reform has been undergoing with great effort and constantly under reflections of how to better cope with students' needs and the future

society's needs. The question for next stage will focus on how to improve the content of the language skills so as to improve the effective input in the classrooms.

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Logic in Context: Using Logic to Improve Literacy and Critical Thinking Skills

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Abstract

Can knowledge of truth-functional connectives be generalized to other tasks and specifically, can instruction in truth-functional (t-f) connectives be used to aid in literacy? The link between reasoning and literacy is highly acknowledged [1]. However, the more fundamental elements of reasoning, specifically t-f connectives and logical form are not typically acknowledged in literacy strategies or instruction. In what follows, the links between reasoning and literacy will be examined, the reasons for why elementary logic is not included in literacy strategies and instruction will be acknowledged, research of techniques to increase the transferability of skills will be examined, and a planned study will be presented.

1. Introduction

‘Literacy’ originally was only used to denote the ability to read and write. However, in the present day ‘literacy’ is often tagged onto other domains so as to convey one’s ability to function in any given domain of meaning [1]. For example, in the domain of computers an individual may be referred to as ‘computer literate’, where “computer literacy refers to the ability to function with computers” [1]. It is important to note, that in this paper when using the word ‘literacy’ it is done so in the original sense, i.e. to denote the ability to read and write.

Writing and reading can be understood as meaning making and meaning understanding processes. In communicating with others we take part in a sharing of ideas which relate to each other in a meaningful way – that is, if you are having a meaningful conversation. But, even to recognize that the conversation is meaningful or not implies an understanding of the role that reasoning takes in the process of communication. The close ties between reasoning and literacy are explored in Blair’s paper *Reasoning and Literacy* (1990). As Blair (1990) notes, “the fact that understanding, interpretation, and meaningfulness are entailed by literacy implies that reasoning is entailed by literacy, because reading with

understanding, interpreting what one reads, and writing meaningfully all entail reasoning” [1]. That is, reasoning and literacy are inextricably bound up with one another.

An example of reasoning in reading is in the widely acknowledged act of hypothesis formation and testing that takes part in the reading process [2]. As said by Blair (1990), “one reasoning skill that seems inherent in the reading of even the simplest texts is hypothesis formation, testing and revision” [1]. Studies have shown that good readers are especially active in the process of hypothesis formation and this process has been integrated in strategies to aid in reading comprehension [3][8]. For example, to aid in reading comprehension readers may be encouraged to reflect and ask “What just happened and why might that be important?” [8]. In asking these questions, readers are engaged in the reading process and are prompted to think about how the events might affect the outcome of the story. In this way students are prompted to continually update and compare their hypotheses of how events in the story will carry out with the events and dialogue that is taking place. Furthermore, by causing students to reflect these strategies can help students realize *when* they are unclear on events and thus, prompt them to review the material [3].

It is clear that the processes of reasoning, such as hypothesis formation and testing, are acknowledged and indeed make a significant contribution to the educational research literature surrounding literacy. Given these close ties of reasoning and literacy it seems surprising that the more fundamental elements of reasoning comprise a void in the educational literature.

2. Logic, reasoning, and literacy

Language and reasoning comprise the foundation of our communications with other individuals and logical form can be found in all of our language and reasoning. So, it is a wonder as to why there is no place in our current curriculum that is occupied by the fundamentals of logic.

What is meant by logical form? Logical form essentially represents the syntax of our language, i.e. if one were to remove the subject matter from a sentence, then one would be left with its logical form. For example, the bi-conditional statement “All mammals have hair if and only if there is no mammal with no hair” has the logical form “All x have y if and only if there is no x with no y ”, where ‘ x ’ and ‘ y ’ simply act as content-less placeholders. A simpler example is: “God exists or God does not exist”, which can be represented with the simple logical form: “ x or not x ”. Thus, we can see that logical form is present under the surface of every sentence we will ever read or write – yet it is never addressed in literacy education.

What is interesting and useful about logical form is that it makes the relationships *within* sentences between the subject(s) and predicate(s) explicit and it also makes the relationships *between* sentences explicit. To illustrate, take the common example of a form of argument called *Modus Ponens*:

All humans are mortal.	All H are M .
Socrates is a human.	S is a H .
Therefore, Socrates is mortal	Therefore, S is M .

By translating the above argument (left) to its logical form (right) the relationships between the subjects and predicates as well as the statements themselves are made crystal clear. If all H 's are M 's and S is a H , then, *obviously*, S is an M – whatever an ‘ M ’ is. Although it is important to understand the meaning that lies behind the subject(s) and predicate(s) of any given sentence, by taking focus away from those meanings we can free more of our attention and apply that focus to evaluating the relations between the subject(s) and object(s) that are present in the text. Furthermore, it is important to note how the above argument – composed of three different sentences – was grouped into one sentence (in the second sentence of this paragraph). By using connectives we can combine simple claims to make more complex claims, which reflect the relations between those statements. This is something that almost all writers and readers do from a young age. Yet, ‘truth-functional’ is a word that is foreign to most people’s ears. For an English language connective (and, or, but, is, etc...) to be truth-functional it means that the claim that it makes when it is used will be true or false based upon the truth or falsity of the claims it joined. For example, ‘and’ and ‘or’ are both truth-functional connectives that have different truth-values, i.e. they work in different ways. The statement “Pamela likes carrots or celery” means that Pamela likes carrots, celery, or both and so, as long as it’s not the case that she dislikes both – the statement is true. Whereas the statement “Pamela likes carrots and celery” is only true if Pamela likes carrots and Pamela likes celery. In the case that one or both is false – the statement is false. These things may seem very

obvious, but there are some truth-functional connectives which are not so easy to understand and there are several ways to use these principles when reading and writing. Although there is little research which focuses explicitly on instruction of basic logic for educational purposes, logical connectives (e.g., and, or, if-then, if and only if, not, some, all, etc...) form the base of mental model theory [5] and techniques in critical thinking that are taught in a wide-range of settings [6]. Furthermore, they can be used (in the context of literacy) to ensure that the argument form of a paragraph or essay is valid and to deconstruct text in order to make an argument clear.

As has been shown our language is scaffold upon a myriad of logical relations, so why is elementary logic not included in educational instruction and specifically, literacy strategies and instruction? Firstly, logic is abstract and the abstract is often deemed too difficult. However, Dr. Don Dedrick and I have designed a very simple educational program that teaches the functions of truth-functional connectives through a number of exercises using regular language (no abstract symbolism). Secondly, due to its abstract nature basic logic is often seen as too far removed to be applied to everyday tasks such as reading or writing. That is, it seems unlikely that the study of logic would really transfer over to tasks such as reading or writing. On top of applied strategies based on logical knowledge – there are strategies that can be used during instruction which will increase long-term recall of a learned skill and also the transfer of that skill to other settings [4] [6] [7] [9]. In what follows, pertinent research on contextual interference will be investigated with the aim of shedding light on how logic may be taught to be better learned and applied across tasks.

3. Contextual Interference

When teaching skills it is common for participants to perform various types of learning tasks. For example, when learning mathematics students will often be asked to complete problems of addition, subtraction, multiplication, and division. A large body of research has shown that some teaching interventions that “enhance performance during training may have detrimental effects on retention and transfer performance, and conversely, instructional manipulations that degrade performance during skill acquisition may support the long-term goals of training” [6]. An example of the former would be providing a work-sheet of mathematical problems that had students complete tasks in different blocks, such as one page of addition, one page of subtraction, and then one page of multiplication. An example of the latter would be providing the various task types in random sequence, so every page would be a mix of, say, addition, subtraction, and multiplication – that were presented in random order.

Presenting materials in this random sequencing is referred to as interleaving practice materials, mixed practice, or random practice [6]. As defined by Helsdingen et al. (2011), “the contextual interference effect refers to the consistent finding that increasing interference between training tasks by such random practice may degrade performance during training but lead to better post training performance and transfer than after blocked practice” [6]. That is, by using random, rather than blocked, practice schedules individuals are hypothesized to perform deeper processing on the given tasks and thus recall the learned skill with greater ease and have greater proficiency in applying it across settings.

The most prominent explanation for why contextual interference has its effect on learning, supported through a recent study by Lin et al, is called the elaborative-processing hypothesis [6]. The elaborative-processing hypothesis holds that individuals must compare and contrast different tasks in a random schedule and thus, they become more skilled at identifying the relevant features due to “more elaborate and distinctive memorial representations of the practiced tasks” [6]. Although slower to learn, the effects of the learning process result in those individuals in mixed practice conditions performing better on retention tests and in novel tasks requiring the transfer of the learned skills.

Carlson and Yaure (1990) examined “how the context in which component skills are acquired influences the ability to access and apply those skills in a problem solving context” [4]. As would be expected by prior research, when learning the component skills (functions of Boolean connectives) those in the blocked-practice condition performed significantly faster than those in the mixed practice group, but the overall accuracy in the practice and transfer condition did not vary significantly between groups [4]. Those in the mixed-practice condition performed faster when generalizing the component skills in the problem-solving phase of the experiment [4]. Thus, the results from Carlson & Yaure (1990), in-line with that of Hiew (1977), showed that contextual interference effects do apply to cognitive procedures and importantly to the “transfer of component skills to problem solving” [4]. However, the only significant difference between groups in the transfer condition was the speed of task completion – the mixed practice group was not significantly more accurate. What makes the study of Carlson and Yaure (1990) particularly important to this research is their use of Boolean connectives, which represent operators such as: ‘and’, ‘or’, ‘not’, etc... That is, truth-functional connectives are based upon these operators and thus, if it can be shown that skills based on Boolean connectives can be transferred across tasks, then so ought truth-functional connectives.

Helsdingen et al. (2011) conducted a recent study to measure if the benefits of contextual interference, i.e. better retention and transfer of learned skills, could

be applied to complex judgment tasks and “whether critical thinking prompts can enhance the effectiveness of particular practice schedules” [6]. In the study subjects were given Critical Thinking Training. The aim of this training was to teach individuals how to properly approach predictive judgment tasks. The strategy was largely based on the principles of mental model theory as well as hypothesis formation, testing, and reformation [6]. According to mental model theory, when people are given the task of making a decision they will take aspects of past experience and the present situation to form “a mental model of the current situation that implies a prototypical or sufficient decision option” [6]. However, due to the fact that these mental models will often be missing information it is important to critically analyze the mental model so as to reduce the chance of making a decision based on incomplete information [6].

After being taught the Critical Thinking Methodology participants were put into a practice schedule and given the task of reading a short case description and rating its importance in a criminal investigation. After each rating of a case participants were told how the case was rated in priority. In the block-practice schedule one aspect of the case would change each time, whereas in the mixed-practice schedule several aspects of the case may change each time. Thus, individuals in the mixed-practice had to process more information and thus, in-line with elaborate processing hypothesis, may be caused to have “more elaborate representations of the domain” [6]. Furthermore, critical thinking prompts were given to participants before the task, after the task, or not at all. It was found that those in the block-practice schedule benefited slightly from proactive prompts, rather than retrospective or no critical thinking prompt. Interestingly - and likely due to the complexity of the task, their large cognitive load, and thus, difficulty to handle extra information given in the form of proactive prompts - those in the mixed-practice condition benefited significantly from retrospective critical thinking prompts [6]. That is, those in the mixed-practice schedule not only performed significantly better on post-test assessments, but also on the transfer test when compared with all other groups. Thus, Helsdingen et al. (2011) showed that contextual interference via mixed-practice and the use of retrospective critical thinking prompts could be used to provide better retention and better transferability of complex predictive judgment.

Summary. This paper has summarized the relations between logic, reasoning, and literacy to ensure the reader has a clear understanding of their interaction and ubiquitous presence in the world. However, despite the relevance of this knowledge to education, there seems to be a void in the educational literature concerning the relation between elementary

logic and literacy. This absence may be due to the abstract nature of logic – which often leads logic to be seen as too far removed to be of use in practical tasks such as reading and writing. The concept of contextual interference was presented as a method to aid in the retention and transfer of learned skills. Through various studies it was shown that contextual interference can be used to aid in the learning and transferability of cognitive skills [4][6][7][9]. Specifically, contextual interference was shown to provide these benefits when learning Boolean connectives, which have a very close relation to truth-functional connectives, and applying those skills to problem solving tasks [4]. Due to their close relationship – it seems reasonable that knowledge of t-f connectives could be taught and applied to problem solving tasks. Lastly, in a study by Helsdingen et al. (2011) it was shown that retrospective prompts could be provided to increase the benefits of contextual interference. It seems plausible that the current void in the educational literature could be addressed by building upon the findings of the present literature and knowledge of the relations between logic, reasoning, and literacy. The following section presents a study design intended to address the void in educational literature concerning whether interventions in basic logic may influence literacy.

5. Study Design

The following is a proposed study (currently underway) to address whether there is a link between knowledge of logic and an individual's literacy. Specifically, this study will assess whether there is an effect of knowledge in truth-functional connectives and/or logical form on the ability to deconstruct a paragraph into its logical form and rate the strength of the argument. Undergraduate participants will be selected from the University of Western Ontario and four groups (minimum of 30 participants per group) will be matched on grades, sex, and program (Arts, Science, or business):

- Control group: Given Sudoku (unrelated task)
- Experimental Group One: Instruction in truth-functional connectives
- Experimental Group Two: Instruction in logical form
- Experimental Group Three: Instruction in truth-functional connectives and logical form

After instruction, those in the experimental groups will be put on a random practice schedule doing various tasks related to their assigned instruction. All groups will be told that their educational materials (even doing Sudoku) have been shown to aid in the deconstruction and appraisal of argumentative structure. All groups will be given the task of analyzing a paragraph and extracting its logical structure (deconstruction) as well as evaluating the

strength of the argument. Those in the experimental groups will be given retroactive prompts of strategies that exploit either t-f connectives (Experimental Group One), logical form (Experimental Group Two), or both (Experimental Group Three). All groups will be given the argumentative structure after each trial – allowing each group the opportunity to learn from experience. It is hypothesized that the group performance in paragraph deconstruction and argument appraisal will increase through the groups, i.e. Control underperforming Experimental Group One, which will underperform Experimental Group Two, which will underperform Experimental Group Three. Logical form is more closely related to argument structure than truth-functional connectives, which is reflected in the ordering of expected performance.

6. Limitations

The literal interpretation of truth-functional connectives is often not used in everyday language. Context provides many clues that may modify how any given connective is interpreted. For example, in everyday speech, “Pamela likes carrots or celery” would be treated as an exclusive disjunction – meaning that Pamela likes one of the two, but not both (this runs counter to the literal interpretation presented in section 2). However, we can couple our knowledge of truth-functional connectives with our ability to identify the *intention* of the speaker so as to correctly identify the type of claim being made and then determine the following ramifications.

This study does not include a pre-test to assess students' ability to deconstruct and assess text before the intervention. This decision was made due to the fact that there is more difficulty recruiting participants whom know they will be tested on multiple occasions as well as a greater chance of attrition when participants are tested on multiple occasions.

7. Conclusion

‘Critical thinking’ has become a buzz word, which a large portion of current initiatives are starting to address. However, none of these initiatives address the most fundamental area of logic and reasoning that is inextricably bound with all written and spoken modes of our daily communication. The preceding study is intended to fill the current void in the educational literature regarding the link between logic and literacy. If differences between groups of university students are found and significant, then there will be evidence of the link between logic education and literacy/ critical thinking and that Ontario curriculum could improve upon its' current methodology in preparing students to be critically engaged individuals.

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Narrative Inquiry into Experiences of Foreign Certified Teachers in Saskatchewan Schools: Preliminary Findings

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Abstract

This paper was presented at the Canada International Conference on Education (CICE-2014, June 16-19, 2014) at Cape Breton University, Nova Scotia, Canada. It is based on my on-going PhD research at the University of Regina - A narrative inquiry into foreign certified teachers' professional experiences in rural Saskatchewan schools. The dissertation topic grew out of my reflections on my experience as a Kenyan who received a Bachelor of Education degree and worked as a classroom teacher in Kenya before coming to Canada and becoming a teacher. It aims to understand experiences of foreign certified teachers in Saskatchewan schools. The study used narrative inquiry methodology. Data was collected using open ended in-depth interview with four foreign certified teachers. The study is grounded on postcolonial theory. Four broad themes emerged from data analysis: teacher certification and entry into the profession; communication challenges; relationship with parents and students; and discrimination. Because this is an on-going study, recommendations are not presented.

1. Introduction

While much has been written about schooling in the Province of Saskatchewan, Canada [1], the stories of foreign certified teachers in Saskatchewan have received little attention to date. Perhaps, this is because the very notion of foreign certified teachers “tends to go against the grain: teachers are seen ... as representations of the culture, responsible for passing” its norms and ways of knowing to the next generation, and so “one would not expect this important task to be put in the hands of newcomers to the culture” [2]. Teaching might then be deeply infused with conceptions of ‘imagined community’ subtly reproducing inclusions and exclusions that shape who belongs and who does not, who is legitimately positioned to speak for the nation, its

values, traditions, and its constitutive provinces and professions [3].

Globalization and changes in Canadian immigration policies have contributed to increasing transnational flows of people to Canada in recent decades. For example, Canada welcomes over 250,000 immigrants every year including teachers who have been trained in other countries. One of the ways in which these changes are impacting on education in Canada in general and Saskatchewan in particular is evidenced by the presence of foreign certified teachers. Such teachers have included those from non-European or non-native English-speaking backgrounds. This paper reviews experiences of foreign certified teachers in Saskatchewan.

This study contributes to available research by providing multiple first-person narratives of foreign certified teachers in Saskatchewan; it provides a unique insight into how personal, cultural, and professional experiences contribute to qualities that these teachers bring to Saskatchewan classrooms. Further, the findings of this study could be of specific interest to public policy makers who are involved in developing initiatives for internationally educated immigrants.

2. Methodology

The study utilizes qualitative research methodology as outlined by Cresswell [4]. Qualitative research is designed to answer questions about lived or social experiences and gives meaning to these experiences [5]. As a research methodology within qualitative research, narrative inquiry is a “means for inquiring into storied experiences” [6]. Narrative inquiry emphasizes the uniqueness of each human action and experience and is based on the premise that, as human beings, we come to understand and give meaning to our lives through story.

As Clandinin and Rosiek remind us, narrative inquirers study experiences of teachers and through the study seek ways to enrich and transform the experience for themselves and others [7]. Connelly and Clandinin point out that the primary advantage

of using “narrative inquiry is its quality as subject matter. Narrative and life go together and so the principal attraction of narrative as method is its capacity to render life experiences, both personal and social, in relevant and meaningful ways” [5].

2.1. Data collection and analysis

In general, qualitative research “rely on linguistic rather than numerical data, and employ meaning-based rather than statistical forms of data analysis” [8]. This study employs semi-structured interviewing and open-ended questions [9] to initiate collaborative and dialogical relationship with study participants [10]. Brenner argues that semi-structured interviews enable the researcher to focus on the topic while at the same time leaving space for study participants to offer insights that the researcher may not have foreseen [11].

I conducted open-ended interviews’ with four foreign certified teachers in Saskatchewan about their experiences and perceptions. The four were three females (Maria, Akinyi, Omozo) and one male (Darmaningsih). The four were born, raised, and hold bachelor of education degrees from the Philippines, Kenya, Ghana, and Indonesia respectively. All spoke English as a second language. Each had taught in their home countries for between two and seven years. Upon coming to Canada, Maria and Darmaningsih earned their teacher certification from a university in Manitoba, while Akinyi and Omozo earned her teacher certification from universities in Nova Scotia and Ontario respectively. The four accepted teaching positions at public and Catholic schools in Saskatchewan where they are all currently teaching. They have taught for between two and five years.

Marshall and Rossman define data analysis as “the process of bringing order, structure, and meaning to the mass of collected data” [12]. Merriam goes further and states that “data analysis is the process of making sense out of the data. And making sense involves consolidating, reducing, and interpreting what people have said and what the researcher has seen and read – it is the process of making meaning” [13].

Data analysis used Murray’s conceptualization of two broad analytic phases of narrative accounts, namely, descriptive analysis and interpretative analysis [14]. Using descriptive analysis, I attempt to “re-tell the individual stories according to context and internal structure with emphasis on the original meanings that (the foreign certified teachers) attach to their lives and experience” [15]. Following descriptive analysis in which the narrative texts of the individual participants are recapitulated in storied form, I used interpretative analysis to explore in detail how participants are making sense of their personal and social world as well as the meanings

particular professional experiences and events hold for the foreign certified teachers. Through interpretive analysis, I attempt to derive thematic content from the foreign certified teachers’ narrative expressions. Procedures for validity that are applied in this research include member checking, researcher reflexivity, and crystallization [16].

3. Theoretical framework

The study is guided by the broad question, what are the professional experiences of foreign certified teachers who are currently teaching in Saskatchewan schools? In the context of White settler jurisdictions such as Saskatchewan, the experiences of foreign trained immigrants, including teachers, are deeply linked with the histories and present-day effects and reproductions of colonialism and racism. As Sterzuk puts it, “the roots of Saskatchewan’s power imbalance date back to first contact between European settlers and Indigenous peoples” [17]. As such, aspects of postcolonial theory dealing with racism and colonialism will be useful in examining participant stories on such experiences.

There is a long history of engagement between postcolonial theory and education that can provide a lens for exploring professional experiences of foreign certified teachers in Saskatchewan. According to Rizvi, Lingard, and Lavia, for example, “postcolonialism’s contentions, surrounding the relationship between knowledge and power, are linked directly to education, both as an institution where people are inculcated into hegemonic systems of reasoning and as a site where it is possible to resist dominant discursive practices” [18]. This is perhaps more so in the teaching profession, especially with respect to foreign certified teachers in rural Canadian Prairies. While teaching, as a process of initiating the young in to the norms of the society may be perceived as “an object of postcolonial critique regarding its complicity with Eurocentric discourses and practices,” it, together with education in general, offers an opportunity to “reveal and resist colonialism’s continuing hold on the geographical imagination” given that “education is also a site where legacies of colonialism and the contemporary processes of globalization intersect” [18].

Almost 20 years ago, Bennett suggested that “Postcolonialism offers a powerful and attractive model for Canadian criticism, one that will undoubtedly have an impact on the future of our discourse” [19]. She argued that “Canada seems an ideal laboratory for the study of postcolonial writing: it was formed by the interactions of three distinct cultures — the aboriginal, the French, and the English. Each of these cultures was deeply affected by colonialism, and each has writers who identify themselves as members of these originary groups and who explicitly deal with the problems of colonial

dominance and the difficulties of finding identity after having been subordinated to another culture” [19]. As Bennett predicted, postcolonial theory continues to impact “our discourse” however, the space now has more players than the three she identified. Saskatchewan classrooms are perhaps more diverse than they were two decades ago as more people, including teachers and students, from diverse ethnocultural and racialized minority groups settle in the province.

Writing about USA, Hilliard argues that the colonialism and its effects have “existed in our nation during virtually all of its history [and] has guaranteed privilege to certain cultural groups, but oppression of some others.” He points out that “every facet of the social system has been mobilized to produce the society that both the privileged and the oppressed experience; education is merely one facet of that complex social system” [20]. It is my view that while education plays a key role in perpetuating or challenging socialization of students into inequality; it is also an arena where foreign certified teachers, especially those from racialized minority backgrounds, may encounter various forms of bias and discrimination [21].

3.1. What is postcolonial theory?

‘Postcolonial’ is a contested term that has generated confusion and misunderstanding [22]. According to Mbembe, postcoloniality refers to both a period in time as well as experiences of societies emerging from colonization [23]. Hickling-Hudson defines postcolonial perspective as one that is “concerned with how cultures have been influenced by the legacies of colonialism, the culture wars that result from challenges being made to those legacies and the difficulties and ambivalence involved in change” [24]. Viruru views postcolonial theory as the “unmasking of the will to power, that essentializes diverse ways of viewing and living in the world” [25]. Olson points out that postcolonial discourse aims to “analyze and articulate the dynamics of systems of domination and oppression, to highlight ‘difference’ as an important, even central, aspect of political relations ... to focus, that is, on the crucial importance of Otherness” [26].

As Rizvi, Lingard, and Lavia reminds us, postcolonialism helps in the understanding of the linkages between discourse and power, and how colonial modes of representation perpetuates inequalities. In so doing postcolonialism presents “ways of resisting colonial power in order to forge a more socially just world order” [27]. As Young aptly puts it, postcolonialism seeks “to produce a more just and equitable relation between different peoples of the world” including foreign certified teachers and their Canadian-born professional counterparts in Saskatchewan [28].

Postcoloniality holds that the effects of colonialism and imperialism are still being felt today among settler states like Canada as well as those countries that were once under colonial rule. Tikly points out that postcolonial theory offer an effective “a critical idiom; through which to analyze discursively the continuing legacy of European imperialism and colonialism and to uncover the oppositional discourses of those who have struggled against its lingering effects” [29]. Thus, an exploration of professional experiences of foreign certified teachers in the Saskatchewan context as a settler state would acknowledge these “political implications in mind and through the eyes of those most directly involved,” namely, foreign certified teachers in Saskatchewan schools [30].

Just as Apple speaks to the challenge of trying to understand the current educational policy in the United States without placing it in its global context [31], so also it is difficult, nay, impossible to unfold experiences of foreign certified teachers in the Saskatchewan context without first attempting to historicize the idea of ‘the global context.’ Colonization, as Said points out, is a “fate with lasting, indeed grotesquely unfair results” including hierarchies of cultures, knowledge, and value which perpetuates what Said calls the “dreadful secondariness” of some peoples and cultures [32]. Postcolonial frameworks will enable my study to do this by taking into consideration the lingering effects of colonialism that may still be alive within the Canadian settler state.

4. Literature review and results

Experiences of foreign trained professionals include initial challenges upon arrival in to the new country as they look for employment and as they settle in their new environment. As Pinar asks, “What is the experience of being ... a stranger in a land not one’s own?” [33]. For a foreign certified teacher, tensions and contradictions found in dichotomies of language, culture, ethnicity, and pedagogy become generative spaces to reflect on the experience [34].

Collins and Reid asked foreign certified teachers in their study about the difficulties they have experienced in Australia [35]. The responses, from the most to the least common, were: problems with the bureaucratic systems and processes in the education system, employment difficulties, lack of support, and non-recognition or appreciation of credentials obtained outside Australia. Other difficulties noted by the foreign certified teachers were student behaviour, issues related to curriculum, and cultural gap/way of doing things.

In her investigation of the professional integration of Russian immigrant teachers in Israel, Remennick noted that barriers faced by foreign certified teachers

included language, school curriculum and culture, as well as student-teacher relationships [36]. Other researchers have identified similar challenges facing foreign certified teachers [37]. Four broad themes emerged from data analysis: certification and entry in to the profession; communication challenges; Relationship with parents and students; and discrimination. These are briefly discussed below.

4.1. Certification and entering the profession

A key feature of globalization is international mobility of highly skilled professionals. However, with the globally-mobile professionals is the reality of credential recognition and professional certification in the receiving countries [38]. Often, this process does not meet the expectations of many foreign trained professionals [39].

Education falls under provincial jurisdiction in Canada. Therefore, the country does not have a federal Ministry of Education. Rather, each province determines its own educational policies. In Saskatchewan, the government requires those seeking teaching positions at publicly funded schools in the province's education system to hold a Saskatchewan teaching certification. Challenges that foreign certified teachers often face with respect to obtaining Canadian credentials include difficulty in getting accurate information about accreditation process, little or no knowledge about Canadian education system, difficulty in gaining Canadian teaching experience, lack of recognition of prior education and teaching experience, and differing pedagogy and educational expectations [40].

As Beynon, Ilieva and Dichupa found, "Teachers immigrating to Canada with credentials from non-Canadian jurisdictions are regarded as desirable immigrant professionals because of their high levels of education" [41]. Bauder reports that after arriving in Canada, many immigrants tend to look for employment in their area of specialization; however, they often experience multiple barriers to employment [42].

For foreign certified teacher, the challenges to gaining teacher certification and credibility in the school community are rather complex because, in general, there is no teacher shortage in Saskatchewan [43]. Shan argues that credentials from developing countries are sometimes undervalued in Canada [44]. Further, in an interview with the *New York Times*, the federal Minister of Citizenship and Immigration Canada the Hon. Joe Volpe said that Canada has "an arcane infrastructure of professional organizations that essentially mitigate against the immediate integration of highly skilled immigrants" [45].

Girard and Bauder suggest that professional licensing processes (such as teacher credentialing) for foreign trained immigrants often "devalue their

human capital and leave immigrant professionals with little choice but to settle in Canada's largest cities where 'survival' job opportunities are more plentiful and ethnic and social networks are better developed" [46]. While foreign credentials, especially in the regulated professions such as teaching, must and should be evaluated, minimizing structural and institutional barriers to securing Canadian professional licenses is likely to enhance the integration and success of foreign certified teachers in the host country at a level that is commensurate with their human capital and experience [47][48].

4.2. Communication challenges

Many foreign certified teachers experience barrier relating to language and communication [39]. For example, Russian immigrant teachers in Israel who are non native speakers of Hebrew reported difficulty in teaching in their second language - Hebrew [36]. The study demonstrates that proficiency in the language of instruction in schools, Hebrew in the case of Israel and English and French in Canada, was the primary determinant of immigrant teachers' successful experience as teachers [48]. Similarly, a study of immigrant Hispanic teachers in the United States reported language and communication challenges at some point in their teaching career in the United States [49].

Foreign certified teachers in the present study suggested that differences in culture, language, communication styles, and the roles of the teacher and students in the classroom may pose a challenge to immigrant teachers. One respondent said that she has experience "tension in her classroom management." She noted that "student behaviour and assertiveness was quite shocking to me when I started (teaching here). It was certainly different from the schools in Ghana." Another respondent stated that, "My accent makes it difficult at times for my students to understand me. But we are both getting better." It follows that teachers who ignore or trivialize the cultural background of their students are likely to face resistance [50].

Flores demonstrates that Filipino immigrant teachers in Hawai'i 'often' experience discrimination as a result of cultural differences, "enforced through official attitudes toward accent, language, and cultures." Flores further asserts that Hawai'i school officials tend to take "speaking English with a non-Western accent and comprehending different cultural codes and practices" as evidence of "sub-par qualifications" [51]. Similarly, Heit and Blair, writing about language needs of Aboriginal students in Saskatchewan, argued that a majority of 'standard English' speakers in the province view Indigenous English speakers as having a less developed

command of the English language [52]. Henry and Ginzberg found that “minority-accented” employees are more likely than their non-accented colleagues to experience discrimination at their workplace [53].

The accented English spoken by most immigrants from non-Anglo Celtic backgrounds, such as those cited above, are generally a variety that differs from the English spoken by the White majority population in Canada and North America in general. Yet even among various population groups in North America there are a variety of spoken ‘Englishes’ such as African American English and Indigenous English among others [54]. In posing the question, ‘Whose English counts? Sterzuck argues that imposing the variety of English that is spoken by the majority and generally accepted as standard on those who speak a variety of spoken English, including ‘minority’ and ‘non-Western’ accents is cultural imperialism [17].

4.3. Relationship with parents and students

All the four respondents identified positive relationship with parents and students as important for their successful teaching experiences. In general, relationships between foreign certified teachers and parents were varied. Similarly, in Nganga’s study, for example, some foreign certified teachers felt that parents were not very cooperative when it came to discussing student behaviour and performance [55]. The opposite was the case in British Columbia [56].

In Hirji and Beynon’s study of teachers of Punjabi Sikh ancestry in British Columbia schools, the teachers felt that Punjabi Sikh parents viewed them positively. The parents saw teachers of Punjabi Sikh ancestry “as being *appna* or ‘one of us’,” someone they could trust, talk with and get assistance from [56].

Hofstede posits that parents in China, India, Nigeria, and Turkey tend to trust the teacher more than the students and that in the United States, parents generally side with the students if there is a disagreement between a teacher and a student [57]. This is an experience that is likely to be a challenge to teachers from overseas who are teaching in Saskatchewan. Kuhn identifies issues that could shape the interactions of foreign certified teachers with students and parents as including the differences in their directness, their social skills and their public speaking experiences [58]. Kuhn asserts that while foreign certified teachers tend to be more direct in their assessments and comments on student work, they often have relatively ‘poor’ public speaking skills compared to their American counterparts. This can potentially lead to misunderstandings between teachers and, students and their parents. Kuhn, a German immigrant teacher in the United States, recommends public speaking support for foreign certified teachers.

Writing about relationships between foreign certified teachers and their students in American high schools, Nganga argues that the way teachers view their students impacts their professional identities. She notes that “the story of teaching is hence related to the story of negotiating student relationships” [59]. Punjabi Sikh teachers in British Columbia schools narrated how their Punjabi Sikh students felt comfortable with them and often sought their advice and how the teachers were committed to the success of the Punjabi Sikh students [56]. Schmidt and Block have pointed out that racialized minority teachers often provide their racialized students with the opportunity to “see and hear themselves reflected in their educational setting” [60] and, therefore, reduce the potential of marginalization that is connected to ‘White privilege’ in Western educational contexts. Hirji and Beynon have quoted a teacher who participated in their study suggesting that the presence of racialized minority teachers is likely to break stereotypes that their mainstream students and the wider society in general may have about minority groups. The teacher argued that “it’s very good for nonminority kids to see minority people in these roles, probably just as important as it is for Punjabi kids to see me.” A Punjabi Sikh teacher noted that “all teachers can have an important impact on kids and so it’s just as good for me to have that effect on Johnny ... as it is for me to have an effect on Jasdeep” [56]. That is, while the Punjabi Sikh teachers felt a commitment to their Punjabi Sikh students, they none the less saw themselves as being a model for all students, not just those of Punjabi ancestry.

An analysis of the socioeconomic benefits of the Saskatchewan Urban Native Teacher Educational Program, a four year baccalaureate degree program offered in partnership between Gabriel Dumont Institute, University of Regina, and University of Saskatchewan, captures this point quite well [61]. It suggests that Aboriginal teachers have a positive impact on Aboriginal students for reasons such as being role models and understanding the unique experiences of Aboriginal students. It further shows that Aboriginal teachers also impact the lives of non-Aboriginal students because non-Aboriginals are able to see Aboriginal peoples in positions of authority. Similarly, some scholars have argued that schools with a diverse teaching force benefit from insights and contributions of various social and cultural backgrounds that can enhance learning experiences for all students [59][60].

Carrison shows that minority bilingual foreign certified teachers often act as role models for their minority language students [62]. Through their example of dedication and perseverance, foreign certified teachers in Carrison’s study “represent(ed) the hope of learning to use a new language and navigating an unfamiliar culture.” She concludes that

for “their students, (immigrant teachers) represent the potential for setting and accomplishing goals they might otherwise not even consider” [62].

In contrast to above findings by Carrison and Hirji and Beynon about racialized minority teachers acting as role models to their racialized minority students, Allen argues that “the quest for positive role models ... risks stereotyping minorities on the basis of race and gender imposing upon ... [racialized minority] teachers the . . . obligation” to act as ideal role models rather than as individuals [63]. Like the Saskatchewan Urban Native Teacher Education Program study, Allen suggests that racialized minority teachers, which in the present study refers to foreign certified teachers, provide all students with important role models of successful people who contribute to society [61].

4.4. Discrimination

Many studies on experiences of foreign certified teachers have report various kinds of discriminations stemming from factors such as culture, accent, religion, race, ethnicity, and nationality [41][39]. Discrimination in the workplace may be in the form of a barrier to getting a teaching job or a constraint on the working lives of the foreign certified teachers after they get employment. In a study of foreign certified teachers in Australia, a substantial number (31 percent) of foreign certified teachers felt that there was discrimination against foreign certified teachers in the processes and procedures related to promotion [35].

Study participants in a study by Zhao on experiences of foreign certified teachers in Canada did not use the word discrimination to describe their experiences [37]. However, Zhao quotes one of the participating teachers as describing his view on discrimination like this: “You can feel it, but you can't say it. Every immigrant feels that. It doesn't matter how good you are. It doesn't matter how good your teaching is. You feel it, right? But you can't say it in words.” These acts of discrimination and marginalization amplified their perception of “otherness” which not only impacted their work performance and integration into the workplace, but also perpetuated a feeling of alienation and lack of trust especially when there was no support from parents, other teachers, and school administration [64].

5. Conclusion

This is an on-going study for my PhD in Education at the University of Regina. It examines experiences of foreign certified teachers in Saskatchewan schools using narrative inquiry methods and postcolonial lens. Four teachers were

interviewed and data was analyzed using descriptive analysis and interpretive analysis. Four broad themes emerged, namely teacher certification and entry into the profession; communication challenges; relationship with parents and students; and discrimination. Because this is an on-going study, recommendations and implications for practice and research are not presented.

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Teachers' Decisions about Curriculum and Instruction and the Role of Instructional Leadership

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Abstract

How is it that many teachers continue to struggle with the content of the school subjects they teach and the teaching thereof? At the same time, researchers have documented many isolated examples of teachers who are comfortable with the content of their subjects and provide excellent classroom experiences for their learners. The key challenge for the reformers who wish to take such exemplary practices to scale remains the question of how to support the teachers in making good decisions about curriculum and instruction. There is not enough research to guide reformers about how teachers in general (new recruits and veterans) make decisions about content and the teaching thereof in particular classrooms and specific subjects. That is, we know a lot less about what or who influences such decisions about content and instruction. The guidance or influence on teachers' decisions about content and instruction is the subject of instructional leadership. This paper presents findings, from a survey of 267 science and mathematics teachers in South Africa, about the various influences on their decisions about content and instruction. The findings suggest that among the two major groups of influences on teachers' decisions about content and instruction, the non-human influences tend to dominate over the human ones. These findings have implications for how we can assist teachers to resolve the struggle around content through instructional leadership. Furthermore, the paper hopes to shed light on the efforts to understand the limitations of the current instructional leadership processes, especially within the context of South Africa.

1. Introduction

The year 2014 is an important historical milestone for South Africa and its education system. It marks two decades since the magical transformation that ushered in a new democracy in the country and began the march towards equal Opportunities to Learn (OTL) for all its children. While the country has been successful in making schools accessible to all, the quality of the teaching and learning remains a challenge in many instances, especially in science and mathematics [1].

OTL is defined differently by various scholars depending on the context of their studies [1 & 8]. Whatever the definitions, however, it is clear that curriculum and instruction are central features of OTL. For this reason, therefore, teachers have an important role in what Porter calls the "ultimate arbiters" of the content of instruction [9]. The teachers are responsible for making decisions about content topics to be covered, the sequence, the pacing, and the amount of time and resources to be used. Remillard refers to the teachers as the "co-constructors" of the enacted curriculum [10]. In this context, the teachers' decisions about what to teach and how to teach science and mathematics are therefore central to the provision of OTL. The ongoing struggle with decisions about what to teach and how, for every group of learners and classroom contexts is what we have characterized as the teachers' struggle with content. Strangely, we know very little about how teachers resolve this struggle on a day to day basis, in particular subjects and classrooms, and what factors influence their choices and decisions. The less than ideal context of these decisions in most developing countries is likely to add further complications to the teachers' struggle with content and instruction. There is currently very little research to guide reformers and policymakers on how to intervene and/or support teachers in this struggle around decision-making on content and instruction. The present study therefore seeks to bridge the gap in scholarship by providing insights on some of the influences on teachers' decisions about content and instruction in science and mathematics in the context of South Africa.

2. Conceptual Framework

Teachers, all over the world, are likely to be confronted by the challenge of having to make complex decisions about what topics to teach, to which groups of students, when, for how long, and with what resources each day they walk into their classrooms. In many cases, the teachers have found ways not only to make these decisions easier but also to structure them in line with everything else they do in their classrooms. In some contexts, like that of South Africa, where curriculum and instructional policy incorporates strong elements of both autonomy and control over such decisions [5], such decision-making is usually more contextual and

difficult to generalize. In such contexts, teachers' decisions may be influenced by the actions of others and by the existing policies and provisions. Some of these influences are intentional while others are rather incidental. The central tenet of instructional leadership is to provide deliberate guidance or influence to the teachers' decisions in order to improve curriculum and its delivery [4, 6 & 7]. The present study is therefore located within two theoretical bodies of work. First, it is located within the literature on leadership, particularly the distributed instructional leadership frame [3, 7 & 13], which guides our analyses of the various influences – both human and non-human – on teachers' decisions about curriculum and instruction.

Second, our work is located within the seminal research on teachers' decision-making about content [2, 9, & 12]. The two bodies of scholarship help to frame our investigation of how human influences such as principals, Heads of Department (HoDs), Subject Advisors and other teachers together with the non-human influences such as textbooks, curriculum guides for example shape the teachers' decisions about curriculum and instruction in science and mathematics.

3. Research methodology

Data for this paper comes from a broader national study of Instructional Leadership for Science and Mathematics in South Africa. The paper focuses on the quantitative part of the study which examines the differential influences of leadership and policy on teachers' decisions about curriculum and instruction for science and mathematics in one province of South Africa. The focal province is a largely rural province with a history of good performance in terms of average student results in the national matriculation examinations.

A stratified sample of 267 teachers, from about 100 schools representing all the districts in the province, was used. The sample came from a group of teachers who were part of a Professional Development programme on instructional leadership. The sample included some HoDs, a few school principals and deputies, and a large number of classroom teachers. The required permission and informed consent were obtained. A total of 88 males and 78 female teachers agreed to participate and completed the 4-point Likert scale questionnaire, giving us a return rate of 62%. This paper focuses on the descriptive statistical analyses of the data on the various influences on teachers' decisions about what topics to teach and how to teach them. The questionnaire also included questions about assessment and leadership influence.

4. Findings and Discussions

The findings and discussions focus on two sets of influences on teacher decisions about content and instruction, viz. the human and the non-human influences. In the non-human influences, we examine the influence of the curriculum guides and the textbooks – both strong elements of curriculum policy in South Africa. For the human influences, we focus on the role of the principal and the HoDs, who are both in-school instructional leaders. We also refer to other patterns of influence that we observed with respect to the deputy principals and subject advisors for example.

4.1. What To Teach: Curriculum And/Or Topics To Be Covered

Tables 1-5 below describe the patterns of influence on the Curriculum and/or Content topics by the two categories of influences: first the non-human factors, including curriculum guides and textbooks and second, the human factors, including the subject advisors, Heads of Department (HoDs) and the school principal:

Table 1: WHAT to teach: Curriculum Guide

Valid Values	more often	144	86.7%
	sometimes	13	7.8%
	rarely	2	1.2%
	Not at all	1	0.6%

Table 2: WHAT to teach: Textbooks

Valid Values	more often	127	76.5%
	sometimes	30	18.1%
	rarely	4	2.4%
	Not at all	2	1.2%

Table 3: WHAT to teach: Subject advisors

Valid Values	more often	54	32.5%
	sometimes	72	43.4%
	rarely	13	7.8%
	Not at all	19	11.4%

Table 4: WHAT to teach: HoD

Valid Values	more often	30	18.1%
	sometimes	49	29.5%
	rarely	14	8.4%
	Not at all	48	28.9%

Table 5: WHAT to teach: Principal

Valid Values	more often	6	3.6%
	sometimes	20	12.0%
	rarely	36	21.7%
	Not at all	93	56.0%

Looking at each of the influences independently, the data in Tables 1-5 show a pattern of declining influence, from the curriculum guides that have the greatest independent influence, followed by the textbooks, then the Subject Advisors, the HoDs and then last on influence are the principals. The observed pattern suggests more influence by the non-human relative to the human factors. Furthermore, the data suggests that principals and HoDs, who are the school-based instructional leaders, may have relatively less influence on the curriculum and the topics that are taught in each classroom compared to the non-school based officials (subject advisors) and the policy documents/materials.

4.2. HOW to TEACH: CLASSROOM PEDAGOGY and ACTIVITIES

Tables 6-10 below describe the patterns of influence with respect to PEDAGOGY and/or CLASSROOM ACTIVITIES that are used for instruction:

Table 6: HOW to teach: Curriculum Guide

Valid Values	more often	138	83.1%
	sometimes	14	8.4%
	rarely	2	1.2%
	Not at all	5	3.0%

Table 7: HOW to teach: Textbook

Valid Values	more often	119	71.7%
	sometimes	31	18.7%
	rarely	8	4.8%
	Not at all	1	0.6%

Table 8: HOW to teach: Subject advisors

Valid Values	more often	33	19.9%
	sometimes	71	42.8%
	rarely	23	13.9%
	Not at all	27	16.3%

Table 9: HOW to teach: HoD

Valid Values	more often	25	15.1%
	sometimes	45	27.1%
	rarely	20	12.0%
	Not at all	48	28.9%

Table 10: HOW to teach: Principal

Valid Values	more often	10	6.0%
	sometimes	15	9.0%
	rarely	35	21.1%
	Not at all	90	54.2%

Evidently, the influences on pedagogy and classroom activities show a similar pattern as that of the curriculum. That is, the non-human factors seem to play out more than the human factors. The degree of the observed influence, however, appears to be slightly lower for pedagogy and classroom activities relative to the curriculum and/or content topics. This suggests that the relative influence of the human factors on pedagogy may even be less significant relative to their influence on curriculum when viewed against the non-human factors.

4.3. The most influential leaders on CURRICULUM & INSTRUCTION

Given the rather disturbing patterns of seemingly minimal influence by the school-based instructional leaders, we probed the phenomenon a bit more by posing a direct question to the teachers about which of the school leaders influence their classroom practices more. Tables 11-14 below describe the teachers' responses to the question of who influences their classroom practice:

Table 11: Subject Advisor

Valid Values	Most influential	100	60.2%
	Somewhat Influential	27	16.3%
	Least Influential	8	4.8%
	Not Influential at all	15	9.0%

Table 12: Head of Department

Valid Values	Most Influential	51	30.7%
	Somewhat Influential	36	21.7%
	Least Influential	14	8.4%
	Not Influential at all	33	19.9%

Table 13: Principal

Valid Values	Most Influential	32	19.3%
	Somewhat Influential	33	19.9%
	Least Influential	25	15.1%
	Not Influential at all	55	33.1%

Table 14: Deputy Principal

Valid Values	Most Influential	24	14.5%
	Somewhat Influential	41	24.7%
	Least Influential	23	13.9%
	Not Influential at all	52	31.3%

Clearly, the subject advisors seem to hold a bit more influence than any of the school-based instructional leaders. The HoDs follow but at a distant second.

4.4. What do the results mean?

Three key points can be read from the findings presented above: First: that curriculum guides and textbooks seem to drive a lot of what happens in the science and mathematics classrooms in terms of what is taught and how it is taught.

Second: that the school-based instructional leaders seem to exert the least amount of influence on both curriculum and instruction in the science and mathematics classrooms.

Third: that of all the instructional leaders, the subject advisors seem to fair much better in terms of their influence on curriculum and instruction.

On the one hand, our findings about the effectiveness of the curriculum guides and textbooks relative to the principals and HoDs in shaping what happens in the science and mathematics classrooms are not surprising given the point we have made about the South African education system embracing both strong tendencies for autonomy and control simultaneously. On the other hand, the findings are surprising on the relative weakness of the principals and HoDs as instructional leaders.

The findings also highlight the important role of the 'out-of-school' instructional leaders, such as Subject Advisors, whose functions revolve specifically around supporting teachers on curriculum and instruction.

5. Conclusion

It is important to underscore the fact that this was a preliminary analysis that only focused on the descriptive aspects of the data. Further analysis for example may seek to examine whether the factors are interdependent and if so what the implications of that interdependence would be for the influence on curriculum and instruction.

We also need further research to unpack the meaning of "influence" on the teachers. That is, we need qualitative studies of what exactly happens in the classrooms and probably do a backward mapping of the influences.

The results of this study, however, have provided further evidence in support of the distributed leadership frame which argues that leadership occurs

along many dimensions within a school, some of which are not positional, and is shaped by both the context and the various artifacts and tools such as textbooks and curriculum guides. Further work to explore the distribution of instructional leadership in the context of South Africa is ongoing and should add more insights to the present findings.

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Session 19: Science Education

Ethnicity, Epistemological-Enhanced Instruction: Effects on Beliefs, Thinking Skills and Concept Understanding in Chemistry

(Authors: Lourdes B. Filoteo, Vivien M. Talisayon, Marlene B. Ferido)

The Privacy of Students in E-Learning

(Author: Othman M. Almenaie)

Demystifying Mathematics Education in Primary Schools through ASEI-PDSI Intervention

(Authors: Philomina Ifeanyi Onwuka, Uche Agwagah)

Enhancing Undergraduate Research in Biology: Challenges of Multigenerational Projects and Involvement of Junior Students

(Authors: Wyatt Warawa, Anna Duitruk, Justin Reinke, Oleksandra Zubova and Tomislav Terzin)

Ethnicity, Epistemological-Enhanced Instruction: Effects on Beliefs, Thinking Skills and Concept Understanding in Chemistry

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Abstract

The study assessed students' epistemological beliefs, examined the effectiveness of epistemological -enhanced instruction (EEI); and influenced of these beliefs on critical thinking and chemistry concept understanding. It used the quasi-experimental pre-test-posttest two-group design. Two intact classes of first year nursing students enrolled in chemistry at CSM, WMSU, Zamboanga City were randomly selected and grouped as EEI and LMI. Findings showed students manifest simple beliefs like perceptual and complex beliefs like sophisticated, theoretical, and empirical on nature of chemistry knowledge. On beliefs of knowledge source, students held external, social, and justification of knowledge beliefs. Ethnicity did not influence students' epistemological beliefs. Students in EEI showed significant difference in epistemological beliefs, particularly for naïve, perceptual, external, and justification of knowledge beliefs. Students' empirical and theoretical beliefs are predictors of conceptual understanding. Theoretical beliefs are predictors of critical thinking. Among critical thinking skills, inference best predicts conceptual understanding.

1. Introduction

A substantial body of research indicates that science educators need to focus on a related but somewhat different set of beliefs to facilitate learning for understanding. These are the epistemological beliefs, pertaining to views that individuals have about the nature and acquisition of scientific knowledge. Epistemological beliefs are philosophical views, and theories that students have about the nature and acquisition of scientific knowledge. These are conceptions of learning and knowledge that affects how student approach and evaluate information and problems faced in both the classroom and daily life (Hofer & Pintrich [4]. Theories of these beliefs address the nature of knowledge (chemistry) and the nature of knowing and thus provide a standard for our understanding of learning Hofer and Pintrich [6]. It affects students' learning, academic performance (Schommer 1998; Osborne, 1996) comprehension and is domain-specific (Hofer [5]. Moreover, it offers insights into effective teaching Hofer[3], Schommer[13]. Sandoval [12] found little work examined how such beliefs influence students' efforts to learn science. Teaching designs/strategies that examine the influence of personal beliefs on academic outcomes be introduced as suggested by Pintrich [9] an attempt to develop in them to think critically through reflecting on 'how do they know on what they know' and why they believe, Reddish & Hammer [10]. Innovations and new designs of chemistry teaching strategies that involved students beliefs be introduced in an attempt to enhance not only students' understanding of chemistry concepts but also develop them to think critically through

reflecting on how do they know what they know. Science educators, however, need also to consider the ethnic and cultural backgrounds of the students they cater. Knowledge of the existence of these beliefs among ethnic groups must also be considered vis-à-vis the development of critical thinking and concept understanding. Thus, this study was conducted to assess the epistemological beliefs of students of different ethnic groups, examine whether these beliefs would differ after instruction and determine how these beliefs contribute to the development of their critical thinking skills and conceptual understanding on the different chemistry topics.

2. Statement of the Problem

This study assessed the epistemological beliefs in chemistry of students of diverse ethnic groups-Chavacanos, Tausugs and Visayans- examine the effect of the EEI on the students' epistemological beliefs and the influence of these beliefs on the development of students' critical thinking skills and understanding of chemistry concepts. Specifically, the study sought to answer the following questions:

1. What are the epistemological beliefs prevalent among students enrolled in Chemistry in terms of:
 - a) nature of knowledge
 - b) nature of knowing
 - (1) theoretical
 - (1) internal
 - (2) perceptual
 - (2) external
 - (3) empirical
 - (3) social
 - (4) naïve
 - (4) justification of
 - (5) sophisticated
 - knowing
2. Do these epistemological beliefs differ according to students' ethnicity, being classified as follows:
 - a. Chavacano
 - b. Tausug
 - c. Visayan
3. Is there a difference in the epistemological beliefs of students exposed to epistemological-enhanced instruction and those of students exposed to the traditional method of instruction?
4. Do students' epistemological beliefs in chemistry influence their critical thinking skills?
5. Do students' epistemological beliefs in chemistry and critical thinking skills positively predict their understanding of chemistry concepts?

3. Significance of the Study

The results of this study will provide baseline data on students' epistemological beliefs in chemistry, guide science educators/teachers and curriculum designers to consider students' epistemological beliefs in chemistry in their goals not only the development of the students' cognitive aspect of learning but the development of students' epistemological beliefs as well. It will offer new

direction for chemistry teachers to use the epistemologically-enhanced instruction as an alternative method, to the usual traditional way of teaching chemistry concepts as these beliefs appear to influence students' critical thinking skills and concept understanding. The developed model (EEI) challenges the students to inquire, think, and evaluate their thoughts critically to predict, infer, collaborate, analyze, evaluate, summarize, make conclusions and in turn lead to change in the students' beliefs about the nature of chemistry knowledge and nature of knowing chemistry. Consequently, their skill to think critically and understanding of concepts will be developed and improved. This study could also provide chemistry teachers insights in terms of focusing on students' cognitive aspect of learning or knowing chemistry but also knowledge of the existence of these beliefs among diverse ethnic students about chemistry can help them plan and direct their lessons based on students' epistemological beliefs vis-à-vis the development of their critical thinking skills and understanding of chemistry concepts.

4. Methodology

4.1. Research Design

The study is a combination of quantitative and qualitative research designs. Two classes were identified. One class was exposed to the epistemological-enhanced instruction (EEI) and the other the lecture method (LMI). The quantitative research design used a quasi-experimental a pretest-posttest two-group design, as follows:

Group 1	O ₁ O ₂ O ₃	X ₁	O ₄ O ₅ O ₆
Group 2	O ₁ O ₂ O ₃	X ₂	O ₄ O ₅ O ₆

X₁ = epistemologically-enhanced instruction
 X₂ = lecture method of instruction

4.2. The Sample

The samples are nursing students enrolled in Chemistry 101. From 10 sections, two intact classes were randomly selected to make the EEI and the LMI groups. EEI group was the treatment group. Eighty students in the two classes whose age ranges from 16-17 years old completed the pre post test assessment. The classes are made up of three different ethnic groups -Chavacano, Tausugs and Visayans.

4.3. Instruments

The instruments used in this study are: a standardized Watson-Glaser Critical Thinking

Appraisal, (WGCTA), a researcher-made Conceptual Understanding Test (CUT), and a five-point Likert Scale Epistemological Beliefs Questionnaire in Chemistry (EBCQ), Students' Profile Questionnaire and Interview Guide.

4.4. Epistemological-Enhanced Instruction

The design of this teaching intervention is the same as the LMI, except that this design is epistemologically-enhanced. This involved the following: a) Pre-Demonstration activity b) Demonstration Proper c) Post-Demonstration Lecture d) Summary and conclusion.

5. Results and Discussion

5.1. Prevalent Epistemological Beliefs amongst Students

Figures 2 and 3 show the prevalent epistemological beliefs of students in chemistry before and after intervention.

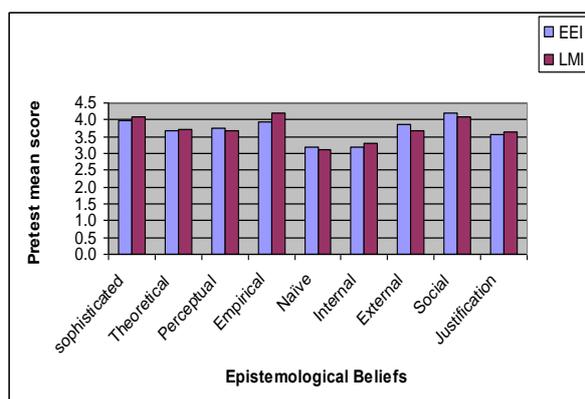


Figure 1
Epistemological beliefs in chemistry of EEI and LMI groups before intervention

The prevalent epistemological beliefs among the students before intervention are sophisticated, theoretical, empirical and perceptual as to nature of chemistry knowledge and external, social as beliefs sources and justification of knowledge of knowing chemistry. However, their beliefs remained the same

but their level of agreement have been enhanced after intervention. This implies that teachers can

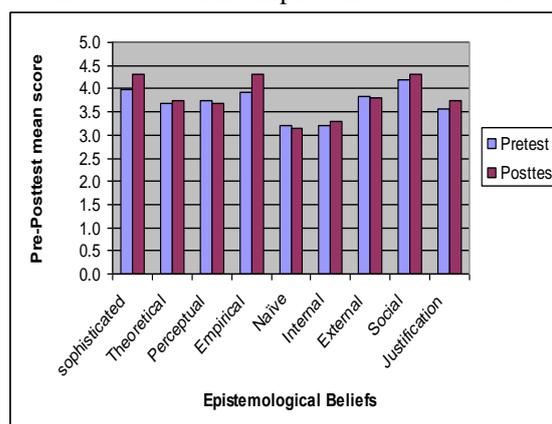


Figure 2.
Epistemological beliefs of students in chemistry pre post intervention

integrate in their teaching questions involving these beliefs as these- empirical and theoretical beliefs influenced students' concept understanding in chemistry and moreover, theoretical beliefs likewise influenced students' critical thinking skills. The naive and internal source beliefs are not evident source beliefs are not evident among the students.

5.2. Epistemological Beliefs in Chemistry and Ethnicity

Results reveal (Table 1) that there is no significant difference in the mean rating posttest score of students of the three ethnic groups- Chavacano, Tausugs, and Visayans at the .05 level of significance using English as covariate. The null hypothesis of no significant difference in the beliefs among the three groups cannot be rejected. This means that the three groups did not differ in the epistemological beliefs in both categories: nature of chemistry knowledge and of knowing chemistry.

Table 1.
Results of ANCOVA on students' epistemological beliefs in chemistry posttest scores

Source	SS	df	Mean Square	F-value	p
Corrected Model	70.55	3	23.52	.134	.939
Intercept	66236.82	1	66236.8	378.6	.000
English Score	20.61	1	20.61	.118	.732
Ethnicity	27.71	2	13.85	.079	.924
Error	3292.84	76	174.92		
Total	2120347.	80			
Corrected Total	13368.39	79			

5.3. Students Epistemological Beliefs in Chemistry after Intervention

Table 2.
Independent t-test results of the students' epistemological beliefs in chemistry after intervention

Group	Mean	SD	t	p
EEI	166.1250	13.6121	2.746	.007
LMI	158.4500	11.2818		

Table 2 shows a significant t-value ($p > .01$) indicating a significant difference in the mean posttest score between the EEI and the LMI groups on their epistemological beliefs in favor of the EEI group. This result means that the use of EEI developed the students' understanding of their beliefs about the nature of chemistry knowledge and of knowing chemistry more than the LMI.

5.4. Epistemological Beliefs and critical thinking skills

Table 3 illustrates the multiple regression results with the nine subscales of the beliefs in chemistry as the independent variable and critical thinking as the dependent variable. The ANOVA had an F-value of 1.630 which tells that the model is not significant at $p < .05$. Of the nine subscales of the students' beliefs

in chemistry, however, only the students' theoretical beliefs score appears to contribute to students' critical thinking scores.

Table 3.
Multiple regression results: Influence of students' epistemological beliefs in chemistry of the nine subscales on critical thinking skills

	β	t-value	p-value
(Constant)		3.833	.000
Empirical	.089	.704	.484
Theoretical sophisticated	.415	3.231	.002
Perceptual	-.096	-.697	.488
Naïve	-.133	-1.053	.296
Internal	-.168	-1.313	.193
External	-.039	-.324	.747
social	-.018	-.137	.892
Justification	.201	1.422	.160
	-.045	-.360	.720

R	R ²	F	p
.416	.173	1.630	.124

When multiple regression was run further, where theoretical beliefs subscale score as the single independent variable and critical thinking as the dependent variable, theoretical beliefs (Table 4) yielded a significant regression coefficient, $\beta = 0.313$ ($p < .005$). This means that the students' theoretical beliefs scores significantly and positively contribute to the development of critical thinking skills. It can be inferred that the teaching intervention employed allowed students to explain and justify their reasons for knowing concepts in chemistry that are consistent with established theories.

Table 4.
Multiple regression results: Theoretical beliefs subscale posttest score as predictor of critical thinking skill

	β	t-value	p-value
(Constant)		9.933	.000
Theoretical (Post)	.313	2.195	.005

R	R ²	F	p
.313	.098	8.495	.005

This finding is in accord with Sandoval [11] and Tolhurst [14]. This implies that teachers can design instruction that grants students opportunities to construct theoretically-based knowledge to enhance students' critical thinking skills.

5.5. Predictors of Conceptual Understanding

Table 5 summarizes the multiple regression results on the independent variables, critical thinking skills and the total epistemological beliefs in chemistry scores, as the dependent variable, the conceptual understanding score. The positive coefficient means that as the value of the critical thinking skills score increases, the predicted value of the conceptual understanding score likewise increases.

Table 5.
Multiple regression results: Critical thinking skills and students' epistemological beliefs in chemistry as predictors of conceptual understanding

	β	t-value	p-value
(Constant)		-.176	.861
Post CTA	.456	4.494	.000
Post EBCQ	.042	.412	.681

R	R ²	F	p
.462	.213	10.429	.000

Data reveal that critical thinking with a standardized beta coefficient of 0.456 is a highly significant ($p < .000$) predictor of conceptual understanding. This finding suggests that the model is accounted for approximately 21.3% of the total variance on conceptual understanding in chemistry. The generated F-value of 10.429 at $p < 0.000$ tells that the model is highly significant. The positive β coefficient explains that a higher score on the critical thinking skills score would increase the value of the dependent variable, conceptual understanding score. This finding is in accord with Cotton [1] and Marasigan [7] study where they stated that all thinking skills programs had positive effect on achievement and critical thinking is a positive predictor of achievement test scores in chemistry respectively.

5.6. Critical Thinking Subskills and Epistemological Subscale Beliefs in Chemistry as Predictors of Conceptual Understanding

Results (Table 6) show that of the five (5) subskills of critical thinking score, only inference is a positive predictor of conceptual understanding. As to the nine (9) epistemological beliefs, the internal, empirical and theoretical beliefs subscales significantly contribute to students' understanding of chemistry concepts. The empirical and theoretical beliefs subscales are positive predictors of conceptual understanding. On the other hand, internal beliefs subscale is a negative significant

predictor of conceptual understanding. May and Etkina [8] reported that epistemological beliefs are related to forms of academic performance such as conceptual understanding.

Table 6.
Multiple regression results: Critical thinking subskills and epistemological subscale beliefs in chemistry as predictors of conceptual understanding

	β	t-value	p-value
(Constant)		1.480	.143
Inference	.353	3.576	.001
Internal	-.270	-2.811	.006
Empirical	.218	2.200	.031
Theoretical	.196	2.011	.048

R	R ²	F	p
.577	.333	9.353	.000

6. Conclusions

The following conclusions are drawn from the findings of the study:

1. The students manifest sophisticated, theoretical, empirical and perceptual beliefs as to the nature of chemistry knowledge. On the nature of knowing chemistry, the common beliefs among them are external and social as knowledge belief sources and justification of beliefs on knowing chemistry.
2. Students ethnicity do not differ in their epistemological beliefs both in the nature of chemistry knowledge and nature of knowing.
3. Students exposed to the epistemological-enhanced instruction (EEI) scored significantly higher in the total epistemological beliefs chemistry scale than the students exposed to the lecture method of instruction (LMI). More specifically, perceptual, naive, external and justification beliefs subscales contributed to the significant difference in the score.
4. The theoretical beliefs significantly predict critical thinking skills.
5. The empirical and theoretical beliefs subscales are significant positive predictors of students' conceptual understanding. The internal sources subscale is a negative predictor of conceptual understanding.
6. The students' critical thinking skills specifically, the inference sub skill, influenced their understanding of chemistry concepts.

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The Privacy of Students in E-Learning

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Abstract

The educational systems around the world incorporated e-learning in their systems, as a result of many benefits and advantages of e-learning that it contributed to the educational process. But at the same time, e-learning emerged with many legal and ethical issues plus cultural rights, such as intellectual property rights, privacy, academic cheating among others.

This paper seeks to explore the importance students' privacy in e-learning. The paper also seeks to highlight the types (forms) of violations of students' privacy in e-learning and identifying the most prevalent privacy issues among students. This paper also shows the causes of violation of the students' privacy e-learning. This paper ends by providing educational, communal and technical preventive measures to overcome this phenomenon.

Demystifying Mathematics Education in Primary Schools through ASEI-PDSI Intervention

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Abstract

The study was carried out to explore the effectiveness of ASEI-PDSI teaching approach in improving the academic performance of pupils in the primary schools in Nigeria. The researchers adopted a quasi-experimental design. Six intact classes of primary five randomly drawn from three co-educational schools were used and a total of 214 pupils formed the sample. In each school, one class was assigned experimental while the other control. The instrument called Mathematics Achievement Test (MAT) was made up of 20 test items of multiple choice questions, with five options (A – E). The instrument, MAT was subjected to both face and content validation by experts in mathematics education and measurement and evaluation. The reliability coefficient of MAT was 0.79. The research questions were answered with the statistical tools, mean and standard deviation, while the hypotheses were tested with ANCOVA at $P < .05$. It revealed that pupils taught mathematics through ASEI-PDSI approach performed significantly better than the control group. Additionally, there was indication of no significant gender influence among pupils taught with ASEI-PDSI approach. It was concluded that ASEI-PDSI instructional approach is very effective and should be recommended to all primary schools in Nigeria.

1. Introduction

In Nigeria mathematics is one of the compulsory school subjects in both primary and secondary school levels of education. A sound knowledge of Mathematics enhances the Student's/pupil's performance in science and non-science subjects. Additionally, it is greatly utilized in pupils' daily lives and the society at large. The quality of life in any society therefore depends significantly on the standard of education [16], and the standard of education revolves round the quality of Mathematics education [11]. Hence, mathematics education is the corner stone of modern society [1]. Improving the quality of mathematics education is essential for national development.

Teachers play a vital role in ensuring success and quality education in any level of education especially

at the primary level which is the foundation of all other levels [7]. However, evidence, has shown that in Nigeria, a large number of students' population find mathematics subject so difficult and distressing that they avoid anything remotely mathematical [3]. This leads to consistent poor performance and mass failures in the subject.

Related to this problem is the issue of gender differences in mathematics achievement. It has been established that gender is a significant factor in school mathematics achievement. However, the trend in the differential performance of male and female school children indicates some inconclusive results. According to Mullis, Martin and Foy, males continue to outperform females in mathematics at the elementary school level [12].

Other studies show inconsistency with this finding. For instance, Ingels and Dalton [8] and Education Counts [4], found no significant gender differences in mathematics achievement in primary schooling. In other instances, Muthukrishna and Kwela [14], found a gender gap in mathematics achievement in favour of girls at primary school level. Would there be any gender differences in mathematics achievement of male and female pupils when taught using ASEI - PDSI teaching approach?

In a bid to find solution to the poor performance and mass failures of students/pupils, particularly at the primary school level, the Federal Ministry of Education (FME), in collaboration with the Japan International

Cooperation Agency (JICA), first conducted a baseline survey in 2005 (JICA, undated), to ascertain the strategies in use, the needs and challenges facing teaching/learning of mathematics and science at primary education level. The major findings showed a mirage of difficulties such as: Poor Teacher – Pupil strategy, inadequate and poor utilization of available instructional materials, un-conducive environment, and monotonous use of teachercentred approach to teaching. Mckinney, Chappell, Berry and Hickman's study in 2009 confirmed this finding. They also found that teachers appear to lecture and use teacher directed instruction more frequently than using student centred methods to teach mathematics. Thus, teachers have continued to use traditional teaching methods, which have been found to be ineffective as they limit the students' ability to fully understand.

The Federal Ministry of Education in Nigeria therefore, felt there is need to update teachers' knowledge and skills through in-servicing education training (INSET). This led to the birth of SMASE Nigeria project [17]. The Federal Government of Nigeria (FGN), in 2006 reached an agreement with JICA to establish SMASE in Nigeria. The choice of JICA was made because of success stories recorded in Japan and some African countries such as Kenya, Malawi, Ghana, among others, in organizing and executing sustainable educational programs for mathematics and science teachers through the SMASE project.

SMASE is an acronym which stands for "Strengthening Mathematics and Science Education". The national centre in Nigeria is in National Teachers' Institute (NTI), Kaduna. The SMASE project uses ASEI-PDSI teaching approach. ASEI-PDSI stands for:

- A - Attitude
- S - Students-Centred
- E - Experiment
- I - Improvisation
- P - Plan
- D - Do
- S - See
- I - Improve

The principle of ASEI-PDSI teaching approach calls for a paradigm shift from traditional/conventional teacher-centred approach to that of student-centred approach which is activity based. The use of ASEI lesson plan enhances the quality of preparation and teaching. Against this background, the researchers experimented on the use of ASEI-PDSI teaching approach in some primary schools in Nigeria.

2. Statement of the Problem

Mathematics holds the key to National development. An improvement in its teaching and learning, especially at the primary school level, will equally transcend into improved performance which is essential for national development. The primary education is the foundation upon which other levels of education are built. In Nigeria, it has been empirically verified that pupils at this level perform very badly in mathematics. This poor performance of pupils has been attributed greatly to teachers' instructional approach. ASEI-PDSI teaching approach has successfully been tried in some countries with a lot of positive results accompanying it. The researchers believe it can equally be successful in Nigeria, particularly in bridging the gender gap in mathematics achievement at the primary school level. It is against this background that this research work was carried out.

3. Purpose of the Study

The purpose of this study is to determine:

1. The effect of ASEI-PDSI teaching approach on pupils' performance in mathematics in primary schools.
2. The differential effect of gender on pupils' performance in mathematics in the primary schools, when taught with ASEI-PDSI teaching approach.

4. Research Questions

1. What is the difference in the mean achievement scores of pupils taught mathematics using the ASEI-PDSI teaching approach and those taught with conventional method?
2. What is the mean difference in mathematics achievement scores of male and female pupils taught using the ASEI-PDSI approach?

5. Research Hypotheses

The following hypotheses are stated at 0.05 significant levels.

Ho1. There is no significant difference in the mean achievement scores of pupils taught mathematics using the

ASEI-PDSI approach and those taught with conventional approach.

Ho2. There is no significant difference in the mean achievement scores of male and female pupils taught mathematics using the ASEI-PDSI teaching approach.

6. Research Method

6.1. Design

The research design used for this study is a quasi experimental. It is a non-equivalent, control group design. There was non-randomization of subjects because it may disrupt the arrangement and organization of the schools; hence the intact classes were used. These intact classes were randomly assigned to experimental and control groups.

6.2. Sample

A sample of 214 primary five pupils randomly drawn from three out of the 58 co-educational primary schools in Ika South LGA of Delta state, Nigeria, were involved in the study. In each of the three schools, two intact classes were randomly selected and assigned to experimental and control groups. In all a total of six intact classes were used for the study.

6.3. Instrument for the Study

The instrument for the study was:

- Mathematics Achievement Test (MAT)

The Mathematics Achievement Test (MAT) was made up of 20 Multiple Choice test items, with five options (AE). MAT was administered as a pretest and a posttest at the end of the training.

6.5. Lesson Plan

Experimental Lesson Plan prepared by the researchers was used to teach the experimental group. The lesson plan was written to reflect the ASEI-PDSI instructional strategy. Each lesson period was for duration of 35 minutes and this was carried out for three consecutive weeks by the researchers. Lesson plan was also prepared for the control group.

7. Validity and Reliability of the Instrument

The Instrument was face-validated by experts in Mathematics Education and measurement and evaluation.

The corrections made by these experts were affected by the researchers in the final draft of the instrument. Also, a test blue print was used to ensure the content validation of the instrument. To obtain the reliability of the instrument, it was trial tested and the internal consistency coefficient was obtained using Cronbach's Alpha method which gave 0.79.

8. Data Analysis

In analyzing the data, the researchers used mean and standard deviation to answer the research questions while analysis of covariance (ANCOVA) was used to test the hypotheses at 0.05 level of significance.

9. Results

Research Question 1: What is the difference in the mean achievement scores of pupils taught mathematics using the ASEI-PDSI teaching approach and those taught with conventional method?

The answer to the research question is presented in table:

Table 1: Mean and Standard Deviation (SD) of ASE-PDSI and Conventional Group

Group	N	Pretest		Posttest		Mean Gain
		Mean	SD	Mean	SD	
Experimental	108	14.5	4.7	33.16	9.28	18.66
Control	106	14.9	5.1	23.28	6.94	8.38
Mean difference		0.4		9.88		

Table 1 shows that the mean score of the experimental group (ASEI-PDSI) of 33.16, in the posttest, is higher than the mean score of the control group (23.28). The mean difference of 9.88 appears relatively high.

Research question 2: What is the mean difference in mathematics achievement scores of male and female pupils taught using the ASEI-PDSI approach? The answer to the research question is addressed in Table 2.

Table 2: Means and standard deviation of Male and Female Students scores

Gender	N	Pretest		Posttest		Mean Gain
		Mean	SD	Mean	SD	
Male	101	15.14	5.75	27.80	10.08	12.66
Female	113	14.82	5.08	28.68	9.12	13.86
Mean difference		0.32		0.88		

From the table above, the posttest mean score for the male students is 27.80 with a standard deviation of 10.08 while that of the female is 28.68 with a standard deviation of 9.12. The mean difference is 0.88 which appears relatively low.

Hypothesis 1:

There is no significant difference in the mean achievement scores of pupils taught mathematics using the ASEIPDSI approach and those taught with conventional approach.

Table 3: ANOVA showing pupils achievement in Mathematics using ASEI-PDSI approach and conventional method

	Sum of squares	df	Mean square	f	Sig.
Between Groups	4785.77	1	4785.77	71.14	.000
Within Groups	13050.90	194	67.27		
Total	17836.67	195			

Table 3 indicates the level of significance of 0.000 which is lower than the set α of 0.05; Hence, we reject the null hypothesis which states that there is no significant difference in the mean achievement scores of pupils taught mathematics with ASEI-PDSI approach and those taught with conventional method. This implies that difference exist in the performance of these two groups.

Hypothesis 2: There is no significant difference in the mean achievement scores of male and female pupils taught mathematics using the ASEI-PDSI teaching approach.

Table 4: ANOVA showing male and female pupils scores in mathematics achievement test

	Sum of squares	df	Mean square	f	Sig.
Between Groups	37.66	1	37.66	.41	.52
Within Groups	17799.01	194	91.75		
Total	17836.67	195			

The data in the table reflect level of significance of 0.52 which is higher than the set α of 0.05. Hence we uphold the hypothesis of no significant difference.

10. Discussion

The result of the experiment shows that the experimental group (that is the pupils that were taught with ASEI-PDSI teaching approach) performed significantly better than those taught with conventional method. This led to the rejection of the null hypothesis of no significant difference. Hence ASEI-PDSI instructional approach could enhance performance in primary school mathematics. This result agrees with the findings of Olosunde [15] who recommended a shift from teacher-centred to students centred approach for improved performances in mathematics. However research question two sought to find out whether there was a differential academic achievement in terms of gender. The result obtained indicates a slightly better performance by the females. But when tested statistically, it was observed that the difference was not significant. This led us to uphold the null hypothesis of no significant difference.

The result is in consonance with the findings of some previous studies [2] [5], which indicated no significant differences in the performance of male and female students. However, it is contrary to the findings of Musa and Agwagah [13] that revealed a significant gender difference with males performing better.

11. Conclusion/Recommendation

Since Mathematics constitutes the cornerstone upon which modern scientific and technological development is laid, there is need therefore to give great priority and attention to the teaching of primary mathematics. The study reveals that the use of ASEI-PDSI approach could enhance mathematics teaching at the primary level which can accelerate performance. In the light of the above, the following recommendations are made:

1. Mathematics teachers should attend workshops and conferences so that they keep abreast with the

modern instructional strategies; and skills in mathematics.

2. Mathematical Association of Nigeria during her annual workshops for mathematics teachers should lay emphasis on these innovative teaching strategies of teaching mathematics.

3. The teachers that teach in the primary schools in Nigeria are holders of NCE Certificates which are products of colleges of Education. There is urgent need therefore to incorporate ASEI-PDSI instructional strategy into the NCE Curriculum.

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Enhancing Undergraduate Research in Biology: Challenges of Multi-generational Projects and Involvement of Junior Students

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Exposure to research at an undergraduate level can greatly enrich the university experience for students involved. The benefits of an academic research project to an undergraduate level student include insight and preparation for scientific careers, developing creative and critical thinking skills, encouraging application of coursework concepts to the real-world and promoting a balance between independent work and collaboration. Dr. Tomislav Terzin has developed an undergraduate research program at the teaching-oriented Augustana campus of the University of Alberta in the field of developmental biology in which he investigates insect colour patterns. The nature of the studies involves a large amount of data collection and necessitates multiple generations of students working in succession on a single project. Dr. Terzin has developed his research program with the aim of providing equal involvement opportunities to junior and senior biology students alike, as well as welcoming participation from students enrolled in diverse academic disciplines. While the inclusion of such a diverse group of students in an undergraduate research program is attractive, it also presents many novel challenges. In this poster presentation we first identify some of the pertinent technical challenges involved in providing such an inclusive research program. We then outline approaches that have been implemented in an effort to attenuate these difficulties and offer recommendations for general principles that could increase the efficiency of the undergraduate research while promoting positive research experience for the students involved.

Session 20: Global Issues in Education

Students' Understanding of Climate Change

(Authors: Burçkin Dal, Yasemin Özdem, Nilay Öztürk, Umut Alper, Duygu Sönmez, Aytekin Çökelez)

Higher Education from Nationalization to Globalization Moving Towards Knowledge Economies: India and Canada

(Authors: Anjali Khirwadkar, Pinkal Chaudhari)

Reclaiming Coady: Adult Education and Economic Development in Atlantic Canada

(Authors: Melissa White, Sarah King)

Council of Ministers of Education, Canada (CMEC): 'Stuck in the 60s, the 1860s that is'

(Author: Ron S. Phillips)

Students' Understanding of Climate Change

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Abstract

This paper explores findings from research on students' general environmental experiences, beliefs, attitudes, worldviews, values and actions relating to climate change. Data were gathered from a convenient sample of 646 seventh grade students. In order to obtain information about the students' general environmental experiences, beliefs, attitudes, worldviews, values and actions relating to climate change, the survey instrument developed by Whitmarsh was used. The survey questionnaire is analysed mainly through descriptive statistics. The results show that although the environmental education community has spent significant time and energy in developing and disseminating alternative instructional strategies for use in all classroom levels, the conception of the climate change as a unity of interrelated elements, as a system, remains negligible.

1. Introduction

The climate change has become one of the most serious environmental problems faced in the 21st century threatening public health and food security. Nonetheless, very few people are aware of negative effects of climate change. A public awareness is vital first to understand these negative effects and second to take action for prevention and adaptation. One of the important solutions would be to prepare the students in schools to develop international and regional capacity to manage climate change risks and to create awareness on impacts and adaptation to the climate change by providing students with more information about the how modern societies like ours relate with nature, and act as citizens to put this relationship on a sustainable basis [13]. In planning to support student's experiential learning opportunities for aspiring teachers, it is important for teachers to be informed not only of the content of student's prior knowledge, but also of the kinds of understanding such knowledge represents

This study reports on how seventh grade students perceive, understand and respond to the issue of climate change.

2. Background

In the last years, a number of researchers investigated students' understanding of climate change, its causes, and consequences. According to literature, there are studies, which have investigated mostly upper elementary and secondary school students' understandings of concepts related to climate change as well as students' in higher education including pre-service teachers. However, there are limited numbers of studies that focus on lower grade levels. Hallar, Cubbin and Wright discuss the lack of sufficient understanding of K-12 students on climate change [6].

As Boyes and Stanisstreet points out from a study conducted with the participation of secondary school students, that students know the relationship between global climate change and changes in weather patterns, and they can explain the role of greenhouse effect on the temperature increases in the lower atmosphere [2]. The findings of a study in Turkey suggested similar conclusions; that the majority of secondary school students are aware of the physical consequences of global warming, though the term 'climate change' has become almost interchangeable with the term 'global warming', which means that changes to weather patterns are a well-known consequence of global warming [7].

Gowda et al. reports five common misunderstandings about climate change in a study conducted with the participation of 99 ninth-grade high-school students [5].

Pruneau et al. designed a qualitative study with 28 seventh-grade students that investigated knowledge, opinions, and feelings about climate change [10]. The authors found that the participants were able to identify the problem but not its causes and consequences. According to their results, participants believe that the climate change will not have any concrete consequence in their life. In another study with 39 students Pruneau et al. used a socio-constructivist approach for climate change education, which resulted with an improvement in students' perceptions on the dimensions of climate change [11]. The findings of this research revealed the lack of certainty among students on adults' ability to change their behaviours. Another finding of the

study identified educational activities to improve students' conceptions.

In a study conducted by Sheperdson et al. students were found to be lacking rich conceptualization on global warming and climate change [14]. Choi et al. emphasized that they identified several common alternative conceptions about climate change among middle- and high-school students [3]. Common alternative conceptions include: students' confusing weather and climate; not understanding the greenhouse effect, the type and source of radiation involved; and thinking that climate change is caused by pollution or ozone holes.

Liarakau et al. [8] reached conclusions similar to those of Choi et al. in their study that investigated 626 eighth through eleven of grade students understandings' of greenhouse effect and climate change [3]. The authors concluded that eleventh grader students were much better informed than eighth grader students. However, they still hold some of the misconceptions identified in the literature including the relationship between the green-house effect and ozone layer depletion. They also reported that students were identified to be confused on solutions or causes although they hold clear ideas on the impact of climate change.

Shepardson et al. reported understanding of secondary school students on climate change. Their review of literature identified six categories of studies on climate change including "(1) causes of global warming and climate change; (2) greenhouse gases and the greenhouse effect; (3) global warming and climate change; (4) climate and weather; (5) the carbon cycle and the greenhouse effect; and (6) impacts of global warming and climate change" [14].

In case of Turkey, limited number of studies focused on climate change. While some studies focused on the content of the geography curriculum at secondary grade level, some focused on lower grade levels [4] and some other focused on higher education, specifically pre-service teacher education [1,9]. Oluk and Oluk reported misconceptions among students in a study investigating pre-service teachers' perception on climate [9]. Their findings match with other studies conducted with pre-service teachers and undergraduate students. Senel and Gungor's study with the participation of pre-service teachers, found that participants were knowledgeable on climate change and global warming but lack ability putting these knowledge into action [15].

Each of the above studies indicate that the K-12 students, as well as college students hold misconceptions on the Earth system relationships and the impact of human activities on earth systems.

Similarly, as Choi et al. report "no pattern of variation in students' misconceptions" in a study of literature review on research published between 1993 and 2005 to identify students' common

misconceptions of climate change [3]. As they report "only two studies were undertaken in the United States; other study locations included Australia, Canada, Greece, Sweden, and the United Kingdom. We did not find any variation in students' misconceptions by study location."(p.891).

The research reported here focuses on seventh grade Turkish students' conceptions about climate change with a focus on concept learning with an aim to provide information that can be useful for the Turkish teachers in planning and organization. As part of a project, this study intends to explore seventh grade students' conceptions about climate change. However, the impetus of this study is based on the need for valid and reliable instruments to measure knowledge of and attitudes toward climate change so that effective curriculum and instructional implementation can be measured.

3. Purpose of the Research

With the importance of the content of the educational programs and the need for identifying how students perceive climate change, the following research questions were used to guide the study;

- What are the general environmental concerns and experiences of 7th grade students?
- What are the beliefs and attitudes of 7th grade students relating to climate change?
- Finally, what are the environmental values, worldviews, and actions that 7th grade students have?

4. Methodology

4.1. Sample

The sample of 646 seventh grade students from four regions in Turkey (Marmara, Aegean, Black Sea and Central Anatolia) took part in the study. There were 289 girls, 324 boys and 33 students, who did not identify a gender, composing the sample. The questionnaire was administered to seventh grade students. The Turkish science education and social studies curriculum include the topics of climate change, weather, and related phenomena. Thus, students start learning about these concepts and develop an understanding of the Earth as a system during their middle school years. That is, seventh graders were the logical choice as the targeted population for this study. The school was in session and participation in the study was voluntary. All students were enrolled in public schools, which represents the general population rather than the socio-economically advantageous class. Schools were selected based on the district profile. From each province, two schools were chosen randomly for the

study; one located in city centre (436 students in total), and the other located in suburbs (210 students in total). Therefore, the sample selection strategy was two-step cluster sampling, where first the regions identified and then random sampling was applied.

4.2. Instrument and Data-Collection Procedure

The survey instrument was developed by Whitmarsh with the aim of determining the range and salience of influences on understanding of, and behavioural responses to, climate change within a population [17]. Whitmarsh developed the survey as a result of interviews with 20 participants in addition to the investigation of relevant studies in the literature [17].

4.3. Data Analysis

The survey questionnaire is analysed mainly through descriptive statistics. The answers to quantitative, multiple choice or likert-scale items were analysed via frequency tables and graphs (e.g. questions 2, 3, and 4). Question that has multiple items to be answered separately were analysed for construct validity via principal component analysis. For example, the part of the survey, which sought to elicit students' attitudes in relation to climate change (survey part 1), had 37 items. Therefore, this part was first analysed for construct validity by principal component analysis and then interpreted based on the components revealed. The questions, which allow for meaningful comparison between gender classes, were analysed by applying Chi-square analysis for further inferences (e.g. question 1). The qualitative questions were coded and categorized based on Whitmarsh's scale [17]. These questions were interpreted in relation to the quantitative questions stated before themselves (e.g. question 11).

5. Results

The results were grouped in two titles based on the research questions.

Exploring students' general environmental concerns and experiences:

Table 1. Environmental issues that elementary students concern

Environmental issues	Frequency	Percentages
Air pollution	459	71.1
Litter	235	36.4
The hole in the ozone layer	235	36.4
Pollution of rivers and seas	215	33.3
GM food	148	22.9
Using up the earth's sources	135	20.9
Radioactive waste	130	20.1
Climate change	118	18.3
Extinction of species	102	15.8
Traffic/congestion	69	10.7
Overpopulation	66	10.2
Flooding	55	8.5
Poor waste management	48	7.4

Table 2. The significant relationship between gender and some general environmental concerns

Environmental concern	Value	Df	Asymp. Sig. (2-sided)	Yes (%)	Approx. Sig.	
Litter	Continuity Correction ^a	6.991	1	.008	41%	.006
	% within gender boy			30%		
	Phi	.110				
Extinction of Species	Continuity Correction ^a	5.094	1	.024	13%	.018
	% within gender- boy			20%		
	Phi	-.096				
Radioactive Waste	Continuity Correction ^a	5.599	1	.018	24%	.014
	% within gender- boy			16%		
	Phi	.100				

Table 3. Students' experiences related to general environmental concerns

	Yes (%)	No (%)	Unsure (%)
In your view, has air pollution ever affected your health?	69	13	18
Has air pollution ever affected the health of any of your family or friends?	27	43	29
Apart from effects on people's health, are you aware of any other effects of air pollution?	42	32	27
Have you, in the last 5 years, experienced any form of flood damage (including your home, garden, or vehicle)?	7	89	3
Do you feel the pattern of weather is generally changing?	50	19	29

The beliefs and attitudes relating to climate change :

Table 4. The top and the least total proportion of students' responses to attitude statements

Item no	Statement	Total agreement*	Mean	Std. Deviation
7	Climate change is a consequence of modern life	48,5	3,08	1,67
6	Radical changes to society are needed to tackle climate change	47,2	3,03	1,65
18	The United States should take most of the blame for climate change	43,5	2,98	1,50
37	There is no point in me doing anything about climate change because no-one else is	42,5	3,07	1,45
35	It is already too late to do anything about climate change	42,1	3,01	1,51
31	Nothing I do on a daily basis contributes to the problem of climate change	32,1	2,95	1,25
29	Flooding is not increasing, there is just more reporting of it in the media these days	31,6	2,98	1,13
11	Experts are agreed that climate change is a real problem	30,5	2,97	1,21
34	I tend to consider information about climate change to be irrelevant to me	30,2	2,99	1,21
15	The effects of climate change are likely to be catastrophic	29,9	2,97	1,21

*(% of total sample)

The environmental values, worldviews, and actions:

Table 5. The environmental values, worldviews, and actions that are addressed by the questions

Question no	Specifically measures
8	Sources of climate change information
9	Trust in climate change information
10	Personal importance of climate change issue
14	Perceived threat from impact of climate change on self
15-16	Perceived individual efficacy and responsibility
18	Regular environmentally-relevant behaviours, including energy reduction

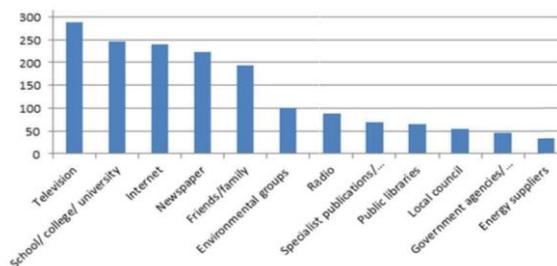


Figure 1. Sources of climate change information

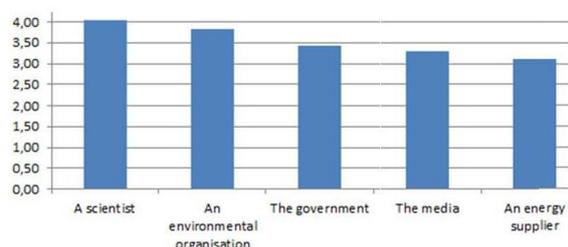


Figure 2. The distribution of trust mean values among sources of climate change information

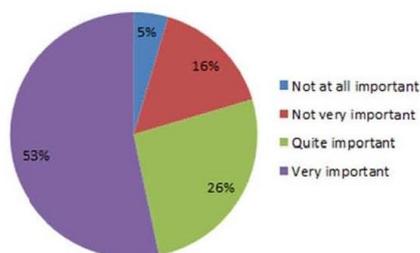


Figure 3. Personal importance of climate change issue

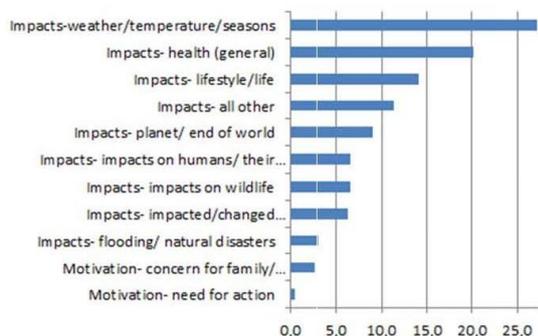


Figure 4. The proportion of students mentioning why they feel climate change is important

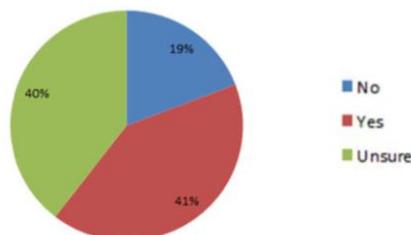


Figure 5. The proportion of responses to the perceived threat from climate change on self

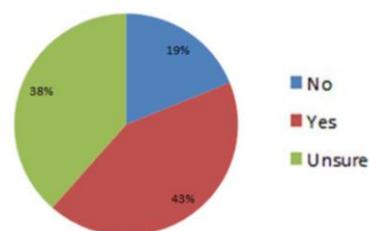


Figure 6. The proportion of responses to belief statement to tackle climate change

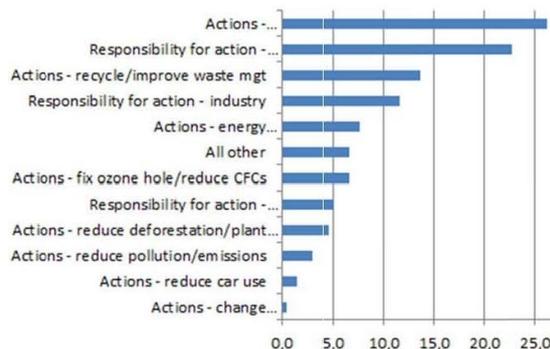


Figure 7. The proportion of students mentioning what can be done to tackle climate change

Table 6. Inter-Item Correlation Matrix for the Trust Scale (Q.9)

	A family member or a friend	A scientist	The government	An energy supplier	An environmental organisation	The media
A family member or a friend	1,000	-.008	,096	-.018	,049	,077
A scientist	-.008	1,000	,115	,242	,254	,189
The government	,096	,115	1,000	,142	,132	,211
An energy supplier	-.018	,242	,142	1,000	,298	,189
An environmental organisation	,049	,254	,132	,298	1,000	,225
The media	,077	,189	,211	,189	,225	1,000

Table 7. Who do respondents feel has the main responsibility for tackling climate change? (Q.16)

Responses	Number of students
Environmental organizations	197
Individuals	156
International organizations	105
National government	104
Business and industry	48
Local government	28
Other	19

Table 8. Reasons for environmentally-relevant actions

Action - regularly taken	Reason(s) for action (% of total respondents)					
	Convenience	To save money	To protect the env.	For my health	Habit	Moral obligation
Walk or cycle to school	33	22	23	29	14	4
Use public transport	47	17	20	5	11	5
Turn off lights I'm not using	8	65	27	5	12	5
Buy energy efficient light bulbs	8	57	32	9	8	5
Buy organic food	8	6	13	75	7	4
Recycle glass	10	14	63	12	7	9
Recycle other items	9	12	66	13	6	9
Take part in a campaign about an environmental issue	12	6	52	13	9	21

(* Dark cells shows the most popular reason, light grey cells shows the second most popular reason)

Table 9. The significant relationship between gender and some motivation for actions

Motivation for action		Value	Df	Asymp. Sig. (2-sided)	Yes	Approx. Sig.
Buying energy efficient bulbs to protect the environment	Continuity Correction ^a	6.700	1	.010	27%	
	% within gender- boy % within gender- girl				37%	
Recycling other items to protect the environment	Continuity Correction ^a	7.533	1	.006	62%	.007
	% within gender- boy % within gender- girl				73%	
	Psi	-.117				.005

6. Discussion & Conclusion

Climate change and its effects can no longer be ignored by individuals, organizations and governments. Although there is a global interest on the subject matter and different aspects of the climate change, the issue is studied neither the challenges in teaching of climate change nor the limitations in action. While various studies are carried out on climate change in Turkey and governmental funds are available for the development of programs, the first step of the whole initiative should be on understanding of public perception. With this goal in mind, the current study was designed to address three questions; What are the general environmental concerns and experiences of 7th grade students? What are the beliefs and attitudes of 7th grade students relating to climate change? And what are the environmental values, worldviews, and actions that 7th grade students have?

The findings suggest that seventh grade students are primarily concerned with air pollution (71%) while only 10%, 9% and 7% reported to be concerned about overpopulation, flooding and poor waste management respectively). The percentage of students who were concerned with climate change was 18%. Overall, climate change appears to be a priority issue for the minority of the participants. In regards to climate change, students attribute modern life and United States as the cause of the issue. Most students consider climate change to have a personal importance due to the impacts on weather, health and life. Likewise Tuncer et al. discussed that the perception of the students towards the environment found to be high but they were not in the state of implementing the possible solutions and individual responsibilities into their own lives [16]. Their understanding of climate change was found to be

from a more global perspective than local. However, they agree that they cannot do anything to alter the situation and it is too late to do anything. This may be explained by the global understanding of the issue rather than local. This is one of the prominence findings of the study, indicating the importance of programs promoting individualized and community wise actions against such issues. Programs aiming to tackle issues such as climate change and global warming should take this outcome into account.

As seen from the results, students' primary sources of information include television, internet, newspapers and school. This outcome supports the findings of previous research that identifies media as a key role player on individuals' perception of environmental issues [12] along with education. Media is also identified as a trustable source of information by the participants in addition to scientists. With its promising impact on students' perceptions, media can be a useful and successful tool to support educational programs on issues such as climate change that are developed for formal learning settings as well.

The findings of this study provides a baseline for the development of curricular materials for the project as well as contributing to the field through adaptation of a survey instrument into Turkish that can be used to investigate students' perceptions and understanding on climate change. Future studies should also focus on the impact of well-designed educational programs and how teachers' professional development impact understanding of climate change and individualized and community wise actions.

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Appendix A. The beliefs and attitudes relating to climate change Principal Component Analysis Results

	Component 1
1	We can all do our bit to reduce the effects of climate change
3	People should be made to reduce the energy consumption if it reduces climate change
6	I would only do my bit to reduce climate change if everyone else did as well
7	The government should provide incentives for people to look after the environment
13	Radical changes to society are needed to tackle climate change
18	If I come across information about climate change I will tend to look at it
24	Pollution from industry is the main cause of climate change
26	Recent floods in this country are due to climate change
31	Experts are agreed that climate change is a real problem
33	Industry and business should be doing more to tackle climate change
37	I feel a moral duty to do something about climate change
	Component 2
5	Climate change is just a natural fluctuation in earth’s temperatures
8	It is already too late to do anything about climate change
9	Human activities have no significant impact on global temperatures
12	I am uncertain about whether climate change is really happening
15	The evidence for climate change is unreliable
17	Claims that human activities are changing the climate are exaggerated
23	Nothing I do makes any difference to climate change one way or another
25	I tend to consider information about climate change to be irrelevant to me
27	It is too early to say whether climate change is really a problem
29	Flooding is not increasing, there is just more reporting of it in the media these days
30	There is no point in me doing anything about climate change because no-one else is
32	Nothing I do on a daily basis contributes to the problem of climate change
35	I do not believe climate change is a real problem
	Component 3
2	Climate change is inevitable because of the way modern society works
10	Climate change is something that frightens me
11	Developing countries should take most of the blame for climate change
14	People are too selfish to do anything about climate change
21	Climate change is a consequence of modern life
22	The effects of climate change are likely to be catastrophic
28	The media is often too alarmist about issues like climate change
34	For the most part, the government honestly wants to reduce climate change
36	The government is not doing enough to tackle climate change

Higher Education from Nationalization to Globalization Moving Towards Knowledge Economies: India and Canada

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Abstract

Globalisation is a phenomenon that is transforming the world economic system including nearly all aspects of production, distribution and other business processes. Globalisation has changed scenario of Education too. Every nation has its specific thrust areas for the development of nation depending upon the requirement of the country. Education is one of the thrust areas for the development of the country economically, technologically and politically. Education system of any nation bridges the gap between the people of different community, Caste, Gender etc. Countries have their own provision in terms of policies and practices at university level. In India there is a National policy of Education (NPE, 1986) and Program of Action (POA 1992) and five year developmental plan along with National assessment and Accreditation Council to maintain quality in higher education and at the same time to bring measures for equity and equality in higher education. Similarly in a developed country like Canada, there is Council of Ministers of Education Canada (CMEC) actively engaged for minimizing gap between social barriers like gender, culture etc.

Though there is vast difference between countries like Canada and India in terms of Geographical area, Population, Language, literacy rate etc. it would be interesting to study the issues and problems faced by higher education and teacher education in particular of both the countries. In this paper authors have discussed comparative scenario of higher education and in particular teacher education in Canada and India in terms of quality input.

1. Introduction

Higher Education is a pioneer of National Economy. Quality of Education especially higher

education develops skilled manpower with knowledge economy through which nation will grow. Due to Globalisation and Liberalization, there is an increasing competition from developed and developing nations and with the possibility of locating educational operations anywhere in the world. In every nation have their educational policy and action Plans along with Educational assessment and Accreditation criteria to maintain quality in higher education. The Nations need to invest in Teacher education to equip youth to compete at the leading edge of economic activity because all discipline emerge from education and education emerge from quality teacher education.

The knowledge-based society is distinguished by placing emphasis on precognition and adaptation to nationalization to globalisation of education. Knowledge based society stresses on Quality education system to bridging the gap between the people of different community, Caste, Gender etc. Thus, it is essential to redirect Higher education and teacher education in terms of goals, purposes, and Approaches to move from nationalization to globalisation.

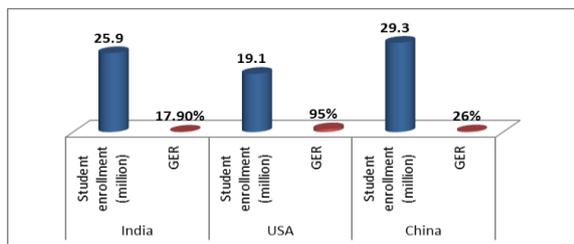
2. Education Scenario in India:

India is the seventh largest country in the world with the population of Population of 121 Billion. The country covers an area of 3.28 million sq kilometer. The mainland of India extends between 8° 4 ' N and 37° 6' North Latitude and 68° 7 ' and 97° 25 ' East Longitudes. There are as many as 28 states in India. Hindi is the National Language [10][16].

Education in India is provided by the public sector as well as the private sector. Education in India falls under the control of both the Union Government and the states, with some responsibilities lying with the Union and the states having autonomy for others. Most universities in

India are controlled by the Centre or the State Government.

After passing the Higher Secondary Examination (grade 12 examination), students may enroll in general degree programs such as bachelor's degree in arts, commerce or science, or professional degree programs such as engineering, law or medicine. After High school, student can enroll in teacher education or after graduation or Post graduation; student can enroll in Teacher education. The main governing body at the tertiary level is the University Grants Commission which enforces its standards, advises the government, and helps coordinate between the Central and the state. India's higher education system is the second largest in the world, after China and the United States is after India as shown in Figure 1.



Source: FICCI, 2012

Figure 1. Students' Enrolment in Higher Education

Table 1. Population of India in age group of 18-24 years

Year	Percentage
2001	11%
2011	12%

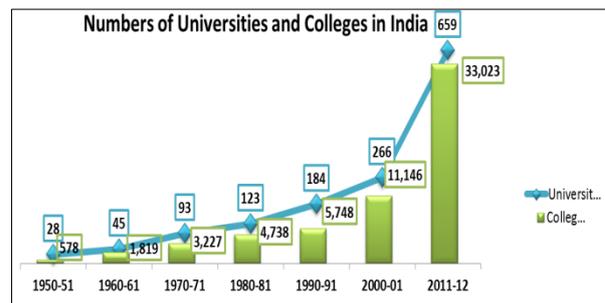
Source: Census, 2011

In the year 2001, 11% of population of the country was in age group of 18-24 years which is raised to 12% by the 2011 as indicated in Table 1 [16]. This young population is an invaluable asset which if equipped with knowledge and skills, can contribute effectively to the development of the national as well as the global economy. The Indian Higher education system is plagued by three basic challenges viz., access, equity and quality. These issues are important for the country, as it is now engaged in the use of higher education as a powerful tool to build a knowledge-based information society of the 21st Century. Hence, the three pillars of education are expansion, inclusion and excellence.

3. Higher Education in India

Today the world economy is experiencing an unprecedented change. New developments in science and technology, media revolution

internationalization of education and the ever expanding competitive environment are governing the educational scenario. Because of interdependence and integration of world economy in recent years, the Indian higher education system has a new role and a challenge to provide to the nation and the world at large in providing skilled human power at all levels, and having breadth of knowledge and confidence to effectively confront the social and economic realities. It is true that enhancing social access to higher education is still important in the country like India. But, the major challenge before the Indian higher education system is to bring equity and quality in higher education.



Source: FICCI, 2012

Figure 2. Number of Universities and Colleges in India

The higher education system in India has grown in a remarkable way, particularly in the post-independence period, to become one of the largest systems of its kind in the world. There are around 659 Universities and 33,023 Colleges so far upto 2011-12 and Total Enrolment in Higher education was 18.5 million [9].

Table 2. Number of Central, State and Private Universities and Colleges in India

	University- 659	Colleges 33,023
Central	152	669
State	316	13,024
Private	191	19,930
Enrollment in 2012	18.5 million	

Source: FICCI, 2012

Higher education enrollment has grown at a healthy pace, with 3.6 million students being added over the last four years [20] [34]. The Gross Enrollment Ratio (GER) currently stands at 13.8%, up from 11% in 2005. The GER has increased over the last decade at a CAGR of 3.3%. With a GER of 13.8% and enrollment of 14.6 million, access to higher education in India is currently restricted to a limited population [9].

There is wide disparity in Higher Education GERs across states, urban and rural areas, gender, and communities as indicated in Table 3.

Table 3. Disparity in Higher Education GERs

Interstate disparity	Delhi		Assam	
	31.9%		8.3%	
Urban-rural divide	Urban area		Rural area	
	23.8%		7.5%	
Differences across communities	SCs	STs	OBCs	Others
	6.6%	6.5%	8.7%	17.2%
Gender disparity	Female		Male	
	10.6%		14.4%	

Source: FICCI, 2011

Other factor with regard to quality of Indian Higher education is faculty shortage at higher education level. There are about 45% of the positions for professors, 51% positions for readers, and 53% positions for lecturers were vacant in Indian universities in 2007-08. Further the poor academic standards as the system are plagued with outdated curricula and ill-equipped libraries and laboratories.

The number of students enrolled in Classes 9-12, which is an indicator of potential demand for higher education, has increased at a CAGR of 5.7% over 1996-2008, in line with the growth in higher education enrollment with the implementation of RTE Act. Although Higher Education has expanded several times since independence, the major issues of access, equity, and quality continue to be areas of concern.

3.1 Government Initiatives to tackle the above Issues

The Yashpal Committee Report (2009) talked about the concept of a university as a place where research and teaching become two important pillars of the creation of knowledge and should go together. It should provide practical training to the people that should be based on new knowledge and in response to social and personal needs. Most importantly, university should allow for the diverse growth of knowledge and should not lead to fragmentation of knowledge. It is, therefore, recommended that normally, no single discipline or specialized university should be created. There is also an idea that undergraduate programs should be restructured to enable students to have opportunities to access all curricular areas with fair degree of mobility [35].

Improving access to Higher education, quantitative expansion in enrolment will be achieved through expansion of existing institutions, both government and private; creation of new

government (Central and States) funded universities and colleges; facilitating/ removing barriers in creation of new universities and colleges; special programmes for targeted expansion in Central Universities; incentivizing State universities and colleges.

These are general recommendations given by Moily Committee (2006), National Knowledge Commission (2006) for improving Equity, equality and Quality in Higher Education like-[19] [24]

- Expand access by supporting existing institutions, establishing new Central Higher Education Institutions like IITs, NITs, IIITs, IISERs, IIMs ,SPAs
- Globalisation of Education, Permitting Private institutions
- Adopting Open learning, Online learning, Distance learning.
- Professional Skill development.
- Promote the quality of higher education by investing in infrastructure and faculty, promoting academic reforms, improving governance and institutional restructuring.
- More focus given on Research.
- Increase accessibility of all curricular areas with fair degree of mobility.
- The setting up of Central Universities, with high quality of infrastructure for teaching and research.

Government initiated few Schemes for the upliftment of the Standard of Higher Education like [33]:

- National Mission in Education through ICT.
- Professional Development of Faculty.
- Technical Education Quality. Improvement Programme (TEQIP) –II
- Innovation Universities.
- Review of Institutions Deemed to be Universities.
- National database of academic qualifications.

Some of the initiatives under XI Five year Plan were [15] [16] [28]:

- Spending to be raised from 1.1 to 1.5% of GDP (INR 250 billion)- for state universities, scholarship, etc.
- Increase expenditure on research to 2 % of GDP.
- Entry of foreign education provider
- Creation of teaching resources through leveraging information technology.

The Central Government is conscious of the need to raise both the enrolment rate and access to higher education to all who deserve irrespective of class, caste, religion, gender or economic status. There are proposals for improving access to quality

higher education to disadvantaged groups in the population [19][31].

4. Progress of Teacher Education

Teacher education is a programme that is related to the development of teacher proficiency and competence that would enable and empower the teacher to meet the requirements of the profession and face the challenges therein. Teacher education reaches teachers at all levels of education, namely Pre-primary, Primary, Elementary, Secondary, Higher Secondary and the Tertiary. As on 31st December 2009, 12,482 teacher education institutions offering 15,101 courses have been recognized by NCTE with an approved intake of 11,45,425 teacher trainees [17]. As per latest data given by NCTE, there are around 13,867 Teacher education institutions till 2012-13 as shown in following table 4 [16][29].

Table 4. Number of Teacher education Institutes in India

	No. of Govt. Institutions	Approved Intake	No. of Private institutions	Approved Intake	Total Intake (Govt. + pvt.)
D.Ed.	757	49,089	4,831	2,98,278	3,47,367
B.Ed.	224	20031	5,730	6,09,486	6,29,517
M.Ed.	102	3672	790	25,285	28,957
B.P.Ed	19	1284	538	28,150	29,434
Others	76	16760	800	51,422	68,182
Total	1178	90836	12,689	10,12,621	11,03,457

Source: NCTE (2014), Kothari and Bhagwat (2014)

Number of Institutions are reduced because NAAC and NCTE are little conscious with respect to quality of Teacher education and many colleges were closed down due to lack of sufficient quality.

There are various commission and committees that recommended the qualitative reform in teacher education from time to time. The Education Commission (1964-66) has highlighted various issues related to teacher education. It recommended professionalization of teacher education, development of integrated programmes, comprehensive colleges of education and internship. Thereafter the National Commission on Teachers (1983-85) recommended five-year integrated courses and internship. The National Policy on Education (NPE) (1986) recommended the overhaul of teacher education to impart a professional orientation and referred to the same concerns voiced by the earlier Committees. This has resulted in the launch of the Centrally Sponsored Scheme of Teacher Education

incorporating the establishment of DIETs, CTEs and IASEs. The NPE Review Committee (1990) and the National Advisory Committee on Learning without Burden (1993) have also emphasized the need for qualitative reform of teacher education and suggested various measures. The Advisory Committee in its report Learning without Burden (1993) drew attention to the need for the involvement of teachers in curriculum and textbook preparation and training teachers in fostering learning through activity, discovery, observation and understanding [1]. There have been a number of initiatives for increasing standards of teacher education like four year integrated Bachelor of Elementary Education (B.El. Ed.) programme for the preparation of elementary school teachers offered by the selected affiliated colleges of the University of Delhi. NCERT's experiments with the four year integrated programme leading to the degree of B. Sc. Ed., two-year B.Ed. programme and integrated M.Sc. Ed. Etc [23].

National Curriculum Framework (2005), National Council for Teacher Education (1998), National Curriculum Framework for Teacher Education (2009), Justice Verma Commission (2012) recommended following major aspect for Quality Teacher education [12] [21] [22][23]:

- Curriculum, syllabi and textbooks are never critically examined
- Language proficiency of the teacher
- Disciplinary knowledge is viewed as independent of professional training in pedagogy.
- Links between learning theories and models and teaching methods
- There is no opportunity for teachers to examine their own biases and beliefs.
- Theory courses have no clear link with practical work and ground realities.
- The evaluation system is too information-oriented, excessively quantitative and lacks comprehensiveness.
- Need to develop certain attitudes, dispositions, habits and interests in a teacher.
- Attend to the need of the students as per the their needs.
- Develop concern among students towards society and its development.
- Organize learner-centered, activity-based, participatory learning,
- Incorporate ICT in various learning situations
- Contextualize curriculum to suit local needs,
- Social Awareness, Observe and engage with children, Understand the self and others,

- Develop habits and the capacity for self-directed learning,
- Develop professional skills in pedagogy

India is facing a deep crisis in higher education, which is being masked by the success of narrow professional schools. The veneer of the few institutions of excellence masks the reality that the median higher education institutions in India have become incapable of producing students who have skills and knowledge. The process neither serves a screening or signaling function nor prepares students to be productive and responsible citizens [6].

5. Background Context of Post Secondary Education in Canada:

Canada has federation of ten provinces and three territories. It has population of 33,476,688 with 97 per cent literacy rate. With a geographic area of 9,970,610 km², it is the second largest country in the world in this respect. Canada has two official languages: French and English [32].

In Canada, post-secondary education is the responsibility of provincial and territorial governments, and in each province and territory there are laws, policies and procedures that govern the operation of post-secondary institutions. Canada is one of the world's top education performers and among the top 3 Organization for Economic Cooperation and Development (OECD) countries in spending per capita on public postsecondary education. More than 200,000 international students chose Canada in 2011. Canada has 4 universities in the top 100 of the Shanghai World University Rankings (2012) [5].

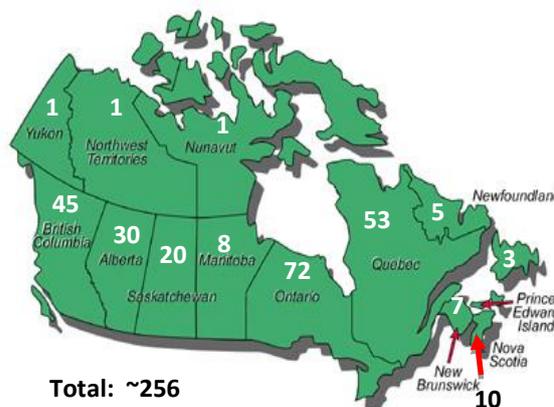
6. Access, Equity and Quality Concern for Canadian Higher Education

The latest Programme for International Student Assessment (PISA) results is that Canada continues to be marked by high achievement and high equity in education. This means that the impact of socio-economic status is relatively small, and the gap between the high achievers and low achievers is also small, compared to most other countries. In comparison to other countries, the gradient of inequality in attainment is relatively low, 54% have tertiary education, compared to the international average of 32% [14].

Following the large loss of jobs during the recession, many Canadians returned to school for education and training. This, combined with a large cohort of high school graduates, has produced one

of the largest classes of post-secondary students in Canada's history. While students continue to pursue higher education, the saddling of a generation with billions of dollars in debt will have implications for Canada's economy and socio-economic equality [4].

Figure 3. Province wise Universities in



Canada

There are around 256 Higher Education Universities in Canada. As per table 4, participation of young students between age group of 18-24 in university education grew from 12% in 1972-1973 to 23% in 2008-2009 25% in 2011-12[3] [5].

Table 5. Participation of Young Students in University

Year	Percentage
1972-1973	12%
1992-1993	17%

Source: CME, 2012

Provincial funding rules are also geared to squeezing more students into the classrooms rather than improving the quality of the education that is delivered, and support uniformity of product rather than differentiation and specialization of universities into different areas or missions. There is also a large number of older faculty at Canadian colleges and universities who will be retiring over the next decade and the Canadian postsecondary education system is simply not producing enough replacements for them. Where the needed new faculty will be found is a very severe problem that has not at all been adequately planned for.

7. Teacher Education in Canada

The preparation of teachers in Canada varies from province to province and from institution to institution. Variation follows logically from the

historical development of and the legal framework for education in the country. The British North America Act of 1867 (called the Constitution Act since 1982) established a federation of provinces and placed education exclusively within the jurisdiction of the province [7][30].

In structure, Canadian education is determined through each provincial legislature, the ministry of education, the minister of education, school boards and, in some provinces, school councils. Historically there have been two program models for teacher education in Canada: consecutive and concurrent. From either model students receive a B.Ed. degree in recognition of completing their professional studies.

The Consecutive Model: The consecutive model is a one or two year program after an undergraduate degree. The program separates professional studies from academic studies; assumes that studies in the arts and sciences provide an appropriate foundation for studies in education and provides the content background for teaching; makes it possible for mature and experienced people to enter teaching; and increases the pool of teacher candidates since, through this route, many enter teaching as a second or third career.

The Concurrent Model: In the concurrent model students pursue their teacher education studies alongside of their academic studies. In the most common concurrent pattern, teacher education is integrated into the first-degree program starting in the first or second year of a four or five year program. Students declare teaching as their career choice and teacher education as their program destination when they apply to university. Faculties of Education work closely with University undergraduate departments in developing the program [13].

There are around 51 Faculties of Education under different Province wise University. Each of Canada's ten provinces and three territories has the exclusive right to pass legislation on matters of education. Each jurisdiction has its own school act defining how education is provided and how powers are delegated.

7.1 Recommendations for Teacher Education Quality Improvement:

The quality of teaching is determined not just by the "quality" of the teachers. Teacher policy was developed by Organisation for Economic Co-Operation and Development (OECD) to improve quality of Teaching in 2005. The main OECD Teacher policy directions according to whether

they apply to the teaching profession as a whole, or are more targeted to particular types of teachers or schools. It aimed with the making teaching an attractive career choice, developing teachers' knowledge and skills, recruiting, selecting and employing teachers and Retaining effective teachers in schools. It recommend following aspect to increase quality of teacher education programme in Canada [26]:

- Expanding the supply pool of potential teachers
- Making reward mechanisms more flexible
- Improving entrance conditions for new teachers
- Rethinking the trade-off between the student-teacher ratio and average teacher salary
- Improving selection into teacher education
- Improving practical field experiences
- Certifying new teachers
- Strengthening induction programmes
- Broadening the criteria for teacher selection
- Making a probationary period mandatory
- Encouraging greater teacher mobility
- Responding to ineffective teachers
- Providing more support for beginning teachers
- Providing more flexible working hours and conditions

8. Issues regarding Educational System of Canada

In the absence of national policies for post-secondary education, provincial policies dealing with access and funding have diverged dramatically from one another. Across the country, students face significantly different challenges to pursuing higher education. In addition, Aboriginal learners across Canada continue to be marginalized within the post-secondary education system, with enrolment rates significantly below peer groups from non-Aboriginal populations in spite of marked population growth in Aboriginal communities [4].

The major problems facing higher education and Teacher Education in Canada, and the motivation for the research studies appearing, can be gathered under four broad headings: underfunding, student access, Quality education and faculty shortage.

8.1. Underfunding

Funding shortfall under which the postsecondary sector and especially universities in Canada have been operating for more than a decade now. Per-student spending as a percentage of the GDP is generous but not outstanding, by

international standards. Provincial funding transfers to universities and colleges have significantly declined in real (inflation-adjusted) per-student [4].

Under the current structure for federal transfer payments, provincial governments are free to do as they wish with the funding they receive. Increment in the Tuition Fees and problems of EPF resulted into overcrowded classes, numbers of full-time faculty declined, student-faculty ratios have shot up dramatically, and methods of teaching have shifted to accommodate large student numbers, so that quality of undergraduate education has noticeably declined.

As per Ontario Confederation of University Faculty Associations (OCUFA) faculty survey (2012) – 83 per cent of faculty have budget constraints that indicate that their departments have faced budget cuts. It is also clear that constrained budgets are leading to larger class sizes (77 per cent), hiring freezes (76 per cent), increased use of part-time or sessional faculty (76 per cent), delayed maintenance of older facilities (64 per cent), and fewer course choices (53 per cent) [27].

8.2 Accessibility:

The second broad set of issues that needs to be addressed revolves around student access and affordability of a postsecondary education. There is some reason for hope that the private sector, recognizing its stake in higher education, will develop new means to assist students.

According to *Education Indicators in Canada: An International Perspective*, 2009 figures for highest level of education attained indicate that about half of the population aged 25 to 64 have successfully completed a program of postsecondary education. The increase was much larger for women than for men.

Table 6. Age-wise population that has attained postsecondary education, Canada, 2009

	25 – 64 Years	25 – 34 Years	35 – 44 Years	45 – 54 years	55 – 64 years
College	24	26	27	24	20
University	25	30	29	21	21
Total	49	56	56	45	41

Source: CMEC, 2012

Table 6 below details the postsecondary attainment of various age groups. In addition, another 12 per cent have certificates or diplomas from vocational schools or apprenticeship training.

Table 6. Rates of access to college and university for minority groups, all provinces

	College	University	Any
Immigrant status			
First-generation immigrant	29.6	57.0	86.6
Second-generation immigrant	30.0	53.0	83.0
Non-Immigrant	34.2	37.0	71.2
Aboriginal status			
Aboriginal	28.0	23.1	51.1
Non-Aboriginal	33.2	42.2	75.4

Education's place as a right for Aboriginal peoples comes from a series of treaties signed over the course of several decades and is recognised in Canada's Constitution. Aboriginal populations showed much lower levels of access to and graduation from university than the non-Aboriginal population, but have similar rates of college completion. The ministers responsible for education in the provinces and territories, working together as the Council of Ministers of Education, Canada (CMEC), have identified Aboriginal education as one of the key activity areas of education. High and rapidly increasing tuition fees limit access to post-secondary education for students from low- and middle-income backgrounds. At their current rate of increase, tuition fees are estimated to outpace all other student expenses combined in 15 years [4].

8.3. Quality of Education:

The Commission of Inquiry on Canadian University Education (1992) observed that historical consciousness is one of the accepted goals of higher education. The fact that Canada has fewer engineers per capita than the United States or Japan may reflect the degree of emphasis this country has placed on science education [2].

According to OCUFA surveyed faculty (2012) – 42 per cent – believe that the quality of undergraduate education has declined due to public funding and rising enrolment, larger class sizes, reduced student-faculty interaction, and deteriorating labs, libraries and classrooms and 26 per cent believe that the quality of graduate education has declined, professors and librarians appear less concerned about graduate studies than the undergraduate experience. 43 per cent of faculty believes that they do not have the resources they need to provide a high quality education to their students. This suggests that strained university budgets are increasingly unable to cope with the rising number of students in Ontario [27].

8.4. Faculty Shortage

According to OCUFA surveyed faculty (2012) - 63 per cent indicate that the first priority for any new funding should be allocated to new full-time faculty hires. This reflects the widespread belief that universities do not have sufficient full-time faculty to cope with rising student demand. The major concern is the challenge of faculty renewal over the next decade [27].

Investment in graduate studies provides the foundation for long-term innovation and trains the highly skilled teachers and researchers that are needed to respond to the economic and social challenges Canada faces now and in the future.

As the economy prospered and offered lots of jobs to university graduates, fewer students carried on for doctoral training with an eye for academic work. In order to be sustainable without continuing severe declines in quality, clearly greater resources need to be directed to the operations of the postsecondary education sector in Canada.

9. Government Initiatives to tackle the above Issues:

All provinces have made efforts to make education more accessible to students with physical or developmental disabilities. Some jurisdictions have attempted to integrate most special needs students, although it has been suggested that discussion of the quality of their education, a crucially important issue for these groups, as it is for all students, has been "largely avoided." Following are the recommendations to increase quality of Higher education [3] [4] [5] [14].

- The federal government should implement a federal Post-Secondary Education Act
- Increase in the number of Graduate Scholarships.
- Availability of affordable Students' Loan
- The determination to approach the training of teachers with an ethos of the holistic rather than technical operative at its core.
- Recent federal research funding should be concentrated in the science/technology/medical areas.
- Federal Government and Province give focus on following aspect to increase quality of Higher Education.
- Meeting Diverse Needs of the learner, emphasizing , Computer Education, Official Languages in Education, Proposal of Internationalization
- Increase standard of Research

- to encourage measures that remove barriers to post-secondary education due to socio-economic status.
- Government should invest in making college and university more affordable.
- Fulfill Canada's obligations: fund aboriginal education.

The long-term policy of the federal government amounts to a gradual withering away of EPF support for post-secondary education, it should concentrate on financing research at post-secondary institutions and encourage university ties with industry, in order to promote Canada's global competitiveness [11]. Replacement of the program with a new Income-Contingent Repayment Student Assistance Plan. It would make loans widely accessible, and repayable as a surtax; thus, by linking repayment to earnings [2].

National is struggle with pockets of economic boom and others of disparity, Higher education need to be critically understood adaption to emergent needs, of both the individual and the communities served, from the local to the global. Teacher preparation needs to be adaptable to the contexts in which its candidates serve while providing grounding in key areas of knowledge.

10. Conclusion

In order to bridging the gap between Nationalization and globalisation of education and learning, challenges and opportunities of the Information Age, requires raising the efficiency of the existing systems of education. Graduates of Higher education and Teacher education of these systems, to varying degrees, now find themselves deficient in knowledge as well as cognitive skills that are necessary for the increasingly sophisticated environment and for the ever-evolving labor market. There is a general understanding is required to understand the needs of the nations to be responsive to ongoing change in an era of "globalization" and "a knowledge economy".

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Reclaiming Coady: Adult Education and Economic Development in Atlantic Canada

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Abstract

This work-in-progress paper seeks to challenge the rhetoric of deficit that surrounds Atlantic Canada, by taking a more appreciative approach by discussing one great Atlantic Canadian, Rev. Moses M. Coady, adult educator and the founder of the Antigonish Movement. Coady's work is grounded in the Atlantic region and his message of cooperation, community, and consciousness-raising pioneered the field of emancipatory education, so often associated with the Brazilian educator Paulo Freire. As Atlantic Canadians, we wish to 'reclaim' Coady's work and celebrate his contribution to the culture of our region. This paper offers a brief biography of Coady and begins to explore his contribution to the adult education movement in Atlantic Canada.

1. Introduction

The discourse that surrounds the Atlantic provinces of Canada, especially in education, tells a sad tale. Our high unemployment and illiteracy rates and our low socio-economic ranking, as compared to the rest of Canada, dominate the news media and scholarly literature on the region. In 2003, adult literacy levels in New Brunswick were at 44% compared to the national level of 52%, and 56% of the population had literacy scores below level 3 [7], and that figure climbed to 48% by 2008 [11]. An International Adult Literacy and Skills Survey (IALSS) administered by Statistics Canada [13] in 2003 further reinforced the sorry state of literacy in New Brunswick. Citing the same survey, the Director of HRSDC's National Learning Policy Research determined that "Less than half of New Brunswick's working-age population (16-65) have the literacy skills required for coping successfully in today's world" [12]. To New Brunswickers, and indeed Atlantic Canadians, these statistics will not be unfamiliar, nor will the rhetoric of 'failure' that accompanies them in popular discourse. This deficit-based approach constructs an image of the Atlantic provinces as 'have nots', instead of celebrating the rich culture, heritage, and people of the region.

As two Atlantic Canadians whose scholarly work and personal experiences have been shaped by the place in which we grew up and continue to work, we seek to challenge this deficit model. This paper instead takes a more appreciative approach by discussing one great Atlantic Canadian, Rev. Moses M. Coady, adult educator and the founder of the Antigonish Movement. Coady's work is grounded in the Atlantic region and his message of cooperation, community, and consciousness-raising pioneered the field of emancipatory education, so often associated with the Brazilian educator Paulo Freire. As Atlantic Canadians, we wish to 'reclaim' Coady's work and celebrate his contribution to the culture of our region.

The region of Atlantic Canada has experienced its fair share of recession, depression, and labour crises. Historically, the Atlantic provinces have relied on continually dwindling natural resources for its economic survival. The economic hardships and physical landscape of the region have created a people of strength, pride, and independence – survivors. While the people themselves might be independent, the idea of community and connection also permeates the Atlantic region. Geographically isolated from the rest of the country, Atlantic Canadians were forced to connect with their neighbours for survival and companionship. The emancipatory nature of education is central to the Atlantic Canadian philosophy of education – increasing levels of education are seen as a means to economic prosperity, and to a 'better' life. Coady saw education as a way to move beyond our circumstances, and to improve our conditions. In a region that continues to suffer economically, and which is plagued by out-migration, perhaps Coady's message, which celebrates the rich heritage of the Atlantic region, can help to reconstruct this deficit model to one that appreciates the tenacity and determination of Atlantic Canadians and their ability to be the 'Masters of their own Destiny' [4].

2. Moses Coady

Moses Coady was born and raised on a farm in Southwest Margaree on Cape Breton Island. In his younger years, Coady worked on his family farm and, so, his schooling was sporadic with much of his basic education provided, at home, by his parents.

At age fifteen, he began to attend school on a regular basis. On graduating high school, Coady attended teacher-training college and taught in his native Margaree for two years [1].

Coady's educational pursuits were influenced by his cousin, Father James (Jimmy) Tompkins, himself a native of Margaree and an ordained Catholic priest (Mifflin, 1974). Coady entered St. Francis Xavier University (St. F. X.) in Antigonish, Nova Scotia, graduating in 1905. That same year, he was chosen by the Diocese of Antigonish to receive further training in theology and philosophy. At the conclusion of his studies, he received his Doctorate of Philosophy and his Doctorate of Divinity [1]. Coady returned to Nova Scotia in 1910 and was appointed Professor of Education at St. F. X. It was at this point in his life when he and Father Tompkins (Father Jimmy) began to conceive of a community development movement to improve economic and social conditions for the people of eastern Nova Scotia.

Many factors influenced the philosophies of Moses Coady - his historical and social background, his relationship with Father Jimmy, his education and his religious faith. Particularly relevant to the development of Coady's philosophy was the economic condition of Nova Scotia in the early 1900s. Prior to the 20th century, Nova Scotia enjoyed economic success due to its abundant natural resources of fish and timber and as a world-centre for shipbuilding. This success was to be short lived. By the time of Coady's return from Rome, much of the population of Nova Scotia was experiencing economic crises. The economic boom experienced by much of Canada during the 1920's was not felt in Nova Scotia [9].

One of the fundamental tenets of Moses Coady's philosophy was his belief in the achievement of 'the good and abundant life', the gradual realization of human potential. For Coady, human potential encompassed a myriad of possibilities that included the physical, economic, institutional, cultural and spiritual. The achievement of the good and abundant life was, for Coady, however, not about amassing wealth and power. But neither was it to be achieved through poverty and sacrifice. Coady believed this good and abundant life could only be attained from a stable economic base. Thus, the people needed to regain control over their economic situation. He maintained that people had relinquished their control over their situation; that they had bowed to the pressures of consumerism and privatization and had allowed others to maintain control over their lives [4]. Coady advocated education as the means to regain control. The people needed to realize their situation, address it and take group action to change that situation. For both Coady and Tompkins, adult education was a significant component of the realization of human potential. This would be the

foundation of their movement. "Education should, we believe, enable a man to realize his possibilities. It should enable him to live fully. For the full life is the gradual realization of human possibilities [4]. Adult education as a tool for consciousness raising and the belief in group action was the basis for the founding of the Antigonish Movement and subsequently led to the establishment of credit unions and cooperatives as a means to achieve social change.

3. Reclaiming Moses Coady

To borrow a colloquial phrase from the Atlantic Canadian vernacular, 'come from aways' – that is, those who have not grown up in the region – and their knowledge are often seen as the saviours of Atlantic Canada and its people. In addition, the culture of dependency, which many ascribe to the region resulting from years of reliance on Federal transfer payments, compounds the negative image of Atlantic Canada [8]. Similarly, the work of Paulo Freire is overwhelmingly more prevalent in the fields of adult and emancipatory education even in the region in which Coady and the Antigonish Movement saw such resounding success. A simple search of our institution's library holdings for 'Moses Coady' yields 17 results, while a search for 'Paulo Freire' yields 1,148. Expanding that search to the broader scholarly community, 'Moses Coady' results in 516 hits on Google Scholar, and 'Paulo Freire', 106,000. While Freire's work is inarguably important and has had great influence in the scholarly community, we argue that Coady's work deserves similar attention.

Baum [3] describes the similarities between Freire and Coady's philosophies: "In a pamphlet written in 1920, entitled "Knowledge for the People", [Coady] described a process that came close to what today, through the influence of Paulo Freire, is called consciousness raising" (p. 191). This consciousness-raising, a central premise of both Coady's and Freire's work, remains relevant in today's educational landscape. Nesbit [10] notes that there is a need for "spaces for public debate and critical consciousness [...] not just for the academic elite or already privileged but for all people, especially those labeled "disadvantaged"" (p. 28).

In 1939, Coady advocated that people needed to regain control over their economic situation. He maintained that the fishermen and farmers with which he worked had relinquished their control over their situation, by no longer having input into the costs of production or the prices received for their products. As noted above, they had bowed to the pressures of consumerism and privatization and allowed others to maintain control over their lives [1]. Similar phenomena continue to affect the educational and economic landscape of Atlantic

Canada. Education and the economy in Atlantic Canada continue to be influenced by outside factors through globalization and neoliberalism, which has resulted in the commodification of education and the almost exclusive emphasis on skills for employment and the labour market above all.

4. Conclusion

In the spirit of Coady himself, who fought the mentality that ‘come from aways’ could fix the “have nots” of the Atlantic region, we seek to reclaim Coady’s message of the emancipatory power of education for educators and citizens in our own region. Perhaps by ‘reclaiming Coady’, we can help educators in this region, and beyond, to reclaim their own power to resist outside influences on their practice and their own power to contribute to the cultural prosperity of Atlantic Canada.

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Council of Ministers of Education, Canada (CMEC): ‘Stuck in the 60s, the 1860s that is’

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Abstract

The Council of Ministers of Education, Canada (CMEC) references the British North America Act, 1867 (renamed Constitution Act, 1867) to emphasize that education in Canada is constitutionally an exclusive provincial responsibility. The federal government of Canada’s constitutional responsibilities in education are ignored. The CMEC represents Canada at international education conferences and meetings. The international community has no reason to question the federal government on education due to the CMEC’s insistence that it is an exclusive provincial responsibility. The purpose of this paper is to examine the refusal of the CMEC to acknowledge that the Canadian constitution gives education to both the federal and provincial/territorial governments. This refusal results in a very distorted image of education in Canada to both Canadians and to the world community. Canada’s rankings in national comparisons would drop dramatically if federal schools (i.e., First Nations) were used.

1. Introduction

On September 5, 2013, I opened the English language home web page (<http://www.cmec.ca/en/>) of the Council of Ministers of Education, Canada (CMEC) and was welcomed to the site with the statement “Welcome to the Council of Ministers of Education, Canada - Providing national leadership in education for over 40 years [1].

Under the heading ‘Education in Canada’, a map of Canada indicated that readers should “Click on a province or territory for information”. For example, after clicking on Saskatchewan, information on Saskatchewan’s Ministry of Education and the Ministry of Advanced Education, names of Ministers, web pages, telephone and fax numbers follow. Similar information is provided on other provinces and territories.

In the same block as the map there was another smaller heading to click. It was titled ‘Canada-Wide

Information’. After clicking on it, the following statement came on the screen:

In Canada, there is no federal department of education and no integrated national system of education. Within the federal system of shared powers, Canada’s Constitution Act of 1867 provides that “[I]n and for each province, the legislature may exclusively make Laws in relation to Education.” In the 13 jurisdictions — 10 provinces and 3 territories, departments or ministries of education are responsible for the organization, delivery, and assessment of education at the elementary and secondary levels, for technical and vocational education, and for postsecondary education... [2]

The CMEC web page also describes the international mandate and activities of the organization. Their involvement in international government organizations is due to their ‘exclusive responsibility’ in education. Essentially, their role is to speak for Canada on education matters and issues:

International relations have always been an important element of CMEC activities, reflecting its role as the collective voice of the provinces and territories in educational matters that involve international intergovernmental organizations. Jurisdiction remains an important issue, given the exclusive responsibility of the provinces and territories in education and of the federal government in the conduct of foreign affairs.

Mandate

While all provinces and territories individually carry out education-related international activities, CMEC’s mandate internationally is that of coordinating the collective responsibility of the provinces and territories for education where the activities concerned require experts,

delegates, or reports that speak for the Canadian educational authorities as a whole. [3]

CMEC represents Canada at “appropriate meetings and conferences of international organizations” [4]. The web page notes “At many events, ministers of education lead the Canadian delegation, speaking to the issues at hand and presenting Canadian experience and suggestions for action” [5].

The CMEC’s international attention is focused on the Organization for Economic Co-operation and Development (OECD), United Nations Educational, Scientific and Cultural Organization (UNESCO), and the Commonwealth. However, it is also involved with the Organization of American States (OAS), APEC Human Resource Development Working Group Education Network (EdNet), Southeast Asian Ministers of Education Organization (SEAMEO), council of Europe, G8, and United Nations Economic Commission for Europe (UNECE).

The web page also provides information from the Organization for Economic Co-operation and Development’s (OECD) Education at a Glance: Highlights for Canada. Canada is identified as “one of the most well-educated countries in the world” [6]. The report is described as an “annual report on a set of internationally comparable indicators” [7] that “enable educational policy makers and practitioners alike to see their education systems in light of other countries’ performance ...” [8]

The report indicates that education information or indicators from Canada has been “collected from the provincial/territorial ministries/departments of education and aggregated to the Canada level ...” [9]. Canada scores highly in a number of the indicators. For example, “Canada has the highest proportion of 25 to 64 year olds with tertiary education (college and university) among OECD countries [10]; completion of secondary education “at 85 per cent, Canada is above the OECD average” [11].

According to the above statements and the map of education in Canada, it would appear that the federal government of Canada does not have constitutional responsibilities in education. The map does not have a spot to click for Ottawa or for the federal government. The use of Canada’s Constitutional Act, 1867 appears to support that education is exclusive to the provinces and territories.

To summarize, this web site states quite emphatically that education is constitutionally (i.e., The Constitution Act, 1867) the exclusive responsibility of the provinces and territories. Since the federal government of Canada has

constitutionally no education responsibilities, the CMEC represents Canada in internationally intergovernmental organizations in education matters.

The purpose of this paper is to examine the refusal of the CMEC to acknowledge that the Canadian constitution (i.e., Constitution Act, 1982), gives education to both the federal and provincial/territorial governments. This refusal results in a very distorted image of education in Canada to both Canadians and to the world community. Canada’s rankings in national comparisons would drop dramatically if federal schools (i.e., First Nations) were used.

2. False/Misleading Information

CMEC’s web page, map, and statements of provincial exclusivity in education are factually wrong and give a misleading picture of Canadian education to Canadians and to the world community. It appears that the CMEC has decided to ignore the Constitution Act, 1982, as well as parts of the Constitution Act, 1867 and federal legislation.

Many CMEC’s reports make a reference to the Constitution Act, 1867 to emphasize the exclusivity of provincial jurisdiction in education. The reference is usually: “Within its federal system of shared powers, Canada’s Constitution Act, 1867, provides that “[I]n and for each Province may exclusively make Laws in relation to Education ...” [12], [13], [14], [15].

Similar statements on education being a provincial responsibility may be found throughout other CMEC reports. These statements include the following quotes: “Education in Canada is the responsibility of the 13 provinces and territories” [16]; “Canada is a federation, and education is the constitutional responsibility of the ten provinces and three territories” [17]; “Whereas education in Canada is a provincial responsibility” [18]; and, “Whereas education as a provincial/territorial jurisdiction ...” [19].

CMEC has ignored federal responsibilities in education found in the Constitution Act, 1867 and 1982, as well as the Indian Act. The Constitution Act, 1867, Section 93 did assign the power to the provinces to “exclusively make Laws in relation to Education” [20]. However, the same constitution’s Section 91-24 gave responsibility of “Indians, and Lands reserved for the Indians” [21] to the federal government of Canada.

For some reason, the CMEC has forgotten that in 1982 the British North America Act 1867 was patriated, renamed (i.e., Constitution Act, 1867), two parts were added and became the Constitution Act

1982. Part I was the Charter of Rights and Freedoms. The Part II was Rights of the Aboriginal Peoples of Canada [22]. This part included the clause, Section 35. (1) The existing aboriginal and treaty rights of the aboriginal peoples of Canada are hereby recognized and affirmed. Education was a part of each of the numbered treaties. For example, Treaty 5's education clause was:

And further, Her Majesty agrees to maintain schools for instruction in such reserves hereby made as to Her Government of the Dominion of Canada may seem advisable, whenever the Indians of the reserve shall desire it. [23]

The federal government's Indian Act also sets out the federal minister of Aboriginal Affairs and Northern Development Canada's authority in education. Section 114(2) indicates "The Minister may, in accordance with this Act, establish, operate and maintain schools for Indian children" [24].

In summary, a review of the Constitution Acts, 1867 and 1982 finds that education in Canada is the constitutional responsibility of both the federal and provincial/territorial governments. Provincial and territorial governments are constitutionally responsible for education within their jurisdictions (i.e., province/territory). The federal government is constitutionally responsible for education in their jurisdiction across Canada.

3. First Nations Schools: The Reality

There are 518 First Nation schools across Canada [25]. In 2011-2012, the federal government's education budget for 117,500 First Nation elementary and secondary students was \$1.51 billion. These students attend one of three types of schools. Approximately, 60% attended First Nation schools, 36% attended provincial schools, and 4% attended private or federal schools [26]. These 518 First Nation schools, as well as their students have been ignored and forgotten by the CMEC. Constitutionally and practically, they do not exist to the CMEC.

On April 13, 2010, Ms. Cram, Assistant Deputy Minister, Education and Social Development Programs and Partnerships of Aboriginal Affairs and Northern Development Canada spoke to the Standing Senate Committee on Aboriginal Peoples [27]. Ms. Cram also stated that in 2002-03 only 29% of First Nation students graduated from Grade 12 compared to 75% for non-Aboriginal Canadians. She also noted that in 2006 only 7% of First Nation people

had a university degree compared with 23 % in the non-Aboriginal population.

In 2011, the province of Ontario's Office of the Chief Coroner issued a report [28] on youth suicides on Pikangikum First Nation in northwestern Ontario. Part of the report reviewed the First Nation education system. The education system in Pikangikum First Nation was encountering many challenges. It was estimated that 520 students out of approximately 800 - 1000 were enrolled in school. Only 8 to 9 students graduated from Grade 12 each year. Teachers' salaries were not comparable to teachers in provincial schools. Teachers also were not part of a pension plan, nor did they receive professional development training. Not surprisingly, teacher turnover was high. It was estimated that the students in the school were at least three years behind their age/grade level.

The review of the school found many challenges for both students and teachers. The school lacked the following: a gym, a library, tech or trade facilities, lockers, science facilities, a common gathering area, access for wheelchairs, outdoor recreational equipment and a playground, facilities for special education. The classrooms were in seventeen portables. The portables were poorly insulated. Some classes are overcrowded, i.e., 55 students in a Grade 8 class.

In a discussion guide on First Nation education, AANDC (2011) acknowledged that according to the OECD "Canada's education system is ranked among the highest in the world" [29]. Regarding First Nation schools, the report indicated that absence of a federal education legislation "First Nation children attending a school on reserve are the only children in Canada whose education is not governed by comprehensive education-specific legislation..." [30]. The guide ignored federal constitutional responsibilities in education by stating "Provinces and territories are responsible for education in Canada" [31].

4. Misinformation: CMEC and International Education Conferences

As part of their mandate the CMEC represents Canada at intergovernmental organizations such as OECD and UNESCO. They also provide Canadian education information and statistics to these organizations. These organizations are given misinformation on education in Canada, i.e., education is constitutionally an exclusive provincial responsibility.

For example, OECD's Programme for International Student Assessment (PISA) is an international educational assessment of 15 year-olds

in many countries. Its purpose is to “assess whether students approaching the end of compulsory education have acquired the knowledge and skills that are essential for full participation in society” [32]. The results of this PISA indicated that Canada’s education system was “strong” [33]. Only three countries outperformed Canada. Statistics Canada (2007b) in a report on the PISA results noted “Schools on Indian reserves were excluded” [34].

UNESCO’s (2006) World Data on Education indicated “the administration of education is centred in the constitutionally secured right of the provinces and territories exclusive jurisdiction over education within the federated system of shared powers” [35]. The federal government is “responsible for education of Canada’s Native peoples (registered Indians and Inuit people resident on a reserve) at the elementary and secondary levels ...” [36]. However, the report noted that the “Federal Government does not share in the exercise of direct power over education, ...” [37].

In a CMEC report to UNESCO on human rights education, the CMEC again asserts that education in Canada is constitutionally the responsibility of the provinces and territories. The Constitution Act of 1867 is used to assert “exclusive legislative responsibility for education for education is granted to the provinces of Canada” [39]. Later, under the heading Responsibility for Education, the Constitution Act of 1867 is again used to give constitutional responsibility to the provinces. The federal government is mentioned without the word ‘constitutional’ as it “shares responsibility with First Nations for the provision of elementary and secondary education to children ordinarily resident on a reserve ...” [39].

In a 2010 report on the use of PISA results to improve education, the OECD noted “PISA represents a commitment by governments to monitor the outcomes of educational systems in terms of educational achievement on a regular basis and within an international agreed common framework” [40]. The report highlighted Australia’s, Canada’s, and Denmark’s performance on PISA as being “strong and consistent” [41].

In 2011, the Canadian Education Statistics Council [CESC] released a report on education indicators in Canada. The organization is a “joint initiative” [42] of Statistics Canada, a federal government department, and the CMEC. The report references PISA 2009 and student achievement in Canada. It describes participation in PISA 2009 as students from the provinces. First Nation students were not included in PISA 2009 as “students of schools located on Indian reserves were excluded” [43]. The report also states “In Canada, education is the responsibility of the 10 provinces and territories”

[44]. This is surprising as one of the joint partners of CESC is Statistics Canada, a federal government department.

The information found in the many CMEC reports for UNESCO and the OECD may result in further misinformation on education in Canada from researchers. For example, Inglis (2008) in a book on cultural diversity for UNESCO’s International Institute for Education Planning wrote “In the Canadian constitution, education is one of the areas under the responsibility of the provinces [45]. Gerin-Lajoie in an article published by UNESCO on racial and diversity on schools noted “In Canada, the area of education is under provincial and territorial jurisdiction” [46]. Again, such statements are factually wrong and give incorrect information on education in Canada.

As mentioned earlier, part of CMEC’s mandate is to represent Canada at international education conferences. In 2007, the Honourable Peter Bjornson, Manitoba’s Minister of Education, Citizenship and Youth was the Head of the Canadian delegation at the 5th meeting of Ministers of Education of the Americas, in Cartagena, Columbia, Nov. 14-16. In a presentation, he stated that there was “no integrated national system of education... and education is the constitutional responsibility of the ten provinces and three territories” [47]. The federal government’s role was mentioned as being “limited to the transfer of funds to provincial and territorial governments for early childhood programs and services” [48]. The federal government also had a “direct role in providing early learning and child care for First Nations communities ...” [49]. However, the word ‘constitutional’ is missing.

There are many other international education conferences and meetings in which a provincial minister of education as the Chair of the Council of Ministers of Education, Canada (CMEC) represented Canada. These include: Meeting of the OECD Education Committee at the Ministerial Level, Paris, April 2-4, 2001 [50]; UNESCO’s Ministerial Round Table on the Quality of Education [51]; Meeting of OECD Education Ministers [52]; OECD’s Education Committee at Ministerial Level [53]; Conference of Commonwealth Education Ministers [54], 5th APEC Education Ministers’ Meeting in Gyeongju, Korea in May 2012 [55].

These provincial ministers of education often present reports on education in Canada at these international education conferences. Many of these reports provide misinformation on education in Canada. In a report on the development of education in Canada to Commonwealth Education Ministers, the word ‘constitutional’ is used when describing provincial “constitutional authority in all lands” [56].

The federal government is described as “provides for the education of registered Indians and Inuit people” ([57]).

In a CMEC 2001 report on education in Canada to UNESCO’s International Conference on Education, the Constitution Act, 1867 is highlighted to describe the division of powers in Canada. For example, “in the context of the federal system in which the powers are divided between the federal government and the provinces and territories, the latter are responsible for education. The Constitution Act of 1867 (s. 93) stipulates that [I]n and for each Province the Legislature may exclusively make Laws in relation to Education...” [58]. This authority has enabled the provinces and territories to “set up educational structures and institutions” [59]. Under the heading, Structure of Education and Training in Canada, responsibility for education is given the provinces and territories as “Responsibility for education in Canada rests with the ten provinces and three territories” [60]. Under the heading, Quality of Teaching, it noted “education is a provincial and territorial jurisdiction” [61].

In another CMEC report for the same UNESCO conference in Geneva, the Constitution Act, 1867 is used to demonstrate provincial/territorial responsibility in education. This responsibility is described as “exclusive” as “In Canada, section 93 of the Constitution Act, 1867 (previously known as the British North America Act) grants the provinces exclusive power to legislate in the field of education” [62]. The Ministers describe themselves as “We, the ministers responsible for education, unanimously our responsibility for providing leadership in education at the pan-Canadian level...” [63].

In a report on education in Canada for another UNESCO International Conference on Education, the CMEC again uses the Constitution Act, 1867 to indicate that education is the exclusive responsibility of the provinces and territories [64]. The report states “Responsibility for education at all levels is vested in provinces and territories” [65].

The report also indicates that the federal government’s department of Indian Affairs (i.e., Aboriginal Affairs and Northern Development, Canada) is “responsible for the elementary and secondary education of Registered Indian children living on reserves, ...” [66]. First Nation-operated schools were mentioned. However, in a later chart [67] describing the structure and organization of the education systems in Canada, federal/First Nation schools were absent. Only provincial and territorial education systems were described.

The absence of CMEC’s acknowledgement of the federal government’s constitutional responsibilities in education continues in a 2007 report for Canada to

UNESCO on Discrimination in Education. Again, Canada is described as having “13 education jurisdictions” [68]. The Constitution Act, 1867 is used to indicate that education is the exclusive responsibility of the provinces and territories [69]. This responsibility means that provincial/territorial departments of education “are responsible to the organization, delivery, and assessment of education at the elementary and secondary levels” [70].

In a 2008 report, the CMEC again emphasized that “In Canada, there is no federal department of education and no integrated national system of education” [71]. The provinces and territories were responsible for “the organization, delivery, and assessment of education at the elementary and secondary levels” [72].

5. Discussion

Canadians may feel proud of their usual high world rankings of educational systems and student achievements in organizations such as the OECD, UNSECO, and CMEC. However, the high rankings are false. A very distorted image of education in Canada is presented to both Canada and the world by the CMEC.

The CMEC’s role in representing Canada in international organizations has several downsides. First, the numerous statements of ‘provincial exclusivity in education’ and the 1867 Constitution are factually wrong. Secondly, it gives international organizations and their members an incorrect and distorted picture of education in Canada. Only schools from the provinces and territories are included in education reports and assessments. Schools that are the constitutional responsibility of the federal government of Canada (i.e., First Nation and federal schools) are Canada’s national system of education. Yet, these schools are specifically excluded from these international education reports and assessments.

The world community is given misinformation on the constitutional responsibilities in education in Canada. International governmental organizations such as UNESCO and the OECD would have no reason to question Canada being represented at international education conferences and forums provincial and territorial ministers of education due to the often repeated mantras of ‘Constitution Act, 1867’ and ‘exclusive education responsibility’. These organizations would also have no reason to question ‘Canadian’ education statistics and information which purport to represent a pan-Canadian population base but which specifically excludes schools on First Nations throughout Canada. This is ironic, as federal or First Nations

schools are the only national or pan-Canadian education system in Canada.

However, the provinces and territories are not alone in misleading Canadians and the world community. Serious questions must be asked of the federal government of Canada. Why does it allow federal departments to publish that 'education is the exclusive responsibility of the provinces and territories', when it is not true? Why are First Nation schools not included in education surveys? How can First Nation education be improved, if there is no base-line information?

The inability of the federal government to insist that First Nation schools be included in education surveys, as well as their allowing provincial/territorial education ministers to represent Canada in international education organizations and conferences gives an incorrect picture of education in Canada. It also indicates that the federal government has demonstrated a refusal to accept their constitutional responsibilities in education. It has essentially given up any pretense of caring about the education of First Nation children.

The reasons for the federal government to encourage the CMEC to gather and publish provincial/territorial education statistics and information as representing Canada are obvious. The federal government of Canada does not want Canadians and the world community to be aware of their shortcoming in First Nation education. The federal government of Canada has had constitutional responsibilities for First Nation education since 1867. Despite this, the government has shown no interest or inclination to improve the education of First Nation students living on reserves/First Nations across Canada. The result is a non-system of education which is poorly funded, few second-level support services, and has no legislative base. Canada's education rankings in the world would drop dramatically if Canada's only pan-Canadian system of education (i.e., First Nation/federal schools) represented Canada in the OECD's PISA and other assessments.

This drop in education world rankings may be the incentive that encourages the federal government of Canada to take its constitutional responsibilities in education seriously. World leaders and international organizations such as OECD and UNESCO may question Canada's education expertise and knowledge when they see the reality that confronts First Nation children as they go to their school every day.

6. Recommendations

The narrow view/definition of the responsibility to delivery education in Canada ignores or dismisses the federal role for First Nation education from provincial/national statistical analysis and distorts Canada's reported educational outcomes. It is clear that CMEC does not consider the federal/First Nation provision of education in [12]Canada. This is wrong. Canada's constitution clearly assigns education to both the federal and provincial/territorial governments. Yet, the CMEC only considers provincial/territorial jurisdiction, schools, and students in their many reports, assessments, documents, and press releases.

It is time that the CMEC provide Canadians and the world community with correct information on 'constitutional' responsibilities for education in Canada. Federal government constitutional education responsibilities must be included in any description of education in Canada. The CMEC's web-site and home-page must have a area to click on to represent the federal government of Canada. The era of 'provincial exclusivity in education' in numerous CMEC documents and reports must end.

It is recommended that the following be implemented to ensure that 'Canadian' education facts and figures represent Canada:

1. The CMEC must acknowledge that the federal government of Canada has constitutional responsibilities in education. Reference must be made to both the Constitution Acts, 1867 and 1982, as well as the Indian Act.
2. First Nations schools must represent Canada in any pan-Canadian assessments such as PISA. The provincial and territorial schools may be part of any PISA assessment. However, 'Canadian' results must be from the federal or First Nation schools.
3. The federal government through its department of Aboriginal Affairs and Northern Development, Canada (AANDC) must be a member of the CMEC.
4. Canada's national First Nations organization, the Assembly of First Nations, must also be a member of the CMEC.
5. 'Canadian' representation at international education conferences must be from the federal government of Canada. Provincial/territorial ministers may also be included as part of the Canadian delegation. However, there must be no doubt that Canada is represented by the federal government.

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Session 21: Teacher Education

Place- and Community-based Teacher Education: An Integrative and Inter-disciplinary Approach
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Place- and Community-based Teacher Education: An Integrative and Inter-disciplinary Approach

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Abstract

This work-in-progress report focuses on teacher education. Culminating in a literature review, this research gauges existing research as it pertains to how best to teach pre-service teachers how to teach interdisciplinary, integrated curriculum with a foundational focus on place- and community-based education.

1. Introduction

Integrative curriculum seeks to conjoin two or more disciplines in one unit of study; similarly, place- and community-based education seeks to link schools and communities within a unified educational experience. In declaring places as pedagogical, Gruenwald calls for a conversation between the places we call schools and the places where we live our lives [8]. We consider the importance of interdisciplinary, integrative curriculum in teacher education.

In asking how best to teach pre-service teachers how to teach interdisciplinary, integrated curriculum with a foundational focus on place- and community-based education, we examine three main points. First, this research seeks to show the relevance of interdisciplinary, integrated curriculum as taken up in educational research and literature. Second, this research seeks to highlight the role of place- and community-based pedagogies in teacher education. Lastly, this research considers questions of how pre-service teachers learn integrated and interdisciplinary pedagogies. These three points will frame the research.

This research emerges from questions regarding pre-service teachers' capacities to synthesize and integrate two or more subjects into their daily teaching practice effectively. Understanding the interaction between disciplinary and interdisciplinary methods as it relates to larger paradigms and educational research is needed. We examine research that pertains to how best to teach

pre-service teachers interdisciplinary approaches to teaching and learning. Relatively little research addresses teacher education and, with subject-specific curricular methodologies being the norm, even fewer studies take up the question of how to teach pre-service teachers in cross-subject and interdisciplinary methodologies.

2. Literature Review

Educational research and literature show the longstanding relevance and importance of interdisciplinary, integrated curriculum [12,16,19]. Integrated curriculum, closely linked to interdisciplinary curriculum, is represented as a revision of the core tenets of disciplinary education, "knowledge in interdisciplinary studies is a repackaging, and, perhaps, enhancement of discipline based knowledge" [12 as cited in 15]. Jacobs explains that interdisciplinary practices goes beyond merely dividing the day into time blocks, "it is not that schools should avoid dealing with specific disciplines; rather, they also need to create learning experiences that periodically demonstrate the relationship of the disciplines, thus heightening their relevancy" [11]. And while integrated curriculum can have a plurality of definitions, it is loosely defined as a process of connecting forms of knowledge as well as exploring relationships between various aspects of reality [2]. Integrated and interdisciplinary curriculum is closely tied to constructivist paradigms [6] that relate well to inquiry- and problem-based pedagogies.

An in-depth survey of inquiry- and problem-based education is beyond the scope of this paper. Rather, here we examine research to get at the premises which underpin curriculum integration. One premise driving interdisciplinary and integrative curriculum is that the current system of disciplinarity is less effective in addressing 'real-world' problems [15]. Rooted in Dewey's work, there is increased recognition that learners need to interact with real-world experiences, and for those experiences to be a formative part of education [6]. Education that is based in real-world experiences leads to a second

premise of integrative and interdisciplinary education – a heightened level of student engagement. Student engagement is heralded as one of the main achievements of integrative and interdisciplinary studies alongside what Vars described as the “love of learning, concern for other people, critical thinking, self-confidence, commitment to democratic group processes, and a whole host of other so-called “intangibles” [20]. Building capacity for creating connections is marked as a skill that is transferrable to other areas of life. Heywood and Solomon [9] and later Heywood, Parker and Jolley consider that “a major claim for cross-curricularity is that it enhances access and engagement, and hence that it has a social justice component” [10]. Their works follow the challenges of curricular integration, but concede engagement as driving force behind interdisciplinary and integrative curriculum.

Loepp details three models of curriculum integration, which help conceptualize how integration of curriculum may affect teacher education. In tracing an interdisciplinary model, a problem-based model, and a theme-based model, Loepp concludes that changing to an integrated curriculum requires systemic reform to be effective [15]. Loepp’s stance of systemic reform points to a source of controversy and potential difficulty in pursuing interdisciplinary approaches.

3. Discussion

Having introduced the relevance and importance of interdisciplinary and integrated curriculum, we turn to consider place- and community-based education. Place- and community-based education is emerging as a sound pedagogical tool for teacher education. Smith and Sobel discuss place- and community-based education as a “common framework for curriculum thinking and school design aimed at deepening students’ connection to their communities in ways that make those communities better places to live” [18]. Likewise, in an earlier work, Sobel defines place-based education as the, “process of using local community and environment as a starting point to teach concepts in language arts, mathematics, social studies, science, and other subjects across the curriculum” [17]. The emphasis on subjects and curriculum means that place- and community-based education should not be conceptualized as an “add-on” to teacher education, but rather as a consistent, coherent pedagogy through which teachers learn to teach. A pedagogy of place exposes teacher candidates to the local community and environment consistent with the “hands-on, real-world” [17] experiences that they and their students face outside of school.

Place-based pedagogies have developed in the past two decades from the fields of rural and environmental education which have long advocated

for students to learn outside of the classroom. In the words of advocates, “efforts to prepare students for the real world shouldn’t ignore the learning environments that lies just beyond the schoolhouse gate” [4,13]. The core ideas havenotably been recently influenced by critical theory [8,1]. Gruenwald examines five dimensions of place, ranging from the sociological to the ecological, and seeks to erase the barrier between school and community [8]. He argues that current school-centric models of education disconnect learners from life around them and warrants that place-based pedagogies are a reengagement with the “cultural and ecological contexts of human and nonhuman existences” [8]. Echoing Freire’s notion of praxis, pedagogies of place can be seen to adopt a transformative role in the learners’ capacity to engage with the cultural and ecological realities of the world. The social construction of places, place identity, place attachment, and a ‘sense of place’ are growing topics evolving from place-based literature.

Arguments for place- and community-based education are fourfold: it involves direct experience which is more engaging; it promotes civic participation which contributes to democratic institutions; it promotes an ethic of environmental stewardship and sustainability, and; it responds to local economic, social, and environmental pressures [18]. This form of education is traceable in teacher-education programs where issues ranging from gentrification to cultural diversity are addressed. A proponent argues that “evidence suggests that community cultural-immersion activities incorporated in teacher-preparation programs can not only help pre-service teachers correct misperceptions about, but also build relationship with their learners that can potentially impact student achievement” [3].

Having discussed both the curricular and pedagogical aspects of this research, we now examine the literature that takes up integrated curriculum and place-based pedagogies in teacher education. While relatively little research has been done on the role of place-based, integrative curriculum in teacher education, teacher education is itself being increasingly recognized as a means to develop capacity for integrating knowledge and creating links between subjects [10]. The way knowledge has been categorized traditionally has been through subject areas (science, mathematics, art, drama, etc.). Here we reconsider the normative notion that pre-service teachers must have specialized knowledge in subject areas and subject area methodologies before they can effectively teach an integrated curriculum. We recognize that this *a priori* assumption is supported not only by teachers’ own experiences growing up in a categorized educative system, but also by the fact that many colleges require a field of ‘specialization’ as a basis for teaching, and proceed by teaching methodologies

aligned with subject areas. We ask whether this tradition is necessarily the best way to continue to approach education generally and teacher education specifically.

Knowledge of learning, teaching methods, and curriculum, are more frequently found to influence teaching performance than subject-matter knowledge [5]. Alternative methodologies such as place- and community-based education (i.e. not simply those aligned with subject content) question the primacy that subject matter holds as an essential and normalized part of teacher education. Kotar spells out the main point, “integrating the curriculum is a renewed approach to teaching and learning that more closely resembles how people learn and work in the real world” [14].

This research develops in the context of teacher education programs undergoing renewal where the best way to educate teachers is debated and contested along disciplinary lines. This research will flesh out the crucial links between interdisciplinary, integrated curriculum, place- and community-based education, and teacher education, through examining research in the field of teacher education to see where these methodologies and pedagogies have been employed and refined. This may point us to examples and case studies, which illustrate best practices and examples of success.

4. Conclusion

In this paper, we remain open to common critiques of interdisciplinary, integrative curriculum and place- and community-based education. Promises of greater student engagement and achievement and revitalization of communities are perhaps assumed rather than demonstrated. Broad-scale implementation of these approaches will require a closer examination of teacher education programs. Clues of how best to teach integrated and interdisciplinary curriculum is found in both teacher education literature and educational reform literature. Three broad categories are present dealing with teacher education programs undergoing renewal. Organizational coherence, a strong relationship between theory and practice, as well as self-study or the “reflective teacher” all emerge as facets of substantial teacher education programs. We close by questioning how subject-specific methodologies became the norm and why so little research in teacher education actually examines how teachers best learn to teach in either disciplinary or interdisciplinary ways.

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Quality Teacher Education: A Prerequisite for the Realisation of Botswana's Vision 2016 and Beyond

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Abstract

The paper argues that quality education in Botswana's education system is a prerequisite for the realisation one of the core pillars of country's vision 2016 and beyond, which is a well informed and educated nation. The paper discusses the programs, policies and structures that are already in place for improving the quality of teacher education in Botswana and also examines the strategies being adopted by tertiary institutions in Botswana in terms of teacher education. There is a strong relationship between quality teacher education and the quality of teaching a teacher exhibits in the classroom. Quality teacher training should necessarily involve a long preparation in terms of contact hours, curriculum design, planning, comprehensive preparation skills and competences in real classroom teaching.

1. Introduction

In Botswana, education is accorded a high priority, such that the Ministry of Education and Skills Development is always allocated about 30 percent of the national budget. Education in Botswana is driven by the fact that an informed and educated society would result in productive, prosperous and innovative nation [5]. Botswana education system has the 7-3-2 structure, which implies seven years of primary education, three years of junior secondary education, and two years of senior secondary schooling. Government provides free and universal education to the students for ten years. The main objectives of Botswana's National Policy on education are: to highlight science and technology in the educational system; to improve the standards of education at all levels; to offer lifelong education to every section of the society; and to attain competence in the field of education [3] The objectives and the vision of making Botswana a well educated and informed nation cannot be actualized without quality teacher education. Despite longstanding criticisms of teacher education, the weight of substantial evidence indicates that teachers who have had more preparation for teaching are more confident and successful with students, than those who have had little or none (Darling-Hammond, 2000).

This paper therefore posits that quality teacher education in Botswana is a prerequisite for the realisation of one of the core pillars of Botswana's vision 2016 and beyond. It goes on to discuss the programs, policies and structures that are in place for improving the quality of teacher education in Botswana. It continues by examining the attempts made so far by Botswana's tertiary education institutions in ensuring quality education in the training of teachers, for the actualization of vision 2016 and beyond. The paper concludes by identifying the main issues that emerge from the discussion.

2. The development of teacher education in Botswana

Botswana is a landlocked country located in Southern Africa. It gained political independence from Great Britain in 1966 and has been highly rated as a shining example of democracy in Africa. At independence in 1966, Botswana inherited an education system which was modelled along the same line as that of its ex-colonial master-Great Britain. The education system then, emphasized basic numeracy and literacy, and did not necessarily meet the peculiar needs of the Botswana [5]. This rudimentary system of education was a contributing factor to the low quality of teacher development in Botswana.

The 1951, Bechuanaland Protectorate (present Botswana) Annual Report indicated that in 1950, out of 487 primary school teachers, only 195 were trained/qualified. Majority of the teachers were expatriates who were recruited from South Africa. With the emergence of secondary schools, such as St. Josephs College, Seepapitso Secondary School and Moeding College, the need arose for the recruitment of more trained and qualified teachers. Hence, in 1966, more expatriate teachers came to work in Botswana. However, with the establishment of the University of Botswana, and its faculty of education in the 1980s, the supply of qualified teachers improved tremendously. The establishment of two colleges of education in the 1980s also helped to speed up the supply of teachers in Botswana [14].

Given that the number of teachers in Botswana has improved tremendously due to the number of teacher training institutions in the country, this paper focuses on the provision of quality teacher

education provided by the Botswana education system. It examines the attempts made by Botswana's tertiary institutions towards educating the educators. Do people see teaching as a profession, where they could step in and step out when it suits them? Are teachers in Botswana trained in such a way that they are effective and efficient to enter and stay in the profession? What efforts are being made by the government to ensure that quality teacher education is provided at the tertiary level? These are the questions which this paper attempts to answer.

3. Botswana's vision 2016 and the imperative of quality teacher education

The work of defining Botswana's Vision 2016 began in August 1996, just a month before Botswana marked its 30th independence anniversary. In 1997, the Task Group came up with a booklet entitled "A Long Term Vision for Botswana: Towards Prosperity for All" [5]. Vision 2016 represents a long term vision, of the kind of society Botswana would like to be by 2016, when they celebrate 50 years of independence from Great Britain. The transformation will require a lot of hard work underpinned by continuous innovation, resilience, commitment and fortitude.

Botswana's vision 2016 has seven pillars as follows:

- An educated and informed nation;
- A compassionate, just and caring nation;
- A prosperous, productive and innovative nation;
- A safe and secure nation;
- An open, democratic and accountable nation;
- A moral and tolerant nation;
- A united and proud nation [5].

In building an educated and informed nation, a system that ensures quality teacher education becomes imperative. Botswana must work very hard to make the vision a reality, by moving towards universal and compulsory education up to secondary level. Vocational and technical training must be availed to those who cannot attain high academic study [5].

In pursuance of the above goal, Botswana must strive to improve the quality and accessibility of its education system, and tailor it to the needs of the country and the job market. To achieve this, the following policy directions must be pursued;

- Students in schools must receive remedial teaching to enhance effective and deep learning
- Education must be sensitive to the special needs of the disabled and gender discrimination must be abhorred in the education system

- A Tertiary Education Council must be established and charged with the responsibility of overseeing tertiary education in Botswana
- A National Research Council must be launched to boost research in the country
- The private sector must be encouraged to participate in running educational institutions
- Botswana must empower the youth and women to participate fully in national development
- A massive campaign of teacher training for all levels of schooling must be launched, and all schools must be properly equipped [5].

At the forefront of the vision of making Botswana a well educated and informed nation lays the vehicle that will be used to get to that destination. A good education system cannot be realised without putting into consideration the quality of teachers that will transmit the right knowledge to the students. The extent and quality of teacher education determine teacher effectiveness and efficiency. A good teacher should not only be knowledgeable, but should be able to make connections between theory and practice in education. Quality teaching is essential for quality learning and teachers at all levels of education must be appropriately trained and qualified to achieve any form of quality learning. This paper therefore argues that the quality of teacher education in Botswana is a prerequisite for the realisation of one of the core pillars of Botswana's vision 2016, and even beyond. 2016 is just two years away, and any plan to actualize the vision of Botswana becoming a well informed and educated nation should be geared towards looking beyond 2016.

4. Methodology

This study was qualitative in nature and it involved the use of various interpretative methodologies. The use of the qualitative research approach was necessitated by the need to understand how the respondents will give meaning to and interpret the phenomenon which is being researched from their own subjective position. As Marshall and Rossman put it, qualitative research "offers opportunities for conducting exploratory and descriptive research that assumes the value of context and setting, and allows the researcher to experience a deeper understanding of the participants" [13]. The proposition that quality teacher education in Botswana is a prerequisite for the attainment of vision 2016, can best be researched by the use of a qualitative approach, which allows for an in depth and detailed description of events. Focus group discussions,

interviews and document analysis were used as instruments of data collection.

This paper was informed by the lecturers in the Faculties of Education and student teachers in three tertiary institutions I visited during my teaching practice supervision. The teaching practice exercise was done between 15th January to 10th February 2014, and the data was collected during this period. Due to time and financial constraints, the institutions I visited were limited to the ones located in the areas in which I was assigned by the faculty of Education and Continuing studies of Botho University, Botswana, where I teach.

In each of the three institutions, two lecturers in the department of education were interviewed. A total of six lecturers were interviewed using a structured interview format. The interview questions centred on the need for quality teacher education in Botswana and government efforts at ensuring quality teacher education in Botswana. Through the use of focus group discussions, 4 student teachers were interviewed from each of the three tertiary institutions used in the research. Altogether, 12 student teachers were interviewed. The focus group discussions focused on how long teacher education should take to produce quality teachers. The essence of this question was to find out from the student teachers, who are pursuing Postgraduate Diploma in Higher Education, if the 1 year fulltime teaching programme is enough to produce quality teachers in Botswana schools. Documentary sources from vision 2016 pamphlet, Education policies of Botswana 1997 and 1994, Books and Journal articles helped augment the source material.

5. Results

Findings from the study are reported in three sections. Section one focuses on the need for quality teacher education in Botswana, while section two focuses on how long teacher education should take ideally, and section three discusses government efforts at ensuring quality teacher education in Botswana.

6. The need for quality teacher education in Botswana

The extent and quality of teacher education is crucial for teachers' effectiveness and efficiency. The quality of teachers is mostly determined by those who are attracted to enter the profession and the type of training they received. The community expects teachers to be sufficiently knowledgeable in the subjects they teach and proficient in pedagogy [2, 8].

The respondents were of the opinion that quality teacher education in Botswana determines the quality of primary, secondary and tertiary

education that exists in the country. This is attributed to the fact that quality teacher education results in a good foundation on students' education. Teachers have a very big role to play in the realisation of Botswana's vision 2016 and post 2016, of being a well informed and educated nation. One of the most effective ways of improving students' learning outcomes is through quality teaching. Quality teaching can only be delivered by a teacher who has received quality teacher education and is able to use the right teaching methodologies to motivate and facilitate quality teaching and learning.

Botswana needs teachers who are not only well trained to deliver quality teaching to the learners, but also passionate about teaching. It needs those who are ready to step into the profession and remain in the profession. Teaching is a noble profession, and should be accorded the recognition and respect that it deserves.

Teachers who have the capabilities to develop unique qualities of individual learners, treating every student with respect and recognizing that individual talents abound among learners, are some of the attributes of a competent teacher. Teaching quality is essential, both in the way the teachers use their methodologies and the curriculum aspects of teaching. A good teacher should be able to use various teaching methods and activities and also establish creativity in the teaching and learning process, to bring out the best in the learners [10, 7]

A key problem in teacher education institutions lies in attracting high quality applicants [5,15]. The quality of teachers is to a large extent determined by who are attracted to enter the profession and how they are trained. Every community expects teachers who are knowledgeable in both the subjects they teach and competent in the delivery methodologies. This also is applicable to the teachers' caring skills which is characterised by the teacher's unconditional acceptance and recognition of individual students' needs.

An effective teacher needs to be competent not only in the proper handling of instructional process, but, should be able to develop strategies that will cater for varied learning experiences and those relevant for students with special needs.

Quality teacher education entails academic programmes that will help student teachers exhibit qualities, such as commitment, involvement, being steadfast, friendly without being too lenient, collaborative efforts, technical and professional competence, and the promotion of individual and team success.

7. How long should Teacher Education Take to Ensure Quality

Quality teacher education is a very labour intensive process. Provisions need to be made for

both large and small groups, and individual attention. For effective teacher education to take place, some training requires the use of laboratories, information and communication technology and spacious lecture rooms [15]

In Botswana, the main pathways for initial teacher education are the three year diploma in primary education obtained from primary colleges of education; the three year diploma in secondary education obtained from secondary colleges of education; the bachelor of education degree obtained from the universities; and one year post-graduate diploma in education, for graduates who do not have teaching qualifications.

The interviewees were of the opinions that while the number of years a student teacher spends to receive training as a teacher counts, in terms of content and methodologies of instruction learnt, there is a need for student teachers to spend more time to practice what they have learnt in theory. Teaching is about imparting knowledge, and a good teacher is the one who is able to put into practice what has been learnt in theory. Student teachers need at least three years of training, coupled with good and long teaching practice to be able to do well on the job. The current six weeks teaching practice in some institutions in Botswana is not enough.

In South Africa, the balance of time devoted to teaching practice throughout a four year B.Ed course is adequate. Students spend six weeks on teaching practice in schools for each of the first three years and six months in the final year [15]. This approach could be used in other countries, including Botswana, to ensure that we produce quality teachers who will lead the country to realise the vision of a well informed and educated nation beyond 2016.

Student teachers should acquire good teaching skills to make them competent teachers, and teacher education should be geared towards helping the trainee teachers apply theory to teaching practice in the classroom setting. There should be adequate practice so that pre-service teachers can engage in hands-on-practice before gaining employment in the teaching profession. The extent and quality of teacher education are important factors for teachers' effectiveness and development, as well as for the promotion of powerful teaching [11,8].

Darling-Hammond reiterates that, for teaching practice to be effective, student teachers need to spend at least 30 weeks of supervised practicum and student teaching opportunities in the field [9]. This might be considered a daunting task, considering the fact that for some trainee teachers, a great deal depends on the nature of school to which he/she is assigned, the quality of the school's leadership, the interest of the internal staff-supervisor, and whether the school is a good

example of good practice [15]. Some student teachers have not had it easy in terms of the attitudes and teaching styles of the teachers in the practicing schools, who are meant to be their internal supervisors.

8. Government Efforts at Ensuring Quality Teacher Education in Botswana

Botswana is committed to the education of all children, and to the course of making Botswana a well educated and informed nation. To this end, the government believes that the quality of instruction is one of the most important determinants of the learning environment. Teachers as agents of curriculum implementation are therefore, central to the education system and can make or break the system [3].

Government sees the enhancement of the status and motivation of teachers as a national priority, in order to enable them carry out their duties effectively. Efforts have been made to improve both pre-service and in-service training for teachers. A teaching qualification is required for one to get and retain a teaching job in Botswana. The quality and training of teachers is being improved, and the expansion of training capacity is seen as an urgent priority [5].

In its efforts to improve the quality of teacher education in Botswana, the government has:

- Raised the entry requirements of primary school teachers to a minimum of Cambridge Secondary Certificate level (COSC/ O level) and the minimum teacher qualification is now a three-year diploma programme. University of Botswana, which is the country's premier university, now offers a bachelor's degree in primary education. Botho University which is the first indigenous private university in Botswana will be starting a bachelor's degree programme in primary education anytime this year, upon approval from the Ministry of Education and Skills Development.
- Remodelled primary schools teacher preparation has been remodelled to provide subject specialization at the primary school level, in order to improve the quality of teaching and learning. New innovations such as guidance and counselling, special education, remedial teaching and innovative methods of reading have been included in the teacher training programme at the primary school level.
- Offered primary education school teachers the opportunity to upgrade their qualifications to a minimum level of diploma. This could be done either through part-time or full-time training. The government policy initiatives have helped tremendously to increase the number of

teachers with diploma qualifications by 54.7 percent, that is, from 3 822 in 2005 to 5 912 in 2008 [6]. Government's effort to encourage quality teacher education at primary education level is very significant, judging from the fact that the primary school level is the foundation of basic education. It is important that primary school children be exposed to a good and solid foundation in education, to enable Botswana realise the vision of being a well educated and informed nation by 2016, and even beyond 2016.

In addition to the above initiatives by government towards improving the quality of teacher education in Botswana, a number of projects have been introduced to improve the quality and competencies of teachers. For instance, the Entrepreneurial Education popularly known as; "know your business" has been introduced in collaboration with the International Labor Organisation, for trainers and teachers in secondary, vocational and higher education. The purpose of this laudable programme is to equip the youths of Botswana with skills and knowledge needed to prepare them for the world of work, and which will lead to the realisation of the vision 2016 pillar of a prosperous, productive and innovative nation [6].

The Department of Teacher Training and Development undertook two important studies on further training of teachers to ensure quality at the primary and secondary education levels. The aim of the studies was to inform policy initiatives, and the development of a ten-year Master Plan for training teachers. The study will also go a long way in helping the Ministry of Education and Skills Development to align teacher education to the needs of the education system, based on the aims of the 1994 Revised National Education Policy and Vision 2016 of producing a well informed, productive and technologically innovative citizens.

There is an ongoing Teacher Education Programme to determine how well the programmes are responding to the needs and aspirations of Botswana. The exercise will in particular, examine curriculum to determine their effectiveness and usefulness in producing teachers with desirable qualities, who will lead the country to the realisation of vision 2016 and beyond. At the Tertiary Education level, the credentials and qualifications of lecturers will be reviewed. The aim is to determine their levels of competence in facilitating acquisition of content, professional attitudes, skills and knowledge by student teachers. A teaching qualification is now a requirement for one to get a full time teaching job in Botswana. At Botho University College where I teach, lecturers without teaching qualification (s) are encouraged and sponsored to acquire a post-graduate Certificate/Diploma in Higher Education. Botho

University uses demonstration teaching as the main method of interview in the recruitment process of lecturers. The reason behind this is to ensure that the lecturer-to-be is competent enough to teach at the university. Botswana government has also greatly improved the recruitment procedures of teachers in order to get suitable and quality teachers, for instance, screening, short listing, interview and candidate performance form the basis of selection and appointment.

9. Conclusion

Quality teacher education is needed for Botswana to be able to realise its own vision of being a well informed, educated and innovative nation by the 2016 and beyond. Findings from this study indicate that Botswana government is determined to produce teachers who will be able to drive the students towards the realisation of vision 2016 and beyond. Teacher education is carried out through various institutions of higher learning in the country such as, Colleges of Education for both primary and secondary school teachers, both government and private universities have faculties of education that train teachers. A teaching qualification is now a compulsory requirement for one to get a full time teaching job in Botswana schools. The post-graduate diploma students that I interviewed indicated that they learnt a lot from the one year teaching programme. They admitted that the course was relevant and appropriate enough to equip them with the methodologies of instruction.

The question to be addressed however is the period of teaching practice availed to student teachers in Botswana teacher education institutions. If quality teacher education is to be a successful venture in Botswana, teacher training institutions and universities should increase the duration of teaching practice to a minimum of three months. This is very important in order to enable student teachers practice effectively what they are taught in theory. In South Africa, which is a neighbouring country to Botswana, students spend six weeks on teaching practice in each of the first three years, and six months in their fourth year of Bachelor of Education programme. This is worthy of emulation by other countries in the region, including Botswana. A good combination of theory and practice will go a long way in producing teachers competent enough to help Botswana realise vision 2016 and beyond.

There is a strong relationship between quality teacher education and the quality of teaching a teacher exhibits in the classroom. Quality teacher training should therefore involve a long preparation in terms of the contact hours, curriculum design, planning, comprehensive preparation skills and competencies for real classroom teaching. The teacher educators should employ interactive and

participatory approaches in teaching to encourage constructive learning among student teachers. Teacher educators should constantly strive to

institutional issues, so as to equip themselves with new perspectives in the teaching profession. If those involved in educating teachers deliver quality teacher training to their students, their products will be good enough to offer quality teaching, which will help Botswana become a well educated and informed nation by 2016 and beyond.

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School-University Partnership in Initial Teacher Education: Challenges and Opportunities from Activity Theory Perspective

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Abstract

This paper focuses on the partnership between school and university in initial teacher education. It highlights that teacher education is a very complex activity. Therefore, productive and reflective partnership between the two different activity systems is required. However, such a partnership is not easy to be achieved and understood. Activity theory is a very useful analytical tool to analyse and understand this complexity. It helps us to understand how different activity systems with a common object interact and operate.

1. Introduction

There is a concern in many countries around the world, especially in Europe and the United States of America, that current systems of initial teacher education (ITE) do not provide beginning teachers with the knowledge and skills that they need in order to become effective practitioners [1]. Teacher education is a very complicated process. This is because it takes place in two different institutions which are school and university. Therefore, Successful ITE requires the partnership between a school and university to be effective. However, establishing and maintaining such partnerships is not an easy task for a variety of reasons. For example, schools and faculties of education in universities are separate institutions with different major roles and with staff that may have different views of what teaching and learning to teach involves. Activity theory (AT) is a useful framework to capture this complexity. It explores and analyses the complex relationships and interactions between different elements that are necessary for effective teacher education. AT is a philosophical and cross-disciplinary framework for studying different forms of human practices as development processes [3].

2. Towards an effective partnership between school and university in teacher education

Most, if not all, teacher education programmes include a practical component, which allows student teachers to spend some time in a school. During these field experiences, future teachers teach some lessons and learn to teach by observing more experienced teachers. However, tremendous difficulties of teaching and learning to teach can be encountered [7]. To reform teacher education, an effective partnership between university and school has become a crucial requirement. To develop a consistently high-quality practice teaching experience we need to develop closer partnerships with schools and closer teacher education relationships with teachers [2]. However, the partnership between university and school in teacher education is often challenging. Both systems have the common aim of training effective teachers. However, day-to-day internal institutional matters can produce tensions between the two systems [4]. School teachers consider themselves primarily as teachers of school students, not teachers of pre-service teachers [2]. There are also institutional contradictions between school and university. From a university perspective, student teachers are in the school to learn by applying their knowledge and to be evaluated for their competencies as teachers. From a school perspective, the student teachers often take the place of regular teachers and, therefore, are part of activity systems intended to assist students in learning. There is also a tacit conflict between school staff who know teaching through daily practice and university staff who are considered to know teaching mostly through theory which teachers often consider inapplicable in practice [7]. With regard to the above mentioned results, it could be argued that student teachers do not just apply their knowledge which they have learned in the university, but they gain experiences from both university and school. Student teachers are able to extract principles which might assist them in new contexts in the future [4]. Student teachers attributed their ability to reflect to their interaction with important others in the programme with which they were involved in reflection on action and for action in their classroom, and they established their reflections on their personal beliefs, as well as educational theory. pre-service teachers highlighted

opportunity for reflection in their classes at the university and in the school where they conducted their teaching practice [5].

The third generation of AT deals with minimally two interacting activity systems. For example the university and the school. The third generation of activity theory needs to develop conceptual tools to understand dialogue, multiple perspectives, and networks of interacting activity systems [6]. Figure 1 represents the third generation of AT.

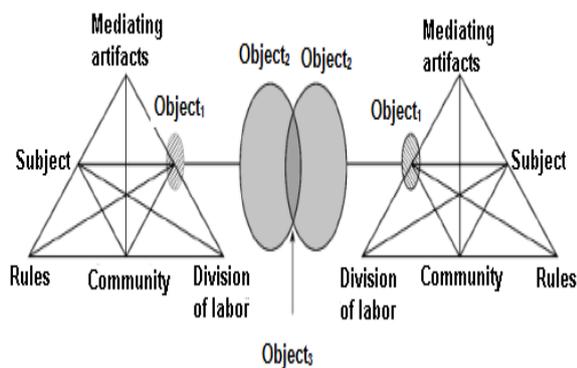


Figure 1. Two interacting activity systems as minimal model for the third generation of activity theory [6].

Learning occurs within and across the boundaries among the different activity systems [9]. The object of activity is moving and not reducible to conscious short-term goals. The object moves from an initial state of raw material (object 1) to a collectively meaningful object constructed by the activity system (object 2), and to a commonly constructed object (object 3) [6]. To clarify this, the university wants student teachers to be good teachers, the school wants them to be good teachers as well (object 1). This means in the school that student teachers need to follow rules and get the pupils learning well. While in the university it means that student teachers need to be reflective, critical, aware of theories, and understanding a range of alternatives (objects 2). In most cases, there is a great clash in the middle. For example, how do student teachers while working in this system carry out some things which the school system does not recognize? How does university system value these things carried out by student teachers? This leads to a need to understand deeply the nature of the partnership between university and school with a common object which is teacher education. The problem space (object 3) is concerned with making sure that student teachers have enough support and opportunity to learn about teaching through the partnership between school and

university in teacher education. In addition, there may be opportunities for new thinking and actions arising out of the synergies and contradictions among those different activity systems.

3. Conclusion

School teachers have an important role to play with student teachers' reflection because they know more about the classroom and the lessons to be taught. However, teachers themselves have difficulty engaging in the theoretical input from the university and drawing this into reflection. Hence, there is a role for the university tutor to help them by clarifying the issues related to theory and how it could be linked to classroom practice and reflected upon. However, this requires enough time for all partners to carry out their roles. Partnerships require a readiness of university and school staff to cooperate closely in well-identified roles; interactions among people rather than merely agreements between institutions; sustained funding to allow all parties to achieve these roles; continuous dialog among equals with different complementary expertise to develop a shared vision of teacher education and teaching- its principles and practices; and the flexibility to respond to needs, make use of opportunities and evolve [2]. It could be argued that for an effective partnership between school and university, sustained funding is crucial. However, the governments may not be ready for it. Collaborative approaches may require a level of resource to operate fully which governments have not been prepared to provide [8]. Finally, these challenges and tensions between school and university in teacher education could be seen as opportunities of change and development. Internal contradictions are considered as the driving force of change and development in activity systems [6].

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Improving Teachers' Mathematics Instruction: A Case of a Lesson Study

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Abstract

The poor state of mathematics education in South Africa is well documented. Few learners are graduating from the school with high quality passes in mathematics in order to enter universities. There has been intervention in mathematics education system in an attempt to improve it. Yet, more than ten years after the first democratic election, South Africa is still grappling with poor performance in mathematics and how to change this situation [9]. Much has been done about this inadequacy. South Africa has developed models to update teacher skills as an attempt to intervene. One of such professional development models is a lesson study, in this study; I employed qualitative research approach to explore teachers' views on lesson study as a professional development model. Based on the data collected, lesson study is one of the professional development models that teachers would be happy to enlist in.

1. Introduction

Mathematics is one of the key areas of knowledge and competence for the development of an individual and social and economic development of South Africa and in a globalising world. [10]. [10] further argues that, performance in mathematics and science is part of human development strategy in South Africa, that mathematics and science performance is one of the indicators of the health of the education system. Unfortunately, South Africa is still grappling with poor performance in mathematics and how to change this situation [9]. Much has been said and done about this inadequacy especially with regard to the teachers of this subject. In other words, South Africa still faces the challenge of providing quality mathematics education for its multicultural society of 43 million people [5]. South African pupils wrote mathematics and science in the Third International mathematics and Science Study-Repeat (TIMSS-R) that was conducted in 1998/1999. As [5] puts it, "South Africa was just one of the 38 countries participating in the study, however, the South African pupils performance was significantly below that of all other participating countries including other developing countries such as

Morocco, Tunisia, Chile, Indonesia and the Philippines".

In addition to this dilemma, [10] further adds that South Africa has participated in a number of large – scale systemic studies conducted by international and national agencies to assess the performance of the county in science and mathematics. As [6] assert, in the Trends in international mathematics and Science Study (TIMSS) that was conducted in 2003, testing mathematics and science proficiency at Grade 8 level, South Africa came last out of the 50 countries participating. A number of reports and articles have also been written on the status of mathematics (and science) education in South Africa. Many of these reports commented on the poor results achieved in the mathematics matriculation examinations. It therefore came as no surprise since 1994 there has been considerable policy-related analysis of and intervention in mathematics education system in an attempt to improve it [3; 2; 4]. The purpose of this paper is therefore to explore teachers' experiences on one of the interventions that they participated in vis "Instructional Leadership through a lesson study" on improving their classroom practices.

1.1 Instructional leadership through a lesson study

Instructional leadership through a lesson study is a project that took place over three years –from 2011-2013. The project was organised by one of the local universities in collaboration with the Department of Education. The author was one of the project facilitators. In phase one of the project, sixty mathematics and science teachers were selected to participate. These teachers come together in one workshop and were provided with information on the lesson study. The lesson study was described in details and the reading materials were also provided to the teachers. These teachers learned about how to conduct a lesson study, in other words, in these workshops the teachers would practically engage in all the four phases of lesson study. The teachers would then be requested to go back to their schools and select teachers either in their own schools or outside their schools to form groups and engage in

the lesson study. The facilitators would visit the teachers as they engage in lesson study groups.

2. Review of Literature

Lesson study is one of the components of a system designed for continual professional development in Japan. The most salient feature of lesson study is that teachers collaboratively engage in action research in order to improve quality of the instruction [7]. In a lesson study, (1) teachers jointly draw up a detailed plan for the study lesson (Research and preparation). (2) A teacher teaches the study lesson in a real classroom while other group members look on (implementation) (3) The group comes together to discuss their observations of the lesson (reflection and improvement). (4) Another teacher teaches the study lesson in a second classroom while group members look on; this is followed by the group coming together again to discuss the observed instruction.

Lesson study is therefore a professional development activity that is characterized as classroom situated, context-based, learner focused, improvement-oriented and teacher owned, it is collaborated [7]. To elaborate in detail the process, [8] emphasise that “Lesson studies can be done by teachers within a school, across a district, or in large public demonstration lessons. First, a topic is chosen by a group of 3–5 teachers. This topic is linked to a larger goal. (For example, as part of a goal to improve children’s independent problem solving, teachers may work on a lesson study topic of subtraction with regrouping.). Teachers, usually of the same grade level, meet regularly to collaboratively plan a group of lessons and specifically one “research lesson.” They produce a detailed written lesson plan, and then one of them teaches the group’s “research lesson” while other teachers observe and take notes.

Immediately following the lesson, all teachers meet to share feedback in a debriefing session. Often, but not always, teachers then revise the lesson, reteach it, evaluate and reflect on the lesson again, and share their results.” Pg (923). According to [7] Lesson study is a professional development activity that is characterised as classroom-situated, context-based, learner-focused, improvement-oriented and teacher-owned. It is also collaborative. These features of lesson study match the elements or principles which professional development requires [11].

3. Research methodology

To understand teacher’s views on the lesson study as a professional development tool, I employed qualitative case study design. Case study was more suited in this study as it is aimed at gaining greater understanding of the dynamics of a specific situation [1]. To collect the data for this research, I conducted face-face semi-structured interviews with the selected ten teachers who took part in this project. I therefore interviewed these teachers several times during the data collection process. I also followed up with the telephone interviews to further clarify the issues that emerged during data analysis process. All the participants signed the concerned form after confirming their wiliness to participate voluntarily in the study.

4. Findings and discussions

For the purpose of this article, I focus on a case study of one mathematics teacher, Mr. Smarty who participated in the instructional leadership through a lesson study project from its inception in 2011. In my conversation with Smarty, a number of themes emerged and such themes include Content and pedagogical knowledge, opportunity to understand the learners, collaboration, confidence and self-discovery.

Mr. Smarty is a veteran teacher with 20 years’ teaching experience. He has been teaching mathematics in grade 7-10 in different schools in South Africa. The main focus of this paper is to explore what teachers specifically, mathematics teachers think of lesson study as a professional development tool that could improve their classroom practices. The themes that emerged during data collection are discussed as follows;

4.1. Content and pedagogical knowledge

Content and pedagogical knowledge is one of the important aspects that lesson study provides opportunity to. To be more specific, Smarty commented on how they would first do research and brainstorm on the topics they would plan together as a group.

We came together, plan the lesson together and came out with the simplest way that would make learners to understand. We looked at the resources to be used, learners’ prior knowledge as well as what kind of assessment we are going to give after.

Smarty also pointed out that some teachers are not necessarily knowledgeable in the teaching or how to teach mathematics, hence the lesson study become a vehicle in assisting such teachers. In his

example, Smarty noted how some of the teachers are not qualified as mathematics teachers, as they were in such positions because of placements.

You see some of these teachers are not qualified as mathematics teachers, the department just placed them there to get jobs, and they come with a background of economics and all that, they don't know anything about mathematics

Smarty concluded that lesson study was able to equip such teachers with skills to teach mathematics. He further noted that teaching mathematics is not only about knowing the content knowledge but also knowing how to teach it.

4.2. Opportunity to understand the learners

One of the aspects that emerged from our conversation with Smarty is that of how a lesson study assists in understanding the learners.

Lesson study helped us to have conceptual understanding of the learners, we had to understand and well anticipate the questions from the learners, become aware of what is the level of the learners, whether the learners are getting or not getting what you are saying.

Smarty noted that the fact that the other lesson study participants came to observe lesson while also focusing on the reaction of the learners as well as what the learners are doing was helpful .

You see, the other lesson study participants observe and not only the lesson but what the learners are doing, how they are doing it, how they are behaving after every 10 minutes, those that are observing write what they see immediately, this is what is happening with the teacher. This is what is happening with the learner; this is how the atmosphere is.

4.4. Self-discovery

In this theme, Smarty commented that teachers who participated in the lesson study began to reflect on their teaching and worked towards their self-improvement. Smarty further noted that teachers began to feel the need to go and do research in order to contribute constructively in their lesson study meetings.

When participating in a lesson study, you begin to see where you are lacking and where you are strong. And you look at it and say 'what should I do to overcome this'.

It is at this point that Smarty commented that teachers become honest with themselves and

indicated how they were not aware of other issues in the teaching and learning of mathematics.

How sweet it is when it comes from the horse's mouth. When they admit that they have a problem there and there. That's when a room of improvement opens, because if you think you know, while you don't really know, then that's a problem.

4.3. Collaboration

Smarty commented that the mistake many teachers make is that they remain on their own and that they think they know everything whereas they are not doing things correctly.

You see, coming together as the people with the same goal is important. That way you smash the walls that surround them so that they see that they are together part of a bigger picture.

In one of his examples, Smarty pointed out how they would explore and brainstorm how to teach the concepts of 'greater' than and 'less than' (> and <) in mathematics.

We were brainstorming, and we all came with different ideas, others showed it with their fingers. Others spoke about the mouth of a fish, we also did the angles, acute, obtuse, and teachers demonstrated the different ways of teaching all these in class. It was so interesting to see such. And many other teachers gained from other teachers.

To conclude the aspect of collaboration, Smarty commented that it also helps them to collaborate and network. In their lesson study group, as he noted, participants were teachers from his school and those from the schools in the vicinity.

4.5. Confidence

Throughout their participation in the lesson study, teachers developed self – confidence. As noted by Mr. Smarty, the teachers who participated in the study felt confident and volunteered to be observed while teaching. This was not a common practice to them before. Many of them felt intimidated and feared to be observed while teaching.

By knowing the subject matter, you become confident, by knowing how to teach it, you even become more confident. The teachers in our group were not afraid anymore, you see.

Smarty also noted how teachers have become confident in teaching some of the topics that were

tricky, specifically the topics that the teachers would skip and not teach.

6. Conclusion

A number of types and models of teacher professional development have been devised and implemented in different countries. The goal has been to promote and support the professional development of teachers from the beginning of their careers until they retire. Studies found that many of the approaches to teacher development have minimal influence on changing teachers' knowledge and classroom practice.

One of the reasons for this failure is that teachers are most often not involved in the planning of their professional development. In the case of this present study, teachers participated in a lesson study which is one of the teacher-led professional development initiatives. These teachers found the lesson study informative and recommended it as a tool to improving their teaching and learning of mathematics. Based on the data collected, lesson study is one of the professional development models that teachers would be happy to enlist.

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Session 22: Curriculum, Research and Development

Critical Review of Cycle-1 Primary Science Textbooks in Bahrain (Part I): Descriptive Analysis of the Graphical Representations

(Authors: Faten S.M. Abdel-Hameed, Myint Swe Khine, Salah A.A. Emara)

Environmental Education As a Catalyst for Behavioural Change: A Study of the Impact of Socio-Drama Learning Package on the Environmental Knowledge and Behaviour of Osun State Secondary School Students

(Authors: Omisope Kolawole Tayo, Sofowora Olaniyi Alaba)

Emirates Qualification Framework and Curriculum Mapping to Evaluate an Advanced Academic Writing Course

(Author: Naghmana Ali)

Course Project "My Future Individual Educational Trajectory" as a Basis for the Personality-oriented Professional Training

(Authors: Olga Belyaeva, Valeriy Solomonov, Alla Frolkova)

Critical Review of Cycle-1 Primary Science Textbooks in Bahrain (Part I): Descriptive Analysis of the Graphical Representations

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Abstract

Research in science education has recognized the importance of analyzing the contents of science textbooks. Similarly educational reform documents emphasized the crucial role it plays in improving science education. The overall objective of the critical review is to explore the effectiveness of Cycle-1 Primary Science textbooks and workbooks in terms of their reflection of the Bahrain Ministry of Education's school and curriculum reforms. The themes readability level, gender equity, questioning nature, location and cognitive levels, graphical representations of concepts, and scientific terms load are examined. The purpose of this paper (part I) is to quantify the type, quality and pedagogical functions of the graphical representations of the newly developed Cycle-1 primary science textbooks and the accompanying workbooks. Twelve Science textbooks and workbooks were examined using an author-developed graphical analysis grid. Descriptive statistical analysis was performed. Results show that the least analytic form of graphics dominated, with photographs accounting for more than 70% of the graphics in general, and within the topic areas. There was a conspicuous absence of maps and scale diagrams and most of the graphs were of static nature. Analysis also showed that indigenous graphics represented 65% while foreign graphics represented 35% of the total graphics. About one third of the graphics served a specific cognitive function, and around half were connected to the text and most of them were captioned. Further research is undergoing to establish a connection between graphical representations and students' achievements and attitudes towards science.

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Environmental Education as a Catalyst for Behavioural Change: A Study of the Impact of Socio-Drama Learning Package on the Environmental Knowledge and Behaviour of Osun State Secondary School Students

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Abstract

The study developed an interactive socio-drama learning package for the teaching Environmental Education concepts. It also examined the level of students' knowledge of and attitude to environmental education and determined the influence of the interactive socio-drama learning package in enhancing student's knowledge about the dangers of environmental hazards and pollutions. These were with the view to ensuring sustainable and healthy environment. The study employed pre test, post test control group design. The population for the study consisted Junior Secondary School students in Atakumosa-West Local Government Area of Osun State. Two hundred JSS III students were randomly selected from four schools in this Local Government. These students were also randomly assigned to two groups i.e. the experimental and control groups. The students in the experimental group were exposed to the interactive drama learning package while the students in control group were taught Environmental Education concepts using the conventional method. The instruments used for data collection were (i) Survey questionnaire on students' prior knowledge of environmental education and environmental hazards (SKEEHA) (ii) Questionnaire on the effect of the interactive drama learning package on learning environmental education concepts (SIDALEPAEC) (iii) Environmental Hazards Achievement Test (EHAT) which was used as a pretest and post test to determine students' knowledge about environmental hazards. The first week was used for pre – test and introduction. Normal teaching in the two groups lasted four weeks. The sixth week was used for post test. Data collected was analyzed using mean, standard deviation and t-test. The results showed that the interactive drama learning package was effective in the teaching of environmental education concepts in that the students that were exposed to the package performed significantly better than those that were exposed to the conventional method ($t=5.20$, $P<0.5$). In addition, the interactive drama learning package was found to significantly enhanced

students' academic performance ($t=19.42$, $P<0.05$). This implied that the drama learning package was useful and effective in broadening students' knowledge about environmental pollution. The results also showed that the Interactive Socio- Drama Learning Package enhanced the academic performance of the students and changed their attitude positively toward the protection of environment. From the findings of this study, it was concluded that interactive socio-drama learning package was an effective, creative and motivating method of teaching Environmental Education in Junior Secondary Schools.

1. Background

There is growing concern today about healthy and sustainable environment. The concern has to do with reduction of Carbon dioxide (CO₂), global warming and other devastating effect of man on the environment. These effects are manifold in the area of flooding, environmental pollution, erosion, earthquakes etc. The occurrences of natural disasters as a result of negative effect of man on the environment have raised global attention which led to several international conferences on sustainable environment some of them were the World Summit on the Environment [13&14]. During the first worldwide meeting termed Nations Conference on Environment and Development (UNCED) held in Rio-De-Janiero held in 1992 , the Heads of States agreed to find lasting solution to the problem of environmental degradation. One of the agreements entered into that was relevant to this study was on sustainable development and biodiversity. This was identified as Agenda 21. According to Genovese [7] is a comprehensive plan of action to be taken globally, nationally and locally by all the UN member States, National Governments and major NGOs all over the world. The agenda 21 of the 1992 were adopted by about 178 countries. In 1993, the Commission on Sustainable Development (CSD) was created to monitor the implementation of the agreements at the local national, regional and international levels. In 2012, another follow-up Conference on Sustainable

Development was held in Rio de Janeiro, Brazil where 192 Heads of States were in attendance including The president of Nigeria, Dr Good luck Jonathan was also in attendance. The heads of states of the one hundred and ninety-two governments in attendance renewed their commitments to the promotion of sustainable development.

The important issues addressed in this conference as related to healthy environment included:

- 1) new reliance on public transportation systems is being emphasized in order to reduce vehicle emissions, congestion in cities and the health problems caused by polluted air and smog;
- 2) alternative sources of energy to replace the use of fossil fuels which are linked to global climate change;
- 3) growing concern to provide clean and drinkable water to the population;
- 4) reduce the prevalence of toxic wastes, such as lead in gasoline, or poisonous waste.

In spite of the move internationally to ensure sustainable and healthy environment, little has been achieved in Nigeria due to poor Environmental Education. The uncollected urban and rural wastes, indiscriminate and unplanned construction of houses, refuse and bush burning, industrial pollution in the air, land and water, not only affects the physical environment but they also have deleterious effect on socio-economic life of the Nigerians. Another serious devastating environmental challenge is flooding. Between May and September 2012, there were many recorded cases of flooding. According to the National Emergency Management Agency (NEMA) the 2012 floods in Nigeria killed 363 people and displaced over 2,100,000 people. Not only this, agricultural produce were also affected. Its destructive effect on the economy cannot also be ignored. With the current state of Nigeria's environment, one can unequivocally argue that most Nigerian citizens lack knowledge of inherent dangers associated with poor and unhealthy environment. This is why emphasis is on Environmental Education at the grass root as the economic, best and most effective ways of ensuring sustainable environment.

2. Literature Review

Literature has shown that behavioural change theories and models are very important for the alterations of individuals' behavioural patterns. It cites environmental, personal, and behavioural characteristics as the major factors in behavioural determination. Hence the growing interest in recent years, in the application of these theories in

the areas of health and Environmental Education with the hope that understanding behavioural change will improve the attitude of the people at the grass roots towards ensuring a healthy and sustainable environment. According to Somanathan [12], Environmental Education initiatives can be an important tool in addressing some of the major environmental problems facing developing countries. Subsequently the knowledge gained through such information could lead to significant changes in people's environmental behaviour. Thus the need to critically focus on Nigeria's environmental sustainability in view of the recent environmental problems experienced. In support of this is Ogunleye [10]. The scholar attributes the prevalence of environmental devastation to lack of Environmental Education. She further argues that the continuous and indiscriminate dumping of household solid waste into open sewers is a typical example of their open and deliberate disregard for environmental rules. To the people at the grass root, environmental consciousness is lacking hence, there is need more campaign to help change the behavior of the people at local community level.

To further explain behaviour necessary for environment, Nutbeam [9] suggestion was used. This school of thought advocates for the amalgamation of the Social Learning Theory and Theory of Planned Behavior as the most appropriate way to improve Environmental Education because the theories address the interaction between individuals and their environments. These theories can provide insight into the effectiveness of education programs given under specific set of predetermined conditions, like the social context in which a program will be initiated. Environmental Education (EE) is a new field introduced into the educational system in order to enhance the awareness of the people on environmental issues; it is also a way of finding lasting solution to the environmental problems and to develop in the people the skills to deal with environmental degradation. It is a new approach to education which is hoped to bring some solutions to the deteriorating relationship between man and the environment. It is sad to note that the desired results have not been achieved. In addition there have been series of environmental protection measures introduced in different States which include environmental sanitation exercises as abatement measure, environmental awareness campaign, environmental legislations, environmental policies, a forestation and land reclamation. Some of these environmental protection measures failed as a result of many reasons. One of the reasons is insincerity of the government and the negative attitude of general public. This therefore necessitated a better approach termed socio-drama learning package as an innovative tool for improving student's

knowledge and to change their behaviour about environmental hazards

2.1. Interactive socio-drama in teaching and learning.

Palliate [8] defines socio-drama as a powerful teaching strategy that combines a case study approach with traditional role-play methodology to illustrate critical issues in life care. Building on principles of adult learning and communication skills, the socio-drama method enables the skilled facilitator to draw on the learner's past experiences as resources for teaching and reflective practice. It is a method for exploring the conflicts and issues inherent in social roles. It is an extension of psycho-drama. According to Boal [[1], "socio-drama" depicts several theater techniques used in educational and training settings and can also be used as a form of therapy and political action, which is sometimes described as guerilla theater or invisible theater. Cossal [2] also defines socio-drama as the utilization of some form of theater or dramatic technique dealing with a social issue or topic that impacts society on some level. Thus socio-drama, a form of educational theater or audience or interactive theater is issue based (Prochaska[11]). This view was shared by Graefe and Vogelsong [6] who define socio-drama as a group action method in which participant's acts out social situation spontaneously and discovers alternative ways of dealing with that problem. In the word of Comenius[3], drama concerns itself with those aspects of roles that we share with others and helps people to express their thoughts and feelings, solve problems, and clarify values(Milton, Dukitt and Cameron[8]). Unlike simple role playing, socio-drama employs many specific techniques to deepen and broaden the action of the enactment. Some of these are: doubling, soliloquy and mirroring. Socio-drama is used with groups wishing to explore common issues in teams, organizations, community, educational and political contexts. It uses many of the same techniques as psycho-drama to enable individual and group learn and change.

3. Research Objectives

The specific objectives of the research are to:

- a) develop an Interactive Drama Learning Package for the teaching of environmental education concepts;
- b) assess the level of students' knowledge of and attitude to environmental education;
- c) determine the effect of the Interactive Drama Learning Package on students' knowledge and attitude to environmental protection; and

- d) investigate the influence of the interactive drama learning package on the academic achievement of the students in Environmental Education

3.1. Research Questions

To achieve the objectives of this study, the following research questions were raised(i)what is the level of students' knowledge about environmental hazards? (ii) will the interactive drama learning package increases the students' knowledge about Environmental Education?(iii)is interactive learning package an effective approach to acquiring right attitude about Environmental Education concepts?and; (iv) will the package improve students academic achievement in Environmental Education?

3.2. Research Hypotheses

- (a) There is no significant difference in the prior knowledge of students about environmental hazards between those taught with interactive drama learning package and those taught through conventional method.
- (b) There is no significant difference in the academic performance of students taught environmental education with interactive drama learning package and those taught without.
- (c) The socio-drama learning package does not have any positive influence on the attitude of the students towards sustainable and healthy environment.

3.3. Significant of the Study

This research study among other things will provide educational campaign for proper use of environment in order to ensure the sustainable environment. It will enable children to achieve the fundamental knowledge of the environment and the need to develop pro-environmental behaviour at the early stage. The study will increase students' knowledge and awareness of the environment and the associated challenges .It will create awareness of the dangers of environmental hazards. It will also elucidate the roles and responsibilities of students in combating environmental hazards and change the behaviour of students positively towards the proper use of environment. It will also provide information on the effectiveness of socio-drama as an effective alternative approach to teaching and learning in the classroom.

4. Research Design

The design used in this study was pre – test, post – test control group design.

4.1 Research Instrument

Four instruments and a researcher designed interactive socio-drama learning package on environmental hazards were used. The instruments are:

- 1) A survey questionnaire on student's prior knowledge about environmental hazards (SKEEHA).
- 2) Questionnaire on the effect of the interactive drama learning package on learning environmental education concepts (SIDALEPAEC).
- 3) Environmental Hazards Achievements Test (EHAT) which was used as a pretest and post test to determine students' knowledge about environmental hazards.

A package was developed which was termed interactive drama learning package. This package used the socio-drama techniques in a classroom setting dealing with topical issues affecting the society. It included real life situation scenes, improvisational dialogue and behavioural issues dealing with the environment. The drama package consisted of a guide for using the package and a workbook. Other topical issues included are: environmental hazards, its causes and effects on the society and environment. It also included a demonstration of the roles and responsibilities of students in stemming down environmental hazards in the society. Students also embarked on a group project using the approaches they were exposed to in solving environmental problems in their schools.

4.2. Validation of the instrument

The validity of the instrument was determined using content validity. The package and the questionnaire were scrutinized for content by experts from the Departments of Educational Technology, Educational Foundations and Counselling, Institute of Education and Geography ,ObafemiAwolowo University, Ile-Ife . It was later shown to some selected secondary school teachers for their comments on the appropriateness of the instrument. Their evaluation, observations and suggestions were used to make the final draft used. In order to determine the reliability of the instruments a sample of twenty students from a separate school who were not part of the experiment were used. A test-retest method was adopted to determine the reliability of the instruments. After the treatment a reliability

coefficient values of 0.75 ,0.85 and 0.79 were obtained.

4.4 Procedure for Data Collection

Two schools were randomly selected from Atakumasa West Local Government Area These Schools were Atakumasa High School Osu and Community High School Osu .forming the experimental and control groups. The experimental group was taught Environmental Pollution and hazards using the interactive socio-drama package while the control group was taught EE using the conventional method. The treatment covered a period of seven weeks. The first week was used for introduction and pre-test. Students in both groups were pre-tested to determine their entry behaviour using the pre-test questions. The second, third, fourth and fifth weeks were used for teaching in both groups. The sixth week was used for revision while the seventh week was used to conduct the post test.. The Questionnaires were administered in collaboration with the class teachers.

4.5. Data Analysis

Data was analyzed using descriptive and inferential statistics. The scales for the achievement test, the pre-test, post-test scores were converted into percentages. The means and the standard deviation of the test were computed. t- test was used to test if significant difference existed between the means.

5. Findings and Discussions

Table 4.1. Student's prior knowledge about environmental hazards

Item	Agree		Disagree		Total
	f	%	f	%	
Best way of disposing refuse is by dumping it inside a flowing river.	75	37.4	125	62.6	200
Going toilet in the bush should be encouraged.	101	50.7	99	49.3	200
The machine in industries and working generators can cause global warming.	80	40	40	60	200
The refuse dumped in the river can float away during rainfall.	119	59.5	81	40.5	200
Global warming and ozone layer depletion are worldwide environmental hazards.	67	33.7	133	66.3	200

From Table 4.1, it can be seen that 75(37.4%) of students agreed that the best way of disposing refuse is by dumping it inside a flowing river while 125 (62.6%) disagreed. More than half of the students i.e. 101(50.7%) agreed that going to toilet in the bush should be encouraged while 99(49.3%) disagreed. Also 80(40%) of students agreed that the machines in industries and working generators can cause global warming while 120(60%) disagreed. Whether the refuse dumped in the river can float away during rainfall 119(59.5%) agreed, while 81(40.5%) disagreed. Also 67(33.7%) agreed that the global warming and ozone layer depletion are worldwide environmental hazards while 133(66.3%) disagreed. From the results, it was discovered that few learners

have the prior knowledge about Environmental Education and environmental hazards. Majority of the students did not know the negative effects of environmental hazards on environment and human beings in general. Based on the above, it can be concluded that the students have low knowledge of Environmental Education and hazards.

5.1. Research Question 2

Will the Interactive Drama Learning Package (IDLDP) increase the students' knowledge about environmental education?

The Data in the table 4.2 below presents the results.

Table 4.2. Impact of IDLP on student's knowledge (Control & Experimental) groups.

Test	Group	No of student	% passed	% Failed	Remark	Summary Passed		Summary Failed		General Remark
						Total	%	Total	%	
pretest	Experimental	100	0	100	Poor	21	10.5	179	89.5	poor
	Control	100	21	79	Poor					
posttest	Experimental	100	98	2	Excellent	158	79	42	21	excellent
	Control	100	60	40	Good					

Table 4.2 showed that the greater percentage of the students failed at the pretest level. Specifically 79 percent of the students failed the test while only 21

percent passed in the control group. This is an indication of poor knowledge about EE.

However at the post-test level, there was a remarkable improvement among the participants in

the experimental group; where 98 percent of samples passed and 60 percent passed in control group.

This was a clear improvement in the knowledge of the students exposed to the interactive socio-drama learning package (IDL) i.e. there is a drastic reduction in the failure rate from 100 percent to 2 percent on Environmental Education concepts. We can therefore conclude that the Interactive Drama

Learning Package (IDL) was an effective tool for increasing student's knowledge about EE.

5.2 Research Question 3

Is interactive drama learning package an effective approach to developing right attitude about Environmental Education concepts?

Table 4.3. Effects of Interactive Drama Learning Package (IDL) on student's behaviour towards environmental education

Item	Agree	Disagree	Total
	%	%	
Recognition of behaviours that are labeled as high risk to environmental hazards through the IDL	89	11	100
Understanding of the potential negative consequences of environmental hazards through IDL	75	25	100
The strategies employed in the IDL have helped me to have new commitment to reducing environmental hazard.	77	23	100

From table 4.3above, 89percent agreed that the Interactive Drama Learning Package (IDL) has helped them to recognize behaviour that are labeled as environmental hazard while few 11 percent disagreed. Likewise, Seventy five percent also agreed that they now have the understanding of the potential negative consequences of environmental hazards

through the Interactive Drama Learning Package (IDL) . Seventy seven percent of the respondents agreed that the actions and strategies employed in the IDL helped them to have new commitment to reducing environmental hazards while 23 percent disagreed.

Table 4.4: Interactive Drama Learning Package (IDL) and the levels of student's attitude about environmental education

Item	High %	Moderate %	Low %	Total
The attitude expected of me for enhancing sustainable environment is-----	52	40	8	100
My interest in promoting a healthy environment in my locality is-----	54	39	7	100
My desiring to participate in enlightenmentprogramme at ensure healthy and sustainable environment is --	53	44	3	100

From the table above 92% were positively disposed to enhancing sustainable environment while 8% of the students had low attitude. It was also revealed that 54% of the students that watched IDL were highly motivated to promoting healthy environment in their community,39% moderately

and only 7% of them with low motivation .Although this may be seen as good omen, however more efforts should be put in place to encourage all the participants and local community to partake in activities that will promote healthy and sustainable environment. It is a thing of joy that there was a

remarkable improvement in the disposition of the students as 53% showed high interest and 44% moderate interest to participate in enlightenment programmes to ensure healthy and sustainable environment. Based on the findings one can conclude that the Interactive Drama Learning Package (IDL) was an effective approach to acquiring right attitude about Environmental Education concepts.

5.3 Testing the Research Hypotheses

5.3.1. Hypothesis I. There is no significant difference in the knowledge of students about environmental hazards between those taught with interactive drama learning package and those taught through conventional method.

Table 4.5. Comparison of pre-test scores of students in the experimental and control groups

Test	Group	<i>N</i>	\bar{X}	<i>SD</i>	<i>df</i>	<i>t</i>	<i>p</i>
Pretest	Control	100	14.42	5.82	198	0.676	>0.05
	Experimental	100	13.33	4.78			

At the pre-test, the students in the control group that were taught via conventional method had a mean score of 14.42 and standard deviation (SD) of 5.82 while the students in experimental group had a mean score of 13.33 and standard deviation of 4.78. When

the score was subjected to t-test, it gave a result of (t-test=0.676: df=198, P>0.05). This implied that there was no significant difference in the prior knowledge of environmental education between the control and experimental groups.

Table 4.6 Comparison of post-test scores of students in experimental and control groups

Test	Group	<i>N</i>	<i>X</i>	<i>SD</i>	<i>df</i>	<i>t</i>	<i>P</i>
Posttest	Control	100	22.60	3.67	198	5.29	<0.05
	Experimental	100	27.97	4.87			

However when this was subjected to further test at post-test, there was also a significant difference. The control group recorded the mean score of 22.60 and standard deviation of 3.67 while the experimental group recorded the mean score of 27.97, standard deviation 4.87. With t=5.29, df=198, P<0.05. This implied that the students in the experimental group had a better knowledge than those in the control group at the end of the treatment. The implication of this is

that the use of interactive drama learning package in teaching environmental education concepts will improve the acquisition of EE concepts. It will also increase the knowledge of students about environmental hazards. There is no significant difference in the academic achievement of students taught Environmental Education with interactive drama learning package and those taught through conventional method.

The table 4.6 Comparison of academic achievement of the students in experimental and control groups.

Test	Group	<i>N</i>	<i>X</i>	<i>SD</i>	<i>Df</i>	<i>t</i>	<i>P</i>
Academic performance	Control	100	21.95	5.07	198	19.42	<0.05
	Experimental	100	37.75	7.29			

The results in table 4.6 above showed that students in the control group had a mean of 21.95, standard deviation of 5.07 while the experimental group taught with interactive drama learning package recorded a mean score of 37.75, standard deviation of 7.29. When the scores were subjected to t-test, it gave a result of ($t=19.42$, $df=198$, $P<0.05$). This showed that there was a clear significant difference in the performance of students from both the control and experimental groups. This result is similar and in agreement with the findings of Sofowora [13]. Therefore, the null hypothesis was rejected. The fact that the students in experimental group performed better than the students in control group is enough to suggest that the use of interactive drama learning package in Environmental Education was an effective tool in teaching and learning EE in junior secondary schools in Nigeria.

6. Summary, conclusion and recommendation

This study developed an interactive socio-drama learning package and also discussed how it can be used to motivate the students to learn about Environmental Education and to change their behavior to ensuring a healthy and sustainable environment. Four specific objectives were stated for this study. They are: develop an Interactive Drama Learning Package for the teaching of environmental education concepts; (b) assess the level of students' knowledge of and attitude to environmental education; (c) determine the effect of the Interactive Drama Learning Package on students' knowledge and attitude to environmental protection; and; (d) investigate the effect of the interactive drama learning package on the academic achievement of the students in Environmental Education. The study employed pre-test post test control group design. Three instruments were designed and used for data collection. This data was analyzed using mean standard deviation and t-statistics. From the findings, one can say unequivocally that, the Interactive Drama Learning Package widened students' knowledge about environmental protection and created awareness on how to promote responsible environmental behaviour. Through the package, the students have a positive change of attitude toward environmental protection.

6.1. Conclusion

Based on the finding of this study, it was concluded that, Interactive socio-drama package is an effective, motivating tool for teaching and learning Environmental Education. There was a positive improvement in the behavior and attitude of the students towards ensuring healthy and sustainable environment. Also the different approaches embedded in the package, enhanced knowledge, attitude of students because it was participatory, motivating, creative and activity based.

6.2. Recommendations

The following recommendations were made: government should intensify its effort at ensuring a clean, healthy and sustainable environment. A better and more user friendly approach to stemming down environmental hazards should be employed, rather than the present fire brigade approach / politicization that have not yielded any positive result. Environmental Education should be made compulsory right from the primary school level to the university level. While competent teachers and technically good instructional materials be provided in schools for teaching EE. The government should pay more attention to conservation of the environment by providing constant electricity as a way to reducing carbon emission. State Governments and the local government have a big role to play by using sensitization and mobilization programmes at encouraging the citizenries to be willing to participate in efforts that will enhance healthy and sustainable environment. Government at all levels should provide empowerment programmes that will help reduce poverty rate if we are to achieve a healthy and sustainable environment. As a matter of urgency, the flaring of Gas by the Nigerian National Petroleum Corporation should be stopped. Urgent and concerted effort be made to reduce oil pollution in the country.

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Emirates Qualifications Framework and Curriculum Mapping to Evaluate an Advanced Academic Writing Course

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Abstract

Education in today's globalized terrain aims to initiate students into the ubiquitous 21st century learning environment, to enhance their skills in critical thinking, technology, creativity, collaboration, and communication. The Emirates Qualifications Framework Handbook (QF, 2012) describes a policy by the United Arab Emirates Commission on Academic Accreditation launched in 2012 that provides criteria "for both the accreditation of qualifications and for those organizations in the public and private sector, which are to deliver them." The QF specifies benchmarks for each qualification level, e.g., level 7 for a Bachelor's degree, level 9 for Master's, and level 10 for Doctorate. The handbook stipulates uniform standards regarding content, skills, and aspects of competence to be achieved at each respective level.

In this reflective case study at an accredited American university near Dubai, I as a Teacher Trainer in an MA TESOL program teaching a course known as Curriculum Design (ELT 517) assign curriculum-mapping tasks to ESL teacher trainees in order to explore the degree of success that could be achieved by integrating technology in an existing undergraduate course called Advanced Academic Writing. The purpose of employing curriculum mapping, which seeks to document improvement as "(e)videnced directly in student products and performances" (Jacobs, 2010) was to reinforce course content and its application to specific skills as outlined by the QF. It was also to evaluate whether or not Advanced Academic Writing was congruent to the requirements of the QF and the standards demanded by the Ministry of Education in the United Arab Emirates

Advanced Academic Writing (ENG 204), is a General Education requirement and a gatekeeping course for students in almost all major disciplines at our university. The course outcomes for ENG 204 were evaluated to see how they align with the intended QF learning outcomes for a Bachelor's degree program and how they are assessed by appropriate measurements. Such evaluation of course learning outcomes will subsequently indicate the success of the program. Also recommendations were made by the MA TESOL students to improve upon the course and align it more to the QF requirements. Assessment via benchmarks, blogs, discussion boards, e-portfolios, e-journals, and wikis is explored, making students' learning experience memorable, motivating, and measurable in an ESL learning context.

Course Project "My future individual educational trajectory" as a Basis for the Personality-oriented Professional Training

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Abstract

This paper describes an investigation of the impact of first-year students' motivation towards conceptual understanding of purposes of their individual curriculum adjustment suitable for their future professional career.

1. Introduction

The multi-level education system of professional training in science-based chemical engineering has been tested and developed since 1997 up to the present in Lomonosov Moscow University of Fine Chemical Technology (MUTHT) [1,2]. Educational level is a segment of curriculum between two competitive selection exams. The first level is at present the level of the first year, which contains the same set of subjects for the eight groups of technical specialties for the Bachelor's Degree. When entering the first year students submit applications for particular group of specialties. At the end of the first year students are distributed into specialty groups depending on the preferences of a student, his or her academic records and the quotas, determined by the Scientific Council for a given academic year. In the situation of lowering interest of young people towards engineering and scientific work in the field of science-based technologies students entering the University may suffer the lack of motivation for the study of science and engineering and have vague idea of the perspectives of their future profession.

2. Purpose

Motivated and adequate for particular person's capabilities choice of students for differently targeted educational programs is the main goal of the University at the first educational level. The course project "My future individual educational trajectory" has been tested during the second semester of the first year for three years by now. Students of the first year after studying for a semester and passing their first exams are ready to form their own impression of university education and of their personal aims and

capabilities. The project is targeted at increasing motivation for technical education, development of communication skills, capability to work as a team, encouraging students to think over the choice of specialty group for the Bachelor's Degree, choice of preferable curricula set for future University years and planning their professional career.

3. Method

Students are suggested to present in the form of a course project their future individually targeted education structure and the plan of their future professional career. The work goes on in groups of 3-4 people and includes the following stages:

- preliminary testing to determine initial motivation in the choice of the university and the level of satisfaction from the educational process;
- discussion of the task, collecting material, its analysis and systematization;
- determining responsibilities of the team members: a leader, an educator, a designer, a critic, etc.;
- well thought over individual education structure for the next 4-9 years;
- choosing components of education structure (Bachelor's Degree, Master's Degree, Postgraduate courses), department, type of education (applied or academic), type of future activity (science, practical work: production engineer, designer, engineer, etc.), need for the second education.

4. Interim findings

The initial motivation of students and their education programs have been studied. The results show, that 43% of prospective students start to choose a university a few months before graduation from secondary school and only 21% - 2-3 years before graduation. The main criteria for the choice of the university are prestige and status of the university (up to 65%) and the possibility to find a good job after graduation from it (up to 85%). Still the students not always understand the perspectives of their future profession, are not enough motivated for

scientific and engineering work, are often unable of critical self-evaluation which leads to underestimation of future difficulties in mastering the chosen education program. 32% of students are satisfied by the results of their first exams, 59% are partially satisfied and 9% are unsatisfied. The main factors that influence the results are, according to the test, lack of motivation (74%) and the level of personal capabilities (56%). As a result of competitive selection 40% of students are distributed to specialty groups different from their preliminary request.

5. Further research

The next stage of our study – to investigate gender aspect in motivation for chemical engineering education.

6. Conclusions and challenges

While getting acquainted with multi-level curriculum structure of the University students get to realize factors which determine the group of specialties to which the student will belong: students own requests, his or her educational rating, quotas, regulating the number of state-financed and self-financed students for a given academic year. This increases students' motivation for quality higher chemical engineering education.

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Session 23: Health Education

Radio HIV-AIDS Literacy
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Effectiveness of Rights-based Enhancement of Pubertal Awareness, Communication, and Child Protection of the 10 – 14 year old Boys and Girls in Primary Schools in Jinja District, Uganda
(Author: Bunoti Sarah Nantono)

Knowledge of Healthy Eating amongst Rural Secondary School Learners in South Africa
(Author: Tshitangano T.G.)

School Absenteeism due to Menstruation in Rural Schools: An Evaluation of School Based Menstruation Management Policies
(Author: Cephus Senyonga)

Radio HIV-AIDS Literacy

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Abstract

The purpose of this international workshop is to introduce the use of public radio as a non formal education (NFE) and enlightenment tool for HIV-AIDS across the listening population. It also targets the provision of media packages of literacy/educational tools that are specifically aligned to the life orientation for the society especially for individuals with HIV and their relatives, media practitioners, school teachers, students, as well as general public enlightenment on the prevention of HIV-AIDS. Participants would be trained on the process/procedures of utilizing the radio to run literacy programmes on HIV-AIDS. This radio project is an innovative community sensitization programme planned for public listeners but specifically targeting people living with HIV-AIDS and their families. This is a mobile learning activity that would provide training to participants on how to develop/utilize public radio to facilitate HIV-AIDS literacy and mass enlightenment on HIV-AIDS. By HIV-AIDS literacy, we mean empowering an individual or people living with the HIV-AIDS to have the ability to read, write and understand the issues surrounding HIV-AIDS – coping with HIV-AIDS, medication, work and stay alive! Furthermore, people in the society are taught about HIV-AIDS, its causes, prevention, cure, and supporting people living with HIV-AIDS through the Radio HIV-AIDS Literacy project. The participants will learn the strategies to plan, package and execute the community radio talkshow to reach-out to their respective communities – using phone-in live discussions, guest interviews, music, debates, quizzes, dramas, role plays, etc, to educate and enlighten the listener on HIV-AIDS.

1. Introduction

The Radio HIV-AIDS Literacy project is concerned with the need to address the fact that with over 5% of the population of Nigeria infected with HIV, and the adult mortality rate continuing to rise, Nigeria is now at a potentially explosive stage of the epidemic. In particular it is concerned with the role of Non- Formal Education (NFE) via radio literacy in combating the spread of HIV/AIDS in the country. To understand the radio literacy project better, the meaning of HIV-AIDS, literacy and use of radio to

disseminate literacy activities and educational campaign to the listening public.

The first case of AIDS was reported over two decades ago, HIV-AIDS has spread to every corner of the world. Consequently, millions have died while for many countries the pandemic is fast reversing socio-economic development. The World Education Forum that met in Dakar, Senegal in 2000 identified HIV as having the capacity to undermine progress towards the attainment of the Education for All (EFA) goal by 2015.

Since the first case of HIV-AIDS was diagnosed in Nigeria in 1986, the infection has continued to spread from 1.8% zero-prevalence in 1988 to 3.8% in 1994; 4.5% in 1996 and 5.8% in 2001. Having crossed the 5% threshold, Nigeria is now at a potentially explosive stage of the epidemic. Adult mortality is rising and today the death rate is 20% higher than it was in 1990 [1].

The UNESCO, Abuja, in collaboration with UNAIDS, the National Action Committee on AIDS (NACA), UNESCO-IIEP, DFID and related partners embarked on the formulation of a strategic plan of action on preventive education and subsequently a national workshop on education and HIV-AIDS. It was this workshop that recommended the setting up of a special task force to further address the issue of preventive education and subsequently mobilised the NGOs, civil societies and related agencies into action. The goal of Radio HIV-AIDS Literacy programme is to join in reduction of the scourge of the deadly virus in Nigerian communities; to create more awareness on its prevention through the unique radio programme.

2. HIV / AIDS

Human immunodeficiency virus / acquired immunodeficiency syndrome (HIV-AIDS) is a disease of the human immune system caused by infection with human immunodeficiency virus (HIV). During the initial infection, a person may experience a brief period of influenza-like illness. This is typically followed by a prolonged period without symptoms. As the illness progresses, it interferes more and more with the immune system, making the person much more likely to get infections, including opportunistic infections and tumors that do not usually affect people who have working immune systems.

(ii) HIV is transmitted primarily via unprotected sexual intercourse (including anal and even oral sex), contaminated blood transfusions, hypodermic needles, and from mother to child during pregnancy, delivery, or breastfeeding. Some bodily fluids, such as saliva and tears, do not transmit HIV.

Prevention of HIV infection, primarily through safe sex and needle-exchange programs, is a key strategy to control the spread of the disease. There is no cure or vaccine; however, antiretroviral treatment can slow the course of the disease and may lead to a near-normal life expectancy. While antiretroviral treatment reduces the risk of death and complications from the disease, these medications are expensive and may be associated with side effects.

3. Literacy

Literacy is the ability to read, write and calculate or compute a given mathematics activity. The inability to do so is called illiteracy or analphabetism. Audio literacy includes the ability to understand audio forms of communication such as voice, sound, spoken words and vocal statements, example from the radio. Literacy encompasses a complex set of abilities to understand and use the dominant symbol systems of a culture for personal and community development. In a technological society, the concept of literacy is expanding to include the media (e.g. radio) and electronic text, in addition to alphabetic and number systems. These abilities vary in different social and cultural contexts according to need, demand and education.

The primary sense of literacy still represents the lifelong, intellectual process of gaining meaning from a critical interpretation of the spoken, written or printed text. The key to all literacy is reading development, a progression of skills that begins with the ability to understand spoken words and decode written words, and culminates in the deep understanding of text. Reading development involves a range of complex language underpinnings including awareness of speech sounds (phonology), spelling patterns (orthography), word meaning (semantics), grammar (syntax) and patterns of word formation (morphology), all of which provide a necessary platform for reading fluency and comprehension [4].

Once these skills are acquired, the individual can attain full language literacy, which includes the abilities to hear/decode information and spoken words or approach printed material with critical analysis, inference and synthesis; to write with accuracy and coherence; and to use information and insights from text as the basis for informed decisions and creative thought.

3.1 The Concept of Radio as a Mass Media Channel

The radio is arguably one of the mass media organs and it plays significant informative roles in the health, socio-economic and political development of every nation. Radio is the radiation (wireless transmission) of electromagnetic signals through the atmosphere or free space.

Information, such as sound, is carried by systematically changing (modulating) some property of the radiated waves, such as their amplitude, frequency, phase, or pulse width. When radio waves strike an electrical conductor, the oscillating fields induce an alternating current in the conductor. The information in the waves can be extracted and transformed back into its original form.

The meaning and usage of the word "radio" has developed in parallel with developments within the field of communications and can be seen to have three distinct phases: electromagnetic waves and experimentation; wireless communication and technical development; and radio broadcasting and commercialization.

James Clerk Maxwell predicted the propagation of electromagnetic waves (radio waves) (1873) and Heinrich Rudolf Hertz made the first demonstration of transmission of radio waves through free space (1887) but many individuals—inventors, engineers, developers and businessmen constructed systems based on their own understanding of these and other phenomenon, some predating Maxwell and Hertz' discoveries. Thus "wireless telegraphy" and radio wave based systems can be attributed to multiple "inventors". Development from a laboratory demonstration to a commercial entity spanned several decades and required the efforts of many practitioners [6].

A radio communication system sends signals by radio. Types of radio communication systems deployed depend on technology, standards, regulations, radio spectrum allocation, user requirements, service positioning, and investment [2]. The entire radio networks and activities are incorporated into various organs of information dissemination across different segments of the society – coming from the airwaves.

4. Onestreet HIV-AIDS Project on Facebook

ONESTREET HIV-AIDS PROJECT is a VOLUNTEER activity opens to everyone who is concerned with the HIV-AIDS scourge in Africa in general and Nigeria in particular. The project is conducted on Facebook with the goal of mobilizing enlightened youths and online subscribers to join in the campaign against HIV infection, prevent the

infection and create awareness of the virus to the people across the web. The slogan for this online programme is "YES I CAN STOP HIV-AIDS IN MY COMMUNITY". The Facebook community is encouraged to post information, case studies, research breakthroughs, and support for people living with HIV-AIDS, and challenge readers to have a sense of significance every day they wake from the bed for the day's activities or return after work without contracting the disease due to the practice of safe sex and abstinence, etc. They will become literacy-success conscious and have "AIDS IS REAL" slogan in their subconscious [5].

5. The Concept of HIV-AIDS Radio Literacy

The mass media has been the only channel that spreads information far and across so many people in the world. Mass media serves as a link between the government and the people, as well as shapes public opinion. As for the radio, it provides news, information, enlightenment and entertainment which helps to empower and motivate active participation of people in their development and society; be independent, understand their rights and undertake assigned tasks at any given time. In many developing countries, like Nigeria, the need for the media especially radio to reach out to a wider audience and contribute to the health and well-being of the people, including the youths and adults cannot be over emphasized.

This radio project is an innovative community sensitization programme planned for public listeners but specifically targeting people living with HIV-AIDS and their families. This is a mobile learning activity that would provide training to participants on how to develop/utilize public radio to facilitate HIV-AIDS literacy and mass enlightenment on HIV-AIDS. By HIV-AIDS literacy, we mean empowering an individual or people living with the HIV-AIDS to have the ability to read, write and understand the issues surrounding HIV-AIDS, coping with HIV-AIDS, medication, work and stay alive.

6. Radio HIV-AIDS Literacy target population in South East Nigeria

The key target populations addressed by Radio HIV AIDS Literacy programmes in Nigeria:

(i) Out-of-school children. This is a special group of persons catered for under the non-formal education mode. The exact number of persons in this category cannot be determined although estimates are possible. For example, in 1993, the Federal Government of Nigeria (FGN) with financial support from the European Economic Community (EEC)

conducted a survey of out-of-school children in Nigeria. It was found that there was over 5 million of this population at the time.

- The main characteristics of out-of-school children include the following: they often come from poor homes, they lack care, they lack paternal and maternal affection and they are often found in cities and towns. They are also engaged in hawking and non-formal economic activities for survival. They are vulnerable to diseases, and lack opportunity for rapid social mobility. They live insecure lives and are always likely to grow up as adults who are not literate. They also pose threat to security of life and property in the society

(ii) Out-of-school youth. These are adolescents and young adults who are not in school. Perhaps the only difference is in age. This group is older and could have dropped out of primary and secondary schools or the equivalent. They are more vulnerable to criminal influences and need rehabilitation to restore them to normal life. They are sexually active and this makes them particularly vulnerable to HIV-AIDS, which they could spread within the community.

(iii) Orphans and motherless Babies. Orphans are children whose parents have died while motherless and fatherless babies are those abandoned by their parents for various socio-economic reasons. Many of them are cared for in homes and reformatory institutions operated by government and numerous civil society groups in cities and towns. Many of the orphans are babies/children of parents who died of AIDS infections. Such babies and children may be carriers of the HIV viruses themselves.

(iv) Non-literate adults. These are non-literate male and female adults found in urban slums and rural communities. They are usually poor, unemployed or lowly employed and without any real prospects for the pursuit of a meaningful life in society. This group accounts for the largest proportion of persons who need non-formal education programmes to meet varying needs and aspirations.

- Non-formal education programmes could serve as a vehicle for upward mobility for this group. Despite there being a state agency for mass or adult and non-formal education in all the 37 states of Nigeria (The Federal Capital Territory in Abuja inclusive), an apex national commission for mass literacy, adult and non-formal education, as well as numerous non-governmental agencies are providing non-formal education services,

more work seems necessary in order to make Nigeria a wholly literate society.

(v) Semi-literate artisans and farming adults. These are persons who have had some educational experience, but would do better with more knowledge, skills and competences, which they may not obtain through formal schooling. Like non-literate adults, this group too is critical for the development of society. The more they are given opportunities for learning and acquisition of enhanced life skills, the better are their chances of improving their productivity and gaining higher standard of living and quality of life.

(vi) Poor women. These are persons found in remote rural communities and in poverty-stricken urban areas. They are mostly non-literate and their personal progress is often hampered by negative patriarchal traditional practices and customs. Where you find any number of persons who are not literate, you will realise that women are always more than half of them. As a result, women suffer from different types of disadvantages as they are excluded from the mainstream of life in society.

(vii) The nomads and riverine fisher persons. It was estimated that in 1993 there were about 10 million nomadic persons in Nigeria. They comprised five major nomadic groups, namely: Fulani, Shuwa, Buduman, Badawi and the fishermen and women found in southern riverine areas of the country.

(viii) Persons with disabilities (PWDs). These are persons who are constrained by their physical and mental impairments. They need formal and non-formal education to help ameliorate the effect of their disability and its negative impact on their lives. There is a blueprint on special education and a range of institutional arrangements to cater for their educational needs. Nevertheless, there is still dire need to supplement these efforts with non-formal education.

(ix) Those that need further continuing and professional education. These are professionals who need retraining and capacity building programmes to meet the dynamic nature of their professional callings and activities.

(x) Any other category of persons that cannot be catered for under the formal education system of NFE programmes in Nigeria [1].

7. Non-Formal Education Programmes

Without doubt, there are different types of non-formal education programmes in Nigeria. However, it will be helpful to enumerate the basic ones to

clarify how preventive education on HIV-AIDS could be infused. The list presented here is definitely not exhaustive [1]:

(i) Adult literacy. This can be offered at basic and post levels. While the basic level seeks to offer equivalent competencies and abilities of reading, writing and numeracy, the post level builds on this to achieve the equivalence of primary class 6. One can then move on to higher education levels, depending on the goal set for individual learning initiatives. The target groups for these programmes are the non-literate adults and their neo-literate counterparts.

(ii) Remedial, coaching and extra-mural. These are offered to those who have already obtained the equivalent of primary education or better, or who drop out of junior and secondary education programmes or those who performed poorly on their final secondary education examinations and desire to improve on their achievement.

(iii) Workers on-the-job training or retraining. This is meant to empower workers either to gain skills for improved efficiency in the workplace or gain knowledge of, and competence in work related issues and problems.

(iv) Extension education. This is meant to help occupational groups to gain skills and competencies or acquire the know-how on the application of new methods, say of farming, livestock keeping, etc.

(v) Parent and family life education. This seeks to offer competencies and ideas about issues of concern to families, especially on reproductive matters such as pregnancy, child bearing and rearing practices, family planning, safe motherhood skills, etc.

(vi) Health and environmental education. Here, learners are assisted to acquire information about the causes of diseases, their effects on humans, treatment, care and prevention. It also seeks to teach people about issues of concern to the environment such as sanitation, purification of water, food consumption practices, environmental management, collective efforts and initiatives to protect the environment and use its endowments wisely.

(vii) Civic or political education/community education. This form of NFE seeks to help learners to acquire knowledge, skills and competencies on basic rights and obligations of citizenship, including the protection of human rights, etc.

(viii) Popular education/community theatre. Here, the focus is on development, poverty, disease and mobilization for social goal attainment.

(ix) Distance and open learning. This is learning done at a distance. Learners are sent course materials to pursue a course or programme of equivalent weight to its counterpart at secondary or tertiary levels. The time and other inputs into open learning programmes are suited to learners' convenience. Learners handle assignments on their own and sit examinations at suitable intervals. For greater efficacy, distance and open learning programmes also allow some time for face-to-face contact, within an academic session. Today, many Distance and Open Learning Programmes are available online. The National Open University of Nigeria (NOUN) and University of Lagos Distance Learning Institute are examples of such institutions in Nigeria.

(x) Leisure education. This is educational experience organised to meet the need of individuals on the proper use of non-work times. It may involve a lot of recreational activities suited to the interest of participants and time available to them.

(xi) Continuing professional education. This is intended to help learners to gain newer ways of handling their professional activities. For example, accountants, engineers, lawyers, teachers, architects or medical doctors may wish to go for a short refresher course to help learn about new developments in their professions.

(xii) Cooperative education. Here, the emphasis is on organizing learners to pursue an activity of common interest. The commonest being *adashi* or *esusu* (local savings practices) etc. Members take keen interest in carrying whatever new information to the group hence its relevance for passing details on preventive education on HIV-AIDS in the community.

(xiii) Special education. This includes all educational programmes on HIV-AIDS for people with difficulties.

(xiv) Artisan education – used in the training of artisans.

(xv) Religious education – This takes place regularly in churches and mosques.

(xvi) Other need-driven educational activities designed to suit the interest of any sub-group in the community, not mentioned above and which cannot be provided in the formal school system.

8. HIV-AIDS Best Practices

Writing on the Youth HIV-AIDS Best Practices Handbook [3], complained that young people in Africa are the worst hit by HIV-AIDS and its

accompanying challenges; for this generation of young people have not known a world with HIV-AIDS. Current figures from UNAIDS shows that 6.3million young people in Africa are living with HIV-AIDS and this presents a great challenge for the future. While the figures remain daunting and the challenges increasing, NGOs and young people have decided to take their destinies into their hands, and initiating actions towards curbing the spread of the virus.

NGOs and young volunteers are involved in grassroots efforts as peer educators and care givers, young people are engaging in advocacy efforts to upturn policies and practices that increase their vulnerability especially those of girls, young people are forming international networks that link them to each other to share best practice and waste practice in order to strengthen their efforts and avoid waste of limited resources. Young people are the true agents of change [3, 4].

Unfortunately, the efforts of people and organizations creating awareness on HIV-AIDS are hardly acknowledged and given the respect, recognition and reward they deserve both in their own communities and at other levels. Very often, these efforts are not given the level of publicity they deserve as a result of limited resources or because their communities simply do not take them seriously. This is a major challenge to the campaign against HIV-AIDS and often stands as a great impediment to effective community participation in programmes and interventions, and as well plays down on the opportunities available to the society to make the most desired input to the development of HIV-AIDS sensitization programmes on issues affecting them, and people with HIV AIDS.

The "Radio HIV-AIDS Literacy" is a media compendium of community, youth-related and society-focused HIV-AIDS/Sexual Reproductive Health interventions, initiated by the ONESTREET HIV-AIDS PROJECT on Facebook i.e. the use of public radio as an enlightenment tool for HIV-AIDS education across the population in Southeast Nigeria (Igboland).

The "Radio HIV-AIDS Literacy" project was first introduced in early 2013 discussions in the ONESTREET RADIO SHOW on 94.1 UNIZIK FM – with general interest discussions on youth development, community education on health and other human related issues, culture and reflection on the diversity of the needs, aspirations and interventions of the young people of Africa.

The "Radio HIV-AIDS Literacy" project did not fully take off due to financial constraints of the producer, Williams Obiozor utilized his personal funds to sponsor the radio show. The "Radio HIV-AIDS Literacy" will be re-launched in summer 2014 on the airwaves in Anambra State, South East Nigeria to serve as a guide and intervention outlet for

educating adults and young people at various levels, justify the need for everyone's participation at various levels of HIV-AIDS awareness programme development, implementation, monitoring, evaluation and scaling-up, as well as serve as an advocacy tool for increased support for NGO/community/youth-led, HIV-AIDS initiatives.

The "Radio HIV-AIDS Literacy" programme therefore is being carried out to teach listeners in Africa, reading, writing and enlightenment on the scourge of HIV-AIDS in the society, address intervention techniques and solutions to the infections. The programme is expected to be replicated in different states in Nigeria after a successful three-month running in Anambra State.

8.1 Challenges to the "Radio HIV-AIDS Literacy"

A major challenge encountered on the project was educating market agents who are mostly non-literate and obtaining documented feedback in order to evaluate the various training in terms of knowledge gain and skills acquisition.

- Another challenge is that of getting the market agents committed to volunteering as peer educators alongside their primary mission in the market, which is strictly buying and selling activities.

- It was a big challenge getting the project market agents to take repeated HIV tests every six months, as was required in a surveillance programme.

8.2 Expected Results from the "Radio HIV-AIDS Literacy" programme

With the use of non-formal education approaches, it is possible to reach millions of the literate population that are no longer in the formal education system with the messages of HIV-AIDS.

- With the use of non-formal education approaches, it is possible to convey the message of HIV-AIDS to millions of the non-literate population that could not ordinarily be reached using the formal education approaches.

- From the ARFH experience and from psychological research findings, it appears non-formal education approaches such as live testimonies from people infected with HIV, dramatisation and simulations are better at effecting learning vis-à-vis positive behaviour change than the formal education approaches such as the commonly used in verbal teaching.

- From these case studies, one can also see that NFE approaches tend to be more cost effective [or cheaper to administer] than formal education approaches

- The case studies also tend to reveal that non-formal education approaches consumes less time

than the formal education approaches. This therefore tends to make the NFE approaches more effective at reaching the people faster with the HIV message. In the light of the urgency this matter requires, this should be a welcome development.

Lessons to be learned from the success of the "Radio HIV-AIDS Literacy"

- Provision of formal /non-formal HIV-AIDS education promotes willingness and desire to take HIV test within a market community

- Involvement of stakeholders at the beginning of the project increases the chances of achieving results in a community based project

- Market community is an organized community and a well-planned programme can be implemented with a high rate of success if quality advocacy is carried out amongst the market leaders

- Involving private health sector within the market communities promoted health care seeking behaviour of the market agents

- Maintaining the confidentiality of the market population by being transparent promotes greater involvement of the market communities

9. Conclusion

Non-formal education could result in reducing the spread of HIV-AIDS in Nigeria and the world at large. The reason is that it is natural, long lasting, not location-bound and cost-effective. With a little more understanding of the modus operandi of NFE strategies and how they work to effect lasting behavioural change, we may be getting the much needed truly effective HIV-AIDS "vaccine" sooner than we thought. Therefore, every educator (whether you are working in the radio, institutions, mass media or not) must endeavour to join in the campaign to spread the news/, create awareness and sensitise the populace on the scourge of HIV-AIDS; provide information on its prevention as well as encourage community support and assistance for the people living with HIV-AIDS.

On a serious note government and non-governmental organizations needs involve in HIV-AIDS research and development, pragmatic strategy for effecting lasting behaviour change on HIV-AIDS issues, best and effective practices in the field of HIV-AIDS preventive education. The government should monitor and evaluate the activities of NGOs', parastatals and related agencies responsible for HIV preventive education in Nigeria.

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Effectiveness of Rights-based Enhancement of Pubertal Awareness, Communication, and Child Protection of the 10 – 14 year old Boys and Girls in Primary Schools in Jinja District, Uganda

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Abstract

Many children today experience precocious puberty while in primary school but too few receive adequate preparation about it. Many cannot demand for information and protection as their inalienable rights, [43]. They are potentially vulnerable to sexual coercion, early sexual debut, teenage pregnancy, STIs including HIV and school drop-out,[17]. Also, many approach adolescence with conflicting and confusing sexuality messages, [37]. It is a mixed method study with 3 phases;

1. Baseline survey to determine existing pubertal and child rights knowledge, skills and experiences among 10 – 14 year olds in 16 selected schools through FGDs, question boxes and questionnaires, and exploration of duty bearers' awareness and provision of pubertal information and protection of children through interviews and FGDs. 2. Design, pilot and evaluate a pubertal and child rights awareness and skills enhancement intervention curriculum in 8 experimental and 8 control schools, and do an analysis of variance (ANOVA) in baseline and post intervention results.

1. Introduction

Individuals of 18 years and below are children, [35]. Many experience early puberty while in primary school and face needs, challenges and vulnerabilities [18]. They need pubertal information and empowerment about their rights for protection against sexual abuse, [36]. Much is done to improve access to such information and services for older adolescents in secondary schools but too few children in primary schools receive adequate preparation about body changes [45]. Many are rarely talked to and taught to demand for access to information and protection against abuse as their rights. Also, there is a general cultural belief that the under 15 are “too young” to need SRH information, causing adults to ignore the realities and vulnerabilities of children in Uganda today. Consequently, many children approach adolescence and adulthood with conflicting and confusing messages about sexuality [37].

2. Children's rights framework

The United Nations Convention on Rights of the Child (UNCRC) emphasises children's right to age specific Sexual and Reproductive Health (SRH) information and protection. It spells out obligations of duty bearers to ensure realisation of those rights and has been endorsed globally [35]. The African Charter of Rights and Welfare of the Child (ACRWC) highlights issues in the African context and spells out children's responsibilities [1]. Uganda ratified both the UNCRC and ACRWC and has policies, legislations, services and administrative reforms on child protection in place. She also enacted the Children's Statute, now Children's Act Cap59 of the Laws of Uganda in 1996, among others. Despite such efforts, there are many reported and unreported cases of child sexual abuse, and poor management of body changes among primary school children in Uganda, [18], [13]. These are life threatening given the HIV and AIDS situation in Uganda. They also indicate lack of information and preparedness for puberty, and loopholes in child protection mechanisms, which often lead to school drop out before completing the primary school cycle and jeopardise the MDGs [43].

3. Statement of the problem

Many Children in primary schools in Uganda experience early sexual maturation and need information and protection. The UNCRC and other international agreements affirm children's rights to age specific SRH information, and to protection against sexual abuse, and exploitation, [34], but have not garnered children's access to that information and to protection for proper health and well-being [38]. The Africa region-specific Charter (ACRWC) does not seem to have helped highlight the plight of 10-14 year olds in primary schools [1]. Uganda's ratification of the CRC and ACRWC followed by policies and reforms do not seem to have enforced children rights to pubertal information and protection. Teachers, parents and

other adults are often insensitive to the plight of the children or lack knowledge and skills to effectively communicate to them [2], and [8]. Demographic Health Surveys focus on the under 5 and 15 – 19 but excludes the 10 – 14 olds leaving evidence on them quite sparse, incomplete or non-existent, [2]. Data on sexuality of the under 15 is often obtained retrospectively due to ethical challenges. Many researches and programs on adolescence are not rights based and mainly focus on the 15 – 19 year in secondary schools. The special needs and concerns of those under 15, some of whom are already sexually active are neglected [44]. Interventions focus on the girl child with limited attention to boys, limiting illumination of the plight of the boys whose rights are also often abused [2].

Researchers focus on schooling of children and shy away from rights and sexuality issues due to socio norms, ethics and doubt about validity of 10 – 14 year old responses. This renders the 10 – 14 year old boys and girls and their sexuality challenges invisible to policy makers, [47]. African societal shifts, the economy, and behavioural patterns, worsened by unique developmental vulnerabilities place today's children at a heightened risk of neglect and abuse [4], [30]. Parents are "too busy" leave children alone with limited supervision; are embarrassed to talk about sexuality; communication is authoritative, unidirectional, and ambiguous and threat driven.

The 10- 14 year old spend most time in school but teachers are not sensitive to children's pubertal plight, lack knowledge and skills, communicate by threat and punishment, and teach about puberty in science only. Often children are abused by parents, teachers and other adults who are responsible for their protection. Examples are; i) 8 year old Primary 3 school girls who were expelled from a boarding school in Kampala for engaging in sexual activities, ii) a 13 year old boy in love with a campus girl, iii) Juveniles boys sexually abused by religious leaders. iv); Primary school girls made pregnant by their biological fathers.

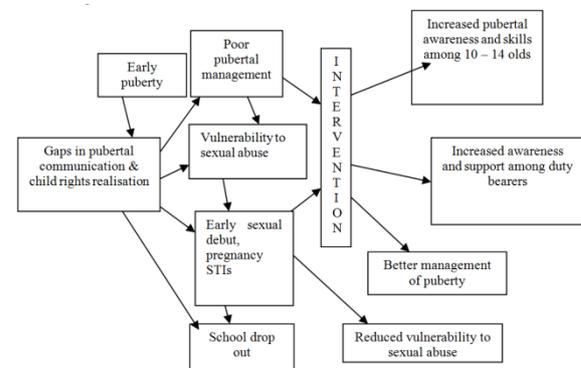
The Uganda Primary school curriculum has incorporated Sexual Health Education but boys and girls do not get accurate and adequate information and guidance into safe and healthy adolescence and adulthood [22].

4. Justification for Child Rights Based intervention in primary schools

School based SRH programs provide knowledge and skills needed recognise and avert risks, and reduce vulnerability to SRH problems, [43]. With UPE in place, 70% of school age children are in school and most of the 10 – 14 year old can be reached, [38] and certain sanctions can be employed in a school to shape their behaviour,

[28], also, Schools can compel parents to provide SRH necessities, [26], [6]. The 10 – 14 are young and their practises still malleable, promoting their SRH at this stage presents fewer challenges and shapes a healthier adolescence and adulthood [5]. Sexuality issues are highly social. Schools provide a social and conducive environment where children spend much time together, interact freely and learn from each other with limited adult interference [12]. The UN Guidelines on Human rights call for accessibility of children to adequate and age specific health information and education [5]. Jinja District is ranked highest in child sexual abuse [33] and is part of the Busoga Region which is known for poverty and poor hygiene both of which are SRH risk factors [15], [32],[34].

5. Conceptual frame outcomes



5.1. Concept Explanation

Children today experience early sexual maturation while in primary school and are vulnerable to abuse and exploitation due to lack of vital information relating to puberty. They therefore need information about body changes and children's rights in order to manage the changes and to be protected from abuse, neglect and exploitation. While Uganda government ratified the UNCRC and the ACWRC and has put some measures in place, children in primary schools are still being inadequately prepared for the pubertal changes, sexual coercion, abuse and exploitation that awaits them.

6. Scope

This study is limited to;

- i) two children's rights; right to information about puberty, and right to protection against sexual abuse and exploitation,
- ii) awareness, and skills of management pubertal body changes and children's rights by 10 – 14 year old boys and girls in primary schools in Jinja District, and

- iii) awareness and communication of pubertal body changes and children's rights by the parents, teachers and other duty bearers.

7. Research questions

What is the level of existing awareness and skills of puberty and child rights of the 10 – 14 year old boys and girls in primary schools in Jinja District?

- i) Can a school based intervention enhance pubertal and child rights awareness and skills of the 10 – 14 year old boys and girls in primary schools?
- ii) What are the experiences, challenges and strategies of implementing a pubertal related and child rights intervention to 10 – 14 year olds in rural and urban primary schools in Uganda?

8. Hypothesis

A school based Pubertal and rights intervention can lead to increased awareness and sound skills about child rights, and pubertal body changes among 10 -14 year old children.

9. General Objective

Design, pilot and evaluate an intervention aimed at enhancing pubertal and child rights awareness and skills among 10 - 14 year old boys and girls in primary schools in Jinja District.

10. Specific objectives

- i) To determine existing knowledge and skills on puberty and rights to protection against sexual abuse and exploitation amongst 10-14 year olds in selected primary schools in Jinja District
- ii) To explore duty bearers awareness and fulfillment of their obligations to provide pubertal information and protection of children against abuse and exploitation,
 - i) Document successes, challenges and strategies of the process of implementing a school based pubertal and child rights intervention
 - ii) iv). To establish changes in knowledge and skills on puberty and Rights amongst 10 to 14 year olds after the implementation of a school based pubertal and Rights intervention.

11. Methodology

It is a mixed method study with 3 sub studies in 16 primary schools in Jinja District. The schools

were randomly selected by random number table and clustered as 10 rural in Kagoma Sub County and 6 urban in Jinja Municipal Council.

11.1. Sub-study 1 - Baseline among the 10–14 year old boys and girls

To explore pubertal and child rights awareness, and challenges among Pupils. Data is being collected through;

- i) FGDs with 6 - 8 randomly sampled boys and 6 – 8 randomly sampled girls per school. The boys and girls are in separate FGDs to allow free expression of private sexuality matters.
- ii) Questionnaires; 1600 pupils sampled by class registers as sampling frames and simple random sample of 50 pupils per sex in each of the 16 schools will respond to Questionnaires .
- iii) I will fill a checklist for each of the schools for pubertal information and facilities.
- iv) I have designed 16 question boxes; one per school for children to anonymously drop pubertal and sexuality related questions they would want answered.

11.2. Sub -study 2 - Is a Baseline survey of pubertal and child rights awareness, communication and barriers among duty bears (teachers, parents, Health workers, Local councilors, Child and Family Protection Unit of the Uganda Police and probation office)

Data is being collected through;

- i) FGDs with 6- 8 female and 6 – 8 male parents, and FGDs with 6 female and 6 male teachers per school.
- ii) 10 in-depth interviews with 2 Health workers, 2 LCs, 2 Police FCPU, 2 Probation 2 LCs (1 rural and 1 urban of each category). Paired interviews with the Senior Male Teacher and Senior Woman Teacher in each school

11.3 Data management & analysis

- i) i) FGDs, interviews & question box data to be handwritten & tape-recorded, cleaned, transcribed and thematically entered into Master Sheet Analysis tool. I will then do manual and ATLAS ti software Discourse analyses with constant comparisons by age, sex, location (rural, urban) school Characteristics. (mixed/ single sex, religious affiliation, private/

- government) Quantitative data; to be coded, cleaned and entered in excel and the following analyses will be done;
- ii) A Chi Square test for check lists for significance in difference between the observed and expected mean and variance for awareness scores
 - iii) Regression and correlation coefficient between variables for Questionnaire data using SPSS or STATA 11

11.4. Sub Study 3; is the KEY component of the study

I have designed an intervention but results from baseline Sub studies 1&2 are the benchmark for its modification. I will then pilot, implementation, and do a process Monitoring & Evaluation of the intervention in 8 experimental schools. The control schools will be far from experimental ones to avoid contamination. The components of the intervention are;

- i) Sensitization Workshops on pubertal and child rights awareness, gaps, barriers and skills for duty bearers
- ii) 12 sessions of Curriculum training and Compound Messages for the 10 – 14, [37],

The aim of the intervention is to equip children, parents, teachers and other duty bearers with pubertal information, skills necessary for management and communication of puberty and for child protection of this age group. Primary 5 teachers will be trained on how to conduct pupils' activities

Teachers will then Implement pupils activities twice a week through one hour sessions after class for a maximum of 6 months

- i) Formative Process M&E of the intervention implementation will include; documenting of attendance, activities, challenges, methods, strategies and end of session assessment
- ii) After all sessions have been covered in the experimental schools, I will use baseline tool and methods of data collection and analysis to do a post intervention study in both experimental and control schools,
- iii) I will compare and test for variance in pubertal and child rights awareness and skills between baseline and post intervention results, and control and experimental results to establish changes in and a t-test for significance.
- iv) I will then implement a delayed intervention to the 8 control schools

12. Ethical considerations

Consent and assent forms are being clearly read and explained to the research participants in Lusoga(local language of Jinja District) and English. Consent is being got from parents and teachers on their behalf and on behalf of the 10 – 14 old minors. Assent is being got from the individual participating children. Dissent or refusal of children or adults to participate in my study is to be honoured.

13. Dissemination/ anticipated utilization of results

I will:

- i) hold two workshops; one for the rural and another for urban research participants (duty bearers) to disseminate baseline results, sensitization on puberty and children's rights, and to disseminate post intervention/ final results of the study,
- ii) organize two Awareness matches through the project area (one rural/ one urban), Publish and present papers,
- iii) write and present Policy briefs,
- iv) hold a Radio talk show on the local FM and vi) Roll out of the CRB intervention to other districts.

Date	Activity	Remarks
June 2012 – Dec 2013	Proposal development	Approved
February 2014	Pilot tools	Done
March – April 2014	Baseline survey	In progress
May 2014	Baseline data analysis	In progress
June - August 2014	Pilot, implement, Monitor and evaluate the Intervention process	
September – Oct 2014	Post intervention study	
Nov- Dec 2014	Post intervention / summative data analysis	
January – June 2015	Report writing	

13.1. Progress so far

I have piloted the instruments and collected qualitative baseline data in all 16 selected schools.

14. Conclusion

Data collected so far clearly show that issue of puberty and Sexual reproductive Health for fewer than 15 in primary schools in Jinja District is a serious problem. It has been compounded by the extensive poverty in the Busoga region resulting into the complex sugar cane growing business which impacts on children in a number of ways. The research team and participants are highly optimistic that a child rights based intervention will yield positive results.

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Knowledge of Healthy Eating Amongst Rural Secondary School Learners in South Africa

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Abstract

Certain eating practices predispose people to diseases. Healthy eating is a preventative measure. Knowledge of what and how to eat is needed for people to stay healthy. This study assessed knowledge of healthy eating among rural secondary school learners. The study adopted a quantitative approach using a descriptive survey design. Data was collected from 321 randomly selected learners aged 14 – 18 years using a self-administered questionnaire. Permission was obtained from the circuit manager. Parents/learners' informed consent was obtained. The majority (88% n= 289) of learners did not know the basic nutrients found in food as compared to only 12% (n=32) who knew. Similarly, the majority (88% n= 289) of learners did not know the basic nutrients supplied by food items as compared to only 12% (n=32) who knew. Rural secondary school learners in South Africa lack knowledge of healthy eating, Classroom education about healthy eating habits should be intensified in rural schools of South Africa.

1. Introduction

People are what they eat and how they eat. Good nutritional status helps us maintain all important body functions. Thus, eating well helps keep us healthy and active and thus improves our enjoyment of life. Good diets and eating habits are fundamental for proper growth and development and for the prevention of diseases. In order to have good nutritional status, we need to always have enough nutritious food to eat (i.e. the right amounts and the right variety of good quality foods to meet our nutritional needs). This is because no single food contains all the nutrients needed by the body in the right amounts. However, certain factors such lack of knowledge might hinder peoples' access to adequate nutritious foods a condition classified as hunger [1].

The Millenium Development Goal number 1 aims to halve the proportion of hungry people by 2015 [2]. Similarly, the World Food Summit aims to halve the number of undernourished people by 2015. It is not clear if the world will achieve these

targets. The estimated total number of undernourishment is currently around 842 million. In a desire to address the eradication of hunger MDG goal, South Africa (SA) has been providing a social wage package intended to reduce the cost of living of the poor so that there is money left to buy food. The social wage package in SA includes free primary health care, no-fee paying schools, social grants (such as old pensions and child support grants) and RDP housing; provision of free basic services in the form of reticulated water, electricity, sanitation and sewage [3].

Although in 2012, 71% (n=4.4million) of the indigent households had received free water; 51% (1.8 million had received free electricity); and 58% (7.2million) of learners were in no fee paying schools; and that evidence when all international poverty lines were used suggests a decline in poverty, the 2012 Global hunger Index estimated that SA is ranked 9th in the world for highest hunger levels measured objectively using anthropometric data as well as subjectively using self-reported hunger by households [4, 5].

Hunger lead to malnutrition. Skipper defines malnutrition as a condition that affects individuals whose food and nutrient intake is consistently inadequate to meet individual requirements [6]. There are three indicators of child malnutrition derived from anthropometric data, namely stunting, wasting and underweight. According to the World Bank (2012), 15% of South African infants are born with a low birth weight and 5% are so underweight that they are considered wasted, which suggest that malnutrition remains a prevalent problem in SA especially in regions of Eastern Cape and the Limpopo province. The prevalence of malnutrition in Limpopo is so vast that 48% of children in the Limpopo province evaluated in 2005 study were found to have stunted growth [8]. The prevalence of malnutrition in SA is further manifested by vitamin and mineral deficiencies. About 21.4% of pre-school children and 50% of pregnant women in SA have anaemia [9]. 13.2% of children were found to have hypocalcaemia and Thiamine (Vitamin B1) deficiency [10]. Vitamin A deficiency was found to be prevalent in the Limpopo province, Kwazulu Natal, Mpumalanga, Northwest and Eastern Cape [11].

Food and Agriculture organization of the United Nations warns that malnutrition can lead to an onslaught of health complications and eventually death. Bradshaw, Bourne and Nannan found that 11.4% of deaths of South African Children were attributed to low birth weight, making low birth weight the second most prominent cause of death in South Africa [12, 13]. The concern is that babies born underweight who continue to be undernourished are not able to catch-up in growth after birth and are likely to suffer illnesses throughout their child-hood and adolescence and into adulthood.

Hunger and malnutrition have been found to increase both the incidence and the fatality rate of the conditions that cause up to 80 percent of maternal deaths. At the same time, food and nutrition insecurity and malnutrition can increase vulnerability to disease such as TB, Malaria and HIV/AIDS. Hunger and poverty often compel the poor to over-exploit the resources on which their own livelihoods depend.

Since there is a decline in poverty, malnutrition in SA is currently attributed to lack of knowledge. Eating well for good health requires a basic knowledge of foods and the nutrients they provide and an understanding of our nutritional needs throughout various stages of life. With this knowledge we can practice good lifelong eating habits that will help us be as healthy as we can be. Learning how to meet our nutritional needs throughout life by making good food choices for a healthful balanced diet can help us avoid or prevent many health problems. It is against this background that this study emerged.

1.1. Purpose of the study

The purpose of the study was to assess the knowledge of healthy eating amongst rural secondary school learners in the Limpopo province of South Africa.

1.2. Study objectives

- To assess secondary school learners' knowledge of the basic nutrients found in food; and
- To assess secondary school learners' knowledge of nutrients supplied by food items.

2. Methodology

2.1. Study design

Based on the purpose of the study, a quantitative cross-sectional descriptive survey

design was adopted to collect data from subjects at one point in time and to describe a phenomenon

2.2. The study setting

The study was conducted at Vhumbedzi educational circuit which is situated in the east of Sibasa in the Vhembe District and north of Kruger National Park. The circuit consists of 10 secondary schools, 24 primary schools and one independent primary school. The target population of this project is all school learners from grade 8 – grade 12 male and female learners in this circuit (n=5019).

2.3. Sampling

Based on the sampling frame of 5019, sample size of n=370 was calculated using Slovin's formula $n = \frac{N}{\sqrt{1 + Ne^2}}$ where n and N denote the sample and population sizes respectively thus allowing a margin error of e= 0.05.

A two stage stratified sample selection process was employed using grades and gender as strata within each of the 10 participating schools. Learners were randomly selected within each stratum based on population proportional to size procedure which ensured proportional representativeness of grade and gender in the final sample.

2.4. Data collection instrument

The instrument was adapted from the 2011 high school Youth Risk Behavior Survey (YRBS) of the Centers for Disease Control and Prevention [14]. It was self-administered questionnaire and semi-structured with closed and open-ended questions. The open-ended questions were included to capture a variety of responses so as to enhance and enrich the quantitative data. Whereas the instrument was written in English and required approximately 60 minutes to complete, caution was taken to ensure that it was user-friendly and understandable. The questionnaire was divided into 4 sections as follows:

- Demographic profile of the participants
- Secondary school learners' knowledge of the basic nutrients found in food; and
- Secondary school learners' knowledge of nutrients supplied by food items.

Likert-scale format and "yes" or "no" response options were incorporated in the instrument to collect responses to some of the questions in the instruments.

2.4.1. Instrument validity. To ensure validity, the instrument was adapted from the YRBS questionnaire of the Centers for Disease Control and Prevention to suit the local conditions. A wide

range of literature was also consulted on the variables of interests [14]. Furthermore, the instrument was pre-tested on some volunteer learners in a school similar to the target population at a different circuit which is near the university. Pre-testing results were used to rephrase and modify some aspects of the questionnaire thus making it suitable and comprehensible to the participants.

2.4.2. Instrument reliability. The reliability of the instrument was bolstered by adapting a questionnaire based largely upon the Centers for Disease Control and Prevention 2011 national high school Youth Risk Behavior Survey. The YRBS is a standardized instrument developed by the CDC to measure risk behaviors of high school students with generally high reliability rating (Kappa=61 – 100%) (Brener et al, 2002 & CDC, 2011).

2.5. Data collection procedure

The study was conducted over a three-week period between October and November 2012. All 10 schools were visited by the research team to identify the learners who were to participate in the study. Dates for data collection were pre-arranged by circuit office and school authorities; and within each participating school, a special class was organized where the research team briefed the participants and assisted in facilitating the administration of the instrument and addressing issues arising thereof. The administration of the questionnaires lasted approximately 60 minutes.

2.6. Data analysis

Survey responses were coded and analyzed using the Statistical Package for the Social Sciences (SPSS) version 21.0 software and the Microsoft Excel. Descriptive statistics (percentages, mean etc.) were used to summarize the data.

2.7. Ethical procedure

The Research and Innovation Directorate of the University of Venda issued an ethical clearance certificate (SHS/12/PH/03/0812) for the approval of the study in August 2012. Permissions to conduct the research and to enter schools were obtained from the Department of Health – Limpopo province and the Vhumbedzi circuit office respectively. Final access to the participating schools was negotiated with the school authorities. Written informed consent was obtained from participants and their parents before the administration of the instrument. Anonymity, confidentiality and voluntary participation were

assured. In addition, participants' names and identities were not required and at the same time, no staff member was allowed at the survey venue during the time the questionnaires were administered.

2.8. Limitation

The study involved 10 secondary schools in only one rural circuit of the 26 educational circuits of the Vhembe district, and as such generalization of the result is not possible in urban circuits.

3. Results

The results are arranged in terms of the objectives of the study as follows:

3.1. Knowledge of the basic nutrients found in food

The findings of the study revealed that the majority (66% n=244) of learners thought that it is true that protein, vitamins, fats and carbohydrates are the only basic nutrients we get when we eat food. About 12% (n= 32) thought that it is not true that that protein, vitamins, fats and carbohydrates are the only basic nutrients we get when we eat food. Few (22% n=45) learners were not sure of the correct answer.

3.2. Knowledge of nutrients supplied by food items

Surprisingly the majority (66% n= 238) of learners thought that in porridge, corn flakes and mabele and bread we get proteins. 12% (n=32) learners were not sure of the correct answer. Very few (22% n=45) learners knew the correct nutrients we get from porridge, corn flakes and mabele.

The majority (95% n=316) knew that in apples, oranges and banana we get vitamins. Though 3% (n=3) learners were not sure, very few (2% n=2) learners did not know the source of vitamins.

Similarly, the majority (45% n=151) of learners thought that in chicken necks, chicken hearts, chicken and beef we get carbohydrates. 37% (n=97) of learners were not sure of the correct answer. Very few (18% n=73) knew the correct food nutrient we get from chicken necks, chicken hearts, chicken and beef.

The majority (72% n=239) of learners thought that in polony and Vienna we get fats. 16% (n=55) were not sure of the correct answer. Very few (12% n=27) knew the correct food constituent we get from polony, cheese and Vienna.

The majority (65% n=215) thought that in 100% fruit juice we get minerals. 26% (n=84) were not sure of the correct answer. Very few (9% n=22)

knew the correct food constituent we get from 100% fruit juice.

The majority (47% n=156) of learners believed that it matters what food people eat in order to stay healthy. 25% (n= 82) were not sure whether it matters or not what people eat in order to stay healthy. About 28% (n= 83) thought that it does not matter what food people eat as long as they have eaten they will stay healthy.

4. Discussions

This study revealed that rural secondary schools learners in South Africa lack knowledge of basic nutrients found in food and the nutrients supplied by food items. These findings are similar to those of Letlape; Mokwena; Oguntibeju, who discovered that 77% of the learners attending high schools in Pretoria, South Africa do not have adequate knowledge on diet and nutrition while 23% of the students possess satisfactory knowledge [16].

Similarly, Elhassan, Gamal and Mohammed (2013) revealed that 73.4% of university students didn't know the source of vitamin B12 and iron; and 55.1% of the students didn't know the food group that should be eaten the least. 52.6% didn't know which foods contain more fibers. 66.6 % of students didn't know which foods contain the most calcium. Van den Berg, Okeyo, Danhauser and Nel discovered that nursing students at one university in Eastern Cape, South Africa had a high prevalence of overweight and obesity, poor eating habits and inadequate knowledge on key nutrition issues.

In addition, Steyn revealed that rural dwellers have a higher intake of cereals and vegetables [17]. However, for most other food groups, the urban adults and children were found to far exceed the consumption of their rural fellows. This was particularly true for, sugar, meat, vegetable oil, dairy, fruit, roots, tubers and alcohol consumption.

Oldewage-Theron and Egal emphasized that the Department of Basic Education (DBE) South Africa has not given nutrition education the necessary emphasis that it needs, despite its importance in South African schools; and that Major gaps exist in the health and nutrition-related knowledge and behavior of educators as role models [19].

However, it is surprising to learn that learners lack knowledge of the sources of nutrients when the results of this study revealed that 78% (n=285) of learners agree that nutrition topics are taught at schools. Similarly, the data yielded a probability value of 0.012 when health education practices and learners' knowledge of the sources of nutrients were compared using Chi-Square test, which is < 0.05 level of significance. This value means that one can be at least 99% certain that the two variables are significantly associated. These

findings indicate that there is a significance relationship between health education practices and learners' knowledge of the sources of nutrients.

The practical implications of this results are that underachievement is high (68.4%) in poor feeding children [18]. According to these authors, achievement is significantly associated with consumption of breakfast and a midday meal, particularly for boys ($p < 0.05$), and a greater likelihood of scoring well was observed for better nourished children (all OR values > 1.0).

5. Conclusions and recommendations

Secondary school learners of Vhumbedzi circuit lack knowledge of basic food constituencies and their sources. Lack of knowledge of healthy eating might lead learners to adopt unhealthy eating practices that predispose them to diseases such as obesity, heart failure, diabetes and hypertension. Such unhealthy eating practices will not assist SA to eradicate hunger. A project for teaching learners the practical sources of carbohydrates, proteins, fats, vitamins and proteins should be conducted in rural areas where life orientation teachers will be given the responsibility of monitoring the school feedings and learners' lunch boxes to improve knowledge and practices of healthy eating.

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School Absenteeism Due to Menstruation in Rural Schools: An Evaluation of School Based Menstruation Management Policies

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Abstract

Globally, approximately 52% of the female population (26% of the total population) is of reproductive age. Most of these women and girls will menstruate each month for between two and seven days. The subject of menstruation, however, is too often taboo, and has many negative cultural attitudes associated with it, including the idea that menstruating women and girls are 'contaminated', 'dirty' and 'impure'. Unfortunately, the ripple effect is that young girls across the country are forced to drop out of school because they cannot deal with it. Girls in rural settings and in particular girls in schools suffer most from stigma and lack of services and facilities to help them cope. Some of the problems they face include: lack of or inadequate water to clean and wash the body, lack of materials for managing menstrual hygiene, no private space and wash rooms and inappropriate facilities for disposal of materials for those who have used pads. In spite of these issues, menstrual hygiene has been routinely ignored by professionals in the education sectors with few schools thinking about policies that can underwrite commitment of leaders to address this challenge.

1. Introduction

Uganda officially the **Republic of Uganda**, is a landlocked country in East Africa. It is bordered on the east by Kenya, on the north by South Sudan, on the west by the Democratic Republic of the Congo, on the southwest by Rwanda, and on the south by Tanzania. Uganda is the second most populous landlocked country. The southern part of the country includes a substantial portion of Lake Victoria, shared with Kenya and Tanzania, situating the country in the African Great Lakes region. Uganda also lies within the Nile basin, and has a varied but generally equatorial climate. Uganda gained

independence from Britain in 1962, maintaining its Commonwealth membership.

The country is located on the East African plateau, lying mostly between latitudes 4°N and 2°S (a small area is north of 4°), and longitudes 29° and 35°E. It averages about 1,100 metres (3,609 ft) above sea level, and this slopes very steadily downwards to the Sudanese Plain to the north.

According to IMF statistics, in 2004 Uganda's GDP per capita reached \$300, a much higher level than in the 1980s but still at half the Sub-Saharan African average income of \$600 per year. Total GDP crossed the 8 billion dollar mark in the same year. (1)

Economic growth has not always led to poverty reduction. (2) Despite an average annual growth of 2.5% between 2000 and 2003, poverty levels increased by 3.8% during that time. (3)

Uganda is one of the poorest nations in the world, with 37.7% of the population living on less than \$1.25 a day. Despite making enormous progress in reducing the countrywide poverty incidence from 56% of the population in 1992 to 31% in 2005,(4) poverty remains deep-rooted in the country's rural areas, which are home to more than 85 per cent of Ugandans.

People in rural areas of Uganda depend on farming as the main source of income and 90 per cent of all rural women work in the agricultural sector. (6) In addition to agricultural work, rural women also have the responsibility of caretaking within their families. The average Ugandan woman spends 9 hours a day on domestic tasks, such as preparing food and clothing, fetching water and firewood, and caring for the elderly, the sick as well as orphans. As such, women on average work longer hours than men, between 12 and 18 hours per day, with a mean of 15 hours, as compared to men, who work between 8 and 10 hours a day.(7)

Menstruation is an integral and normal part of human life, indeed of human existence. Menstrual hygiene is fundamental to the dignity and wellbeing of women and girls and an important part of the basic

hygiene, sanitation and reproductive health services to which every woman and girl has a right.

2. The problem in context

Uganda has one of the fastest growing populations in the world with more than half of its population below the age of 18. Uganda has a fertility rate of 6.3 indicating the high dependency ratio and the speed at which the population is increasing. Girls in rural schools are reported to be missing three to five days of schools every month due to menstruation according to a report by.

When girls miss significant numbers of lessons in school, their academic performance is compromised and as a result, they are forced to drop out of school (8). The most critical period for intervention is when the girls are transitioning from primary to secondary education and discover blood on their underwear or cloth for the first time, making them feel uncomfortable as they cramp and have no female teachers to talk to or well-equipped facilities with water and extra pads to use (9). This forces girls to improvise on what to use in absorbing of blood. In some contexts, girls have been reported to use different types of materials such as leaves, corn cobs, wood ash, cotton wool, pieces of cloth, sponges, and tissue paper depending on whether they are in their household or in public sphere like school (10).

With recent development, there has been access to affordable and reusable pads for girls to use during menstruation. However, most girls indicated that they preferred disposable pads (10), due to lack of access to water or sanitary disposable methods, yet these girls cannot afford the disposable pads (11).

To date, however, no rural schools or local government in Uganda has shown any intention to implement a sanitary disposable or dispenses in girls toilets. While most of the country's policies are advocate for the education wellbeing of girls, the lack of sanitary solutions might hinder the achievement of several millennium goals 2015 (12). While some local government and school officials agree that menstrual hygiene is still prevalent among rural children, they typically share the view that the provision of sanitary pads and disposable facilities is the duty of the parents and schools, not that of the government.

Interestingly, however, many local government officials and schools heads actually acknowledge that parents' ignorance on how to deal with menstrual periods might be contributing to the prevalence of absenteeism and school drop outs among rural children. There are, of course, a few well-designed studies on the effects of menstruation on academic achievement of girls in low-income countries;

however, a review of these studies shows that the evidence is decidedly mixed. There was limited literature associate with school absenteeism and menstrual hygiene policies and facilities in schools. This paper seeks to evaluate school policies in supporting girls during times for menstruation.

3. Issues in Education

As the world matches to development, exploring new ways of breaking into new fields of science and technology, improving life style and global security, Africa a home to millions of people remains left behind perpetually trapped in the mystery of poverty. To illustrate the difference, you may wish to picture this.

As Steve Swanson paid \$70 million dollars to board a Soyuz space vehicle for a lift to the international space station, hundreds of young girls in Uganda and other countries in sub Saharan Africa missed school because they or their parents could not afford \$1 dollar to procure sanitary pads to keep them comfortable while in school. Education would help them secure a life changing learning experience of knowledge and skills that today and for the times to come will shape world and always be the stepping stone to secure livelihood. That is the contrast between the speed of the match to development in the global north and the unfortunate reality of most young girls in the global South.

Many factors have been pointed out to explain the cause of poverty in Africa which among others include; corruption, civil conflicts, bad governance, illiteracy, among others. These factors have been exhaustively been explained by different scholars and several efforts made to end poverty in Africa, but despite the several years of aid programming and institutional capacity building across the different dimensions that would end the poverty, Africa remains behind the frontline in the march to development.

To put the pieces together to unfold this puzzle, development practioners are increasingly recognizing the need to use a bottom-top approach to development programming. This takes the view of closer examination of the underlying causes of poverty, its structure, dynamics and pattern. This direction of efforts has led several researchers to focus on the 'little' issues that shape the large picture with the hope that solving the little problems within the large system has an effect on the health of the whole system.

One area of development exploration that has benefited from these efforts has been the field of education. Education has been proven to be one of the most important levers that animate development

in most societies. As the world is increasingly configured to one system, one of an information society, every society has had to make every step to provide its members with the best education using the minimal resources they have. To this end, many societies have made considerable strides and have their members enjoying better life styles, living longer and have a relatively secure future than societies with less education.

4. Education in Uganda

At the 2002 census, Uganda had a literacy rate of 66.8% (76.8% male and 57.7% female). (13) Public spending on education was at 5.2% of the 2002–2005 GDP. The system of education in Uganda has a structure of 7 years of primary education, 6 years of secondary education (divided into 4 years of lower secondary and 2 years of upper secondary school), and 3 to 5 years of post-secondary education. There are state exams that must be taken at every level of education.

According to the United Nations Enrolment in primary education in developing regions reached 90 per cent in 2010, up from 82 per cent in 1999, which means more kids than ever are attending primary school. In 2011, 57 million children of primary school age were out of school. Even as countries with the toughest challenges have made large strides, progress on primary school enrolment has slowed. Between 2008 and 2011, the number of out-of-school children of primary age fell by only 3 million. Globally, 123 million youth (aged 15 to 24) lack basic reading and writing skills. 61 per cent of them are young women. Gender gaps in youth literacy rates are also narrowing. Globally, there were 95 literate young women for every 100 young men in 2010, compared with 90 women in 1990.¹

These figures no doubt present a very picture of progress made. However, field impressions show that the problem is far from over. Whereas the assessment on progress towards the achievement of MDGs indicate that Uganda has already achieved some targets under MDG 2, a closer examination of the progress shows that as many over 70% of children are not completing primary education. According to a survey conducted by the Ministry of Education in Uganda, there are still glaring gender disparities in access to education, there are high school dropout rates due to invisible issues like lack of sanitary pads and or alternatives to menstruation management.

In a bold move to make basic education available to all, the Government of Uganda introduced Universal Primary Education (UPE) in 1997. The programme,

¹ United Nations, 2011

that was to many a saving grace, hit a snag as the massive expansion in enrolment affected the quality of education. With the rise the rise in demand for primary education and the great numbers that graduated from primary level, several logistical problems having been emerging.

In response the government was prompted to introduce Universal Secondary Education (USE) 10 years later, making Uganda the first country in sub-Saharan Africa to introduce it. In both UPE and USE, the government pays the schools an annual grant to cater for every child's tuition in the programme. The parents, however, are expected to provide stationery, meals, uniforms and other personal effects. According to Daniel Nkaada, the Commissioner of Basic Education, government pays an annual fee of Ug.Shs 7,000 (US\$2.8 dollars and Ug.Shs 141,000 (US\$60) for every UPE pupil (primary) and USE student (secondary school) respectively.² This amount of money leaves schools with no financial ability to cater for the invisible problems of young girls who may need sanitary pads as the parents may be poor to afford them. The schools also have no facilities and the gender disparities in access to education persist.

Gender issues in the education sector manifest in several ways. In many cultures in Uganda, parents are reluctant to send their children, especially girls to school. This is significantly evident in poor, rural households and those with large families which require children's labour for food production and for care of younger siblings. Despite state subsidies and incentives such as Universal Primary Education (UPE) and Universal Secondary Education (USE), many children of school going age are not in school generally due to costs attached to sending children to school that parents often cannot meet.³ Whilst high costs for education affect both boys' and girls' participation in education, the key causes of drop-out and absenteeism amongst girls are mainly: early pregnancy; sexual harassment; female genital mutilation; and lack of gender sensitive sanitation facilities in schools.⁴

In Uganda, It is clear that the dropout rate for girls both in primary and secondary schools is much higher than that of boys. Generally, the major reasons why children drop out of school are; high school expenses, lack of willingness to attend school, and domestic work.⁵

² The Weekly Observer Newspaper, January 2014

³ Gender Policy brief for Uganda's Education Sector. FAWODE, 2012.

⁴ Ministry of Gender, Labour and Social Development

⁵ MFPEP, 2008

5. Evaluation of Policies on menstruation Management

The government of Uganda through a number of policies has tried to address the issue. However these remain simply ‘near to issue’ policies that do not directly commit government to any particular interventions in view of the problem. They are not clear and leave the issue of menstrual management invisible in both the mainstream society that has the primary role of supporting the girl child through school, but also in the government circles where experts with problem identification skills would spot the issue and bring it to the attention of policy makers for public consideration on its agenda. In Uganda, the Ministry of education does not have any particular policy to address the problem or guide resource allocation. Some of the Policies that try to address the problem include the following;

Universal Primary Education (UPE) UPE was launched in 1997 following recommendations of the Education Policy Review Commission (EPRC, 1989), the subsequent relevant stipulations of the Government White Paper (1992) and the development of the Children’ Statute. This policy has led to increased enrolment for both boys and girls in education and has greatly contributed to bridging the gender gap in enrolment.

Affirmative Action Policy. In 1990 government through the Ministry of education put in place affirmative action measures to increase girl’s participation in education. Since then, a bonus point of 1.5 has been awarded to female students qualifying to enter public universities. This has increased enrolment of females at the university level from 23% in 1989 to 35% in 1999 and 41% in 2002.⁶ The number of women graduates has since then significantly increased.

The National Strategy for Girls Education (NSGE.) This strategy was launched to foster gender parity in education. It acts as a master plan for use by all stakeholders in girls’ education.

The Promotion of Girls Education (PGE) Scheme. This Scheme aims at improving girl’s retention and performance at school. More than 1000 primary schools in 15 districts of Uganda have so far benefited from this scheme. The fund provides for the construction of latrines, classrooms, houses for senior women teachers and play grounds.

The Equity in the Classroom (EIC) Programme. This programme aims at facilitating equal participation of girls and boys in the classroom. It is a USAID funded program that provides technical assistance and

training workshops whose great target is to increase girls ‘classroom participation.

The Complementary Opportunity for Primary Education (COPE) and the Alternative Basic Education for Karamoja (ABEK) These are initiatives aimed at increasing the access of disadvantaged children who are not able to attend formal school, many of whom are girls.

The Classroom Construction Grant (CCG) This grant facilitates the construction of classrooms and pit latrines for schools while specifically separating girl’s pit latrines from those of boys to ensure privacy.

The Gender desk. A gender desk in the Ministry of Education and Sports was established to promote activities and programmes aimed at correcting gender imbalances in education. The gender desk aims at achieving equitable access to basic education, increased girls retention in schools, increased girls performance especially in science and Mathematics, protection of girls against child abuse and other forms of molestation, reforming the curricular to make it gender sensitive, training and retraining teachers particularly senior women/men teachers and formulating a gender policy for the Ministry.

The Girls Education Movement in Africa (GEM) This movement was launched in Uganda in August 2001. It aims to promote gender parity in education through enabling girls to realize and concertize their participation in education.

Child Friendly Schools programme. This is yet another intervention facilitated by UNICEF and Government of Uganda

Girls and Focusing Resources for Effective School Health (FRESH) This focuses on provision of safe water and sanitation to schools, provision of washrooms for girls, urinals for boys and latrines with priority for girls and special emphasis on separation from boys’ facilities. About 642 child (girl) friendly primary schools, including promotion of interactive methodologies have benefitted approximately 145,500 girls and 259,000 boys.⁷(14)

The challenge with all these policies is that they do not directly address the issue of menstruation management and therefore the challenge remains ‘a problem for the women/girls to solve.’ The issues largely remain under the carpet and therefore no one wants to talk about it. As a result of this apathy, few resources have been committed to the addressing this challenge or even giving space to advocates to access the space where public agenda is discussed and set. Pockets of interventions in addressing the problem remain the work of a few civil society organizations.

⁶ Makerere University Academic Registrar’s Records.

⁷ Gender Policy Brief For Uganda’s Education Sector

This state of affairs has left many young girls most of them from rural schools without any support system that would secure their attendance in school since the problem remains invisible. Schools remain without policies or guidelines on how to translate the intentions of the national policies into a reality.

To understand the extent of the problem, the author in his capacity as a District Community Officer visited 30 schools (26 rural and 4 urban) to assess the readiness of the schools to support girls in personal hygiene and menstruation management. However, the field impressions from the visits to Mityana District in Central Uganda paint a worrying picture as no single school had any written policy on menstruation management. It was also clear that since no single policy existed on the issue, no resources have been committed to the problem. In a few urban schools where a few schools had some interventions, there were no proper guidelines to follow and guarantee commitment of resources. These were one off interventions that do not meet the on-going nature of the girls health needs. No school had a policy on menstrual management.

Teachers have not received any training on the Personal hygiene and menstrual management. The senior woman teacher has to use her own local knowledge or understanding of the issues to provide solutions to the girls who may face challenges during this time. Interviews conducted with Head Teachers indicated that sometimes head teachers buy some sanitary pads for a few girls who may be too needy but this is only possible where funds come in time. Currently the government of Uganda spends 3 dollars per child per year in primary schools. This means that only about 1 dollar is available for each child per term in a year. This money is not enough to cater for the many competing needs of the schools and as such teachers are left with no alternative but to leave the girls to improvise materials which presents considerable risks to the health of these young children.

6. Recommendations

The government of Uganda and indeed other governments ought to research about the issue of menstruation management and come up with clear deliberate policies that can underwrite access to these critical services for the young girls who come from poor households. Policies are the only sure way that government can commit resources to address the problem

Teachers also need to be trained in personal hygiene and menstruation management so that they

make the schools gender friendly especially for the girl child to ensure that absenteeism is addressed.

The civil society and Government can enter into possible partnerships that could provide strategic synergies which could bridge resource gaps and enable the poor girls to access these critical products and services. This requires as earlier mentioned, a policy that would guide the process, and set the interventions rolling in schools.

Governments need to increase their contribution towards the education sector. In Uganda where the government commits only 2.8 dollars for every child in primary school, the results have been very appalling with Uganda emerging as the last in the region in all educational surveys assessing learning outcomes from Uganda, Kenya and Tanzania. There is need to increase financial resources so that there are improved facilities for the girl child to feel safe and secure in school.

There is need for further research on the magnitude of the problem, its nature and other dynamics. Most of the studies done have been only simple surveys aimed at establishing success of interventions and not deeply rooted in exploring the nature of the problem and its likely effects on the lives of the young girls locked in the vulnerability.

7. Conclusion

Field impressions all indicate that few schools if any have any guiding principles and policies on menstruation management. Since resources are only committed to those areas that fall under government policy, menstruation management and the provision of critical services to those in need to be brought to the attention of the policy makers. An evaluation of education policies in Uganda shows that there is no effort made to direct resources towards this problem that is denying hundreds of children an opportunity to access education. Policy makers, development practitioners, civil society actors, rights holders and all duty bearers have a big role to play in bringing to the decision table, the issue of menstruation management. Until policy makers turn the emotional appeal and sympathy towards the girl child into policies and actionable matters, many girls will continue to miss out on accessing Education. This will affect the capacity of the future generations to secure livelihoods. Policies will go along way in increasing attendance and improving learning outcomes for learners in all societies where this is a problem.

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Session 24: ICT Education

Effectiveness of Multimedia Tutorials in Distance Education
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A Study on Communication and Passion Capabilities with Course Activities App in i-HO Cloud
(Authors: Ching-Jung Liao, Ching-Yieh Lee, Ming-Yi Cho)

Maximizing Technology Leadership Strategies in Early Childhood Settings
(Author: Christina C. W. Han)

Is E-Learning a Menace for T-Learning – An Analytical Report
(Authors: A. Senthil Karthick Kumar, A. M .J. Md. Zubair Rahman)

Effectiveness of Multimedia Tutorials in Distance Education

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Abstract

The researcher conducted the study in Allama Iqbal Open University Islamabad, Pakistan to learn the effect of multimedia tutorial on learning in distance education programs. One hundred and twenty graduate students were selected as a sample for the research. The researcher divided the sample into two groups, experimental group and control group. Students of both groups used conventional printed learning material of the university during their study. However the experimental group, along with print material, watched multimedia tutorial of educational psychology (edpsych840). Results showed that students in the experimental group performed better than the students in the control group. The researcher found that multimedia tutorial increased learning. The study recommended that multimedia tutorial techniques may replace face-to-face tutorial (tutorial meeting between distance learners and teachers) in distance education programs.

1. Introduction

Interactive multimedia learning is a new paradigm of learning. Multi-media tutorials deliver instructions to learners in a combination of various forms like, text, audio, video, animations and simulations. Multimedia describe a computer based instruction which includes text, audio, moving pictures, and still pictures. According to Tannenbaum [15] "Multimedia is defined as an interactive, computer mediated presentation that includes at least two of these elements Text, sound, still graphics images, motion graphics images and animation." These tutorials consist of a user-friendly interface which provides control of navigation to learners [19]. Kruse and Kiel [7] has defined multimedia slightly different from that of Tannenbaum. They defined multimedia as CD-ROM. They say "CD-ROMs provide a more engaging learning experience with text, audio, video, and animations all used to convey information.....the set of multiple media means that learning is optimized."

What is the role of multimedia tutorial in education and especially in distance education? Is its role effective? Before moving forward let's find

answers to these questions. Multimedia tutorials have many advantages. While learning through multimedia students actively interact with learning material. It enables students to learn at their own pace. Individualized instructions and presentation of multiple real time simulations are the main features of these tutorials [10].

Many researchers have role and effectiveness of multimedia tutorials in learning. Asan in Karadeniz Technical University, in Turkey in 2000-2001 conducted a research to compare two methods of instructions, multimedia and lecture. The findings of the research showed that average score in multimedia group was higher. They were better than the lecture group in depth of understanding, accuracy, rich supporting detail, organization, scope, and reflection [1].

Every Learning theory dictates some new changes in teaching/learning styles, situations, media, and methods. Developmental psychologists argue that significant learning occurs only in purposeful context and through active learning. Such type of learning is called situated learning. It is creation of an environment where students are actively participating in the exploration and analysis. Multimedia tutorial provide such environment where situated learning takes place [1].

Multimedia based instructions, like other teaching learning methods need support of a theory. Cognitive theory of multimedia learning supports and explains multimedia learning. According to this theory human information system consists of two separate channels, auditory channel and visual channel. Auditory channel is for the processing of auditory input and verbal representations. Visual channel is for the processing of visual input and pictorial representations. The theory further explains that the meaningful learning occurs after a cognitive process in auditory and visual channels. The cognitive process includes paying attention to the presented material, organizing the presented material into a coherent structure, and integrating the presented material with existing knowledge [8]. Figure 1 is the pictorial representation of this theory.

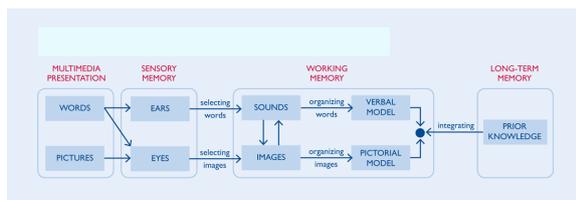


Figure 1: Depiction of cognitive theory of multimedia learning [8].

After discussing the multimedia tutorial and its supporting learning theory now let's discuss role of multimedia tutorial in distance education. Multimedia tutorial enhances effectiveness of distance education. It has the ability to be delivered to the distance students over a CD-ROM or a DVD, or through internet.

The term distance education indicates that there is a distance between learner and teacher. In distance education a significant proportion of the teaching is conducted by someone removed in space and/or time from the learner (UNESCO - March 2002). Distance education is a deliberate process and it consists of all types of formal instruction that are conducted when teachers and learners are not located at the same place (Gilbert, 1995). Unlike learner of formal education distance learners use some means to overcome the distance between them and distant teacher.

The face-to-face meetings are used to overcome many of the flaws of print material. It provides a two-way real time interaction. But increase in face-to-face tutorial meetings may decrease the benefits of distance education. It also violates the principle of flexibility of distance education. According to Randy (2000) focus in the study of distance education has shifted to emerging communication technology,

The computer mediated instruction is emerging as new way to add interactivity to the distance education. A lot of text as well as audio and video data can be stored on a CD-ROM. Students may use it in learning anywhere, any time (Jonassen, 2000). The multimedia software available on CD-ROM plays a powerful role in labs, lectures, tutorial, and project works (Natarajan, 2005).

In this digital era teaching learning activities are now not limited to a class room. Technology has changed the lives of people of this generation. The people of this generation have access to computers, video games, digital music players, video cams, cell phones, and all the other toys and tools of this digital age. This technology rich culture has influenced the skills and interests of the people of the digital age. The students of this age most of the time use communication technologies for accessing information and for interacting with others (Benett, Maton and Kervin, 2008).

Desktop computers, laptops and other digital devices have changed today's learning style.

Personal computers, laptops, cell phones, and other digital devices could be networked together. They are getting cheaper and are becoming smaller and more portable [3].

Use of computer and internet in education is very common. The use of this technology has created many new terms like e-learning, online learning, Ubiquitous learning etc. Now it is possible to deliver multimedia tutorial to a large number of students through systems distance learning [4]. ICT could be used to access a large amount of resources.

The role of multimedia in education has been investigated by individual researchers as well as by organizations. According to a report of UNESCO [17] "A variety of computer-based technologies have been used including the distribution of sample lesson plans on CD-ROMS, setting up exchanges by computer conference between teachers' colleges, encouraging the interactive use of computer-based learning materials, encouraging the use of web-based materials, and using computer conferencing to encourage discussion among learners".

Multimedia based instruction provides high-interest drill and practice programs to support learning, especially for students requiring skill remediation. Student's evaluation shows that the new media of conferencing, e-mail, Web sites and electronic resources via library databases and internet are helpful in effective learning. Many surveys of different courses show that OU (Open University) students in different faculties use these media in their courses, like these [16].

1. Science courses have always made good use of software supplied on CD and now DVDs, and over 40 per cent of their students rated such materials very helpful.
2. Science students, however, gave very low helpfulness ratings to audio CD.
3. Sixty per cent (60%) of language students rated audio CD very helpful.
4. Forty per cent (40%) in health and social care, arts and education rated audio CD very helpful [16].

Multimedia based instruction provides significant opportunities to improve the quality of teaching profoundly and cost effectively. There is 50% increase in the retention, a significant improvement in the learning rate, an increase in course completion, and a decrease in the overall cost of education [6].

Multimedia based education requires transformation of paper based contents to digital format. This new paradigm provides new learning environment. The conventional paper based contents may not fit to this environment. In the development of multimedia tutorial efforts are made to design and develop such contents for the new learning environment. For this paradigm shift transformation of education, especially distance education is necessary.

The distance educational institutions (open universities) prepare interactive multimedia programs to overcome the shortcomings of the print material. Bork [2] suggested that natural way, to deliver multimedia tutorial, is through distance education. The tutorial can be used by distance learner anywhere and at any time. These tutorials motivate learners which is important for successful distance teaching. In CD ROM a distant teacher can pack all the learning material (text, graphs, sound, videos, models and pictures), he wants to present learners for learning.

In Allama Iqbal Open University case, the usual method of instruction is print material which is sent to the learners through mail. Learning is also supported by TV/Radio programs and face to face meetings. Besides these methods, OLIVE (Open Learning Institute of Virtual Education) has been established since 2001. It has three models for delivery of instructions. In model A online assignment submission/checking, online special/guest lecture, and multimedia course streaming are provided. The second delivery model (model B) focuses on the students who have access to the internet. Internet based live sessions with teacher through OLIVE LMS is the main feature of this model. While in model C students are provided self-learning multimedia courseware and reference material on CDs. Students may study material at home. Moreover model B and model C can be combined to make a hybrid model for instruction delivery [13].

The tutorial used in this study was developed for educational technology 840 offered by Allama Iqbal Open University Islamabad, Pakistan to MA (education)/M.Ed. students. The Study Guide 840 second edition is supported by the printed Allied Material. Both the study guide + Allied are mailed to the students for study of educational psychology. Study Guide consists of nine units. The Nature of Educational Psychology, Growth and Development During Childhood and Adolescence-I, Growth and Development During Childhood and Adolescence-II, Personality, Human Needs, Learning, Motivation, Intelligence, Psychological testing

The book has some shortcomings which are.

1. No image or diagram is used in the guide to support learning.
2. It has no support of audio video electronic program.
3. The Allied Material provided is lengthy and difficult.

To overcome these short comings an interactive multimedia tutorial was developed. The tutorial consists of five units. Figure 2 shows the five units and sub menu of the first unit.

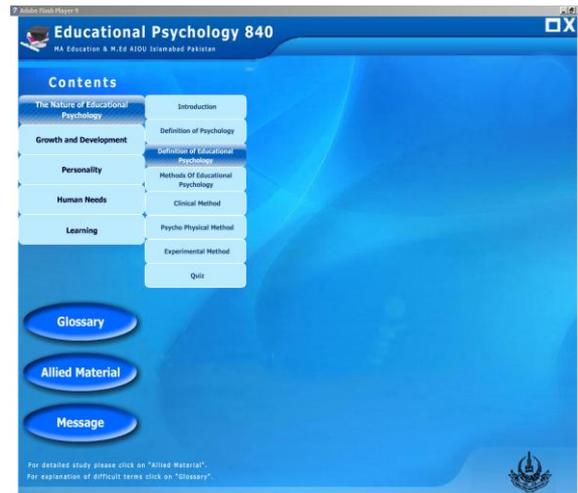


Figure 2. Menu and sub menu of the tutorial developed for educational psychology (840)

The following are details of the 5 units and topics included in each unit.

Unit 1 the Nature of Educational Psychology

1. Introduction
2. Definition of psychology
3. Definition of educational psychology
4. Methods of educational psychology (scientific method)
5. Clinical method
6. Psychophysical method
7. Experimental method
8. Quiz

Unit 2 Growth and Development

1. Introduction
2. Nature of growth and development
3. Development and education
4. Mental growth and development
5. Language development
6. Physical growth and motor development
7. Social development
8. Moral development
9. Adolescence and development
10. Emotional development
11. Quiz

Unit 3 Personality

1. Introduction
2. Nature of personality
3. Theories of personality (Jung's theory of personality)
4. Trait theory of personality
5. Eysenck's theory of personality
6. Psycho analytical theory of Freud
7. Humanistic theory of personality
8. Stages of personality
9. Intelligence
10. Evaluation of intelligence definitions

11. Intelligent behavior
12. Theories of intelligence
13. Quiz

Unit 4 Human Needs

1. Introduction
2. Concept of needs
3. Physical needs
4. Psychosocial needs part I
5. Psychosocial needs part II
6. Interest
7. Motivations
8. Types of motives
9. Types of motivations
10. Quiz

Unit 5 Learning

1. Introduction
2. What is learning?
3. Learning theories (trial and error theory)
4. Theory of behavior
5. Gestalt theory of learning
6. Lewin's field theory
7. Tolman's theory of learning
8. Bruner's model of concept learning
9. Piaget Model of concept learning
10. Gagne conditions of learning
11. Quiz

First topic of each unit is 'introduction', which contains introduction to the unit and learning objectives of the unit. Each unit have quiz at end. The quiz provides 10 multiple choice questions. The tutorial contains 5 units while the study guide for educational psychology 840 consists of 9 units. Important topics from the remaining 4 unit were included in the 5 units, while some of the topics remained untouched due to shortage of time.

OBJECTIVES OF THE STUDY

- 1 To assess effectiveness of multimedia tutorial in learning.
- 2 To explore the role of multimedia tutorial in distance education.

RESEARCH DESIGN

This study has used a post-test only control group design. Two groups (control group and experimental group) were formed. For an experimental study 30 numbers of subjects in each group is considered enough. However, in distance education usually the dropout rate is high and also by increasing size of a sample generalizability of a research can be increased. Therefore each group was assigned 60 students. A random sample of 140 students was taken from a population of 401 students. Control group was assigned 60 students randomly, while experimental group was assigned 80

students randomly. The assignment of 20 extra students to the experimental group was to ensure that all the members of experimental group have access to personal computers, and have watched the tutorial CD completely. At the time of delivery of tutorial CDs 12 students refused to take CD because they were having no access to a computer. At the end of semester when a questionnaire survey about the components of the tutorial was conducted, the researcher realized that 6 students did not studied the tutorial sufficiently. Two more students were dropped from the experimental group to equalise both the groups. At the end each group was having 60 students.

Post-test only research design was used for this study for some reasons. First unlike formal system students in distance education study the learning material individually usually at home. Second it was difficult to arrange pre-test for the scattered students of experimental and control group. Third the research was related to the field of distance education and it was essential to maintain distance education environment throughout the research. In these circumstances the post-test only was more appropriate design to be used. The terminal examination conducted by the university at the end of the semester was considered the post test for this experimental research.

2. Research variables

A description of research variables is presented as follows.

i. Independent variable

Independent variable was multimedia tutorial given to the experimental group.

ii. Dependent variables

The dependent variable was the achievement of grades of students in the terminal examination of AIOU.

iii. Control variables

Following variables were held constant for the duration of the experiment

- a. Length of the lesson
- b. Size of the group
- c. Content and sequence of content
- d. Print material (study guides) provided by AIOU

iv. Uncontrolled variables

These were variables that were not manipulated by the researcher. In this research, uncontrolled variables were:

- a. Age of students
- b. Social status of the students
- c. IQ of students
- d. Study habits of students
- e. Previous achievements of students
- f. Pace of the study of the students
- g. Place and time of the study of the students.

3. Research instruments

As the study was to measure the effects of the tutorial on the achievement of grades so the students' marks achieved in the terminal examination were taken as experimental data. The examination department of AIOU reports results of examination in detail. It includes assignment marks, examination marks, conflated marks, and grade for each subject for which a student has appeared in the examination. Grades (A, B, C, D) are decided according to conflated marks which include both the assignment marks and examination marks. As the assignments are done by the students at their homes and are less reliable, therefore I decided to take examination marks for analysis. T-test was used to test the null hypothesis.

4. Data analysis

It was an experimental research in which difference between two methods of instruction was studied. As $n=60$ $n > 30$ (n is the size of experimental or control group) therefore for testing of hypothesis t-test was used.

It has been stated in the proceeding section that the final examination held by the university was used as base. Therefore grades in the examination were used as data which were collected from the controller of examinations AIOU and analyzed using Student's t- distribution.

Score tables were used for analysis. Mean (defined as sum of all observations divided by the number of observations symbolically $\sum X_i/n$), Variance (defined as the average of the squared deviations from the mean, symbolically $\sigma^2 = \sum (x_i - \bar{x})^2/n$), Standard Deviation (positive square root of the variance, symbolically $\sigma = \text{SQRT}(\sum (x_i - \bar{x})^2/n)$), and t-test were calculated for both control group and experimental group on marks achieved in the terminal examination. The generally accepted 0.05 significance level was chosen for this study.

Table1: Performance of experimental and control group

Group	Mean	t value at 0.05
Experimental Group	56	6.2 df (118)
Control Group	49	

Table 1 indicated that there was a significant difference in the mean score of experimental and control group. Further the experimental group performed better than control group.

5. Conclusion and recommendations

Computer based instruction (multimedia tutorial) techniques are more helpful than face to face tutorial. Performance of the students in the experimental group was better than the control group.

The study recommended that the tutorial should be used as a supplement to the printed material in distance education. Multimedia tutorial techniques may be used along with face to face tutorial.

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A Study on Communication and Passion Capabilities with Course Activities App in i-HO Cloud

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Abstract

In this study, the i-HO activities Apps are designed for students' participation during their spare time and wish to improve the core capabilities which are necessary at workplace by means of e-Learning. e-Learning have been changed the traditional way of teaching and learning, but the general learning management systems are usually designed for some specific disciplines with little opportunities for more integrative and cross-disciplinary learning exposures. Therefore, this study intends to design an App "GoGo-hand 2.0" related to communication and passion through the holistic learning environment "i-HO" in a cloud, which tries to improve students' communication and passion capacities in a lively and interesting way. This study designs an course activities App related to interpersonal relationships through the holistic learning environment "i-HO", which tries to improve students' communication and passion capacities in a lively and interesting way, hoping to help students in the future career development smoothly. We design eight units to enhance communication and passion core capabilities by taking one activity per week. In the measurement, we develop our own survey. Experimental design participants surveying a one-group pretest-posttest design, after eight unit's activities, the data in three different ways to explore. First of all, for different background variables (e.g.: gender, grade, college, whether to attend relevant courses, etc.) to explore what impacts on participants by i-HO activities App, followed by paired-samples t-test to see students grow core capabilities in various dimensions. Finally, we will pre-test and score of post-test participants, which are divided into high, medium, and low score groups for statistical analysis, to understand the participants after eight unit's activities, whether the communication and passion capacities improved or not. Experimental results show the significant influence in 6 dimensions which are presentation and listening, empathy and response, social relationship and interaction, harmonious passion, obsessive passion, and i-significant of "GoGo-hand 2.0" App on female of the 148 participants. The senior has much more effect than the junior. Students of Law school have more great effect than students of design department, and there are little difference among others colleges, in other words, it hasn't significant influence in colleges. In 6 dimensions, there is significant distinctness for pretest and posttest exam; the low-group and middle group of participant move to the higher group which indicates "GoGo-hand 2.0" App could improve communication and passion capabilities and achieve the significant effect.

Maximizing Technology Leadership Strategies in Early Childhood Settings

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Abstract

Effectively use of technologies in early childhood centres has influential impact on learning and teaching. Leaders of early childhood centres have crucial roles to promote the use of technologies. In Hong Kong, with millions of dollars subsidies from the SAR government to early childhood centres for improving early childhood quality under the Voucher scheme since 2007. Many more early childhood leaders equip their centres with different kinds of technologies. However, the usage rate of technologies in early childhood classrooms is relatively low compare with other teaching and learning facilities. In this study, I aim to investigate the leadership strategies applied by leaders to promote technology use in early childhood centres. Case study was used to investigate the leadership strategies, in-depth interview were conducted with principal and teachers in a well resourced kindergarten in Hong Kong. Thematic analysis was applied to draw the findings. Major findings on leadership strategies include: providing authentic support, encouraging active trial, and leading practical practice.

1. Introduction

Using technologies for learning is getting common in early childhood centers nowadays. Many early childhood centers are equipped with laptop computers, smart books, tablets and electronic toys. Some resourceful centers have digital whiteboards for teaching and learning uses as well. However, to equip the centers with all digital technologies does not mean the technology facilities have been applied effectively in classrooms. Leaders play an influential roles to lead innovation and technological change in schools [1], [5], [10]. In Hong Kong, with millions of dollars subsidies from the SAR government to early childhood organizations for improving early childhood quality under the Voucher scheme since 2007 (HKSAR Policy Address, 2006). Many early childhood leaders purchased digital learning technologies but the usage rate of technologies are

relatively low compare with other teaching and learning facilities. In addition, many early childhood leaders complains that they lack the technical skills in using computer and the leadership strategies to promote effective use of technologies for learning. In this study, I aim to investigate the leadership strategies used by a leader who works in a well resourced early childhood center and won an outstanding school award.

2. Leadership and technologies

Unquestionably, technology plays a crucial role in impacting teaching practices and children's learning within and outside schools [3]. To introduce technologies in early childhood settings, school leaders need to be equipped for it. Recent research indicates that school leaders who want to enhance technologies use in schools need to instruct teachers on particular skills for learning about technologies and lead staff through appropriate daily practice [8], [11]. Leaders are also expected to provide access to technologies resources and support teachers for technologies use. In addition, school leaders are expected to collaborate with teachers in the development of learning materials for classroom usage [12]. Therefore, school leaders are playing important roles in promoting technologies use in education settings. Research also stresses that leadership by school leaders is essential for effective technologies integration [1], [2].

Furthermore, according to Schmeltzer [11], effective school leaders need to be capable not only in basic technologies competencies such as word processing, email, and internet search, but also in understanding how technologies can improve instructional practices, and in developing strategies for helping teachers use technologies in their classrooms. In addition, strong team-building and mentoring skills are required to create a system of on-going support for the whole school as it applies technologies.

Consistent with Schmeltzer [11], [1] stress that school technologies leaders not only need to be competent in technologies use themselves, but also need to pay crucial attention in setting up technology

team and policy, and providing support to teachers for effective technology implementation.

The International Society for Technology in Education (ISTE) in the United States reviewed the National Education technology Standards for Administrators (NETS*A) in 2009. It outlines the essential technology requirements and issues for school administrators in United States as follows:

- Visionary leadership: inspire and facilitate among all stakeholders, implement technology-infused strategic plans aligned with a shared vision, and advocate policies, programmes and funding
- Digital-Age learning culture: promote the effective use of technology for learning and ensure instructional innovation
- Excellence in professional practice: allocate time, resources and on-going professional growth in technology
- System improvement: lead purposeful change, recruit operational personnel, support system improvement and establish infrastructure for technology
- Digital citizenship: ensure equitable access, establish policies, model responsible social interactions and be involved in global issues (ISTE, 2009)

The NETS*A provides essential elements for school leaders as a guideline; it also helps them to be aware of vital issues when they use technologies in education settings.

3. Research methods

A qualitative approach was adopted in this study. An outstanding early childhood center was identified according to its rich learning resources in both digital technologies and non digital learning materials. In addition to the rich digital resources, this center is also awarded excellence in school performance among all the early childhood centers in the same educational organization.

In-depth interview with the center leader and teachers was conducted with semi-structured interview questions. Observations in classroom activities were conducted by using both in-class visits and video recording. Document review collected information of using technologies from both paper and web documents. Thematic data analysis was applied to categorize the leadership strategies of using technologies in early childhood setting.

4. Findings and Discussion

Leader makes difference and has great influence in promoting technologies use in educational settings, especially with innovative change.

According to information collected from the center leader, teachers and document analysis in this case, three major leadership strategies were summarized as key ones: providing authentic support, encouraging active trial, and leading practical practice.

Providing authentic support. The center leader provides the necessary support for teachers according to their needs. There are several channels for teachers to indicate and express their individual needs and expectation to top management. For example, use of digital applications - Whatsapp, Facetime, Skype; open door policy; monthly meetings; anonymous letter box; annual questionnaire etc. Teachers are welcomed to express their views on technology use and state their needs to the center leader. This shows the openness of the leader and willingness to communicate. Therefore, the center leader has good opportunity to understand individual needs of her staff, and she can plan to accommodate teachers' authentic needs in order to improve and support teachers use of technologies.

In addition to be a good listener, the center leader also support teachers with time and money to consolidate their use of technologies. Teachers are encouraged to learn higher levels of computer skills by attending different technology workshops. All tuition fee are paid by the early childhood center as long as teachers successfully complete the whole course with certificate awarded. Teachers also get time off on Saturday mornings to prepare the digital learning and teaching materials. There are teaching and learning materials design competition every year, the center leader selects the top ten learning materials used by teachers during the year, five awards for digital materials and five for non-digital materials. Teachers appreciated the idea of competition, they indicated that the annual award motivate their innovative thoughts when they design their teaching materials.

Technical support is also one of the strengths in this center. The leader hires two staff with advance technical skills in order to support teachers with using technologies. These two special teachers also provide regular on-site technology training for other staff. Many teachers indicate that "*these two technology supporting colleagues are the stimuli for them to use technologies. Whenever they need help, they can seek assistance from these technical staff, they are very helpful*".

Since there are sufficient supports for teachers to use technologies in this center, teachers are willing to use technologies with young children in various learning activities. Some examples are as follows: teachers organized field trip with children in the Wetland Park, children can use tablets to take photos for further sharing (Figure 1), children are encouraged to draw what they have visited in the field trip (Figure 2), a pair of children learn with

computer in a learning corner in the center (Figure 3).

Encouraging active trial. The center head believes that to learn technologies by doing it is the best method. She emphasizes that "*without taking risk of making mistakes, teachers may not want to try new technologies. As there are many new models and updated versions of technologies, teachers need to keep learning and try new machines, if not, there is no use for children's learning because teachers scare to try out*". The center leader not only purchased new learning technologies (i.e., smart books, tablets) (Figure 2) but also encourage teachers to bring home and try out. She provided a brief workshop for all teachers whenever there are new technologies were allocated in the early childhood center. She made sure all teachers have chance to learn how to use new technologies and get trail out experience. In addition to bring the device home for trial, the center leader also encourage teachers to try on different digital applications (Apps) or young children websites. The center leader said: "*Teachers are funded with HK\$300 for purchasing suitable Apps, they can install appropriate Apps for teaching and learning purposes*". In this way, teachers are encouraged and motivated to apply technologies in their classrooms.

Leading practical practices. The center leader acts as a modeler in using technologies to communicate with parents. Whenever there are important center notices for parents, the center leader uploads to school web and set up a forum for parents to seek assistance. The center leader arranged staff to upload school activities photos onto the school web regularly, she said that: "*Parents love to view the photos of their own kids, they are interesting to know more about their kids in school, with the consent of parents, there are regularly upload of school activities pictures on our school web page. I am sure this can encourage both my colleagues and parents to use the school web more frequently*". Since the center leader leads the practice, all teachers follow her role model. Furthermore, the center leader always purchase the new software and machines, she is the one willing to try new technologies, and share with her staff on what she discovered or learnt. Her own practice does influence other colleagues in certain ways.

5. Conclusion

These three leadership strategies motivate teachers to apply more technologies in their classrooms with young children. The center leader play an important role to make the technologies use successful in her early childhood center - give suitable support to teachers according to their needs, let teachers to do the try out instead of just watching, be a role model to teachers and do the hand on practices.

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7. Figures



Figure 1. School visit in the Wetland Park. Children used Tablet to take the photos.



Figure 2. Children draw and share what they like during their field trip



Figure 3. Children pair up and use computer in learning corner

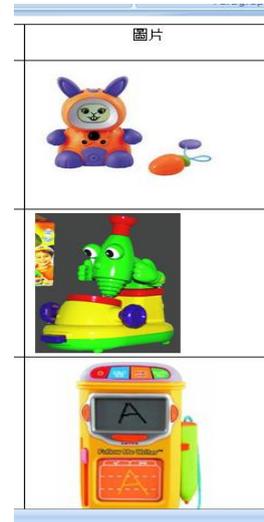


Figure 4. Some examples of the digital resources in this center.

Is E-Learning a Menace for T-Learning – An Analytical Report

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Abstract

Globalization, the keyword of Indian Economy, since the introduction of LPG in 1991, has taken its form in several industries. In the recent past, even the Educational Industry has seen a tremendous change in the system on the whole. The technological advancements and innovations have created an entirely new system. Yes, the learning system has changed from the Traditional Learning (T-Learning) system to Electronic Learning (E-Learning) system. In this article the researcher would like to discuss on the effectiveness of the students learning system, with a comparative study on the learning methods i.e. E-Learning and T-Learning. This study has been carried out on the basis of student's preference. A structured questionnaire has been circulated to collect data from 150 students, who pursue post graduate programs from 15 Colleges. Out of which 132 questionnaires were received back. From the study the pedagogy will be framed to improve the efficiency of the most preferred system which intern will change the entire learning practices of the young and future generations.

1. Introduction

It's imperative that Educational system is surviving for decades, and still, there is no diminishing factor on any ground in this system has occurred so far. The teaching methodology and mode has been changed and updated, taken twists and turns to inculcate various practices to improve the learner's abilities. In this paper the researcher have focused more on the mining of data in educational sector, where a number of thoughts and perception has been made to make this industry to survive and grow in a massive way. The word illiteracy needs to be removed from the global context. In such a forum, does the CRM (Class Room Management) really focuses on the students or learners community? Where and what kind of desired things the learners are looking for? Need to be indentifying in the perspective of E-Learning system. How can this help

the educational society to consider and project the required and desired needs of learner's? When comparative analysis is done on Traditional learning & E-learning, most likely all will be in favour of electronic learning system as there are a lot of advantages when compared to T-Learning. But the fact as per general public opinion is instructor credential can be enhanced by using technologies but the credit is always based on the factor of transferring the expert knowledge one-on-one in the class room. When comparing learning an identical course in traditional framework to a computer mediated learning framework, students have expressed higher satisfaction from the computer mediated learning, and rated the learning as more effective than in the traditional framework. In other studies too, it was argued that computer mediated or online learning is more effective and interactive [1]. Assessing and measuring the efficiency and effectiveness of teaching performance is an ongoing process, so it is a crucial issue in higher education. Assessing performance helps faculty members think about what results and skills that they want their students to acquire. It also validates expectations of learning outcomes and maps such outcomes with institution's vision, mission, and objectives. Moreover assessment supports continence communication, feedback and dialogue about performance teaching [2]. The form of traditional learning system is so far factorizing the community. Traditional learning mainly focuses on the following criteria: Expert Knowledge, Communication, Knowledge Sharing, Individual Student Concentration (ISC) and so on. On the other side, the heavy competitiveness required in the student's community on the basis of communication spreading, which creates an awareness of social media and social networks e.g. face book, Twitter, Linked in. when we analysis the statistical report of these sites which the researcher mentioned above has grown in tremendous way due to the knowledge sharing. E-learning systems are becoming technologically sophisticated and, complicated with regard to training management or course management. Their use doesn't match with

traditional modes of teaching and learning and much care needs to be taken when considering the use of E-learning in educational institutions [3]. These findings are in accordance with Beebe, Vonderwell and Boboc's [4], who state that the instructor's role in e-learning requires rethinking and reconstructing of assessment practices [4]. Feldman believes that instruments of assessing teaching should be multidimensional because teaching and instruction in higher education consist of various components [5]. Designing multidimensional and comprehensive instruments for assessing teaching provides valuable feedback to instructors about their teaching quality. Moreover, it is crucial for faculty members to understand how to use such feedback, so as to address their students concerns and needs (Pan et. al.2009).

2. The Study

The current study addresses the four major research questions: A) Perspectives of T-Learning in accordance to the scenario of Post graduate students in Coimbatore, India (specific region oriented). B) The perspective and awareness beheld with post graduate learners society regarding E-Learning, how it can be explored and utilized. C) So far in which way they have practiced the learning system and got benefited. D) How they assess the instructor in both models. In this study we tried to figure out the impact of the instructor's ability and efficiency inside the class rooms and if the instructor performance is not satisfactory, special attention like (Faculty Development Programs, Quality Improvement Programs) are provided to them internally to improve it. The questionnaire was adopted from many instruments that examine the student's attitudes, perceptions and perspectives, as Al-Karin et al. [6], Hussein [7] constructs validity and content validity of the questionnaire was ensured [6] [7]. The classical teaching main element is the lecture in which the teacher explains, gives examples, shows calculations, etc. The accent was put on the oral communication, which was supported by on-line hand written messages using the blackboard and chalk [8]. There are also different roles for the learners in education system like [9];

1. Learner as a searching force of information, leader and evaluator
2. Learner as a thinker, critic, analyzer and selector of information and suitable technology
3. Learner as a knowledge producer by the use of new resources and technologies
4. Learner as a messenger by the use of new resources and technologies
5. Learner as an educational technologist
6. Learner as a responsible citizen in technology age

The goal of the online component of the course consideration in this study, was to extend the boundaries of the classroom in order to increase participation, improve the quality, enhance the interaction with and between students and instructor, and address student's needs more accurately [10] However, concerning the future of e-learning, participants view a future tendency towards the provision of full online degrees, yet, they are skeptical; stating that e-learning setting will not completely replace the traditional educational setting [11]. The main issues being focused on are related to learning and its transferability, and tied to the need for stronger interaction between research and didactics [12] [13] Based on the measures given by Bidarian 2011, research has been classified and observation were made on researchers and learners learning system. All these collection of data from the respondents has incorporated into our research work for doing a better service in our educational sector in means of perspective of our learner's society.

2.1 Perspectives of T-Learning in accordance to the scenario of Post graduate students in Coimbatore, India (specific region oriented)

The main advantage in T-Learning is that student's attitude and their behavioral mode can be assessed by the instructors very easily. In that context the instructor can handle the students in such a way that, they can cooperate with the system at ease. This is supported by Tuncay et.al, that "Now a day, education environments have two forms. These are traditional and virtual education environments. In both environments, one of the important problems is habit analysis and evaluation. In traditional education system, habit analysis is done easily through observation techniques, whereas in virtual one analyzing students attitudes and habits is a significant problem [14]."

2.2 The perspective and awareness beheld with post graduate learners society regarding E-Learning, how it can be explored and utilized

E-Learning, though a term spread across the world long back, reached the targeted region? A study has been conducted to understand the awareness level in the perspective of various factors influences and controls. The results are discussed in the analysis. As per the previous study conducted by Senthil Karthick kumar, Zubair Rahman and Moses Daniel [15] yes, due to the knowledge transactions, independency and self learning of the learners will tend to explore their information which they receive from the learning system. This is because the most

principle of teaching / learning process is finding some scientific skills, self guidance, cooperative learning, providing of active and transaction learning process, involvement in learning process, partnership in knowledge production and project-based educational activities [16-17]. Learning style is one of the commonly studied individual properties. There are many learning style approaches over various dimensions in literature [18-19]

2.3 So far in which way they have practiced the learning system and got benefited.

Coimbatore the other way called as textile city as become an educational hub, flooded with more than 120 colleges and around 174 schools is known place for traditional learning system. The students were spread across the whole world who were benefited much from the traditional learning environment. With the recent trend with increasing population requires much more facilities and paved the way for the entry of E-Learning system. Now it is high time to know how these population are utilizing and exploring the changes in the learning system.

2.4 How they assess the instructor in both models.

Learning happens well in both Traditional and Electronic learning systems the effectiveness lies with the learner? Or it involves the instructor also? Yes, the instructor plays an important role in disseminating and motivating the students, but quality of the instructor is assessed through the performance of the learners. The results were discussed in the analysis.

3. Observation and Analysis

Table 3.1: Table showing Face to face recognition of learners

Factors	T-Learning Applicability	E-Learning Applicability
Face to Face Recognition of learners	Yes	Partially Applicable

As per Table 3.1, in T-Learning observation can be done with learner's whether they are in a position to learn the things or not can be measured. In E-Learning Time factor is fixed and that much time factor can't be measured on facial expression. As per the analysis it reveals that 69.7% of the respondents agree that the face to face recognition is possible in T-Learning

Table 3.2: Table showing Expert Knowledge

Expert Knowledge	Yes	Yes
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As per Table 3.2, comparatively expert knowledge can be judged by learners community very precisely depend on the explanation, but in E-Learning it's not possible for hot and sour soup distribution. It is highly evident from the analysis that 78.1% agree that expert knowledge transfer is complete with T-Learning system.

Table 3.3: Table showing Communication

Communicative	Yes	Yes
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As per Table 3.3, oral communication is the main instrument of the instructor where one to one communications plays an important role which is agreed by 85.6% of the respondents.

Table 3.4: Table showing Knowledge Sharing

Knowledge sharing	Yes	Yes
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As per Table 3.4, In Both ways knowledge can be transformed but the point of fact is T-Learning will be ahead of the E-Learning System due to the thought sharing process because of Live discussions. And it is supported by 58.3% respondents.

Table 3.5: Table showing Individual Student Concentration

Individual student concentration	Yes	NA
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As per Table 3.5, this factor is very much important for our global educational sustainability, since a number of technologists can be produced successfully. As per the study 70.4% of the respondents supported this concept.

Table 3.6: Table showing Revision of Knowledge Progress

Revision of knowledge progress	Yes	NA
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As per Table 3.6, from the analysis it is found that 77.2% of the respondents agree that in a Classroom teaching environment revision of knowledge progress can be measured with queries to the learner's and estimate the power of grasping of learner.

Table 3.7: Table showing Information Access

Information access	Yes	Yes
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As per Table 3.7, 75% of the respondents agreed that E-Learning as the better system for information access as it is anytime, anywhere,

where as T-Learning can provide information from only a single source, the instructor.

Table 3.8: Table showing Mode of Notes

Mode of notes	Yes	Yes
As per Table 3.8, in general, notes given by the instructor comes along with explanations and comparative study. But, as per the study in contradictory, 70% of the respondents suggests that E-Learning as the better mode of notes through various formats like PDF, Videos and etc.		

Table 3.9: Table showing Class Room Variety

Class room variety	Yes	NA
As per Table 3.9, from the analysis 76.4% of the respondents agree that instructors in the class room can disseminate the knowledge with modulations that makes the learners understand the concepts in a better manner, where as in E-Learning it is not possible.		

Table 3.10: Table showing Assignment

Assignment	Yes	Partially applicable
As per Table 3.10, T-Learning environment is very strict with assessment process, communicative of such information will be spread inside the class room, and creates a critical environment. It is evidently seen from the study that 74.2% of the respondents state that in E-Learning the learners have the liberty to do the assignments with reference to the related information's from the net.		

Table 3.11: Table showing Cooperation

Cooperation	Yes	NA
As per Table 3.11, it is highly evident that with 81.1% of respondents saying group effort between the learners through sharing of knowledge is possible in the class room. The instructor can also provide justifications through discussions.		

Table 3.12: Table showing Practical and Imaginary Segment

Practical and imaginary segment	Yes	Partially acceptable
As per Table 3.12, from the study it is found that 64.2% of the respondents agree that the practical learning and using of instrumental procedures in real time takes place only in T-Learning where as in E-Learning it is preloaded with limited practical exposure.		

Table 3.13: Table showing Activity Based Learning System

Activity based learning system	Yes	NA
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As Per Table 3.13, activity based learning system plays an important role in understanding the concepts in the recent trend of the learning methods either physical or psychological. It is found that almost equal weight age 72.2% for T-Learning and 69.3% for E-Learning has been given by the respondents.

Table 3.14: Table showing Involvement Learners Measurable

Involvement of learners measurable	Yes	NA
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As per Table 3.14, from the study it reveals that 73.4% of the respondents agree that attention and involvement of the learners can be observed and measured only in T-Learning. Where as in E-Learning only through video conferencing it is possible with the limitation that it cannot be controlled.

Table 3.15: Table showing Learners Analysis along with Projection and Exploration

Learners analysis along with projection and exploration	data Yes	Yes
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As per Table 3.16, learner's data analysis, projection and exploration of concepts can be addressed and discussed to motivate the learners in front of the group by the instructor is highly possible only in the T-Learning. In the study it is supported by 73.9% of the respondents. In E-Learning the competency among the learners is very little.

Table 3.16: Table showing Survival for Fittest

Survival for the fittest	Yes	NA
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As per Table 3.16, from the study it is found that 73.5% of the respondents state that E-Learning is the better system to achieve the final objective of job oriented practices in the globalized employment arena. In T-Learning after 8 hrs of class room learning it may not be possible for job oriented practices but time management, discipline and cultural values can be addressed only in T-Learning.

Table 3.17: Table showing Experiential Learning

Experiential learning	Yes	NA
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As per Table 3.17, 64.4% of the respondents agree

that the knowledge gained through experience makes the learners to understand the concepts and improves the confidents of the learners which help them to face the real world challenges.

Table 3.18: Table showing Multiculturalism

Multiculturalism	Yes	NA
As per Table 3.18, though cultural transformation takes place effectively in class room situation, with the usage of modern technology, the distance does not make any difference. Hence it is proved with 60.6% respondents saying multiculturalism is more effective in E-Learning environment, where the small box brings the globe in to it.		

Table 3.19: Table showing Learners Series

Learners Time Series	Yes	Yes
As per Table 3.19, class room sessions are time bound, the learners are forced to do the activities and motivated to execute the tasks within the stipulated time, where as in E-Learning the learners have the flexibility and there is no motivation. Hence from the study it is observed that 79.5% of the respondents say T-Learning is more effective in time utilization.		

Table 3.20: Table showing Evaluation

Evaluation	Yes	Partial applicable
As per Table 3.20, it is a known fact and observed truth that, evaluation is more effective with physical evidences. It is also observed from the study that 73.4% of the respondents agree that the assessment will be appropriate only in T-Learning. This is the major phenomena for the survival of educational institutions world wide.		

4. Conclusion

Literacy, in any part of the world needs to be improved to have higher growth in the economy. Educational systems requires modifications to fulfill the needs of the populations, though the availability of traditional learning and e-learning these two satisfied the needs, the competition among these two factors is also increasing higher education needs a revamping to encourage the younger generations to upgrade their qualifications and caliber. As more of the graduates seek for jobs after their under graduation the e-learning environment helps them to acquire more knowledge. Is this a threat for T-Learning? More number of studies needs to be conducted to have clarity in this field. The current study conducted by the researcher to understand the student's perception and preferences in the Coimbatore region. The analysis reveals that

the traditional learning system has more positive attractions where the personal care and more positive relationship needs to be maintained between the instructor and the learner where as when it comes to knowledge sharing and information access the preference towards E-Learning it clearly reveals that though the instructors / teachers have enough knowledge in the subject they fail to transfer that to the students of this generation. The availability of information in the small box also plays an important role for this environment. The instructors take the role as a facilitators rather than the teacher, the time also plays a very important role for the growth of E-Learning.

Though the numbers of institutions grow rapidly lot of seats remain vacant due to the factor that the knowledge transmission is not effective as expected by the student community, where as the employed youth have a wide arena in this technological world through internet and more number of courses also available online. The lack of personal relationship in this E-Learning system makes the students knowledgeable but it deteriorates the personal character and attitudes, which is serious threat for the society in future.

From the study the researcher found that a new model needs to be device to strengthen the traditional learning system where the teachers need to be trained in knowledge sharing in the class room with available technologies where in us personal care and the knowledge sharing can be enhanced to create the positive note for the younger generation. The e-learning system cannot be avoided but can be utilized progressively by the instructors for better knowledge sharing. The more vulnerable student community, if attracted towards the traditional learning system any country will have a healthier environment economic growth and peaceful society. The infrastructures in the existing institutions need to be enhanced with the available recent technologies to have a combination of T-Learning and E-Learning educational environment. Hence the researcher would suggest that the T-Learning cannot be replaced but has to be enhancing with E-Learning to create more dynamic and prospective educational system.

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Session 25: Cross-disciplinary Areas in Education

Factors Influencing Pupils' Smooth Transition to Primary Schools in Kenya: A Case of Kisii District
(Author: Nyakwara Begi)

The Need for In-service Education for Primary School Teachers for Effective Instructional Delivery in Nigeria
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The Use of "RELA-SABAR MODEL" in Scaffolding Reflective Practice: An Intervention in Supervisory Process
(Author: Siti Julaeha)

Factors Influencing Pupils' Smooth Transition to Primary Schools in Kenya: A Case of Kisii District

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Abstract

Transition to school is a very critical period in children's education and it involves many stakeholders. Research has shown that ready parents, teachers, and schools facilitate children's smooth transition to school and should therefore work together. This paper presents results from a study that was conducted in Kisii district in Kenya to establish whether pupils have smooth transition to primary schools and the factors influencing it. The dependent variable was pupils' smooth transition to primary schools, while the independent variables were: Parental involvement in children's education; ready schools; children's readiness for school; ready teachers; and use of mother tongue as a language of instruction. Results from data analysis had revealed that majority of pupils in both public and private primary schools in the district were not having a smooth transition to school. The process was not smooth because: Parents were less involved in their children's education; schools were not ready for children; children lacked school readiness skills; teachers had not attended any in-service training on transition to school; and mother tongue was not used as a medium of instruction. To promote pupils smooth transition to school: Parents, teachers, and schools should be ready for children and work together.

1. Introduction

Transition to school is a process in which children move from one level of education to another. It is a significant period for children, parents, teachers, and schools. During the period, the key stakeholders should work together to promote children's smooth transition to school. The period requires that, schools should pay attention to the factors which impact on children's smooth transition.

In Kenya today, children join class one from diverse backgrounds and with different experiences which influence the transition. During the process, some children move from home to class one, while others from pre-primary schools to class one [14]. Those children who move from pre-primary schools to class one, the transition would be smooth because they are equipped with school readiness skills, while those coming direct from home the process would not be smooth because they will not be ready for school.

2. Transition to Primary School

In Kenya, transition from home to pre-primary school is the first stage of children's transition to school which also marks the start of formal schooling and lays a strong foundation of education. Successful transition in one stage influences the success in the next stage. When transition from home to pre-primary school is smooth, it will influence the transition from pre-primary school to primary school and would impact on the performance of children [14].

During pre-primary school stage, children acquire school readiness skills which prepare them for school and promote successful transition to primary school. The types of school readiness skills children acquire are: Social emotional skills; cognitive and language skills; physical skills like gross and fine motor skills [10].

The quality and type of pre-primary school pupils' attend influence their transition to primary school. In Kenya, there are two categories of primary schools; private and public. Education in public primary schools is free, while it is not free in private primary schools. Some of the primary schools are low cost while others are high cost [11]. High cost primary schools provide high quality of education due to qualified and motivated teachers, good infrastructure, low pupil/teacher ratio,

adequate facilities and learning resources [1]. The pupils in quality schools also come from better home environments; parents have high socio-economic status, and understand the benefits of quality primary education. The parents of the pupils also perceive education as an investment and expect high returns in form of better performance and career development. The schools also have programmes which encourage parents to collaborate with teachers to promote pupils' smooth transition.

Low cost primary schools on the other hand, provide low quality of education, due to engaging of unqualified and de-motivated teachers, have inadequate teaching-learning resources, and there is high pupil/teacher ratio [9]. The pupils in the schools also come from low socio-economic backgrounds, and the schools do not have programmes which encourage collaboration between teachers and parents to promote children's smooth transition to school.

2.1. Policies Promoting Smooth Transition to School

There are many policies in Kenya which addresses the issue of children's transition to school including: Language of instruction policy; and Early Childhood Development and Education policy framework. The language of instruction policy states that mother tongue should be the language of instruction in schools in rural areas up to lower primary [5]. Commission of Inquiry into the Education System of Kenya had recommended that mother tongue or language of the catchment area should be used as the medium of instruction in order to ensure a smooth transition to school in rural areas [6]. The Early Childhood Development and Education (ECDE) Policy Framework requires all children to attend at least two years of pre-primary school before joining standard one and mother tongue to be the medium of instruction in order to ensure children's smooth transition to primary school [14].

Kenya Constitution provides that basic education which includes pre-primary school education is free and compulsory for all children. Article 20 and 43 provides that every person has the right to education and that it is the responsibility of the state to ensure that every child gets education. Article 53 states that every child has the right to free and compulsory basic education [15]. This is meant to ensure that children have smooth transition to school.

Education Task Force which was formed to realign education sector with the constitution of Kenya and vision 2030 had found that pre-primary education was not yet integrated to the system of

education as was recommended in Sessional paper no.1 of 2005 to ensure children's smooth transition to school. The Task Force report reveals that the current system of education is examination oriented and does not focus on the development of skills and competence. The report further reveals that many children do not have access to pre-primary education due to factors like school levies paid by parents, high cost of education, negative cultural practices like early marriages, inadequate infrastructure, child labour, poverty, scourge of HIV/AIDS, high pupil/teacher ratio, overcrowded classrooms in public schools, and inadequate facilities in arid and semi-arid areas [9]. All these factors hinder pupils' smooth transition to primary school.

To promote smooth transition from pre-primary school to primary school, the Task Force had recommended that the Ministry of Education should: (1) Develop a progressive assessment framework that identifies the knowledge, skills, and competencies that will be assessed for each level of education, (2) Abolition of all school levies to improve children's access to education, (3) National and County education boards should enforce the language of instruction policy which states that language of the catchment area or mother tongue should be the language of instruction to promote smooth transition to school, (4) The government should implement the policy of mainstreaming pre-primary education into the system of education, (5) Expand access to pre-primary education and primary school in order to improve transition rates from one cycle to another [9].

The Education Act 2013 provides that a parent who fails to take his or her child to a primary school as required by the Act commits an offense and shall be punished, but the same Act is silent when a parent fails to take his or her child to a pre-primary school. This means that parents are free to decide what is best for their children and this could be the main reason why only 40% of children in Kenya attend pre-primary schools and the rest are not hence hindering their transition to school [16].

3. Methodology

The study intended to establish whether pupils have smooth transition to primary school in the district and to find out the transition problems pupils experience and the strategies teachers used to help pupils to overcome the problems. The study also investigated the factors which influence pupils' smooth transition to primary schools. The study purposively targeted class one pupils and their teachers in the district. The study employed a survey research design. The dependent variable was pupils'

smooth transition to primary schools, while the independent variables were: Parental involvement in children's education; ready schools; children's readiness for school; ready teachers; and use of mother tongue as a language of instruction. Stratified random sampling method was used to select primary schools for the study. Sixteen percent of the primary schools in the district were sampled from 225 primary schools. The sample size of schools was 35 primary schools, 17 public and 18 private. Data was collected from teachers using a questionnaire and then analyzed using descriptive statistics and the results presented using frequencies (f), percentages (%) and tables.

4. Results and Discussions

Transition to primary school is a very critical period in children's education. During the process, children may experience problems or difficulties which make the process not to be smooth. When the transition is not smooth, children tend to perform poorly and may lose interest in learning and eventually drop out of school [21]. To establish whether the standard one pupils had smooth transition to primary schools, teachers were asked to indicate whether majority of the pupils in their classes had problems which made them not to have smooth transition and the results are presented in Table 1 below.

Table 1. Majority of standard one pupils have transition problems

	Public		Private	
	f	%	f	%
Yes	11	64.7	4	22.2
No	6	35.3	14	77.8
Total	17	100	18	100

Table 1 shows that 64.7% of the teachers in public primary schools reported that the majority of pupils who had joined class one were having transition problems compared to 22.2% of the standard one pupils in private primary schools. The results also show that there were pupils in both public and private primary schools who were not having a smooth transition to school.

After establishing that there were pupils in standard one with transition problems, the teachers were further asked to state the transition problems experienced by the pupils. The problems

experienced by majority of the pupils include: Lack of school readiness skills; adjustment problems; communication problems; lack of social skills; and immaturity due to being underage.

The findings of this study concur with the results reported in other studies. A study conducted in USA had established that up to 46% of the teachers had reported that half of their class or more of the children who had joined Kindergarten lacked basic skills to help them perform well in school [17]. In Iceland a study was conducted to investigate children's transition from preschool to primary school and teachers' views on problems they see children had when entering primary school. Results of the study had revealed that preschool and first grade teachers believed that most children had some problems in starting school. They had also found out that children had difficulties in following directions and working independently [3].

Teachers were additionally asked to state the strategies they used to help pupils to overcome transition problems. Some of the common strategies used by the teachers included; providing remedial lessons; and encouraging parents to come to school to find out how their children were doing.

To understand the factors which influenced pupils' smooth transition to school in the district, it was important to determine whether attention was paid to the factors which influence pupils' smooth transition to school. The factors include: Parental involvement in children's education; ready schools; children's readiness for school; ready teachers; and use of mother tongue as a medium of instruction.

4.1. Parental Involvement in Children's Education

The effectiveness of children's smooth transition to school is influenced by the degree to which parents are involved in the process of their children's education. When parents are involved in their children's education, they perform better and have more positive attitude towards school [7]. To determine whether parents were involved in their children's education to promote smooth transition to school, teachers were asked whether the parents of class one pupils' were involved in their children's education. Table 2 presents the results.

Table 2. Parents' Involved in Children's Education

Response	Public		Private	
	f	%	f	%
Yes	6	35.3	14	77.8

No	11	64.7	4	22.2
Total	17	100	18	100

Table 2 shows that 35.3% of the teachers in public primary schools reported parents were involved in their children's education, compared to 77.8% in private primary schools. On the other hand 64.7% of the teachers in public primary schools reported that parents were not involved in their children's education, compared to 22.2% of the private primary school teachers. The results clearly show that the majority of parents in public primary schools were not involved in their children's education, an indication that they were less interested in their children's education.

A longitudinal study investigated Chinese parents in Hong Kong and Shenzhen involvement in early childhood education and their children's readiness for school. Results had shown that parents' involvement influenced their children's readiness for school which in turn influenced children's smooth transition to school [8].

Further information was sought from teachers who reported that parents were involved in their children's education. The teachers were asked to indicate in what ways parents were involved in the education of their children. Some of the common reported activities were: Ensuring that their children do home work; attending parent meetings; and providing learning resources. Teachers were as well asked whether parents go to school to find out how their children were doing and Table 3 presents the results.

Table 3. Parents Go To School to Find Out how Their Children Were Doing

Response	Public		Private	
	f	%	f	%
Yes	3	17.6	12	66.7
No	14	82.8	6	33.3
Total	17	100	18	100.0

Table 3 shows that 17.6% of the teachers in public primary schools reported that parents go to school to find out how their children were doing compared to 66.7% of their colleagues in private primary schools. On the other hand 82.8% of the public primary school teachers reported that parents don't go to school to find out how their children were doing compared to 33.3% of their colleagues in private primary schools. The results clearly shows that parents of pupils in private primary schools were

more involved in their children's education than those in public primary schools, hence ensuring successful transition and better performance.

The findings of this study contrasts that reported in a study carried out in primary schools in Austria to assess the effectiveness of transition to primary school parent program in strengthening parent knowledge and confidence to manage the transition process. Results had shown that parents who received the intervention reported higher parental self-efficacy to help their children make smooth transition. The parents also reported greater involvement at school during the children's first term [4].

4.2. Ready Children

Children's readiness for school influences their smooth transition. School readiness is the state of a child's competencies at the time of school entry that are important for later success [19]. The competencies are physical, cognitive, social, and emotional. Children who are ready for school also have positive attitudes towards learning and school. The children who join school not ready to learn perform poorly, repeat classes, and drop out of school at high rates [21]. Whether the pupils were ready for school was a very important variable in the study. Teachers were therefore, asked whether there were some pupils in their classes who were not ready for school and Table 5 below presents the results.

Table 4. Majority of Children were Ready For School

Response	Public		Private	
	f	%	f	%
Yes	11	64.7	14	77.8
No	6	35.3	4	22.2
Total	17	100	18	100

Table 4 shows that 64.7 % of the teachers in public primary schools reported that the majority of pupils were ready for school, compared to 77.8% of their counterparts in private primary schools. The results further reveal that 35.3% of the teachers in public primary schools had reported that majority of the pupils were not ready for school as compared to 22.2% of their counterparts in private primary schools. The results clearly show that there were more pupils in public primary schools who were not ready for school compared to private primary schools. This could be because of the Free-primary

Education Policy which requires every child to be in school no matter his/her background.

To achieve Universal Primary Education, in the year 2003, the Government of Kenya introduced Free Primary Education (FPE) which led to an increase in primary school enrolment. The FPE policy provides that every child should attend primary school irrespective of his/her background, and age. However, the introduction of FPE has also led to many issues like declining quality of education due to understaffing, inadequate learning resources, and crowded classrooms and hence hindering children's smooth transition [9]

Teachers were further asked whether attendance of pre-primary school promotes pupils' smooth transition to primary school and the results are presented in Table 5 below.

Table 5. Attendance of Pre-Primary School Promotes Pupils' Smooth Transition

Response	Public		Private	
	f	%	f	%
Yes	15	88.2	16	88.9
No	2	11.8	2	11.1
Total	17	100	18	100

Table 5 shows that 88.2 % of the teachers in public primary schools agreed that attendance of pre-primary school promotes pupils smooth transition to school, as compared to 88.9% of their colleagues in private primary schools. The results further reveal that only small percentages of teachers in both public and private primary schools, 11.8% and 11.1% respectively disagreed that attendance of pre-primary school promotes children's smooth transition to school. The results demonstrate that majority of the teachers support the policy which requires pupils to attend two years pre-primary education before joining class one.

The findings of this study agree with those from a study conducted to investigate the implementation of transition policy and existing practices for children transiting from preschool or home into grade 1, in South Africa's schools [12]. Results from the study had shown that children who had attended pre-schools were more likely to make better adjustments than those who did not. Teachers were likewise asked whether there were pupils in their classes who had attended pre-primary schools but did not have adequate school readiness skills to help them to have a smooth transition to school. Table 6 presents the results.

Table 6. Pupils Attended Pre-Primary School but Lacked Adequate School Readiness Skills

Response	Public		Private	
	f	%	f	%
Yes	6	35.3	2	11.1
No	11	64.7	16	88.9
Total	17	100	18	100

Table 6 shows that 35.3% of the teachers in public primary schools agreed that there were pupils who had attended pre-primary schools but did not have adequate school readiness skills, compared to 11.1% of their colleagues in private primary schools. The results imply that pre-primary schools equip pupils with school readiness skills which help children to have smooth transition to school.

Teachers who reported that there were pupils who attended pre-primary schools but lacked school readiness skills were further required to state some of the important skills the pupils lacked. The common skills were: Inadequate language skills like listening, speaking, reading and writing; numeracy skills like counting, number recognition, and addition; social skills like adjustment skills, and communication skills.

4.3. Ready Schools

Smooth transition to school, requires that not only children should be ready for school, but also schools should be ready for children. Schools should be ready to receive and help children to make smooth transition [10]. To understand whether the schools were ready to receive children, teachers were asked whether the school environment promoted pupils' smooth transition to primary school and the results are presented in Table 7.

Table 7. School Environment Promote Pupils Smooth Transition

Response	Public		Private	
	f	%	f	%
Yes	8	47.1	12	66.7
No	9	52.9	6	33.3
Total	17	100	18	100

Table 7 shows that 47.1% of the teachers in public primary schools reported that the environment in their schools promoted pupils' smooth transition,

compared to 66.7% of the teachers in private primary schools. The results further reveal that 52.9% of the public primary school teachers reported that school environment did not promote pupils' smooth transition, compared to 33.3% of their counterparts in private primary schools. The results imply that the school environment in public primary schools hindered pupils' smooth transition to school.

The teachers, who reported that school environment did not promote children's smooth transition to school, were in addition asked to state the school factors which hindered pupils' smooth transition. The common factors were: Big class sizes specifically in public primary schools due to FPE (which do not allow teachers to meet pupils' individual needs); lack of adequate learning resources to promote pupils' active learning; high teacher-pupil ratio due to overcrowded classrooms; lack of play materials and equipment; and lack of adequate physical facilities like classrooms, and toilets. Schools should be ready to meet the needs of children as they enter school and provide services to help each child to reach his/her fullest potential [10]. It is also important to note that those children who receive environmental support as they move into Kindergarten and to early elementary grades perform better in school [13].

4.4. Ready Teachers

Children's smooth transition to school also requires that not only children and schools should be ready, but also the teachers. Teachers should be well trained on how to help children to have smooth transition. Teachers must also know how to teach young children and have the resources to do so and ready schools need teachers who have professional preparation in early education [10]. In-service training for teachers would equip teachers with knowledge and skills on how to help children to have smooth transition. Teachers' were consequently, asked whether they had attended any in-service training on transition to school and the results are presented in Table 8.

Table 8. Attended In Service Training On Transition to School

Response	Public		Private	
	f	%	f	%
No	17	100	18	100

Yes	0.0	0.0	0.0	0.0
Total	17	100	18	100

Table 8 shows that all the standard one teachers in both public and private primary schools had reported that they had never attended any in-service training to learn how to help children to have smooth transition to school. The result implies that lack of in-service training for teachers affects teachers' role of facilitating children's smooth transition to school.

4.5. Use of Mother Tongue as a Language of Instruction

The language of instruction policy in Kenya states that mother tongue should be medium of instruction in rural pre-primary and lower primary schools ([5]. This is meant to ensure pupils' smooth transition to school. To determine whether the teachers were implementing the language policy, they were asked to indicate the language they were using in teaching and the results are presented in Table 9.

Table 9. Language Used As a Medium of Instruction

Language of Instruction	Public		Private	
	f	%	f	%
English	10	58.8	8	44.4
Kiswahili	7	41.2	10	55.6
Mother Tongue	0	0	0	0
Total	17	100	18	100

Table 9 shows that in both public and private primary schools, English and Kiswahili were used as languages of instruction, while none of the schools was using mother tongue as a medium of instruction even though the schools were in rural areas. This is despite the existence of a policy which clearly states that mother tongue should be the language of instruction in pre-primary and lower primary schools in rural areas. The results imply that lack of use of mother tongue as a language of instruction was hindering pupils' smooth transition to school and this is a violation of a human right [18].

A study on use of mother tongue as a language of instruction in early years of school to preserve the Kenyan culture had found that majority of pre-primary and lower primary schools were not using mother tongue as a language of instruction. Some of the factors which were hindering the use of mother

tongue as a medium of instruction were: Lack of culturally-relevant instruction materials; head teachers did not encourage teachers to use mother tongue as a language of instruction; language policy in some schools discouraged the use of mother tongue as a medium of instruction; and parents did not support the use of mother tongue as a language of instruction [2]. Research has shown that when children learn in mother tongue, they have a good start, perform better, and their transition to school is smooth [22, 21, and 20]. Teachers were as a result asked whether the use of mother tongue as a medium of instruction promotes pupils' smooth transition to primary school and Table 10 presents the results.

Table 10. Use of Mother Tongue As a Medium of Instruction Promotes Pupils' Smooth Transition to Primary School

Response	Public		Private	
	f	%	f	%
Yes	12	70.6	6	33.3
No	5	29.4	12	66.7
Total	17	100	18	100

Table 10 shows that 70.6% of the teachers in public primary schools agreed that the use of mother tongue as a language of instruction promotes pupils smooth transition to school, compared to 33.3% of their counterparts in private primary schools. The results further indicate that 29.4% of the teachers in public primary schools disagreed that the use of mother tongue as a language of instruction promotes pupils smooth transition to school as compared to 66.7% of the teachers in private primary schools. The results imply that majority of the teachers in public primary schools support the use of mother tongue as a medium of instruction, whereas majority of the teachers in private primary schools do not.

5. Findings of the Study

The study revealed that majority of the standard one pupils in both public and private primary schools in the district were not having a smooth transition to school because of the following factors:

- (i) The majority of parents, specifically those having children in public primary schools were not involved in their children's education which is a critical factor in children smooth transition to school.
- (ii) School environment in most public primary schools hindered pupils' smooth transition to school.

This was due to overcrowded classes which could not allow teachers to meet pupils' individual needs; inadequate learning resources to promote pupils' active learning; high teacher-pupil ratio; insufficient play materials and equipment; and inadequate physical facilities like classrooms, and toilets.

(iii) There were more pupils in public primary schools not ready for school than in private primary schools. This was due to FPE policy which requires every child to be in school no matter his/her background.

(iv) Teachers were not ready to help children to have smooth transition. This was because the standard one teachers in both public and private primary schools had never attended any in-service training to learn how to help children to have smooth transition to school.

(v) Lack of use of mother tongue as a medium of instruction was hindering pupils' smooth transition to school. In both public and private primary schools English and Kiswahili were used as languages of instruction.

6. Conclusion

The study was to determine whether standard one pupils had smooth transition to school. The findings of the study had indicate that there were pupils in both public and private primary schools in the district who were not having a smooth transition to school. The process was not smooth because: Parents in public primary schools were less involved in their children's education; schools were not ready for children by providing an environment which promote children's smooth transition to school; and many children were not ready for school due to lack of school readiness skills. The other factors hindering pupils' smooth transition were: The standard one teachers in both public and private primary schools were not ready to help children to have smooth transition because they have never attended any in-service training on transition to school; and lastly but not the least, mother tongue was not being used as a medium of instruction to promote pupils' smooth transition to school.

7. Recommendations

To promote pupils smooth transition to school:

- (i) Parents should be more involved in their children's education and teachers should develop strong teacher-parent partnerships. Results from this study had shown that majority of parents in public primary schools were not involved in their

children's education as compared to those with children in private primary schools.

(ii) School management should ensure that schools are ready for children by providing an environment which will help children to have smooth transition. This can be achieved by ensuring that classrooms are not overcrowded; there are adequate learning resources; low teacher-pupil ratio; provision of adequate play materials and equipment; and ensuring that physical facilities are adequate.

(iii) Parents and pre-primary schools should ensure that children are ready for school. This is because there is a relationship between school readiness and smooth transition. There should also be programs to help parents to understand how to help their children to have smooth transition to school.

(iv) The Ministry of Education, Science and Technology should ensure that schools should comply with the ECDE policy which requires children to have two years of pre-primary education as a requirement of joining class one. This is because the majority of the standard one teachers had reported that pupils lacked adequate school readiness skills to help them to have a smooth transition.

(v) The Ministry of Education, Science and Technology and County government should also organize In-service training for teachers on children's transition to school. This is because the standard one teachers in both public and private primary schools had reported that they have never attended any in-service training on transition to school.

(vi) National and County Education Boards should ensure that the language of instruction policy is implemented to promote children's smooth transition to school. This is because in both public and private primary schools in the district, English and Kiswahili were being used as languages of instruction instead of Mother tongue as required by the language policy of instruction.

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The Need for In-service Education for Primary School Teachers for Effective Instructional Delivery in Nigeria

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Abstract

The paper focuses on the need for in-service education for primary school teachers for effective instructional delivery in Nigeria. It also examines the current status of primary education and the various ways by which the government could help to update the knowledge of teachers on the job. It critically examines the practice of in-service education for teachers in Nigeria with particular focus on Ekiti State. In Ekiti State, education seems to be the only formidable industry. It is common to find parents struggling to train their children and therefore, the children must be properly taught by competent teachers. Recommendations were made that if in-service education is accorded priority in the state, it will produce efficient men and women capable of handling pupils with optimum result. Also teachers will be kept abreast of new teaching skills, methods, and also update their professional knowledge particularly in this age of technology. The government should Endeavour to fund the programme and teachers should be encouraged and motivated to participate actively in the programme so that goals of education at this level will be achieved

1. Introduction

In-service education can be described as an organized or structured training or workshop intended for professional teachers and non-professional teachers to acquire or update their skills, acquire new knowledge and better methods of instructional delivery. This is necessary for improving their skill towards more effective, efficient and competent rendering of service in various fields and to diverse groups of pupils or students.

In-service education was viewed as professional courses given to teachers with the aim of producing efficient men and women capable of handling students or pupils and teaching them with optimum

results [6]. He further stressed that it is a means of assisting poorly prepared, untrained and inexperienced teachers to improve both academically and professionally and this can be done through group conferences, workshops, seminars and short refresher courses.

The need to continuously improve and update the skills and knowledge of teachers at the primary school is very paramount in order to respond to a wide range of demands as a result of rapid and ever changing nature of the world. Teachers should bear in mind the societal demands placed in schools and educational research reveals daily new insights about teaching and cultural values of the nation. All these needs should be incorporated into teaching practices.

Teachers are the frontline managers in this respect because they are the people who have direct contact with the pupils and who pass across the desired knowledge to them, hence the need to equip teachers very well at the foundational level for this laudable role. Improvement of instructions is enhanced when the government and heads of schools assist teachers to grow intellectually and encouraging initiatives [12]. All these can be experienced in conferences, seminars, workshops, professional lectures etc. designed to enhance the continuous development of pedagogical skills. Maximum creativeness in teachers and pupils can be realized when school leaders organize induction courses, conferences, seminars and workshops for teachers [5]. He further added that this will keep the teachers abreast of new skills, methods and also update their professional knowledge. The role of teachers as total development of the child and called it primary responsibility of the teacher [2]. He also added that teachers functions include character development, effective teaching, curriculum development and implementation, adjusting individual differences, class room management, evaluation of pupils performance, developing good family and community relationships and total school effectiveness. These can only be achieved through a well trained crop of teaching force. The stated goals

of primary education at section 4 subsection 18 of the National Policy on Education [7] are

- (a) Permanent literacy and numeracy, and ability to communicate effectively
- (b) Lay a sound basis for scientific and reflective thinking
- (c) Give citizenship education as a basis for effective participation in and contribution to the life of the society.
- (d) Mould the character and develop sound attitude and morals in the child.
- (e) Develop in the child the ability to adapt to the child's changing environment.
- (f) Give the child opportunities for developing manipulative skills that will enable the child function effectively in the society within the limits of the child's capacity.
- (g) Provide the child with basic tools further educational advancement, including preparation for trades and crafts of the locality.

For all these goals to be achieved, the in-service education for primary schools teachers is germane and needful through local programmes of curriculum revision, cooperative and experimentation research, directed reading, demonstration reading, professional lectures, teachers meeting, apprenticeship teaching for beginners to lead teachers to plan and carry out an adequate educational and social programme for the pupils, workshops, seminars, conferences e.t.c. Teacher is central to any improvement to occur in the schools [14]. In more advanced countries, there may be close substitute for teachers role in the form of teaching machines with well programmed instructions, but in the third world countries like Nigeria, teachers undoubted remains as the managers of knowledge [4]. Hence the need for qualified and competent teachers to pass appropriate knowledge to pupils at the primary school level.

2. Present State of Primary Education in Nigeria

Primary school education has witnessed myriads of problems in Nigeria and this has brought a lot of setback to this level of education in Nigeria. The educational programmes at primary school level has undergone changes several times right from the pre-

colonial days when the universal primary education was first introduced in the Western Region in 1955 by the late chief Obafemi Awolowo and was introduced across the country by General Olusegun Obasanjo in 1976 later metamorphosed and launched to Universal basic programme in 1999 by General Olusegun Obasanjo's military administration. These problems will be looked at from the input, process and output perspective. Education in Nigeria is besieged by colossal problems such as poor funding, poor educational infrastructure including inadequate classrooms, unqualified teachers and polluted learning environment [9]. All these have negative effect on instructional delivery. Three decades of exclusive government ownership, control and management, education had been attended by unprecedented failures [3]. He added that it has been characterized by poorly trained teachers, poor teaching, poor technology and underfunding. The federal expenditure on education seems to be below 10% of its overall expenditure [13]. Increased enrolment rates have also created challenges in ensuring quality education and satisfactory learning achievement as resources are spread more thinly across a growing number of students [16]. It was further added that it is not rare to see 100 pupils per teacher or pupils sitting under trees outside the school building because of lack of classrooms.

Quality education in terms of recognized and measurable learning outcome especially in literacy, numeracy and essential life skills is paramount [15]. It was further added that to achieve the desired quality, the input and process should have quality in terms of efficiency effectiveness, excellence and social justice. No significant training or skill acquisition can take place without using competent and committed teachers to handle all the training programmes of the universal basic education schemes [10]. She added that it has an implication for adequate teacher preparation.

Many of the teachers in the system presently have their certificate through the distance learning programme provided by the National Teachers Institute and further said anyone who has participated in the grading of the examination scripts of this crop of teachers will sympathize with the primary education system [11].

Observation has shown that many of the graduates produced by these teachers could not perform well academically at the junior secondary school and the cumulative effect is what we now

experience in West African school certificate result. The world has become a global village, and technology has so much advanced, hence the need for teachers to move with time and develop themselves technologically so as to impart the right knowledge to the pupils. Making lessons real, secure active participation and making lessons enjoyable should be paramount to these teachers.

The importance of appropriate, proper and timely in-service education activities to ensure that proper training is provided to teachers to properly equip them to contend with the changing condition in primary school education must be a priority [8].

3. Factors hindering in-service Education of Teacher in Primary School

In-service training of teachers seems to have been hindered by so many factors and these have brought concern to parents and some stakeholders in the state. Most vital among the hindrances is fund. The intention of government to recruit more qualified teachers was always hampered by financial constraint which was perhaps caused by the weak economic base of the state [1]. Several challenges of in-service education such as

- (a) Educational systems (districts, schools teachers) are not adequately prepared for the implementation process, in most cases and most likely because the planning for implementation and in-service education was not regarded as an integral part of curriculum development.
- (b) In-service education is either non-existent or provided as short term crash courses only. Where existing, the activities are under-funded, the duration of training was too short, and the quality of it was problematic.
- (c) Financial, Physical and human capacity in the system were not adequately existing. Local and institutional capacity (Leadership, Management, Planning and Administration) was not sufficiently available and prepared for the task of implementing in-service education system [14].

Attitude of teachers is another vital hindrance to in-service. Some teachers seem not to appreciate the importance of in-service education and training. They have therefore not developed the right attitude towards it. Experience and observation have revealed that teachers in the rural areas have no opportunity to

attend such programmes due to lack of wide publicity, even when they were informed, the headmasters have been constrained by fund in sponsoring teachers for such laudable programmes.

4. Recommendations

Since education at the primary level is seen as the foundation upon which the rest of the education system is built, the success or failure of the other level of education depends upon it, it is therefore recommended that:

- (a) In-service education for primary school teachers should be given priority by the state government.
- (b) Adequate fund should always be made available to facilitate the success of the programme.
- (c) Physical facilities that could enhance the success of such programmes should be adequately provided by the government.
- (d) Human capacity for the programme should be adequately informed, encouraged and motivated to keep abreast of new teaching skills, methods and update their professional knowledge and adapt to change with modern technology.
- (e) The duration of such programmes should be extended and of a better quality.
- (f) There should be more advocacy programmes to enlighten teachers on the need to have positive attitude to in-service training programmes.
- (g) Wide publicity should be given to such programmes to create awareness to all teachers irrespective of their locations.

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Teachers' Actual Use of Self-learning Resources for their Professional Development at Middle Schools in Saudi Arabia

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Abstract

This study aims at examining the teachers' use of self-learning as a resource for their professional development at middle schools in Tabuk, Saudi Arabia. The study tool was a survey that contains two parts: the main data survey and the survey about self-learning as a resource for professional development. The study sample was 100 teachers. The results showed a clear inadequacy of teachers' use of self-learning resources for their professional development at middle schools in Tabuk, in addition to Internet, peer knowledge exchange, published media, peer classrooms visits, social media networks and smart phones applications were the most likely used resources. They refer to many significant obstacles in self-learning resources for their professional development. Moreover, there are statistically significant differences in self-learning resources that favor those who major in Arts and Humanities while, there are no differences among the responses of participants that are relevant to their experience or interaction between their experience and majors. Moreover, a significant difference in teachers' perspective was reported. Teachers who major in science and have an average experience of (4-7) years had higher commitment toward self-professional development than others.

1. Introduction

Education is one of the main pillars in every society because it plays an important role in building the nation and providing it with qualified human resources that are able to produce and build their society. Good education must keep up with the new advances by following modern methods in preparing teachers such as self-learning, programmed education, distance education and e-Learning. Al-Naqa and Abu Al-Ward [1] state that teachers must always work on developing themselves professionally because preparing teachers before their work and training them while they work is a continuous process and it does not end when they graduate from the College of Education. Karakas and Manisaligil [2] refer to the importance of self-learning in today's digital world

because of its creativity, which allows self-learning in the work place. Scientific cooperation, technological closeness, international openness, the Internet and digital creativity are some of the things that stand out in this field.

Self-learning, according to Butler [3], represents one of the most important resources in professional development for teachers. Successful teachers can increase their skills, knowledge and abilities.

2. Purpose of this study

This study aims at examining teachers' use of self-learning resources for their professional development at middle schools in Tabuk, Saudi Arabia. It also aims to ascertain the obstacles facing them in practicing such thing.

3. Significance of the study

The importance of self-learning in professional development comes from many considerations: it makes the teacher independent and gives him/her a feeling of freedom and democracy. It also helps teachers to use teaching methods that guarantee them self-development. This research is expected to provide data about the current situation in hand of those who prepare the educational plans that try to create a suitable academic environment in the middle schools in Tabuk, Saudi Arabia.

4. Objectives of the study

This study aims to identify: (1) the current situation of self-learning as a resource for professional development from the perspective of Tabuk middle school teachers. (2) Certain the Obstacles that hinder the teachers' benefitting from self-learning resources for their professional development.

5. Methodology

5.1. Participants

The researchers conducted this study on a randomly selected sample from a population that included all the (governmental) middle schools teachers in the city of Tabuk in the second semester of the academic year 1433/1434. A survey was distributed on the original study society (560 teachers according to the census of the Ministry of Education). 130 surveys were answered and 30 were discarded. So, that the actual sample became 100 teachers, representing 18% of the original study population.

5.2. Instrument

Due to the nature of the study, the researchers adopted the descriptive method to achieve its objectives. The survey used in this study contains two domains: self-learning resources with 31 items, and its obstacles with 16 items.

6. Results

The study has reached the following results: Self-education as a resource for professional development is not widely available in the middle schools of Tabuk.

Table 1. Averages, standard deviations, order and degrees of availability of self-education resources for Tabuk middle school teachers

No.	Section	Average	Standard Deviation	Order	Availability
19	Internet	3.31	1.52	1	Medium
24	Exchanging knowledge with colleagues	3.20	1.37	2	Medium
21	Published media (newspapers, magazines...)	3.08	1.30	3	Medium
27	Peer classroom visits	3.04	1.29	4	Medium
23	Social Networks	3.02	1.49	5	Medium
5	Conferences (local and international)	1.83	0.80	27	Low
29	Distance Learning	1.73	0.91	28	Very Low
31	Contracts with other Educational Institutions	1.65	0.91	29	Very Low

According to teachers in middle schools in Tabuk, obstacles in self-learning for professional development are very significant such as:

Table 2. Obstacles that face Tabuk middle school teachers' self-learning

No.	Section	Average	Standard Deviation	Order	Availability
17	No encouragement from the Education Administration to attend seminars and Conferences	4.06	1.14	1	High
16	No financial incentives to benefit from self-learning resources	4.01	1.18	2	High
4	School environment doesn't encourage using self-learning resources in professional development	3.98	1.01	3	High
13	Traditional teaching methods don't encourage development	3.96	0.88	4	High
8	No appreciation of the benefit from self-learning in professional development	3.85	1.01	5	High

The researchers came up with recommendations such as: Making self-learning resources available for teachers and helping them to apply those resources in developing their skills. Eliminating the obstacles that can stand in the way of the teachers' benefitting from those resources by holding training courses about using self-education, its strategies and its benefits.

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The Use of “RELA-SABAR MODEL” in Scaffolding Reflective Practice: An Intervention in Supervisory Process

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Abstract

Teaching reflection is a key for teachers to develop specific, contextual theories which can propose understanding and actions as well as provide foundations for the next teaching practice. Teachers need of professional support in order to conduct effectively reflective practice. The RELA-SABAR Model, as the reflective supervisory model, was developed based on a social constructivist theory and embedded with the idea of communities of practice and a clinical supervision approach in order to help teachers undertake reflective practice that is beyond their present capacity. Through modelling, sharing their works, as well as guided and individual practice in the steps of development of Similar perception about teaching reflection, presentation of teacher's Analysis of their instruction, giving feedback to the process and results of teaching reflection, and Re-design lesson plans and reflective journals, teachers can develop their teaching reflection abilities and gradually build teacher's responsibilities for conducting self-directed and continuous reflective practice.

1. Introduction

Reflective practice in teacher development is one of ways of increasing teachers' professionalism. Through reflective practice, teachers' knowledge, situational understanding, and professional judgment will increase and direct their future practice. Some researches in reflective practice showed that student teachers' reflective practice took place at low level [14, 7, 13] A research conducted by Wardani, et al. showed that less teacher undertook teaching reflection [15]. Regarding the importance of reflective practice for teacher development and the low level of teachers' reflective practice, in order to facilitate the development of teachers' ability in conducting reflective practice, supervisor should provide contexts and opportunities within supervisory meeting for teachers to become capable of and to take responsibility for their reflective practice.

This present paper is aimed at offering a supervisory model that can be used to help teachers

practice, develop, and refine their abilities in conducting teaching reflection.

2. A Supervisory Model for Scaffolding Teachers' Reflective Practice

According to a research conducted Wardani, et al. most of teachers solved their teaching problems by discussion with their colleagues [15]. Few teachers solved their teaching problems by themselves. In addition, a study conducted by Parsons & Stephenson showed that collaboration with more experienced colleagues can help teachers to reflect on their practice. Similarly, Toh's research found that factors effecting reflective practice are supervisor assistance and colleague supports [14]. The results of Toh's research is in agreement with Hatton & Smith's findings in terms of colleagues assistance in helping teachers to conduct teaching reflection.

Shalaway stated that peer coaching, mentoring, networks and support group, team teaching, and teacher centers can facilitate teachers in conducting reflective teaching [12]. Acheson & Gall stated that journal writing is an effective supervisory technique for encouraging teachers to develop their ability in conducting teaching reflection [1]. Besides that, Chitpin viewed journal writing as a reflective bridge that enable teachers to think, challenge, and question educational policies or practices [3].

Whereas, Hatton & Smith identified a variety approaches that can be employed in attempts to foster reflection, those are, action research project, case studies and ethnographic studies, microteaching and other supervised practicum experiences, as well as structured curriculum tasks [7]. Moreover, Hatton & Smith's study showed that the most potential strategy to facilitate the development of reflection is the use of critical friend dyads [7]. This strategy provides opportunity for giving voice to one's own thinking while at the same time being heard in a sympathetic but constructively critical ways.

The goal of fostering reflective approach is the development of a capacity to undertake reflection-in-action, that professional practitioners are be able to think about an action as it is taking place, making sense of what is happening, and

determining successive practical actions by appropriately using multiple viewpoints. Such capacity requires teachers to employ various kinds of reflection, such as, technical, descriptive, dialogic, and critical reflections.

Lee & Tan proposed three tools to nurture reflective practice, such as, reflective writing, reflective journal, and in-depth interviews [9]. Accordingly, the evidence of reflection can be seen from written report about teachers' effort in improving the teaching practice. Regarding the evidence of reflection, Hatton & Smith identified four types of writing, namely descriptive writing, descriptive reflection, dialogic reflection, and critical reflection [7]. The latest three characterize different kinds of reflection, while descriptive writing is not reflective at all. Descriptively reflective writings provide reasons based on personal judgment or on reading of literature. Dialogic descriptive writings are a form of discourse with one's self, an explanation of possible reasons. Critical reflective writing involves reason giving for decisions or events which takes account of the broader historical, social and/or political contexts.

Considering the importance of collaboration and journal writing in helping teachers to conduct reflective practice, there is a model of supervisory meeting that can be used to help teachers practice, develop, and refine their competencies in reflective practice. This model is based on a social constructivist theory and embedded with the idea of a community of practice and a clinical supervision approach. The implementation of this model in supervisory meetings is expected to facilitate teachers to undertake reflective practice that is beyond the present level of the teachers' capacity.

According to social constructivist theories, learning is knowledge construction via anchoring, articulation, and elaboration of concepts [6]. In order learning to be taken place, learners have to actively engage in constructing their understanding from their learning experience, actively making sense of new knowledge and deciding how to integrate it with previously held concepts and information [5]. In term of reflective practice, according to constructivist theories, learning is a sense-making process where teachers build new knowledge and understanding from the base of their existing knowledge, perception, values, and beliefs.

Constructivist theories argue that knowledge is composed and reconstructed continuously through learners' cognitive activity and participation in the group where they belong [4]. This is accordance with a basic principle of pragmatic, social constructivist approach that students learn most effectively by engaging in carefully selected collaborative activities under the close supervision and coaching of an educator [6]. It means that in

order to facilitate teachers to conduct reflective practice, teachers must be provided by opportunities for them to actively engage in community of practice.

McDermott stated that a community of practice is a group of people who share knowledge, learn together, and create common practices [2]. Choi viewed communities of practice as a group of people informally bound by their shared competence and mutual interest in a given practice, which makes it natural for them to share their individual experiences and knowledge in an informal and creative way [4]. In developing teachers' ability in reflective practice, a community of practice can be a learning medium for teachers [8]. By participating within a community of practice, teachers can engage in their work and in reflective thinking and complex problem solving that have practical implication to their teaching. Through actively engaging within such community, teacher will be able to foster their new perspective and new ways of responding to problems that they face.

Regarding the viewpoints of social constructivist theories and the concept of community of practice, the key features of this model are: (1) modeling, (2) sharing the work, and (3) guided and individual practice.

2.1. Modeling

Professional growth through reflective practice will succeed if teachers obtain professional helps and support from competent colleagues and supervisors. Modeling is a best way of helping teachers to develop their abilities in conducting reflective practice. By modeling, teachers see the real examples of how reflective practice takes place. Supervisors act initially as model reflective practitioners by scaffolding the process of reflective practice, but gradually fade to coaching role in. And at the end, teachers individually do continuously reflective practice. Modeling is not only used in scaffolding the process of reflective practice, but also in scaffolding the writing of reflective journal as a product of reflective practice.

In scaffolding the writing of reflective journal, supervisors should provide reflective journals as good examples. Supervisors can ask teachers to discuss and analyzed good examples of reflective journal.

2.2. Sharing in the work of reflection with others

Elwood & Klenowski stated that among other characteristics of learning environment that applies constructivist paradigm are: (a) group and pair work is encouraged; (b) students-teacher dialogue about students' learning is fundamental; and (c)

support and collaboration are consistently available [5]. This is in agreement with Schlager & Fusco's suggestion that teachers learn best when working in a dialog and action community [2]. Accordingly, supervisors should encourage teachers to interact with other teachers and supervisor to share, discuss, and debate their ideas, perception, and teaching practice.

By participating in sharing, discussing, and debating, teachers do not merely solve their teaching problems, but also learn that the construction of knowledge that may be generalized beyond the specific problem. Besides that, through discussion and debates with other teachers and supervisor, teachers will learn about new ideas or skills that cannot be learned individually. Through discussion with their colleagues, teachers' self-esteem will increase and collegiality and trust each other as bases of teacher professional development will be established [11].

The topics of sharing and discussion are not only about the process of reflective practice but also about the product of reflective process, that is, reflective journal. Teachers are asked to give feedback to each other reflective journal that they write.

Sharing and discussion can take place in pairs or/and in a group. Supervisor asks teachers to discuss their work in pairs. After that, supervisor arranges a group discussion to share and discuss about the results of pair discussion.

Sharing and discussion will be effective if each teacher is required to be open-minded, critical, and creative. Therefore, in order to make effective sharing and discussion, supervisor should create situation that are comfortable enough so that each teacher can reveal themselves to some extent to other. Besides that, the relationship between supervisor and teachers as well as among teachers should be truly open and egalitarian [2].

2.3. Guided and Individual Practice

Vygotsky stated that learning occurs first on the social level and next on the individual one. Accordingly, supervisor should provide opportunities for teacher to conduct reflective practice individually. Supervisors create supervisory meeting with a lot of practices both in conducting reflective practice and in writing reflective journal.

Teachers are asked to try out their reflective practice and write it down in reflective journal. In order to facilitate teachers learn beyond their capacity, supervisors can give their written feedback on teachers' written journal of their reflective practice. Teachers use supervisor's feedback as a guide for them to do their effort in increasing and improving their abilities in reflective practice.

Instructional effects that can be achieved by using this supervisory meeting approach are teachers will accomplish abilities in: (1) evaluating the strengths and weaknesses of their teaching; (2) determining solution alternatives to improve the weaknesses or enhance the quality of instruction; (3) providing reasons for selected actions; (4) anticipating consequences of conducted actions; and (5) making relations between teaching experience with theories, values, and ethics in the education field.

Besides that, nurturant effects that are expected to be achieved by implementing this approach are development of abilities critical and analytical thinking, reflective thinking, creativity, and open mindedness toward different views and perceptions. By developing such abilities and attitudes, the long-term goals of teaching reflection, that is, abilities in applying and cultivating social, politic, and moral values in teaching will be accomplished.

Steps in applying the reflective supervisory meeting (SABAR) are as follows.

a. Develop similar perception (S – Similar Perception)

This step is an orientation process conducted in order to develop similar perception about the concept and the practices of teaching reflection as well as reflective journal. Accordingly, supervisor can begin the supervisory meeting with asking teachers to explain their experiences related to teaching reflection. At the end of this step, teachers are expected to have the same perception as supervisor's perception of teaching reflection and there is an agreement about what teachers will take in conducting teaching reflection.

b. Presenting result analysis of teaching practice (A – Teachers' Analysis of their teaching)

This step is conducted in order to provide teachers with opportunities for carrying out critical evaluation and analysis of teaching that conducted. The result of such evaluation and analysis is presented in reflective writing. In order to help teachers in writing reflective journal, supervisor can provide teachers with self-assessment for their teaching practice and a guidance that constitutes steps that teachers should conduct.

c. Providing feedback to the process and results of teaching reflection (BA—BALikan, Indonesian words for feedback)

This step is conducted to consolidate the result of reflection that teachers carried out. In this step, supervisor provides teachers with opportunities for sharing experiences and discussing with their colleagues about their teaching reflection. Group activities allow teachers to share their knowledge about their cognition and provide a forum for teachers to discuss aspects of practice that went beyond the day-to-day routine of classroom.

d. Re-design lesson plans and reflective journals

In this step, teachers discuss next instructional actions based on the result of teaching reflection that they conducted. They revise their reflective journal and lesson plan based on feedback and suggestion from supervisor and other teachers. The product of this step is lesson plan that teachers will conduct to improve or increase the quality of following instruction.

This model had been develop and validated by Research and Development Design at the S1 PGSD Program (the Degree Program for Elementary School Teacher Education) in Bandung Regional Center, Universitas Terbuka (the Indonesian Open University). The research subjects are student-teachers and supervisor at tutorial groups in Soreang, Bandung, Sumedang, Cimahi, and Karawang. The assessment results of writing reflective journal abilities of teachers' who participated in tutorial with the RELA-SABAR Model (Experimental Groups) can be seen at Table 1.

Table 1. The results of Wilcoxon Signed-Rank Test

Groups (Number of Respondents)	Mean Scores		Gain Score	Z- Score	Asymp. Sig. (2- tailed)
	Pre- Test	Post- Test			
Low (11)	16.82	50.19	33.36	- 2.934 ^a	.003
Moderate (10)	19.50	56.40	36.90	- 2.807 ^a	.005
High (11)	17.73	54.19	36.45	- 2.950 ^a	.003
Total (32)	17.97	53.50	35.53	- 4.944 ^a	.000

Results of the Wilcoxon Signed-Rank Test (Table 1) showed that the developed supervisory model can significantly ($\alpha < 0.05$) increase teachers' score of writing reflective journal. This means that the developed supervisory model can significantly increase teachers' ability in writing reflective journals as indicators of teaching reflective practice.

The success of the implementation of this model in supervisory meetings is supported by applying some principles, as follows.

a. Teachers are required to be the active learner, the social learner, and the creative learner. In order to conduct those roles, the supervisory meeting is addressed to give teachers opportunities to explore their teaching, to search for their needed learning resources, and to determine action alternatives to handle problems or improve the quality of instruction. This model also provides

teachers with opportunities for involving in social interactions that enable them to discuss, debate, investigate, and explore different perceptions so that they are encouraged to learn and to interact with world outside classroom. In addition, supervisory meetings are also addressed to facilitate teachers in synthesizing personal knowledge or building knowledge based on their experience in problem solving with the result that teachers' cognitive structure changes.

b. Modeling is a best way of helping teachers to develop their abilities in conducting reflective practice. In a social learning theory, to directly observe behaviors or skills is a requirement of learning [16]. By modeling, teachers see the real examples of how reflective practice takes place. Supervisor act initially as model reflective practitioners by scaffolding the process of reflective practice, but gradually fade of coaching role in.

c. Learning process takes place when learners actively and socially participate in their environment [10]. By applying this principle, teachers have opportunities for interacting with colleagues or human resources and community. Through discussion and debates with colleagues and supervisor about various alternatives for problem solving, teachers will learn about new ideas or skills that cannot be learned individually.

d. Relationship among teacher and between teachers and supervisor is collegial. By applying this principle, teachers have opportunities to present their own thought or ideas and at the same time they listen sympathetic and constructive critiques and suggestion from other teachers or/and from supervisor. By conducting such activities, teachers' abilities in carrying out reflective practice will grow so that they will recognize and improve their performance by themselves.

e. Learning occurs first on the social level and next on the individual one. Accordingly, supervisor should provide opportunities for teacher to conduct reflective practice individually. Regarding to self-directed practice, supervisors direct teachers by guiding reflective practice which is gradually giving opportunities to teachers to conduct self-directed reflective practice.

f. Teachers should have opportunities to practice teaching reflection as well as writing reflective journals with feedback from supervisors. Teachers use supervisor's feedback as a guide for them to do their efforts in increasing and improving their abilities in reflective practice and writing reflective journal.

The implementation of those principles in applying the model requires teachers' and supervisors' time and commitment. The optimal reflective practice will be accomplished if ones involved take into account that abilities in conducting reflective practice are important for a teacher. When teachers

and supervisors consider that reflective practice is important for teachers, teachers will provide time and commitment to do reflective practice and supervisor will provide time and commitment to facilitate teachers to do reflective practice. Ancheson & Gall stated that teacher's commitment in conducting teaching reflection depends on personal objectives, understanding on self-evaluation, and self-directedness [1].

3. Conclusion

Teachers are required to continuously improve and increase the quality of their performance and instructional process. In order to be able to improve and to increase the quality of their performance and instructional process, teachers need to be able to critically reflect upon their teaching practice.

Reflective practice in teacher development is one of ways of increasing teachers' professional. Through reflective practice, teachers' knowledge, situational understanding, and professional judgment will increase and direct their future practice. Accordingly, it is a scaffolding reflective model that can be implemented in order to facilitate teachers to effectively conduct reflective practice.

The developed reflective supervisory model is one of various models that can be applied in supervisory meetings. By implementing the steps in and the principles of the model, supervisors can help teachers to conduct effectively reflective practice so that teachers' abilities in conducting reflective practice and in writing reflective journal will improve and increase. The implementation of this reflective supervisory model requires supervisor initially act as model and gradually give responsibility to teachers to conduct individually continuous reflective practice.

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Session 26: Learning / Teaching Methodologies and Assessment

IF2E – Interrupt Fun to Educate

(Authors: Ahmad Hammoud, Ahmad Shatila, Nisrine Adada)

Help!! That Standardized test is going to kill my chances for higher education!

(Author: Barba Patton)

Xitsonga teaching in the South Africa's Basic and Higher Education: A Case Study

(Author: Paul Nkuna)

Using 'MESH Guides' as Translational Research and Knowledge Mobilisation for Continuing Professional Development in Schools

(Authors: Tanya Ovenden-Hope, Linda la Velle, Marilyn Leask)

IF2E – Interrupt Fun to Educate

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Abstract

Nowadays, technology is invading our homes and schools. Teenagers, children, and even babies are attached to smart devices and their apps. Parents and teachers are trying to resist this trend as they believe their children are spending a lot of time playing and having fun with these devices. They think the more the children play, the less time they have for studying. The researchers decided to go against this trend and came up with a new concept called IF2E (Interrupt Fun to Educate). They developed a special app called KidKit to be installed on smart devices. It allows the teacher or the parent to create a test of several questions of different format on a specific subject. The child will be given the smart device with KidKit installed and running. S/He will not be able to close or stop the KidKit app because it is password protected. The app will ask the child a question; when the correct answer is provided, the child will be rewarded and KidKit will open his/her favorite game for a minute. After this, another question will pop up, and the cycle is repeated every minute until the test is over. The researchers introduced KidKit to four sections of grade six studying programming. The students were evaluated with and without KidKit using four different exams. A one-way ANOVA was used to compare the results. The results showed that KidKit had a positive effect on student achievement.

1. Introduction

Educators use any possible approach to make knowledge available to learners. They take advantage of any method to help students learn. Using digital games is considered an excellent method through which students can learn a lot because they are attracted to these games [1]. Moreover, Squire pointed out that the educational potential games had was not only cognitive, but also social [2].

Games could support as well as accelerate students' learning processes [3]. It is a common trend among all generations to have some fun while playing

games, using applications, watching videos, listening to music, or even chatting with others. Some educators decided to create special educational games to teach their students. They wanted to benefit from the fact that these digital native students are fond of technology and especially digital games [4]. In January 2013, Apple announced that users have downloaded more than 40 billion applications with nearly 20 billion in 2012 alone [5].

According to PC Magazine, MobiThinking, IntoMobile, Google, Apple, Microsoft, and Blackberry, the top categories of downloaded apps were as follows [6]:

Table 1. Top Categories of Downloads

Rank	Category	% of total downloads
1	Games	23 %
2	Entertainment	11 %
3	Utilities	10 %
4	Education	7 %

As Table1 shows, Games and Education together formed around 30 % of all apps downloaded. This shows how passionate users are to play games. Furthermore, Lenhart, Kahne, Middaugh, Macgill, Evans, and Vitak stated that 97% of US teens play a certain type of digital game on regular basis [7].

According to Yang, children who used digital devices were more motivated to learn [8]. Moreover, Demb, Erickson, and Hawkins-Wilding also reported that students positively perceived the impact of their use of digital devices on their academic success as well as their study habits [9]. Thus, there is a growing interest in the applicability of digital games in education [10].

The researchers planned to take advantage of these findings in order to encourage students to learn. Previously, many educators tried to do the same but with one major difference. They decided to develop new educational games that make the students have fun and learn at the same time. The researchers believed that this approach had many drawbacks and

suggested a new way called IF2E to overcome these problems. These drawbacks are as follows. First, too many games are needed to cover all topics of one subject matter, in only one grade level. What about all subject matters in all grade levels? Second, developing digital games costs a lot of money [11]. Third, the development of a digital game may require years because of testing, refinement, and enhancements. Fourth, children acceptance of the game might be an issue; they might simply not like it. Fifth, parents cannot manipulate the content of the educational game to better cater for their children's needs. As stated before, IF2E attempts to solve all the above problems. IF2E does not require developing new games. This would save a lot of effort, time, and money.

In 2012, Entertainment Software Association has published a statistical report entitled "Essential Facts About the Computer and Video Game Industry" [12]. In this report, a lot of statistics and facts show how much users are attached to games. Below are some facts retrieved from this report:

- The average U.S. household owns at least one dedicated game console, PC or smartphone.
- 84 % of parents place time limits on video game playing.
- 52 % of parents say video games are a positive part of their child's life.
- 66 % of parents believe game play provides mental stimulation or education.
- Consumers spent on Game industry around \$24.75 billion in 2011.

2. What is IF2E?

Each child has his/her own way of having fun. To some of them, watching the Disney channel is the favorite way of having fun. Others prefer to play a certain video game which might be considered boring to others. This lead the researchers to think of ways to establish a common system that caters for different students' needs.

IF2E is an approach that encourages educators and parents to make use of the children's favorite way of having fun in order to educate them. As mentioned above, the development of educational games requires a lot of time and money. Educators, designers, and developers might work on a game for years but eventually children might not like it and abandon using it. Although thousands of games have been developed, only few of them "survived", so why bother spend money, time, and effort to develop new educational games that might not be accepted!

Instead, let's invest in IF2E that guides educators to detect each child's favorite digital game and then use it to teach him/her. The following is a typical scenario:

An educator might have 20 students in class equipped with digital devices (tablets, or smart phones). He/she knows that 10 of these students like to play Subway Surfers on iPad, 6 prefer to watch cartoons, and 4 like to explore Google Earth. This educator can split the class into 3 groups so that each group do what they like the most. KidKit, an application developed by the researchers to implement IF2E, will be installed on all devices used by the kids. While watching or playing, the fun will be interrupted by KidKit. A popup screen will appear asking a question prepared by the educator. The students will not be able to proceed unless they provide the correct answer. At this point, they ask each other, refer to their books, or even consult their teacher. This process will encourage them to search for the correct answer, revise their lessons, and learn from one another. The fact that they are attached to watching Disney or playing a game will motivate them to make some effort in order to overcome the current obstacle, finding the correct answer.

3. Features of KidKit

The educator or parent will be able to determine the interval of seconds that specifies when the popup screen appears. By default, a new question will pop up every minute.

The child can provide a wrong answer only once. If a wrong answer is given twice, the whole process is terminated and the student will not be allowed to proceed. This way, students are encouraged to do their best to provide the correct answers.

The popup screen will hide anything that was running before so that access to the previous application is not allowed. This screen will never close unless the correct answer is provided. Even when the child clicks the home screen, KidKit will detect this and the popup screen will appear again.

The question the educator asks might include hints that will help the students find the correct answer. The hints might refer the students to a certain paragraph in their books, an internet URL, a video to watch, or another book to read.

Educators can supply questions of the types presented in Table 2.

Table 2. Types of Questions

Type	Sample Question
Exact Text	What is the name of the planet closest to Earth? <input type="text"/>
Single Choice	Which of the following is an animal: <input type="radio"/> car <input type="radio"/> circle <input type="radio"/> monkey <input type="radio"/> pen
Multiple Choice	Which of the following is a country: <input type="checkbox"/> asia <input type="checkbox"/> tree <input type="checkbox"/> triangle <input type="checkbox"/> usa
True/False	Napoleon Bonaparte was born in 1769
Sorting	Sort according to area: USA, Italy, Lebanon
Matching	Link each animal to its food (rabbit, lion, bird) & (meat, carrots, seeds)

Educators can also run KidKit using “teacher mode” where they can import a new set of questions, create a new exam, change settings, or even specify the game/app that the students like to use. KidKit also allows educators to specify what happens when the student supplies a correct answer. The first option allows the student to proceed to the next question. If this is the case, KidKit is used as a testing tool without any other fun application. The other options allow the students to go back to their favorite game/app.

In case the student does not know which answer is right, KidKit provides the “assist” feature which will tell him/her which answer is the correct one. The educator specifies how many times the student can be “assisted”. Without this feature, the order of the questions is critical because the student might get blocked after answering one question wrongly and will not be allowed to proceed although s/he might know the answers of the rest of the questions. To overcome this blocking nature, KidKit can be set to “assist” the student by informing him/her of the correct answer. At the end of the exam, the student will be told how many points s/he missed/gained.

4. Benefits of IF2E

Many parents strive to minimize the time their children spend using tablets and smart devices because they think that it is a waste of time. Although the parents choose certain apps for their children, the children might not like these apps and find other alternatives. This is the heart of the problem tackled in this research: the children do not choose the apps; their parents do.

With IF2E, the more the children use smart devices, the more they are educated. Suppose that a child used a tablet with KidKit installed for an hour. His/her parents should be happy as their child has answered 60 academic questions. The researchers believe that parents should not discourage students to use digital devices. They should instead, make such devices work for them not against them. That is, make them part of their learning process.

Furthermore, IF2E might help students who have test anxiety due to the fact that it integrates fun into the test which helps relieve stress.

5. Implementation of IF2E

5.1 Sampling and Instrument

The researchers managed to do several experiments in a Lebanese private school. A new subject- programming literacy- was introduced and set as a part of the academic curriculum of the sixth grade. Four sections, 80 students, were selected to be taught HTML and SQL languages for a period a week, as a part of a programming literacy program. This program is part of another research the researchers have been working on for the past two years. Four exams, each made of 15 items from the format presented in Table 2, were conducted over the period of four weeks. Each week the students sat for an exam in a different way as presented in Table 3.

Table 3. List of Exams

Exam	Description	Date
1	Paper-based exam Traditional way	18 Jan 2014
2	Exam using KidKit. Game included + no assists	25 Jan 2014
3	Exam using KidKit. Game NOT included + 2 assists	01 Feb 2014
4	Exam using KidKit. Game included + 2 assists	08 Feb 2014

The students were told at the beginning of each session that in the last ten minutes of the session they will be tested on the content covered during that session. Furthermore, the students were informed of the nature of the planned test.

The game that was used was Subway Surfers, installed on Android-based mobile phones distributed to students.

5.2 The results

The results of the four exams are as follows. The maximum grade for all 4 exams was 15 points. In Exams 3 and 4, the number of “assists” used was deducted from each student’s final grade; so for example, if a student scored 15 with 2 assists his/her grade was entered as 13. A one-way ANOVA was used to compare the grades of the four exams and the results are presented in Tables 4 & 5, and in Figure 1. The results of Exam 2 were higher than those of Exam 1, but no statistical difference was found. The results of Exams 3 and 4 were both statistically higher than those of Exams 1 and 2. The results of Exams 3 and 4 were almost identical. It is worth noting that the results of Exam 1, the paper-based exam, were the lowest amongst the set of exams conducted.

Table 4. Exam Averages

Exam	N	Mean	Std. Deviation	Std. Error
1.00	77	8.5844	3.10496	0.35384
2.00	70	9.6571	5.56096	0.66466
3.00	75	11.5867	3.40942	0.39369
4.00	77	11.5844	3.72174	0.42413
Total	299	10.3612	4.21128	0.24354

Fig.1 shows the mean of grade related to each exam. The curve shows a big difference between the first 2 exams and the last ones.

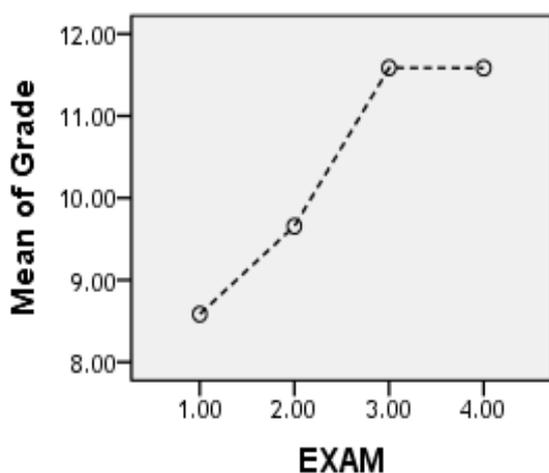


Fig.1 – Averages

Table 5 compares each exam to the other three and shows the mean difference, the standard error, and the significance.

Table 5. Multiple Comparisons

EXAM	EXAM	Mean Difference	Std. Error	Sig.
1	2	-1.07273	0.66472	0.372
	3	-3.00225*	0.65301	0.000
	4	-3.00000*	0.64870	0.000
2	1	1.07273	0.66472	0.372
	3	-1.92952*	0.66893	0.022
	4	-1.92727*	0.66472	0.021
3	1	3.00225*	0.65301	0.000
	2	1.92952*	0.66893	0.022
	4	.00225	0.65301	1.000
4	1	3.00000*	0.64870	0.000
	2	1.92727*	0.66472	0.021
	3	-0.00225	0.65301	1.000

5.3 Discussion of Results

The first exam was a traditional paper-based one. The grades were generally low as the average was 8.6 out of 15, which is around 57.3 %. This average increased to 9.7, which is around 64.6 % in the second exam. Although this was not a statistically significant difference, the researchers believed that this increase was due to the use of KidKit. It is important to mention that in Exam 2 students who made a mistake were forced to stop the exam and were not given the chance to try solving the rest of the questions. The researchers believed that the enthusiasm that the kids showed at the start of the lecture allowed them to pay more attention to what the teacher explained, thus affected their results positively.

The third exam showed considerable improvement. The average was 11.6 which is 77.3%. The average has risen although no game was used. The students were using the mobile phones as a testing tool without playing a game. The students saw the phones at the beginning of the lecture and concentrated on the material expecting to play with the phones. This motivation was coupled with the use of two “assists” to decrease the blocking effect of KidKit.

The fourth exam showed the same results as its predecessor. It was so obvious that the students did a great job as they moved from 57.3 % to 77.3 %. The last exam was not as easy as the previous ones. It

included topics that were considered by the students as “the hardest”.

Looking at the results in general, one can see that students achieved better using KidKit. The researchers came to the conclusion that informing the students about the use of KidKit motivated them to concentrate more on the lecture. Furthermore, the game feature itself affected their motivation positively. This is confirmed by what Demirbilek reported that mobile games, due to the rapid changes of technology, are becoming very popular among students, regardless of their age [14]. Many students were excited to do the test mainly because of the game. This finding goes hand in hand with what was reported by Phillips and Popović [13]. They stated that game-based assessment helped teachers motivate students to better achieve.

The results of Exam 4 were a clear indicator of this aspect. The positive attitude the students displayed because of the use of the digital devices and the game confirms with the results found by Abdul Razak & Thomas [15].

6. Conclusion

IF2E has many advantages which are mainly the disadvantage of the alternative (educational games):

- i) It does not require developing new educational games that need a lot of time and money.
- ii) These games might not be accepted by students.
- iii) Hundreds of games are needed to cover all topics of all subjects for all grade levels.
- iv) Parents are not involved, which is not the case with IF2E where they can specify the questions and set the exams if they want to.

The researchers concluded, based on the results they found in this study, that the implementation of IF2E had a positive effect on students' motivation as well as their academic achievement. When the students realized that they were to use mobile phones, and KidKit, in the exams, their concentration on the lecture given was higher than when no KidKit was implemented. IF2E takes advantage of whatever the students like, whether it is a game, a video, a TV channel, or any application. Instead of building games and hoping to gain children's acceptance, IF2E calls for using what has already been accepted.

7. Future Work

IF2E seems to be a promising approach in education. A lot of work still has to be done. The researchers plan to apply the KidKit idea to Smart TVs, Interactive Boards, and Games Boxes, such as Xbox and Play Station. Although this is going to need a lot of effort, time and money, the academic benefit might exceed our expectations.

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Help!! That Standardized Test is Going to Kill my Chances for Higher Education!

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Abstract

Standardized tests today have as one of the goals to provide the institutes of higher learning and the student with a good predication if that student will be successful or not in the pursuit of a specific plan of study. In addition, it allows the institute to eliminate candidates who are not qualified. However, the student must not only know the content but must also be able to manage the stress of test anxiety.

In preparing to the test students must learn at least some of the little tricks testing companies do trying to determine if the student really has command of the content of a subject or do that student just have a bank of memorized facts. The same problems seem to be globally with standardized tests for students.

By using scary looking numbers test makers often create situations for students who usually are able to master most math problems, such as using 17 and 51 or multiplies of the two. Remember 3×17 equals 51. But if a decimal point is tucking in, it is often enough to make the student lose focus and not be able to answer the problem correctly. Another strategy test makers use to confuse students is to make it look too easy so the students will really not analyze the problem but just quickly circle an answer. An example of this is to ask which is greater 25 or 52. Of course 25 is equal to 32 and 52 is equal to 25, however if one is in a stressful situation or rushing to complete questions one will often just look at the base and get this problem and similar ones incorrect.

Literature research and author prepared materials for tutorials will be shared in this presentation. Methods to help the student manage test anxiety will also be presented.

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Xitsonga teaching in the South Africa's Basic and Higher Education: a Case Study

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Abstract

Xitsonga is one of the South Africa's 11 official languages. It is among the nine indigenous languages that were historically diminished in use and status. Therefore, the purpose of this paper is to explore the teaching of Xitsonga in the South African's Basic and Higher Education. The emphasis is on the transformational curriculum aiming on the promotion and development of Xitsonga language for official status. A case study on the teaching of Xitsonga in basic and high education is presented. The case study constitutes seven aspects, namely: the problem, steps taken and how they were addressed, results, challenges, beyond the results and lesson learned. The problem is further subdivided into problem identification, its relevant and its effect. The steps taken involve investigation, observations and integration. Challenges and lesson learned were exposed, and issues to be addressed beyond the results of this project were outlined.

1. Introduction

Schools and universities that provide basic and higher education are key components of government strategies to expand participation in Xitsonga basic and higher education. They belong to one education system and Xitsonga programmes are responsibility of one another. The paper represents the findings of research undertaken from January 2013 on the teaching of one of the living language of African origin, Xitsonga into the progression to higher education or advanced qualification levels. It focuses on Xitsonga teaching in the South Africa's Basic and Higher Education. Its emphasis was on national policies, collaborations and student progressions. This is part of a study whose first results were published in 2013 [1]. The 2014 research has further developed the methodology so that it better captures the complex nature of learner progression and for the first time it has been able to report on learner progression from basic to higher education. The paper is organised in this introduction. It is followed by background of the study, then the case study and conclusion. The next section is literature review.

2. Background of the study

Xitsonga is taught and learnt as a home language to some of the basic education learners in South African schools. "Home language refers to the language that is spoken most frequently at home by a learner [2]". In 2007, 4.9% of learners in the basic education or school system used Xitsonga as their home language. Figure 1 outlines the percentage of learners used Xitsonga as their home language across grades, in 2007.

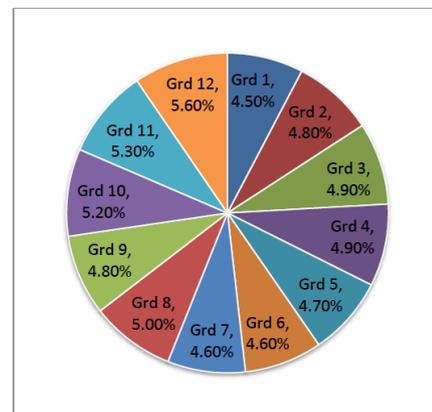


Figure 1: percentage of learners used Xitsonga as their home language across grades, in 2007[3]

Fundamentally, Xitsonga is a home language of ± 2277148 or $\pm 4.5\%$ of the South African population that spread through the nine provinces of South Africa (see Table 1).

Table 1: National and provincial of Xitsonga home language speakers in South Africa

Province	Population	Percentage (%)
Limpopo	906325	40%
Gauteng	796511	35%
Mpumalanga	416746	18%
North West	127146	6%
Western Cape	9152	0.4%
KwaZulu-Natal	8936	0.4%
Free State	8039	0.4%
Eastern Cape	3092	0.1%
Northern Cape	1201	0.1%
Total	2277148	100%

Source: Adapted from [4]

Xitsonga is one of the eleven official languages of South Africa [5]. An official language is a "language

used in government, business and communications [6]”. It is also used “for legal and public administration purposes within a specified area of a country or reaching over the whole state [7]”. It is also referred as a state language because state languages are languages having an official status throughout a country. They are always official languages. Therefore, Xitsonga is both an official and state language in South Africa. Its school and university curriculums should address issues related to its operation in the macro-environment – government and business.

Geographically, Xitsonga is spread over a wide area in the South-Eastern part of Southern Africa. It also widely used in southern Mozambique as a lingua franca (referred to as Xichangana), and is also spoken in Zimbabwe and Swaziland [8].

Section 6(2) of the Constitution of South Africa acknowledges the historically diminished status and use of the country’s indigenous languages [5]. For instance, “the teaching of these languages has not kept up with developments in language teaching [9]”. Furthermore, “in many South African schools, teachers and learners often fail to recognise the importance of mother tongue (home language) education [10]”. Xitsonga is one of those indigenous languages. The diminished status and use also affected the teaching of Xitsonga in the South Africa’s Basic and Higher Education. Therefore, it affects the learner progression in the country education system.

Does Xitsonga teaching in South African basic education progress into higher education? The case study in the next section is answering this question.

3. Case study: Xitsonga teaching in basic and higher education

3.1. Problem

Policies on language in South African education systems are largely ignored. For instance, there is no clear progression pathway for the Xitsonga teaching and learning from basic to higher education. As to what are the elements or ‘factors’ of the problem, and how they relate to one another, there is less analysis. It is rational, therefore, to look into the problem. I will attempt to do so in terms of changing people behaviour. Today the central challenge in South African curriculum development is not policy, not strategy, not systems, not culture, not cost.”These elements and many others can be very important, but the core problem without question is behaviour, what people do, and the need of significant shift on what people do [11]”.

3.2. Steps taken in this project

To provide a comprehensive advice on the importance of learner progression and to open a pathway into this effect and to rethink about new approaches to be used to improve the Xitsonga teaching is an important part of the South Africa’s basic and higher education system collaborations. I had undertaken four steps I thought will help the South Africa’s basic and higher education to improve learner progression in of Xitsonga education. The four steps are discussed in 3.2.1 to 3.2.4.

3.2.1. Sensitising

This was the first step undertaken. Activities included a review two concepts: ‘level descriptors’ and ‘progressions’. The emphasis is on supplying information on the impact of teaching, learning and learner progressions on Xitsonga teaching in basic and higher education to curriculum developers to build evidenced-based argument that will convince them that teaching, learning and learner progression play a role on strengthening Xitsonga learning to the level of higher education.

3.2.2. A review on basic education

This was the second step undertaken. Activities included a review of available qualifications in basic education. The emphasis is on supplying information how Xitsonga teaching and learning should be handled in the country’s basic education to curriculum developers to build evidenced-based argument that will convince them, the present of Xitsonga learner progression in the country’s basic education could support Xitsonga teaching, learning and learner progressions in higher education.

3.2.3. A review on high education

This was the third step undertaken. Activities included a review of available qualifications in higher education. The emphasis is on supplying information on how Xitsonga teaching and learning should be handled in the country’s higher education to curriculum developers to build evidenced-based argument that will convince them, the present of Xitsonga learner progression in the country’s undergraduate qualifications could support Xitsonga teaching, learning and learner progressions in post-graduate education.

3.2.4 Evaluation

This was the last step undertaken. Activities included evaluation of the steps in 3.2.2 and 3.2.3. The emphasis is on assessing their relationship and their links through the learner progression to build

evidenced-based argument that will convince the Xitsonga curriculum developers that there is a need to check the curriculum in the lower levels when developing curriculum in the higher level.

4. Results

4.1. On sensitizing

This step focused on level descriptors, progression and learning progression. Level descriptors, progression and learning progression are in the heart of present South African education system – from basic to higher education. The three aspects are fully discussed in subsections 4.1.1 to 4.1.3 here.

4.1.1 Level descriptors

They are “statements that provide a broad indication of learning appropriate to attainment at a particular level, describing the characteristics and context of learning expected at that level [12]”. They are designed to support the reviewing of specified learning outcomes and assessment criteria in order to develop particular modules and units and to assign credits at the appropriate level. They are “cumulative i.e. there is progression in the competencies from one level to the next... to support the design and implementation of qualifications and part qualifications within the NQF [13]”. They work better when viewed in the context of progression, in other words, looking at the same descriptors for the previous and the next levels.

4.1.2. Progression

“At one level, the idea of progressions is simple and obvious. Kids learn. They start out by knowing and being able to do little, and over time they know and can do more, lots more. Their thinking becomes more and more sophisticated [14]”. Progression is therefore, “an individual learner’s progression from engagement in learning to further stages in learning [15]”. It is “a set of steps along a continuum, each step representing a significant learning development [16]. It is about a “learner’s developing aspirations and the realisation of his/her learning ambitions [15]”. Its proponents focus not only on what the teachers and curriculum are trying to teach—“they also try to look closely at what the students are actually attending to and learning, and at the ways their thinking is becoming organised in their minds (and, to be sure, at how that varies with differences in the ways teachers, textbooks, and curriculum are trying to teach them) [14]”. There is a sequence along which students (learners) “can move incrementally from novice to more expert performance. Implicit in progression is the notion of

continuity and coherence [17]”. Table 2 outlines eight features of progression.

Table 2: Eight feature of progression

- | |
|--|
| <ol style="list-style-type: none"> (1) All learners need to be encouraged to find a progression pathway that leads them towards their goal. (2) Ambitions may not be clear at the point when learners begin their learning. (3) Aspirations are quite likely to change, possibly several times, on the journey. (4) Progression routes are entirely personal and may involve a complex combination and variety of learning. (5) Learning may be formal or informal accredited. (6) Learning may take place in a wide range of situations and organizations, not all of them learning organizations. (7) Progression is not time-limited: but measuring or capturing an individual learner’s progression can take place only over a period of time. (8) Some learners need significant support and encouragement before they want to progress- these learners need high-quality information and guidance; confidence building; and their teachers and mentors also need to be ambitious for them. |
|--|

Source: Adapted from [13]

From the eight features it is clear that progression centres on learners, ambitions, aspirations, routes, accreditation, situations, time, and support. It is all about teaching, learning and the learner (student).

4.1.3 Learning progression

“By its very nature, learning involves progression. To assist in its emergence, teachers need to understand the pathways along which students are expected to progress [17]”. Therefore, the concept of ‘learning progressions’ has begun to show up in discussions of education policy and research as a potential answer to the question of how to specify what being ‘on track’ [14]”. It refers to “changes in the behaviour of an organism that are the result of regularities in the environment of that organism [18]”. It is envisioned as a development of progressive sophistication in understanding and skills within a domain (domain of language study in this case- grammar and literature). It could be best when “implies a continuous, sequential movement towards expertise rather than a series of separate tasks to be mastered in order to ‘move up’, [16]”. Therefore, “learning progressions describe a trajectory of learning in a domain that spans a much longer period and provides multi-year image of successively more sophisticated performance levels [17]”.

In the context of this study, one could expect Xitsonga teaching and learning in South African education system to show a move and progression from one level descriptor to the next. The progression could be seen throughout the basic education - from general education (GET) to further education and training (FET); and from FET to Higher education and training (HET).

4.2. On basic education

Two aspects were observed in the case of basic education: Xitsonga levels of teaching and learning and learning, and qualifications.

4.2.1. Xitsonga levels of teaching and learning

Xitsonga teaching and learning like in any other language teaching and learning in South African basic education system is in three levels (see Table 3).

Table 3: The three levels of Xitsonga learning

Level	Description
Home language	The language that is spoken most frequently at home by a learner.
First additional language	A compulsory language subject that learners have to study at that level.
Second additional language	A non-compulsory language subject that may be studied (by choice) by learners at that level.

Source: Adapted from [3]

The teaching and learning of the language have three different, but related objectives. First, Xitsonga is learned to strengthen and develops the learner's home language so as to provide a sound foundation for him or her to learn additional languages. Second, it is learned to promote multilingualism and intercultural communication of the learner's first additional language. Lastly, it is learned to further multilingualism and intercultural communication for the second additional language learner. The emphasis on level of home language teaching and learning is on developing the learners' reading and writing skills; on first additional language teaching and learning is on developing the learner's listening, speaking, reading and writing; and on second additional language teaching and learning is on developing reading and writing skills, but this level targets improved interpersonal communication. Therefore, there are three categories of Xitsonga learners in South African basic education: Home language, first additional language and second additional language learners. Learners could not learn in all levels.

4.2.2. Qualifications

The qualifications on the NQF may be academic or vocational in nature. "They prepare learners in a broad, general way for further learning and for becoming educated South African citizens with some readiness to enter the world of work. To this end all qualifications are discipline-based and include foundational learning, so providing opportunities for proficiency in one or more languages [19]. Therefore, the Xitsonga teaching and learning at the South African basic education system takes place under four types of qualifications: General Certificate (GC); Elementary Certificate (EC); Intermediate Certificate (IC); National Certificate (NC). Table 4 outlines all level descriptors and progression initiated in each qualification.

Table 4: The progressions in basic education

Qualification	Progression
GC	Successful completion of GC indicates that the candidate meet the minimum entry requirement for entrance into grade 10 or certain level 2 qualifications, provided that candidate has the necessary requirement for admission in that qualification
EC	Successful completion for the EC candidate meets the minimum entry requirement for entrance in some form of Level 3 qualification, provided that the candidate has the necessary requirements for admission into that qualification.
IC	Successful NC level 4 indicates that the candidate meets the minimum entry requirement for Higher Certificate, Diploma and Bachelor's Degree Programmes requiring a National Senior Certificate or a National Certificate Vocational. .
NC	Successful NC level 4 indicates that the candidate meets the minimum entry requirement for Higher Certificate, Diploma and Bachelor's Degree Programmes requiring a National Senior Certificate or a National Certificate Vocational.

Source: Adapted from [19]

The four qualifications place emphasis on generic skills, including "language skills [20]". Therefore, a sound basic understand of Xitsonga language is crucial for the Xitsonga learners in all the four levels at the GC. At the EC, Xitsonga learners are equipped for citizenship, and in general sense, for the workplace by further developing the cognitive capacities associated with the study of Xitsonga language. At the IC, Xitsonga learners are further equipped for citizenship, and in general sense, for the workplace by further developing the cognitive

capacities associated with the study of Xitsonga language. Lastly, at the NC, Xitsonga learners are provided opportunities to focus on more specific skills and knowledge in more academically orientated Xitsonga learning than at GC, EC or IC. Within the NC, the Xitsonga teaching and learning is intended to be more academic in nature, “and has the potential to provide access to higher education or other forms of post-secondary education [19]”. Thus, satisfactory performance in Xitsonga grade 12, which indicates progress in the achievement of the outcomes for grade 12, as defined in the relevant NC documentation is the minimum admission in any level of higher education.

4.3. On high education

Xitsonga home language, first additional language and second additional language are among the Group A, National Senior Certificate (NCS or NC) subjects that are recognised for entry into the higher education qualifications in South Africa. Each level may contribute 20 credits for a prospective higher education student depending on his or her choice of learning level [21]. Therefore, 20 accumulated credits for Xitsonga home, first additional or second additional language should be submitted for admission into Xitsonga learning in high education.

Higher education in South Africa has two forms of qualifications: Undergraduate and post-graduate qualifications (see Table 5).

Table 5: Higher Education qualifications

Undergraduate qualifications	Postgraduate qualifications
Higher Certificate	Bachelor Honours Degree
Advanced Certificate	Postgraduate Diploma
Diploma	Master’s Degree
Advanced Diploma	Master’s Degree (Professional)
Bachelor’s degree	Doctoral Degree
	Doctoral Degree (Professional)

Source: Adapted from [19]

There are 11 qualification types in higher education. Five are undergraduate qualifications and six are postgraduate qualifications. The revised Higher Education Qualifications Sub-Framework (HEQSF): “Recognises three broad qualification progression routes with permeable boundaries, namely, vocational, professional and general routes and provides greater clarity on the articulation possibilities between these qualification routes [22]”. This brings in the concept of scientific and professional models. In the scientific model “the university exists primarily to support the scholar’s interests. For the most part, universities accept this arrangement and the intellectual premise on which it rests: namely, that universities help society advance

by supporting scientists who push back the boundaries of knowledge. They leave practical implications to others [23]”. One of the major recommendations of the Language Policy of Higher Education is “the promotion of the study of South African languages and literature [24]”. This recommendation is in line with the scientific model. This is in line with the general route in the HEQSF and “has a strong orientation towards theoretical knowledge with a qualification trajectory culminating in the PhD, as the characteristic requirement for an academic and research career [22]”.

To balance the goals of Xitsonga teaching and learning with the needs of other constituencies, higher education institutions should engage Xitsonga teaching and learning in professional model. All profession requires languages. For instance, law is a broad-based activity drawing upon many disciplines including language and literature [23]. Therefore, “undergraduate certificates and diplomas are typically found within the vocational route, while professional Bachelor and Master’s degrees represent the professional route, which culminates in the professional doctorate [22].

4.4. On evaluation

I evaluated the results on 4.1, 4.2 and 4.3 to help the Xitsonga curriculum developers in both basic and higher education understand the importance of level descriptors and progression. The evaluation revealed that there are relationships between level descriptors and progressions. The importance of Mother tongue is in the heart of Xitsonga teaching. Mother tongue is defined as “one’s native language [10]”. In the study, it is represented by home language. Therefore, Xitsonga curriculums for mother and non-mother tongue speakers, as well as ABET are available in three levels in the basic education. There is Xitsonga home language teaching and learning for mother-tongue; and Xitsonga first or second additional language for non-mother tongue. The curriculums stretched up to the National Senior Certificate. Both mother tongue and non-mother Xitsonga learners have opportunities to choose between learning Xitsonga in academic field or vocational field after passing the language in GC or grade 9 (schooling) certificate. Entrance into Xitsonga course at higher education requires satisfactory performance in Xitsonga grade 12, which indicates progress in the achievement of the outcomes for grade 12, as defined in the relevant NC documentation is the minimum admission in any level of higher education.

5. Challenges

Progression from GC is clear on paper, but Xitsonga learners seem to be the home language

learner only who progress academically to grade 10 until they pass the NC or grade 12. The EC and IC have lacked Xitsonga teaching and learning.

There are only four or 16% of the 25 South African universities offering Xitsonga: Two or 50% of the four universities are comprehensive universities, one or 25% is a traditional university and one or 25% is a university of technology. The four universities seem to lack offerings in the vocational or professional route. Similarly, the vocational or professional qualifications such as Higher Certificate, Advanced Certificate, Advanced Diploma, Post Graduate Diploma, Master's Degree (Professional) and Doctoral Degree (Professional) lacked Xitsonga teaching and learning.

6. Beyond the results

The new qualification sub-frameworks for General, Further and Higher Education of the NQF published in 2013 should be implemented. Level descriptors and progression, admission requirements and, purpose and character should be respected when developing Xitsonga curriculum. Adult learners interested on learning the Xitsonga language should be given their space at GET and FET levels, especially, in ABET. Universities should accommodate Xitsonga learners in both academic and professional routes.

7. Lesson learned

The experience in this intervention showed that there is still Xitsonga diminished teaching and learning in the country's education system. Important factors regarding the implementation of level descriptors and progression are overlooked, especially, by universities.

8. Conclusion

There is a lack of progression on Xitsonga teaching and learning from basic education to higher education. Strictness on accumulated credits for admission into Xitsonga learning in the next level can resolve progression problem.

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Using 'MESH Guides' as Translational Research and Knowledge Mobilisation for Continuing Professional Development in Schools

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Abstract

In this paper we propose the use of translational research, more often associated with medicine, but here to refer to evidence-based resources for educational practitioners enabling knowledge mobilisation. Smith and Helfenbein identified that translational research 'creates a space for collaborative, co-constructed inquiry that values and utilizes the expertise of all stakeholders involved' [1]. We present the development of a founding model, MESH (Mapping Educational Specialist knowHow, www.meshguides.org), for translational research and knowledge mobilisation in schools to support improved student attainment. MESH provides the 'space' for co-created, peer reviewed, evidence-based educational resources.

1. Introduction

"The results from TALIS suggest that in many countries, education is still far from being a knowledge industry in the sense that its own practices are not yet being transformed by knowledge about the efficacy of those practices." [2]

This paper will consider how issues of continuing professional development (CPD) for teachers in schools might be addressed through the translational research and mobilisation of knowledge opportunity of the new initiative of MESH - Mapping Educational Specialist knowHow (www.meshguides.org). The concept and processes of MESH will be outlined to highlight its potential to augment and enhance the existing and emerging evidence bases in this area of education.

MESH is an educational knowledge management system with the aim of underpinning professional judgment with evidence. MESH uses an accessible multimedia map approach to present a diagrammatic database of subject-specific research-based knowledge about the teaching and learning of topics across the curricular disciplines. MESH builds upon existing portals and evidence bases for education with the aim

of summarising and making accessible the existing evidence whilst also documenting gaps in knowledge and mapping points of contention.

The approach is inspired by the resources available to professionals and academics in other disciplines, such as the 'Map of Medicine' health guides, but recognises the challenges that education has as 'a discipline across disciplines'. Wikipedia provides an example of how easily searchable a large database can be and that, over time, and through collaborative effort to pool knowledge a high quality result may be achieved.

A MESH guide on a particular theme presents an interactive schematic map of key areas of concern or challenge for practitioners within that theme. These are then subdivided into three or four sub areas, summarising existing research, debates or research questions, context and implementation issues and links to other MESH guides. This may be augmented by links to references, video and further guidance or documentation. The resource is peer review and open to moderated comment providing an iterative resource that has the capacity for future proofing.

2. Research Rationale

A participatory methodology is being used supported by the Education Communities software platform linking academics and practitioners across countries working in collaboration to create MESH reviews. MESH operates in a similar way to that used for the production of edited books or journals. It is intended MESH Guides are regularly reviewed and improved as the evidence base builds. Individual Educators can be involved as members of MESH Editorial Boards, as authors of MESH Guides and as Partners in Review Groups and in Scaling Up research groups. Organisations can be involved. MESH Guides are created by educational experts from schools, universities and colleges and are quality assured by peer review groups. A MESH guide has been established to remap the evidence base as well as document the different models and metaphors utilised

in the area of CPD for teachers and the use of research to inform practice.

The quality of teaching has been identified internationally by a large body of educational research as having a critical impact on student attainment e.g. Murnane [3]; Rockoff [4]; Sutton Trust [5]. The Sutton Trust stated that for England ‘improving the effectiveness of teachers would have a major impact on the performance of the country’s schools, increasing the attainment of children across the education system’ [5]. The Academies Act (2010) has increased the number of independent, state funded schools in England, which has allowed greater consideration than ever before of performance-related pay systems for teachers. In order to achieve the standard expected in the classroom, teachers benefit from continuing professional development (CPD) [6] that enables access to robust resources with which to inform their practice.

3. Contribution to Knowledge

MESH guides provide a research informed evidence base to teachers, lecturers and academics accessed by the internet for a global audience. The quality of the content of MESH guides is peers reviewed and open to comment from any educational professional, creating outstanding opportunities for academic discourse. The MESH guides ‘re-map’ the evidence base, as well as document the different models and metaphors utilised for CPD in schools and colleges, which is being used to inform teaching and learning. By examining the impact of MESH guides on teachers’ CPD in schools and the learning of their students, a contribution can be made to our understanding of how translational research can be used in schools through research informed teaching and knowledge mobilisation.

4. Conclusion

In this paper we propose the use of translational research, more often associated with medicine, but here to refer to evidence-based resources for educational practitioners enabling knowledge mobilisation. Smith and Helfenbein identified that translational research ‘creates a space for collaborative, co-constructed inquiry that values and utilizes the expertise of all stakeholders involved’ [1]. MESH provides the ‘space’ for co-created, peer reviewed, evidence-based educational resources.

Findings emerging from an ongoing qualitative investigation into teachers’ perceptions of the impact of using MESH on their teaching and students’ learning are presented. We argue that teachers, as the largest resource in schools [4] need access to an

evidence-based resource that is accessible through common technology e.g. smart phones and the internet, to improve their pedagogic content knowledge and thereby support school improvement.

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Session 27: ICT Education

Connecting beyond the Classroom: the Pros of using Online Social Networking in Higher Education
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Female Learner Experiences in Accessing University Education in Kenya through Distance Mode:
Addressing Constraints, Prospects and Policy Directions
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Connecting beyond the Classroom: the Pros of using Online Social Networking in Higher Education

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Abstract

Prensky classifies the current age of learners as digital natives [33]. These digital natives according to Prensky are more knowledgeable, adept and aware of modern technology [33]. As these natives enter universities and colleges, it becomes critical that faculty and administrators start creating courses to engage them. Learning through connections in online learning communities is critical in today's college classrooms. Online Social Networks can be used to create these learning communities. These communities will in turn create interpersonal connections that allow students to learn in groups within and across borders. As a result colleges can create more flexible modes of delivering course content to students. This paper examines the perceptions of faculty and administrators at a community college in Jamaica, as it relates to the use of Online Social Networks in higher education.

1. Introduction

The use of Online Social Networking Sites in the delivery of educational content has gained some attention from school administrators in recent times. The need to engage students beyond the classroom and expand learning has created a drive by administrators and faculty members in many tertiary institutions to offer online programs.

Higher level learners use these online social networking websites and programs which forms part of the larger group of Web 2.0 tools. These Web 2.0 tools are now known as Learning 2.0 which is more applicable, social and interactive than Web 1.0 technologies. Jovanovic, Chiong and Weis says social networking is part of the popular Web 2.0 trend commonly referred to as social web, which involves social interfacing, content sharing and collective intelligence[24].

The use of Online Social Networking Sites in the delivery of educational content has gained some attention from school administrators in recent times. Hamid et al., says that Online Social Networks involve a group of people using social technologies to communicate and interact. The need to engage students beyond the classroom and expand learning has created a drive by administrators and faculty

members in many tertiary institutions to offer online programs [21].

Higher level learners use these online social networking websites and programs which forms part of the larger group of Web 2.0 tools. These Web 2.0 tools are now known as Learning 2.0. Learning 2.0 technologies are is more applicable, social and interactive than Web 1.0 technologies. (Jovanovic et al., says social networking is part of the popular Web 2.0 trend. This trend is commonly referred to as social web, which involves social interfacing, content sharing and collective intelligence [24].

In comparing Web 2.0 with Web 1.0 technology Shaohua & Peilin as cited in Hamid et al., said that the use of Web 2.0 technologies is a relatively new phenomenon. The authors went on to say that Web 1.0 was less flexible, too centralized and individual based [38] [21]. Silva, Rahman, & El Saddik,as quoted by Hamid et al., says that Web 2.0 is more user friendly than Web 1.0 and is more widely accessible, sociable service based, and writeable[41] [21]. Web 1.0 technology such as discussion boards are often times a part of Web 2.0 technologies [39] [21]. Web 2.0's popularity is due to more utilized services like blogging, video sharing and social networking sites [21].

This study will determine the perceptions of faculty and administrators at a community college in Jamaica about incorporating Online Social Networking in delivering its programs. This study will also provide suggestions to encourage the acceptance and use of these types of technologies in higher level education.

2. Purpose of paper

The researcher wants to find out the faculty's perceptions on potential benefits of using Online Social Networking at the tertiary level. This is important since the institution being studied is moving towards offering courses online. This research will also confirm the opinions of the population identified, as it relates to incorporating social networks in the college's course offerings.

The researcher decided to explore this topic because he has seen where many administrators are opposed to the use of Online Social Networks in education. The research conducted involved a review of literature and a qualitative empirical research.

This approach will provide the data necessary to determine the faculty and administration's perceptions of the potential benefits and drawbacks of using social networks in institutions of higher learning. The researcher will then use the data to suggest measures the institution being studied can implement to facilitate the use of social networks.

2.1 Aim

To ascertain the benefits of Online Social Networking in Higher Education; especially in the delivery of courses at a community college in Jamaica.

2.1.1 Objectives of the Study

To ascertain the attitudes of administrators and faculty to the use of Online Social Networks in delivering programs at a community college in Jamaica.

To determine the views of administrators and lecturers on the potential benefits of using Online Social Networks in delivering programs at a community college in Jamaica.

To find out the views of administrators and lecturers on the potential disadvantages of using Online Social Networks in delivering programs at a community college in Jamaica.

To suggest ways of successfully incorporating Online Social Networks in delivering programs at a community college in Jamaica.

3. Literature Review

In understanding the background and use of Online Social Networks in education a review of literature on the topic was conducted. This highlighted the details of the use and abuse of social networks in education. Research on the topic is wide, but limited in terms of the use of Online Social Networks in higher education. The data collected however was pertinent to this study.

According to Jovanovic et al., and Muirhead and Juwah interactivity in learning is emphasized in theories such as Connectivism [21] [31]. Jovanovic et al., opined that students need increased levels of social and creative engagement in learning since it characterizes their day –to- day interactions [21]. Siemens says that the learning theory of Connectivism posits that the digital and networked nature of our daily lives require learning which occurs through interface with various sources of knowledge [40]. This must be complemented by means of exploring communities of learning and networking beyond the classroom [21].

Using social networking in higher education lends itself to creating student centered Constructivist

classrooms that can build learning communities beyond the boundaries of many educational institutions of higher learning. Hamid, Waycott, Chang, Kurnia, quoted Ferdig.; Schroeder et al; McLoughlin & Lee as saying that social technologies are able to support social constructivist approaches to learning, creating more student centered classrooms. In these settings students can build on their construction of knowledge and engage in collaborative learning [22] [14] [35] [27].

As it relates to Online Social Networks at the tertiary level Hamid et al. said that publicly available social technologies are now being appropriated for use in the classroom [22]. This suggests that institutions of higher learning are utilizing these technologies to engage their students in online learning. This builds social communities of learning that expand beyond books and four walls. In support of these arguments Hemmi, Bayne & Land says that technologies originally designed for social, or non-educational, purposes are being used and repurposed to support pedagogical approaches in higher education” [22] [23].

According to Hemmi et al., as cited in Hamid et al., the term appropriation describes the use of social technologies in the educational realm[22][23]. Concurring with (Hemmi et al., Fill et al., further added that pedagogically appropriating certain technologies is part of a teachers expertise[15][23]. Teachers must ensure they are knowledgeable of the ways to skillfully use these technologies in their classroom. Degele says that appropriation with regards to using new technologies for pedagogical and other purposes is seen as coming from the creative minds of its users [13][23]. Degele suggested most times the creative use of these technologies goes beyond the purposes for which they were designed [13].

The theory therefore supports the use of online social networking as communities of learning in education. Appropriating constructivist approaches to the use of Online Social Networks in tertiary education can improve learning objectives while changing student attitudes.

Armstrong & Franklin ; Sendall, Ceccuci, & Peslak as cited in Hamid et al. said that Web 2.0 technologies despite a short lifespan have been making notable impacts on higher education[1][37][13]. Boyd says that the majority of Web 2.0 users demographically are youngsters, a group Prensky referred to as “Digital Natives [3] [33].” These digital natives are the major composition of generation X the group of individuals currently enrolled or enrolling in institutions of higher education. These digital natives have led Kennedy and Grosbeck to posit that careful planning must be done before any form of appropriation for the use of social technologies in the classroom is considered [19][25][22].

Kennedy and Grosseck as cited in Hamid et al., 2009 further added that many of these digital natives may not be aware of the use of these technologies due to a variety of reasons[19][25][22]. These reasons include diversity of experiences, familiarity, attitudes and expectations of the students towards online technologies, resulting in teachers experiencing challenges using them in education.

Digital natives use Online Social Networks outside the classroom for nonacademic purposes more often than not [22][32]. Many scholars have therefore suggested that educators and administrators alike appropriate pedagogical models to meet the needs of these digital learners. This must be done if they expect to be successful in using Online Social Networks in education.

Jovanovic et al. in agreement with Murray cited in Hamid et al., says that learning 2.0 is an innovative online learning space used to deliver teaching and learning [24][32][21]. Brown in Hamid et al., says that learning 2.0 is ideal for collaborative learning, engaging multiple types of learners and learning [6][21].

Hamid et al. says that many schools have appropriated the use of learning 2.0 tools. Implementation of Learning 2.0 on the contrary is not as popular across universities, and oftentimes limited to only certain levels of study for example, first year students, postgraduate students, subject-focused, or discipline-oriented programs[21]. With this information in mind the researchers felt that “exploring pedagogical aspects for successful Online Social Network implementation for Learning 2.0 via Web 2.0 is a fertile research ground [21].

Hamid et al., their study suggested four Online Social Networking activities that have been identified and relevant in the education context. These include content generation, sharing, interacting and collaboratively socializing [21]. The study finding provides a general guide for academics who want to use Online Social Networks in improving their teaching and learning.

So then, what are the benefits for an institution of higher learning incorporating social networking in education? Hamid et al., said there are four major benefits of using Online Social Networking in the Classroom [22]. The benefits are, improving engagement, enhancing learning motivation, offering personalized course material, and developing collaborative skills using Online Social Networks.

Using Online Social Networks in higher education allows students to study and work in teams and working more collaboratively in their own space and time. Gazi, Aksal, Oztug quoted Whatley, Bell; Fuang,; Saab, Joonlingen, Walters; Moravec, in agreement with Wheeler et al.,; Rifkin et al., and Hamid et. al., as saying that “involvement, teamwork, self-responsibility, learner-centered learning-teaching process, learning by performing,

lifelong learning, and reflectivity have been indicated as inevitable dynamics that foster co-constructed, accumulated knowledge in transferring knowledge into practice[17]”. The authors in essence are suggesting that online learning communities can improve the ways in which students grasp process and share the content relevant to their course of study. Students can reproduce knowledge in concrete forms which is enhanced through the use of Online Social Networks.

Collaborative learning allows learners to work together to decipher meanings and critically solve problems. This in essence generates new ways and means of accomplishing a myriad of tasks [16]. Bruyn cited in Gazi et al., says that “this nature leaves teacher-centered education, and shifts into social, active, reflective, and experiential learning. Therefore, collaborative learning provides a ground for having a learning community that group of learners come together for exchanging, sharing their ideas and experiences [7][17].” Social networking would help students become creators of knowledge through sharing the meaning they derive from content researched.

Zaidieh suggested that using social networks in education can provide the benefits of flexibility, repeatability, convenience and accessibility[43]. In explaining flexibility the author pointed out that students have various learning styles that using social media in education can effectively address. The flexibility of using Online Social Networks to encourage students to think critically about various topics was highlighted by Zaidieh [43]. Online Social Networks has the convenience of encouraging students to think critically wherever they are. Students also have the choice of viewing content at their leisure.

Traditional teaching methods remove the possibility of students reviewing past lessons or viewing materials that were not available outside the classroom. Zaidieh opined that students replaying or reviewing content taught or shown using social media can improve the level at which they grasp this content[43].

In explaining convenience and accessibility Zaidieh made it clear that social networks abundant and available to students and most are free of cost[43]. Zaidieh indicated that social networking is easy and quick in terms of accessing accessibility, reviewing, updating, and editing learning material needs anytime and anywhere[43]. Students can work in their own time and this can reduce the level of stress students’ face, especially those students working and studying part time. Using social networks creates a balance and students can manage their time effectively to ensure that they can complete assignments posted on these sites. The learner can grasp content more readily as they learn

within the time they find to be more convenient for them to review course contents.

“Information technology and communication joint learning process condenses the notions of collaborative learning, where mediation facilitates learners in networking, sharing, exchanging, and negotiating ideas within the construction of knowledge in an active learning environment.” [17] After briefly looking at the potential benefits of Online Social Networks in education it is only appropriate that the potential drawbacks be highlighted.

Zaidieh (2012) identified three major problems with using social networks in education. Privacy, time consumption and miscommunication pose major threats to the effective application of Online Social Networks in education [43].

Many people are concerned about how their information is shared across the web and expressed deep concerns in relation to their privacy on social networks [43]. (Zaidieh also opined that most online friends are not genuine and users may find having many friends on social networks causing more harm than good, especially when studying. Many persons will refrain from engaging in extensive use of social networks in education due to these issues [43].

In reference to a study posted on the website www.azureim.com, Zaidieh, said that the length of time individuals spend connecting on line can negatively affect their physical and mental health [43]. The study found that arterial and immune problems are results of extensive use of Online Social Networks. Zaidieh also opined that social networking in education can significantly reduce the level of motivation towards learning and may effectively become a bore for many students if used extensively[43].

Hameed et al., cited in Zaidieh indicated that “E-Learning does not afford the student the same opportunities of explanation and clarification that occur in face-to-face interaction” [43]. The authors believed that face to face interaction made it easier for students to get a more effective feedback. Brady et al., further added to Zaidieh’s possible drawbacks to the use of social media by pointing out that Dawson felt that the “limited or nonexistent face-to-face interaction of distance education courses can make building a community of practice and fostering students' sense of social presence online challenging [4] [43].” The authors are concretizing the point made by Hameed et al., cited in Zaidieh, saying that face to face communication with students is of critical importance if any significant change in students’ attitude and outcome are to be realized [20] [43].”

Brook & Oliver said that while technology can reduce spatial and temporal differences, it poses the challenge of not facilitating interaction and community [5]. The literature so far on the use of

Online Social Networks has somewhat disputed the claims of Brook & Oliver[5].

Selwyn also said that “*if course participants share few common interests or have a minimal commitment to each other or the discussion forum, interactions consist merely of the exchange of information and often diminish over time*”, which would make the use of Online Social Networks to deliver course contents null and void as this may not be the turf on which students find common ground[36].

Hamid et al., pointed out that sufficient research has not been done as it relates to appropriating Online Social Networks in education[21]. The authors also believed that research should focus on the growth and use of Web 2.0 tools in higher education. The researcher of this paper found (Hamid et al.,’s recommendation for further research to be essential as the current literature on the topics are limited and at sketchy at best[21]. (Hamid et al., is interested in research that successfully answers the question of “how institutions of higher education can deploy Online Social Networks appropriately with consideration being given to pedagogical use?” [21]

The literature reviewed has highlighted the role Online Social Networks can play in higher education. It is shown where the benefits of using these technologies involve engaging students wherever they are. Issues such as privacy and miscommunication are drawbacks to the use of Online Social Networks in education. Successful use of Online Social Networks is dependent on how a school’s administration designs their curriculum incorporating these technologies.

4. Research Design

The researcher engaged in qualitative research for this study. Bogdan, Biklen; Marshall, Rossman, ; Cohen, Morrison, Manion, is quoted by Gazi et al., as saying that qualitative research design focuses the human experiences encapsulating perceptions, motivations, intentions and behaviors [2] [26] [9] [17]. It is for these reasons the researcher chose to engage in qualitative research for this study. Gazi et al., further went on to postulate that qualitative research is a scientific process that is interpretive based and seeks to prioritize socially constructed meanings derived from human interactions[17]. A semi structured interview was used for this study. Gray also gave the following reasons for engaging in interviews; important personal data can be gathered, the research is open to probing, and a good return rate is guaranteed[18].

Gazi et al., suggests that comprehending the experiences and meanings people attach to their thoughts and actions, is the essential element of this type of research[17]. Using this type of research in this study will ensure that the researcher gets an individual perspective of any agreement or

objections the faculty and administrative staff at the college being researched has to the incorporation of Online Social Networks in course delivery.

4.1 Sampling

The researcher will use purposive and simple random sampling for this study. Purposive sampling will be used by only selecting the administrative and academic staff at the college. Simple random sampling will be used to survey a reasonable cross section of the population due to the time constraints of the study. Despite the risk of making the research biased, purposive sampling can ensure that the researcher collects data relevant only to the aims and objectives of this study. Simple random sampling reduces the added burden of surveying everyone in the described population.

The purposive sample included the college's Principal, 2 Vice Principals, Systems Administrator, Deans and Asst. Deans of Faculties, Financial Controller, Marketing Officer, Librarian and Lecturers. The purposively selected population yielded forty participants who all participated in the study at free will. Despite the college academic and administrative population being well over 80 members, at the time the research was conducted many persons were on vacation leave or summer break overseas. The researcher had to therefore use the available individuals to conduct the study. They were met on a one on one basis in their offices or spaces on campus that allowed for the study to take place with limited distraction.

5. Limitations of Study

The cross section of population might not be truly representative of the total population. The time constraint to conduct the study limited the researcher's ability to do more extensive research. The research literature researched and reviewed was limited and did not cover the extent of the study. At the time of the study the college was being prepared for reopening, hence time spent interviewing persons was limited. The study was only conducted in one community college; there are eight on the island. The results from the study may be different in the other colleges. The research was not triangulated since only qualitative methods were used. A triangulated approach usually produces more reliable results.

7. Data Collection and Analysis

Due to time constraints the only data collection tool that will be used for this study is a semi-structured interview. According to David & Sutton semi-structured interviews are not

standardized and allow the researcher the flexibility of probing[11]. With key topics and questions designed to be answered, the question order is flexible and allows the researcher to gather in-depth qualitative data. The interviewer is allowed to control the direction of the interview.

According to Corbetta semi-structured interviews allow prompting and probing by the researcher and hence he/she can ask more detailed questions[10]. It also allows the nature of the questions to be altered to ensure respondents are able to answer what is being asked. On the contrary semi structured interviews may not always allow prompting. Researchers may not be able to effectively probe hence relevant data may be left uncollected.

Interviews will be conducted, face to face or using mobile technology. The researcher has direct access to these individuals and finds it easier to apply this data collection tool. At the time of the research the participants will also be engaged in numerous college reopening activities and as such these considerations had to be factored into the data collection tool chosen. The semi structured interview instrument will have a mix of open and closed ended questions. The tool will be predominantly opened ended however, to make it significantly qualitative, demographic data will be collected using the closed ended questions.

8. Analysis and Presentation of Findings

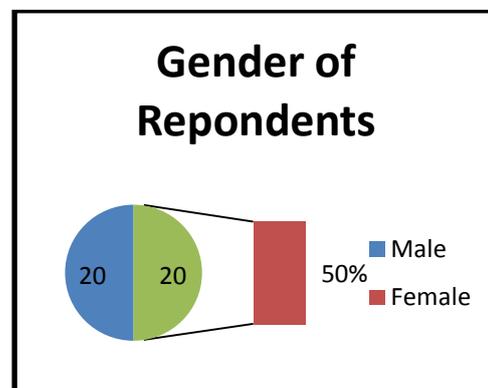


Figure 1: Please indicate your gender

Figure1 shows that 20 males and 20 females participated in the study. Two males from the administrative offices and eighteen males from the faculty were a part of the study. All females participating in the study were faculty members. Some held administrative roles and included the Acting Principal, two Vice Principals, Marketing Officer, 2 Assistant Deans, 2 Deans, the Assistant Registrar, Librarian and the Placement Officer.

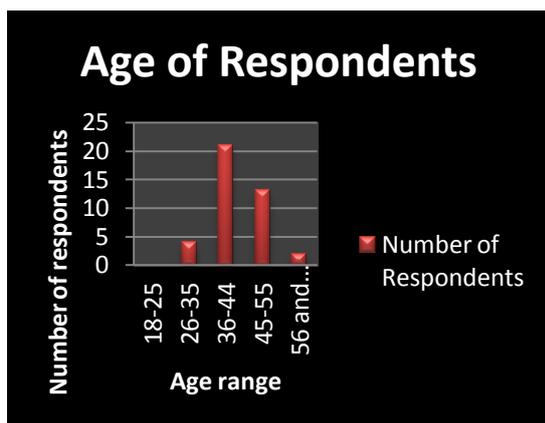


Figure 2: Please indicate your age

Data from the research indicated that 4 respondents were in the age range of 18-25, 21 in the age range of 26-35, 21 in the age range of 36-44, and 13 in the age range of 46-55. Only 2 respondents were in the age range of 56 and over. 14 males were in the category of 35-44 with 7 women making the total 21 for that category. In the 25-35 categories there were 2 males and 2 females, the 56 and over category had 2 females. 6 men were in the 45-55 age range with 7 females making the total 13. The age ranges of 35-44 and 45-55 indicated a more senior level of staff. It was also duly noted during the interviews that these age ranges showed little or no apathy to the use of social networks in delivering content. They were the group however that indicated that there awareness and training must be developed by the college.

Time spent online	Number of respondents	Time spent on social networks	Number of respondents
5 hours	10	5 hours	27
10 hours	17	10 hours	7
15 hours	2	15 hours	5
20 hours	4	20 hours	0
30 hours	3	30 hours	0
35 hours	2	35 hours	0
40 hours	2	40 hours	1

Table1: On average, how much time do you spend on line and on social networks each week?

Table 1 shows the responses to items 3 and 4 on the interview schedule. The data shows that 10 respondents spent 5 hours online each week, 17 spent 10 hours and 4 spent 20 hours. 3 spent 30 hours while 2 spent 15, 35 and 40 respectively. In comparison when asked how many hours were spent

on social networks the mode of the responses indicates that majority of the respondents (27) spend at least five hours online on social networks. 7 respondents spent 10 hours, 5 spent 15 hours while 1 spent 40 hours.

Upon further observation of the findings of the study, it was discovered that the individuals in administration and faculty were basically on a level playing field as it relates to internet and social media use. It was interesting to note however that the males in the survey spent less time online than the females, with only one male spending 40 hours. As it relates to the time spent on social media males spent less time on average than females, with females spending at least 15 hours per week in comparison to their male counterpart who only spend 5 hours on average.

When asked to name the social networking sites that they had created a profile for, 75% of the respondents indicated Facebook, 38% YouTube, 20% indicated Skype, 28% indicated LinkedIn, and Twitter had 7.5% of the responses. Only 5% of the respondents which included 1 male and 1 female indicated that they didn't have a Facebook page. When the respondents were further quizzed as to whether or not they used social media in an official or professional capacity 75% of them said yes, while 25% said no. During the interview it was discovered that many individuals involved in teaching use these social networks for their own professional development and not so much in relation to their jobs. The Financial Controller and Acting Principal were the only two respondents who indicated that have use social network in making connections relevant to their jobs through sites such as LinkedIn.

The researcher then went ahead and asked the respondents to state the primary purposes for which they use social networks. Some of the responses given were duplicated, but the study indicated that 43% of the respondents use social networks to keep in touch with family and friends. 12.5% use social networks to meet new people, 25% to make professional contacts, 17.5% to share photos, videos and music, 7.5% to play games and 20% to discover new music, books etc. It was quite interesting that none of the respondents indicated here that they use their social networks to connect with students, however when asked how many students were a part of their social network 31 respondents said at least 25 students were, while 8 respondents said at least 50 students, 1 respondent said at least 75 students.

The researcher went on to probe the respondents further and not surprisingly, 80% of the respondents when asked if they have ever used social networking to deliver any courses said no, 5% said yes, while 15% who are administrative personnel said the question did not apply to them. The research here is showing where those connecting with students on line are not making full use of their social networking platforms to deliver content to their

students. The researcher needed to find out why this is so and continued to ask questions along that line.

The next question sought to find out how long those respondents who use social networks to deliver content to students actually spend on these networks. The research indicated that of the 5% of respondents, who said they have used social networks to deliver courses, 1 respondent spends only spend 30 minutes to 1 hour per week and the other (3 hours to 4 hours per week. The standard work week for the lecturers at the college is 18 hours and if they work part time it can reach as much as 24 hours for the week. This research is therefore trending towards showing a general lack of interest or motivation to use social media in delivering content to students.

The respondents were then asked to state the positive and negatives they believe could come from using social networks to deliver course content and gave the following responses:

Positives

1. Social networks are accessible to students.
2. Students are already connected to social networks so it's a good way to reach them.
3. Learning can take place anytime when social networks are used in delivering content.
4. Student interest in social networks will be high, so it is an excellent tool to motivate them.
5. Social networking in education is cutting edge and a cost effective approach to teaching.
6. Social networks have the potential to reach a wide audience and span large geographic areas.
7. Social networks are innovative and relevant in the teaching learning process.
8. Social networks can be used to enhance course delivery due to the fact that students are using social media daily.
9. Fast speedy response to students is a plus.
10. It opens a learning community for both lecturers and students.

Many of the positives given by the respondents were synonymous with those highlighted by Wheeler et al.; Rifkin et al., cited in Hamid et al., who stressed improving engagement, enhancing learning motivation, and developing collaborative skills using Online Social Networks[22]. This is the key to successfully incorporating Online Social Networks in education. The respondents' seem to share this same view and even concurred with Zaidieh's opinion that using social networks in education can provide the benefits of flexibility, repeatability, convenience and accessibility[43].

Negatives

1. Limited access to internet resources by students.
2. The reliability of system administrators is weak at the institution.
3. Some academic staff members are inexperienced with and unaware of the use of social media.
4. Students use social networks selectively; using them for leisure and not educational purposes.
5. Inadequate on campus internet access.
6. Lecturers may not want to share personal space with students.
7. There is no indication of the use of social networking in the institution happening or about to happen.
8. Students can get lost in the process since that face to face contact will be missing, especially with large class sizes.
9. I am unaware of the use of the process.
10. Social networks can attract unnecessary traffic which can create unpleasant feedback to students and lecturers.
11. Limited training of staff in the use of these technologies is a phenomenon at the college.

As it relates to the negatives, the respondents again agreed with two of Zaidieh's three major problems with using social networks in education, privacy and miscommunication [43]. Online Social Networks may attract unnecessary traffic which may result in communication and privacy problems. Hameed et al., pointed out that face to face communication may be better than using Online Social Networks. This was also pointed out the respondents [20].

While the findings may be indicating that there are more negative than positive perceptions regarding the use of social networking, it must be pointed out that the negatives do not speak to staff apathy or unwillingness to use social networks to deliver content. The negatives seem to focus on a weak technological infrastructure or lack thereof at the institution. This can be proven in the responses given as to the positives of social media in education. The respondents have shown that they are aware of the flexibility and accessibility of social networks, but the majority doesn't use them to deliver courses. The respondents even went as far as to point out the fact that a learning community can be developed for staff and students.

So why aren't social networks being by the college to deliver courses, since there is minimal staff apathy and such great positives?

The question was asked if the institution has a policy or is creating a policy governing the use of social networks in delivering content, only 3 staff

said yes, the Acting Principal, a lecturer and the Financial Controller all other members of staff interviewed said no. Is this an indication that the college is not communicating this policy to employees? When the Financial Controller and Acting Principal were probed, they indicated that there definitely needs to be more staff sensitization but the policy is currently in the works and should be ready for roll out in a few months.

Can it therefore be interpreted that the negatives highlighted by the staff as it relates to infrastructure and policy are directly related to the phenomena of policy ignorance? The respondents were then asked to suggest ways in which the institution being studied can adjust its structure to allow for the use of social networking in the delivery of course materials. The researcher felt that the responses to this question would've clarified what could be termed as "system challenges," facing the college. The following responses were forth coming from the respondents:

1. The college should develop more online course offerings.
2. Allow students to use smart phones in the class.
3. Improve technological infrastructure making internet resources more reliable
4. Training for staff and students to change their mindset about social networks
5. Create a policy to guide and regulate the interaction on social networks.
6. Create workshops on the use of these social networks.
7. The college should provide each lecturer with a computer on their desk
8. The college should start using social network and slowly phase in programs using these mediums.
9. The lecturers must find creative ways of doing this not the college

In some respects the system challenges were brought to the fore, the need for staff and student training, creation of a policy, provision of computers and the need to develop online programmes is an indication that staff members may be willing to use social networks. This is dependent on awareness being created and them being able to continuously use the technologies while being governed by a policy for use.

8. Discussion of Findings and Conclusion

As it relates to meeting the objectives set out in this study, the findings yielded the following results. At the institution being studied there seems to be limited apprehension to the use of social networking in delivering programs. Even though the respondents indicated that social networks are not a popular means of delivering content, their responses pointed

out that if the right infrastructure is in place and training and development takes place the staff mindset may change, allowing them to accept the use of Online Social Networks to deliver content.

The administrators and lecturers views on the potential benefits of using social networks in education seems to tie in perfectly with aspects of the literature reviewed, however despite this there is limited use of these social networks among them for academic purposes.

The respondents were also able to point out some disadvantages that seem to find common ground in the literature. These disadvantages however are not of apathy or apprehension but seem to speak to the need for improvement of the college's technological infrastructure.

The faculty and administrators were able to suggest ways to incorporate Online Social Networks in the college's delivery of programs. Many of the points they made seem to suggest that the college must get involved in appropriating not only its structure and programs, but staff, students, and technological infrastructure in order to effectively utilize social networks in the delivery of course materials.

In concluding it can be seen where social networking in education is a vital, inexpensive tool that can create learning communities across borders. If the college researched is able to fix the negatives the respondents have identified and work on improving the positives, staff use of these networks could increase. Student morale may be increased and student attitudes and outcomes could change. We exist in a digital age and the "digital natives" can and will become bored quickly if the same traditional methods of teaching are prolonged through this age, especially at the tertiary level.

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Female Learner Experiences in Accessing University Education in Kenya through Distance Mode: Addressing Constraints, Prospects and Policy Directions

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Abstract

Flexibility and cost effectiveness have been identified as components of distance education which enhance access to university education. However, the quality of distance education is affected by various issues at individual and institutional levels. The objective was to assess and document experiences by female learners in distance education in universities to Kenya. The cross-sectional survey design guided the research process. The study targeted women distance learners in public and private universities. From each institution, 200 learners were randomly selected to form a sample size of 1,800. A survey questionnaire was mailed to 1,800 learners and at the end of data collection, 1,400 questionnaires were returned duly filled, representing 77.8% response rate. Quantitative analysis yielded frequency distributions, percentages as well as severity scores and ranking; while qualitative data were transcribed, clustered into nodes and explored for patterns of experiences by women in universities through distance mode. About 77 percent of the participants indicated that irregular and unsystematic supply of course materials disrupted learning continuity and was considered the most severe problem experienced by women distance learners. Whereas, 66.9 percent of the participants identified the turn-around time as a problem affecting study plans, up to 60.7 percent pointed out that compulsory submission of assignments was a key challenge. In addition, 63.8% of the learners faced various challenges relating to attendance of personal contact programs, while 69.9% were of the view that existing tutorial systems were not supportive to their learning. The study recommends the need for: institutions to establish a supervisory system, linking learners with the administration to ensure a consistent supply of reading materials; computerization of student information system to improve administrative effectiveness, as well as streamline the supply of reading materials; provide accommodation facilities to women distance learners during personal contact program sessions; develop a master plan for tutorial sessions and disseminate to enable learners schedule their attendance; standardize the turn-

around time for assignments as appropriate and improve supervision to enforce adherence.

1. Introduction

Distance education addresses issues posed by the high demand for university education by providing flexible and cost-effective opportunity for people in employment to acquire university education, with advanced skills necessary for vertical mobility [14]. As noted by Krishnan, distance education programs have expanded fast because of inbuilt advantages, including cost-effectiveness and flexibility, which makes the mode most appropriate for people in full-time or part-time employment. The rapid expansion is also attributed to modes of delivery, which makes it possible to meet the needs of learners scattered in various locations simultaneously and raising access to otherwise prohibitive cost of university education [4, 28].

In view of this, distance education enables institutions of higher learning to overcome the challenges of time and space. Consequently, instructors and learners engage without necessarily being at the same place and time, depending on the methods used. To illustrate the point, Savoye points out that satellite campuses in Arkansas State University and the Open University of Dar es Salam are increasingly attracting a 'hidden market' of adult learners and high school graduates, which has caused enrolment to grow tenfold over the past two decades. The flexibility associated with distance education makes it most appropriate for female learners who may lack opportunity to attend lessons during regular hours due to employment or child care obligations or a myriad of other engagements.

After the 1982 World Conference organized by the International Council of Distance Education in Melbourne, women participants were motivated to establish the Women International Network (WIN) to popularize distance education and influence women to capitalize on the opportunity to improve

their education status and gain competitive edge in the job market [7]. Today, distance education systems around the world have made it possible for people in employment, especially women to access higher education (UNESCO, 2002) at affordable costs and flexible time schedules.

Women's access to higher education yields multiple benefits at individual, household, community and global levels. Cross-country surveys examining effect of women's education on Gross Domestic Products (GDPs) have consistently demonstrated positive results on stimulation of sustainable development [13, 29]. On social dimension, university-educated women opt to delay marriage, motherhood and likely to restrict family size which in turn spur social and economic development. Moreover, higher education empowers women to negotiate for sexual relations, thereby reduce their vulnerability to Sexually Transmitted Infections (STIs) including the HIV/AIDs and gender-based violence within marriage and different manifestations of maltreatment [1].

Despite advantages of university education to women, studies such as Bhainsali and Trivedi, as well as Mari have revealed that female learners in distance mode continue to face challenges such as inconsistent supply of course materials, difficulty of getting tutorial assistance and long duration taken by some instructors to evaluate and return course work assignments. The studies emphasized need for appropriate measures to cushion female learners against inappropriate evaluation which culminates in longer completion periods.

In Kenya, history of distance education runs back to 1966 when the Board of Adult Education was established through a an Act of Parliament to facilitate delivery of non-formal educational programs in disciplines such as health, agriculture, family planning, rural development and environment through the mass media [11]. The initiative was stimulated by the post-independence commitment to fight poverty, ignorance and disease to spur socio-economic development [27, 11] Since then, distance education has grown in terms of the number of institutions and student population raising access to university education.

In response to inherent difficulties experienced by women in this mode, as postulated by, Kenyan universities have come up with a blended model of distance education, in which learners use modules while at home and attend campus for face-to-face

interaction with instructors. However, a closer examination of the model reveals that it has not effectively addressed difficulties experienced by distance learners, especially women who often drop out or delay completion due to a myriad of issues. Consequently, the study assessed difficulties experienced by women pursuing university education through distance mode, with a view to identifying policy measures that should be instituted to improve quality of distance mode to raise access and competencies.

2. Statement of the problem

The initiation of distance education in Kenyan Universities respondent to increasing demand for university education and necessitated by the need to expand educational opportunities for quality human resource and achievement of the country's development aspirations. Given its flexibility and cost-effectiveness, distance education enables low income-earners to access university education, acquire advanced skills for continuing career development and vertical mobility [28]. Distance education is particularly appropriate for women, whose access to higher education has been disadvantaged by domestic chores, maternal obligations, child care and employment.

Despite the promises and advantages of distance education, studies conducted by Bhainsali and Trivedi, as well as Mari have hinted that distance education is laden with diverse dimensions, which affect the quality of learning at university level. The issues highlighted touched on availability and quality of course materials, assignments, personal contact programs, quality of instruction, hidden costs, misuse of technology and attitudes of instructors, learners and administrators; all of which negatively affected quality of distance education.

Such issues continue to raise concern among specialists in gender and development, particularly because distance education is considered a golden opportunity for women to access university education. Although the history of distance education in Kenya runs to decades, no systematic academic process had ever assessed and documented the experiences of women to distance mode in public and private universities. Hence, this study was conducted to identify experiences by women in distance mode to generate data that

would necessitate policy action to improve the quality of learning.

2.1. Objectives of the study

The broad objective of the study was to assess and document challenges experienced by female learners pursuing higher learning under the distance education mode. More specifically, the study was guided by the following objectives: -

1. Identify challenges experienced by women in learners regarding course materials.
2. Determine challenges that female learners encounter in terms of assignment system.
3. Establish challenges affecting female learners regarding personal contact programs.
4. Investigate challenges experienced by female learners in accessing tutorial help from their instructors.
5. Assess the personal challenges facing female learners in their pursuit for higher education.

3. Methodology

The cross-sectional survey design was applied to guide the research process in sourcing, processing, analyzing and interpreting data. The design had both quantitative and qualitative approaches. The design was particularly appropriate for the study because data was sourced at a single point in time. The target population included female learners enrolled for undergraduate and post-graduate courses through distance education in public universities, including Moi, Egerton, Kenyatta, Nairobi, Jomo Kenyatta, Masinde Muliro and Maseno. The study also targeted female learners at Catholic and Baraton Universities, which were the only private institutions of higher learning offering distance education as at December 2010.

3.1. Sampling procedures and sample size

The researcher applied both probability and non-probability sampling procedures to identify the units of analysis, i.e. women distance learners. In situations where a population is too small to be sampled, it is logical to include all the elements in the sample [16]. Based on this, all the nine

institutions offering distance education were purposively considered for inclusion in the sample, which included 7 public and 2 private universities. While selecting the institutions, regional representation was observed to ensure equitable geographical coverage. From each institution, 200 learners were randomly selected for inclusion in the sample, which yielded a total sample size of 1,800 learners.

3.2. Data collection instruments

The researcher used a survey questionnaire to source the requisite information. The instrument was divided into six sections – A, B, C, D, E and F, in line with objectives of the study. Section A elicited information on the background profile of participants, section B sought information on challenges arising from course materials, section C covered challenges faced with the assignments system, section D yielded information on challenges associated with personal contact programs, section E focused on the tutorial system, while section F sourced information on personal challenges affecting the quality of distance education.

The survey questionnaire consisted of structured and semi-structured questions. The questions were posed before selected participants and responses jotted down. Responses on key items were standardized using abbreviations, viz. VBP (Very Big Problem); JAP (Just a Problem); and NAP (Not a Problem). The standardization of responses facilitated the tabulation of frequency distributions and determination of severity ranking. In this regard, a score of 2 was assigned for VBP, 1 for JAP and 0 for NAP; and adding all the scores for the subjects in the sample.

The instrument was pre-tested and the reliability computed. In this regard, the pre-test obtained a Cronbach's alpha value of 0.89, suggesting that the instrument's internal consistency was good according to the guidelines developed by George and Mallery [8]. The instrument was mailed to 1,800 women distance learners at the selected universities. At the end of data collection, 1,400 questionnaires were returned to the researcher duly filled, representing 77.8% response rate, which was considered satisfactory according to Holbrook, Krosnick and Pfent [10].

3.3. Data processing and analysis

Both quantitative and qualitative techniques were applied to process, analyze and interpret the data. Quantitative analysis yielded frequency distributions, percentages, cross-tabulations as well as severity scores and ranking of the problems; while qualitative data were transcribed, clustered into nodes and explored for patterns of challenges experienced by women in distance education.

4. Findings of the study

This section presents the findings, which have been organized under five key thematic areas in line with objectives of the study, including challenges associated with course materials, the assignment system, personal contact programs, tutorial system and personal problems. Details are presented and discussed under the following sub-headings.

4.1. Problems associated with course materials

Distance learners are expected to learn independently with the help of printed course materials provided by instructors. In view of this, the quality of independent learning in distance education largely depends on three factors, viz. the subject content of course materials, presentation style and supply consistency. Whereas an ideal presentation style should facilitate self-learning, the supply consistency should ensure learning continuity and motivation.

In view of this, problem statements 1 and 2 were posed to women distance learners to identify the problems faced in relation to course materials produced for their degree programs. Table 1 presents the frequency distributions and percentages, which are presented under the standardized categorization, including a Very Big Problem (VBP), Just a Problem (JAP) and Not a Problem (NAP). Also indicated in the Table is the severity ranking for each problem statement item.

Table 1: Severity of problems related to course materials

Qn	Problem statement	Frequency			Severity	
		VBP	JAP	NAP	Score	Rank
1.	The supplied course materials do not serve as self learning materials and it is difficult to understand each and every concept with their help.	510 (35.9%)	660 (46.5%)	250 (17.6%)	1420	3
2.	The supply of reading materials is not regular and systematic. This disturbs the planning done for learners by the learners.	715 (50.4%)	385 (27.1%)	320 (22.5%)	1420	1

The results in Table 1 reveal that irregular and unsystematic supply of course materials disrupted learning continuity under the distance education mode. This emerged as the most severe problem experienced by women distance learners. More specifically, up to 715 (50.4%) learners rated the irregular and unsystematic supply of course materials as a VBP, 385 (27.1%) indicated that it was JAP, while 320 (22.5%) were of the view that it was NAP. Overall, the findings suggest that up to 77 percent of the distance learners hinted that irregular and unsystematic supply of course materials was a serious factor disturbing their study plans. Moreover, the issue emerged atop as the

most important challenge faced by women pursuing higher education through distance learning.

Regarding the quality, course materials were not perceived to be serving as self-learning materials; rather most distance learners (82%), found them difficult to understand. In this regard, up to 510 (35.9%) said the materials were a VBP, while 660 (46.5%) indicated that the materials were JAP. The quality of course materials emerged as the third most important challenge experience by women distance learners.

4.2. Problems tied to the assignment system

Submission of written assignments, evaluation by tutors, constructive suggestions form a two-way non-contiguous communication channel in distance education. In turn, the communication channel forms the backbone of efficiency in distance education. However, various studies such as those conducted by Baath and Rathore have proved that longer turn-around time of evaluated assignments affects the quality of learning under distance

education [2, 19]. Another study by Sahoo and Bhatt found that compulsory submission of assignments encourages drop-out among distance learners [20]. With this in mind, problem statements 3 and 4 were posed to learners, with the aim of determining the proportion facing problems with the assignment system. The frequencies and percentages of women for whom the given problem statements were a VBP, JAP, and NAP along with severity rank are presented in Table 2.

Table 2: Severity of problems related to assignment systems

Qn	Problem statement	Frequency			Severity	
		VBP	JAP	NAP	Score	Rank
3.	The compulsory submission of assignment is useless unless constructive suggestions come from tutors.	281 (19.8%)	581 (40.9%)	558 (39.3%)	1420	9
4.	The time gap between date of submission of assignments and the date when they are received back duly marked and commented is so long that not only the planning done for the studies but the entire purpose of assignments is defeated.	260 (18.3%)	690 (48.7%)	470 (33.1%)	1420	6

The results presented in Table 2 show that up to 66.9 percent (48.7% JAP and 18.3% VBP), of the distance learners indicated that the duration between the date of assignment submission and the date when they are received back, duly marked and commented i.e. turn-around time (TAT) was too long; thereby affecting study plans and defeating the purpose of assignments. This challenge emerged as the sixth most severe problem for women in distance education. Moreover, the findings suggest that irregular and untimely communication between tutors and learners was a critical factor disrupting study plans, particularly for women enrolled in distance education programs. The challenge also hinders timeliness of the two way non-contiguous communication for improvement, which is the sole purpose of assignments in distance education.

Regarding compulsory submission of assignments, 60.7 percent (19.8% VBP and 40.9% JAP) of the learners opined that compulsory submission of assignments is useless, unless constructive suggestions come from tutors. However, 39.3 percent women did consider the issue a problem. Consequently, the test item emerged as the ninth most severe problem experienced by women distance learners. On the basis of these findings, it can be safely concluded

that a good majority of women in distance education consider compulsory submission of assignments useless, unless they are properly evaluated, commented and returned within the shortest time possible.

4.3. Problems with Personal Contact Programs

The concept of Personal Contact Programs (PCPs) is a dilution of the principle on which distance education is founded. However, the introduction of PCPs concept is considered a remedy for the challenges experienced distance learners [21]. PCPs enhance learners' convenience; thus, encouraging more people to pursue higher education through distance learning. Contrastingly, Sahoo and Bhatt points out that compulsory participation at PCPs has been a cause for drop-outs in distance education [20]. To find identify the challenges experienced by women distance learners regarding PCPs, two problem statements i.e. 5 and 6 were posed to participants. Table 3 presents the frequencies and percentages obtained for each test item. The results presented in table 2 show that up to 66.9

percent (48.7% JAP and 18.3% VBP), of the distance learners indicated that the duration between the date of assignment submission and the date when they are received back, duly marked and commented i.e. turn-around time (TAT) was too long; thereby affecting study plans and defeating the purpose of assignments. This challenge emerged as the sixth most severe problem for women in distance education. Moreover, the findings suggest that irregular and untimely communication between tutors and learners was a critical factor disrupting study plans, particularly for women enrolled in distance education programs. The challenge also hinders timeliness of the two way non-contiguous communication for improvement, which is the sole purpose of assignments in distance education.

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Table 3: Severity of problems related to personal contact programs

Qn	Problem statement	Frequency			Severity	
		VBP	JAP	NAP	Score	Rank
5.	Asking the learners to compulsorily participate in personal contact program is a waste of time and money.	80 (12.9%)	172 (27.8%)	388 (59.2%)	332	10
6.	Though attending a personal contact program is beneficial but there are difficulties of accommodation at the venue of the personal contact program.	144 (23.3%)	250 (40.5%)	224 (36.2%)	538	8

The results in Table 3 reveal that though attending a PCP session is beneficial, women distance learners face various difficulties, including lack of accommodation facilities and subsistence at the venue of PCPs, as well as commuter costs. This challenge emerged as the 8th most severe problem experienced by female learners in distance education. In total, about 63.8 percent (23.3% VBP and 40.5% JAP) of the women distance learners affirmed that although PCPs were beneficial, they had to cope with various challenges, including accommodation difficulties, subsistence, security and insecurity, among others.

Furthermore, the results in Table 3 indicate that about 40.8 percent (12.9% VBP and 27.8% JAP) of the participants felt that making it compulsory for learners to participate in PCPs was a waste of time and financial resource. Consequently, PCP sessions impeded the privilege of 'saving time and finances, which distance education provides to learners [21]. However, the remaining 59.2 percent learners were of the view that compulsory participation in PCP sessions was not a waste of time and money; thus, the problem ranked 10th in terms of severity.

4.5. Problems with the tutorial system

Being a flexible mode, distance education provides tutorial sessions for learners as per their personal choice of time, making it more attractive to female learners than the conventional mode of higher education (Singh, 1994). However, in most institutions, available tutorial facilities are not able to serve an increasing student population. Pointing out the challenges experienced by female learners regarding tutorial systems provides useful information that may justify institutional changes to

improve the quality of learning under distance education. As noted by Sahoo and Bhatt, inadequacy of library facilities is an example of issues that may impede access to tutorials by distance learners, particularly where policies are skewed in favor of conventional learners [20]. Problem statements 7 and 8 were formulated and posed to respondents, with a view to identifying challenges experienced by female learners with regards to the tutorial system. Table 4 presents the frequencies and percentages for problem statements 7 and 8.

Table 4: Severity of problems related to the tutorial system

Qn	Problem statement	Frequency			Severity	
		VBP	JAP	NAP	Score	Rank
7.	There is no study centre in my neighbourhood, hence, are difficulties in getting library facilities and tutorial help.	220 (35.6%)	175 (28.3%)	223 (36.1%)	615	4
8.	There is no system of getting tutorial help from my institution when it is really needed	225 (36.4%)	207 (33.5%)	186 (30.1%)	657	2

The results in Table 4 indicate that most institutions offering distance learning did not have proper tutorial systems to support distance learners. This emerged as the second most severe problem for female learners in distance education. More specifically, 220 (36.4%) learners felt that the issue was a *very big problem*, while 207 (33.5%) said it was *just a problem*. Overall, up to 69.9% of the women distance learners were of the view that existing tutorial system was a failure because it did not serve them, despite the high level of need. Arguably, this challenge may demoralize some learners, leading to their dropping out.

Regarding study centres, up to 220 (35.6%) distance learners considered non-availability of such facilities a *very big problem*, while 175 (28.3%) described it as *just a problem*. On aggregate, about 61.9% of the distance learners did not have access to study centres within their neighbourhood. The absence of study centres was tied to inadequacy of library facilities and tutorial help in neighbourhoods. In terms of severity

ranking, the challenge emerged as the fourth most severe problem of women in distance education.

4.6. Personal problems for women in distance education

As noted by Talesra, most Indian women are unable to continue with their studies under the conventional mode due to traditional socio-economic biases and gender discrimination. In fact, women attracted towards distance education were either heavily burdened housewives, employed individuals or the neglected lot wishing to further their education [26, 6, 20, 26, 23, 24]. To make distance education more attractive to women, some attention should be focused on addressing their personal problems. Keeping this in mind, problem statements 9 and 10 were posed to distance learners. The obtained frequencies and percentages alongside their severity ranking are presented in Table 5.

Table 5: Severity of personal problems of women in distance education

Qn	Problem statement	Frequency			Severity	
		VBP	JAP	NAP	Score	Rank
9.	Learning in isolation i.e. feeling of loneliness is a big difficulty in distance education.	171 (27.7%)	213 (34.5%)	234 (37.9%)	555	7
10.	Appearing in all the papers along with regular learners in the final exam is difficult and expecting too much from distance learners.	163 (26.4%)	241 (39.0%)	214 (34.6%)	567	5

The results in Table 5 reveal that appearing in all the papers along with regular learners in the final examination is difficult and expecting too much from distance learners. In this regard, up to 65.4 percent (26.4% VBP and 39.0% JAP) of women distance learners experienced a difficulty appearing in final examinations, alongside regular learners. However, 214 (34.6%) learners asserted that appearing in examinations along with regular learners was not a challenge at all. It emerged as the fifth most severe problem for women distance learners.

Another important problem faced by women distance learners arose from the natural human tendency of socializing in groups. Overall, about 62.1% (27.7% VBP and 34.56% JAP) of female learners were of the opinion that learning in isolation i.e. a feeling of loneliness was a big difficulty in distance education. However, 234 (37.9%) participants hinted that they did not suffer from the feeling of learning in isolation and this issue emerged seventh on the severity ranking scale.

5. Discussion and Suggestions

The irregular and unsystematic supply of reading materials was considered a key factor disrupting their study plans among women in distance education; it also emerged as the most severe problem undermining the quality of distance learning. This finding is corroborated by the findings of Singh, Nagaraju, Sahoo, Mouley and Rathore, most of who noted that irregular and unsystematic supply of reading materials was a serious problem to all distance learners in various settings, irrespective of gender [25, 17, 12, 22, 15, 19]. However, the challenge is intertwined with other aspects, including socio-economic status and personal obligations to constraint the quality of learning in distance education.

Without adequate reading materials, most learners find it difficult to cope with their study plans; thus, causing delays in course completion and increasing the risk of dropping out. To cope with this problem, institutions offering distance education should consider introducing a supervisory system that connects to learners to ensure that all instructors develop, update and disseminate reading materials as often as possible. This should also include evaluated assignments as suggested by Rathore [19]. Also suggested by Rathore, is the use of computers to manage postal communication, with a view to improving administrative effectiveness, as well as streamline the supply of reading materials to learners [19].

However, the findings of this study seem to refute the notion that in distance education course materials adequately serve the purpose by inducing self-learning. Because women have multiple responsibilities, the fear is that they may not find adequate time to concentrate on reading materials; hence, it becomes necessary for institutions offering distance education to create opportunities for tutorial help as and when needed. On this note, the absence of tutorial help from the institutions emerged as the second most severe problem facing women in distance education.

The root of this problem entrenches in the findings related to the quality of course materials. In this regard, it was noted that reading materials do not necessarily serve as self-learning materials due to quality issues, which make it difficult for learners to grasp concepts without supplementary support in terms of tutorials. Previous studies by Gupta, Biswal, Dutt and Mouley have also expressed similar concerns regarding the quality of reading materials [9, 3, 5, 15]. Under such circumstances, the learners will have difficulties managing independent self-learning and so must be supported through tutorials.

In support of tutorials for distance learners, Mouley notes that however effective and pedagogically sound a reading material may be, it cannot replace the tutor [15]. In this regard, the role of tutors is well recognized and established in distance education. This has two implications, viz. one, reading materials should be designed and developed on the basis of sound pedagogy of self-learning and they should also be tried out on learners to ascertain their suitability for independent learning, before being used as course materials; two, institutions of higher learning should arrange and ensure regular availability of tutorial help to enable learners understand the content of their reading materials. In India, the telephone network has made it possible for institutions offering distance education to provide tutorials over the phone. Through this arrangement, one tutor can serve a huge number of learners simultaneously and is considered a relatively cheaper option than setting up study centres and maintaining a huge number of tutors for this purpose.

Furthermore, lack of library facilities and absence of study centres in the neighbourhood, appearing in all papers along with regular learners in final examinations and longer turn-around time of evaluated and commented assignments took the fourth, fifth and sixth positions on the severity ranking scale, respectively. A careful examination of these problems reveal that they reflect the concerns of women about their learning and academic achievement through distance education. Perhaps due to this concern and determination to complete their studies, women are increasingly devising new ways of coping with the problems of learning in isolation, difficulties of accommodation at the venue of personal contact programs; they are also ready to meet the requirement of compulsory submission of assignments and compulsory participation in PCPs. These problems ranked at the seventh, eighth, ninth and tenth places, respectively; hence, may be considered less severe for women in distance education.

Even though this study found that women experience a number of challenges in their pursuit for higher learning through distance education, severity ranking of the identified problems suggests the problems varied significantly in terms of negative effects on the learning continuity and achievement. Personal problems such as learning in isolation and attending compulsory contact

sessions, which are traditionally considered to be exclusive to female learners are really not perceived as serious problems. Female learners appear ready to cope with such issues to safeguard their learning, which implies that distance education can serve as a boon for women thirsting to further their education, provided the quality of course materials is improved, their supply streamlined, and adequate tutorial help is available.

In addition, the study has implications for further research. It would be highly pertinent to study the inter-relationship between problems experienced by women in distance education. Besides, there is need for further research on the improvements desired by women distance learners. More still, there is need for research to distinguish between the problems experienced by women and men learners in distance education.

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A Curriculum Model for the Renewal of ICT Curriculum in the 21st Century at a South African Higher Education Institution

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Abstract

The design and development of ICT curriculum is a formidable process. The aim of this paper is to present a product model for the design of a variety of three year ICT programme types. This is achieved by conducting an in-depth study into existing ICT product models and reviewing critical skills for students in the 21st century from the extant of literature. The strategy of inquiry employed was a case study of curriculum renewal in the Department of Information Technology at the Durban University of Technology. The research study was qualitative with Participatory Action Research, Document Review and Focus Group research methods employed for data collection. The findings resulted in the creation of a best practice product model for the renewal of ICT curriculum. As an implication of this study the researchers suggest that this model be reviewed and updated regularly to accommodate the dynamic nature of ICT.

1. Introduction

The responsibility of higher education institutions is to design and deliver high quality education to competent individuals by equipping them with the relevant knowledge, values and skills to solve the needs of society in their chosen discipline [18]. Due to the rapid advances in technological developments and the global market, the needs of society in the 21st century are continuously changing [18]. Routine tasks are being automated; knowledge is rapidly increasing and becoming specialized [18]. As discussed in [4] graduates of this century must be equipped with skills to adapt, innovate, communicate, share and use information to solve complex problems. It is therefore crucial for higher education institutions that offer ICT programmes to adequately respond to the challenges of society by designing and aligning their ICT curriculum to meet these demands.

However the renewal of ICT curriculum in the 21st century is not simplistic and various factors need to be considered [2]. According to [10] ICT

knowledge areas must be taken into consideration. General Education is another important factor [14]. Hence there exists a need to create an integrated and informed model for the renewal of ICT curriculum in the 21st century. The following key questions are answered:

1. What are the existing models available for ICT curriculum renewal?
2. How can the existing models be synthesized to include critical skills for ICT professionals in the 21st century?
3. Can the synthesized model be validated empirically?

2. Literature Review

In line with the research questions, we firstly review the extant literature as it relates to existing ICT product models as used in this paper, and then identify critical skills required in South Africa (SA) for ICT professionals in the 21st century.

2.1. Existing ICT curriculum models for curriculum design

A curriculum is often described as a course of study offered by an academic institution. [12] defines curriculum as the formal and informal content and process by which learners gain knowledge and understanding, develop skills, and improve attitudes and values. When a curriculum undergoes a review or change, it involves re-planning the breadth or scope of knowledge in accordance with the current expectations of society [12].

A curriculum model is commonly viewed as either a product or process model. A product model emphasizes plans and intentions and a process model emphasizes activities and effects [20]. A model helps designers to systematically and transparently map out the curriculum [20]. The scope of this paper is to derive a product model for the renewal of ICT curriculum in the 21st century.

Tyler's product model is considered to be a technical-scientific approach to curriculum development as it provides a blueprint for structuring

the learning environment [20]. Its high degree of prescription provides a sense of security and promotes standardisation [15].

[3] describes the following principles of curriculum design to improve skills development as shown in Table 1 below:

Table 1. The seven principles of curriculum design [3]

Principle	Description
Challenge and enjoyment	Active learning opportunities to develop and demonstrate creativity.
Breadth	Opportunities for a wide range of activities to improve learning
Progression	Progressively building on earlier knowledge and achievements.
Depth	Draw on different strands of learning and achieve more advanced levels of understanding.
Personalisation and choice	Curriculum should respond to individual needs and support particular aptitudes and talents.
Coherence	Learning activities should combine to form a coherent whole. There should be clear links between the different aspects of learning.
Relevance	Learning activities must be relevant to the present and the future.

The existing ICT models discussed in this paper reflect the principles highlighted in Table 1. A good ICT curriculum must be robust and continue to meet the needs of a changing society (skills required) [19]. The Backward Design Model by Wiggins and McTighe as cited by [2] focuses on setting goals using graduate attributes and competencies (skills required) before choosing instructional methods and forms of assessment [20].

[2] uses the Backward Design Model to design an ICT qualification in SA that aligns with best practices in education, supports industry needs, and meets the requirements of various industry-referenced certification programmes.

A study in Europe to determine the characteristics of an ICT graduates work in industry revealed that the same skill sets were required by SME (small to medium sized enterprises) as by larger companies involved in the study [6]. The study derived the following model for ICT curriculum design that highlights the graduate competencies using a two co-ordinate axes (Depth of Knowledge and Breadth of Knowledge) as depicted in Figure 1.

Depth of Knowledge

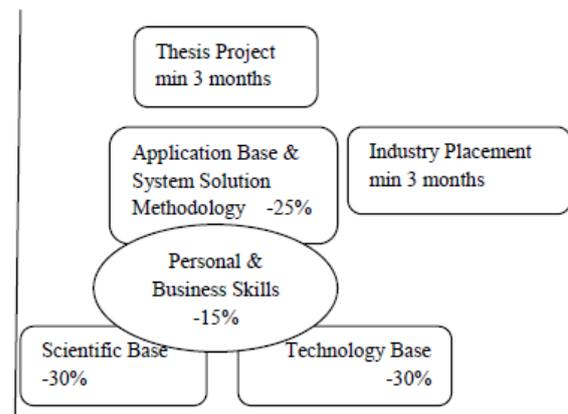


Figure 1. ICT curriculum model emphasising Breadth and Depth of knowledge [6]

[6] also suggests that any ICT curriculum should consist of hierarchically organised modules, namely:

- (a) sets of core modules;
- (b) sets of area-specific core modules;
- (c) sets of optional (elective) modules.

[19] presents a curriculum model for Information Systems (IS), a field of ICT as shown in Figure 2. This model emphasizes the importance of integrating General Education skills like writing, working in teams, delivering presentations, managing projects and developing interpersonal skills into a curriculum. These skills form the core for all specializations. It is evident that the design principles as shown in Table 1 (Breadth, Depth, Progression, Personalisation and choice, Relevance) have been applied to this model [3].

Core Skills—Required for All Concentrations		Elective Areas for All Concentrations— <i>Offered as Special Topics</i>
<ul style="list-style-type: none"> • Knowledge of business functional areas • Ability to interpret business problems and develop appropriate technical solution • Ability to understand the business environment • Knowledge of specific industry • Ability to work collaboratively in a team project environment • Ability to develop and deliver effective, informative and persuasive presentations • Ability to plan, organize, and lead projects • Ability to plan, organize, and write technical manuals, documentation, and reports 		<ul style="list-style-type: none"> • E-Commerce • DSS-GSS • Expert Systems • Knowledge Management Systems • Executive Support Systems
Concentrations		
Programming— Required Areas	Analyst— Required Areas	User Support— Required Areas
<ul style="list-style-type: none"> • Database modeling & development • Software applications development & selection • CASE tools • Languages: C++; Java; web related 	<ul style="list-style-type: none"> • Hardware acquisition (evaluation and selection) • Systems analysis • IS planning, management & evaluation • Information access & security 	<ul style="list-style-type: none"> • Telecommunications/ networks • End-user computing support • Help desk/information center • Training/education
<ul style="list-style-type: none"> • Hardware acquisition (evaluation and selection) • Systems analysis • IS planning, management & evaluation • Information access & security 	<ul style="list-style-type: none"> • Database modeling & development • Software applications development & selection • CASE tools • Languages: C++; Java web related • Telecommunications/networks • End-user computing support • Help desk/information center • Training/education 	<ul style="list-style-type: none"> • Hardware acquisition (evaluation and selection) • Systems analysis • IS planning, management & evaluation • Information access & security

Figure 2. Proposed IS Curriculum matrix [19]

The progressive curriculum model presented in Figure 3 also identifies generic core ICT knowledge and competencies and specializations as crucial components of an ICT curriculum [2]. This model reflects the key curriculum design principles identified in Table 1. A key feature in this model is the common first year of study which allows students to make an informed decision before choosing their specialization area [2]. This is also emphasized by [19].

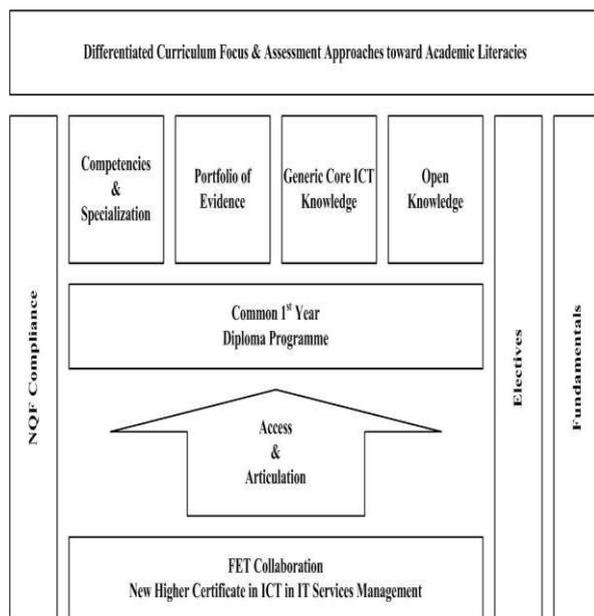


Figure 3. Progressive Curriculum Model [2]

[14] discusses curriculum models used in a Software Engineering curriculum. Software Engineering is a discipline in ICT. The key elements in this model include General Education (graduate competencies), fundamentals and specialization. This model emphasizes the curriculum design principles of Breadth, Depth, Coherence and Relevance with regards to the content of the curriculum [3][14].

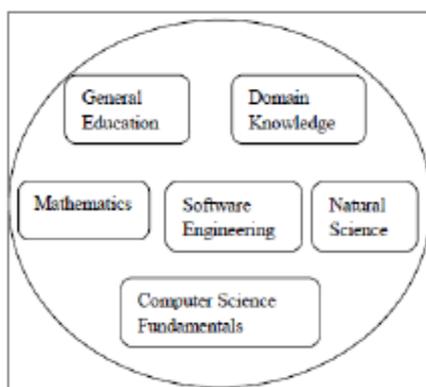


Figure 4. Curriculum Content Model [14]

The existing ICT curriculum models presented in this paper have applied the key principles of curriculum design as identified in [3]. Arising from [2][6][14][19] the following are common elements of an ICT curriculum model, namely:

- ICT Core
- Specialization
- Electives

2.2 Critical skills required for ICT professionals in the 21st century in South Africa

Existing ICT models need to be updated with the critical skills needed for the 21st century. In the SA landscape there are various sources for identifying critical skills for upcoming ICT professionals. The Department of Labour has categorized skills offered in the SA labour market into a standardized framework called Organizing Framework for Occupations (OFO) [8]. The ICT skills that are scarce and critical in the country are published by the Department of Labour in a National Master Scarce Skills List [9]. Further to this the Media, Information and Communication Technology (MICT) Seta responsible for ICT industry training and development publishes a sector skills plan identifying critical and scarce skills within the industry using OFO codes [16]. Any ICT curriculum renewal initiative in SA must seek to engage with these documents to identify ICT areas of need. In addition, the demands of the ICT industry must be triangulated with feedback from industry practitioners.

Any curriculum renewal strategy must be aligned with the skills required for the 21st century learner. [4] categorized 21st century skills internationally as **ways of thinking** such as critical thinking and problem solving; **ways of working** which includes communication and collaboration; **tools for working** which refers to ICT and information literacy and **skills for living in the world** such as citizenship and social responsibility. More specifically stated as cited by [17] they are:

1. Critical thinking and problem-solving;
2. Creativity and innovation
3. Collaboration, teamwork and leadership
4. Cross-cultural understanding
5. Communications and information fluency
6. Computing and ICT fluency
7. Career and learning self-reliance

According to [17], Project based learning is the key to ensure that learners obtain these skills. Project based learning allows students to learn in all six levels of “Blooms Taxonomy” [17].

Another critical skill for ICT professionals is skills that can be acquired through General Education. General Education focuses on bringing in a combination of basic skills such as writing skills, mathematics and other broader skills from other Departments and Faculties within the Higher Education Institution (HEI) into a programme [11]. It is the collection of experiences crafted by the institution to provide students with a breadth of experiences and a broad knowledge base that sharpen students' problem-solving, interpersonal, oral and written communication skills as well as their cultural and linguistic literacy [5].

According to [11] American undergraduate education typically involves General Education. In recounting the University of Nebraska-Lincoln's experience with General Education reform [11] highlights practical skills such as communication skills, critical and creative thinking, building knowledge of diverse people and cultures, exercising individual and social responsibilities through the study of ethical principles and reasoning and integrating abilities and capacities and adapting them to new settings, questions and responsibilities as objectives for General Education.

A study of the top twenty six doctoral granting institutions and top twenty five liberal arts institutions in America showed that the philosophies presented for various General Education models are preparation for life, citizenship and lifelong learning [5]. Institutions can implement General Education by using a core General Education curriculum or by distributing General Education within the modules of the programme [5]. Despite the General Education model that an institution chooses, what is clear is that General Education is an important component of the curriculum [5].

Another challenge for curriculum developers is to design curriculum that serves global priorities as well [13]. According to [13] internationalization of the curriculum is the process of designing a curriculum that meets the needs of an international student body. Globalization of the curriculum creates graduates that are capable of engaging a culture of communication and work that is becoming increasingly global [21]. Hence graduates must acquire the skills needed to operate globally and at the same time the University must be able to cater for a multicultural context [13]. Universities also see themselves operating in a global environment and therefore realize that a careful re-examination of the goals of curriculum development is required if higher education is to prepare students, teachers and citizens for the global environments [21].

Having defined the existing ICT product models and the critical skills in South Africa for ICT

professionals in the 21st century in this paper, the next section discusses a programme of research aimed at applying this curriculum product model for the renewal of ICT curriculum at the SA HEI under study.

3. Setting and Methodology

This paper reports on creating a product model regarding ICT curriculum renewal and how this model can be validated empirically in the Department of Information Technology at the Durban University of Technology. Thus a case study approach was used as a strategy of inquiry.

The research methodology was a qualitative research approach that incorporated the following:

1. Participatory Action Research
2. Document Review
3. Focus Group Method

In the next section we report on and discuss the results achieved.

4. Discussion

The literature review was deployed to inform various steps undertaken in arriving at our product model as shown in Figure 5 below:

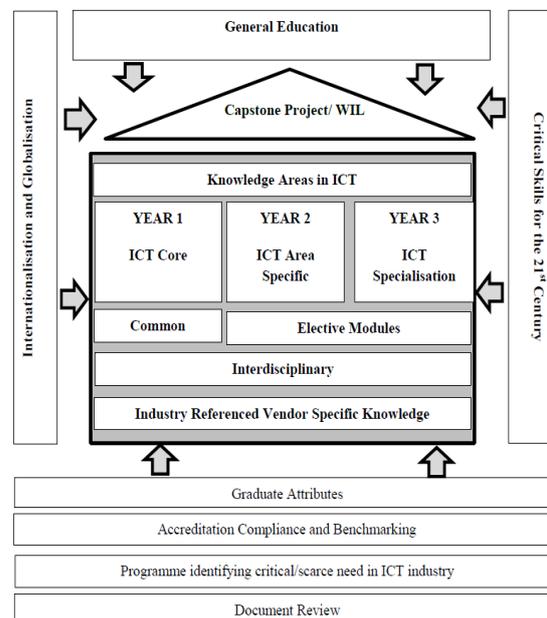


Figure 5. Showing ICT product model

We present and discuss how the synthesized product model derived in Figure 5 above was validated empirically for the renewal of ICT curriculum at the Durban University of Technology.

The Department of Information Technology appointed 12 members to the curriculum committee responsible for renewing ICT curriculum. The first three horizontal pillars in Figure 5 represent the foundational work of the curriculum model that was conducted. The activities conducted were inspired by the Backward Design Model as cited in [2].

Firstly, the curriculum committee had to conduct an extensive document review to identify critical skills required for ICT professionals in the 21st century. A review of regulatory documents such as the OFO, Seta sector skills plans, DOL documents on critical and scarce skills and CHE accreditation documents was conducted. The process was important in identifying which ICT programmes were in demand and hence ICT specializations that needed to be designed. The new Higher Education Sub Framework (HEQSF) approved by the minister of higher education and training provided the rules and regulations around the accreditation of new ICT programmes [7]. This document ensures standardization of all Higher Education qualifications and was referenced in this curriculum renewal project at the HEI under study. Once programmes and specializations were identified, the graduate attributes for the respective programmes were formulated.

The General Education model was prescribed by the HEI's Senate after months of consultative meetings. The University Senate commissioned that General Education be incorporated into all Institutional programmes either as core curriculum or embedded into the programme using the following guidelines:

The General Education component must cover thirty percent of the actual total credits of an undergraduate programme comprising of; ten percent- institution-wide (outside of the home Faculty and Academic Department); ten percent - Faculty-based and ten percent - programme-based. The Institutions goals for General Education were to build a **student-centered educational experience** embedded in the local context; to prepare students for an increasingly diverse and **complex globalised work environment** and to cultivate an engaged and **critical citizenry** in the context of an emerging and fragile democracy in an ever changing world order.

The following seven themes were identified after feedback from the various faculties:

1. Environmental Sustainability
2. History, Politics, Economics and Philosophical systems
3. Culture and Society
4. Work Preparedness
5. Entrepreneurship
6. Personal Development

7. Health and Wellness

The decision of the curriculum committee was to incorporate General Education as the core curriculum model [11].

Internationalization of the curriculum was achieved through benchmarking modules with global Institutions and incorporating vendor specific content into the curriculum. Core ICT knowledge, area specific knowledge and specialization areas were benchmarked with the ACM/IEEE (2008). The HEQSF provided guidelines for incorporating the project and/ or work integrated learning into the curriculum. Although the curriculum committee had the ultimate responsibility of designing the curriculum, it did not do so without input from members of the entire Academic Department and industry practitioners through a series of reviews.

Table 2 below shows the design of the Diploma in ICT in Applications Development for the Department of Information Technology at the Durban University of Technology. This Diploma was designed by application of the newly created product model shown in Figure 5.

Table 2. Diploma in ICT in Applications Development

Internationalization						
	Gen Ed.	Capstone Proj/WIL	ICT Core	Area Specific	Specialization	Vendor Specific Knowledge
Year 3	Faculty Institution Programme Theory of ICT Prof. Practice	App. Dev. Project			App. Dev. 3 IS 3 HCI	
Year 2	Faculty Institution Programme	App. Dev. Project		App.Dev 2 IS 2 Mobile Computing IT Proj. Man.		Inf. Man.
Year 1	Comerstone Faculty Institution Programme	App. Dev. Project	Networks Op. Sys. Security IS 1 App. Dev 1			Comm. Networks
Graduate Attributes - Critical Skills for the 21 st Century						

5. Conclusion

It is necessary for Higher Education Institutions to produce ICT graduates that are robust and can meet the challenges of an ever evolving and dynamic ICT environment [1]. Hence the need to build curricula that is effective. This paper has presented

the product model for the renewal of ICT programmes at a SA HEI in the 21st century. One of the primary motivations to produce a model was to provide a distinct path for the renewal of ICT curriculum in the SA Higher Education landscape. A second reason was to build a highly effective and sustainable ICT curriculum. This paper provides a blue print for institutions locally and abroad wishing to design ICT programmes that are relevant to the 21st century. The literature has revealed that there is very little research conducted in SA on viable product models in the ICT field thus ample scope exists within this research area. The curriculum committee at the HEI also recognizes the dynamic nature of the ICT environment and recommends that there be an ongoing review process that allows the product model shown in Figure 5 to be reviewed and updated on a recurring basis.

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Using Machine Translation tools in the teaching material design for the development of multilingual competence a classroom research in the Greek Primary School

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Abstract

This paper aims at presenting a classroom research conducted in the Greek primary education on the use of online Machine Translation tools in the development of multilingual competence. Internet offers very important auxiliary tools for teaching materials' development for a multilingual awareness, provided that online translation tools are not considered as grist to the teacher's mill, but they are used in an appropriate way so as to equip teacher with valid and trustworthy material. Analysis of the translations proposed by the online tools showed a significant difference between words and sentences' translation accuracy, mainly regarding online translators with many languages. However, the analysis of the pupils' worksheets shows relatively high scores, which means that Machine Translation tools can be used only in accordance with the learning goals.

1. Introduction

The pedagogical use of ICT in language teaching is one of the ordinary teachers' practices, through the use of multimodal resources and technical possibilities. The Council of Europe [3] places language learning in the framework of multilingual competence development, as well as the valorization of the individuals' language repertoire [3],[4]. As regards the development of multilingual competence, Internet offers an important variety of language resources, such as online multilingual dictionaries, automatic translators, text to speech software, but also search engines which serve to the confirmation of segments in unknown foreign languages.

This presentation will bring in our personal experience in the creation of teaching material for the development of multilingual communicative competence, using exclusively online machine translation tools. Given the fact that the teacher is not obliged to speak many foreign languages, the main goals of our study were to confirm if the multilingual communicative competence can be developed by drawing the necessary linguistic material exclusively

on free online translation tools, but also consider the advantages, the disadvantages, as well as the limits of their use in language class. Thus, we must clarify that we have no intention to praise or to condemn the use of online translation tools, but to pinpoint the advantages as well as the limits of their use in a very precise learning context, which is the development of multilingual competence.

2. Research Rationale

Educational policies' declarations present an impressive unanimity as regards the implementation of digital educational practices in class [8], [15]. In general, there is a growing literature on the impact of Machine Translation (MT) on the language classroom [13]. For instance, there are some contributions which suggest how MT can be used as a kind of computer-assisted language learning tool. In addition, contrary to the studies working on the MT's positive impact on language learning, there are interesting approaches which seek to exploit the weaknesses of MT, in order to illustrate the differences between languages, or to raise learners' appreciation of questions regarding grammar and style [9], [1], [5], [6]. However, for Shei [11], incorporating MT in a second language teaching methodology is a relatively unexplored area, probably for two main reasons: firstly, because machine translation was disclaimed, and secondly, because of the fact that "there has been no place for translation to fit in under the reign of the Communicative Language Teaching approach since it emphasises meaning-based communicative activities rather than static and conscious language practice". During the last years, free online machine translation tools are used in multilingual document retrieval and processing [12]. Free online translation system is the most accessible form of MT and it is mostly used in order to access the meaning of what a foreign text says [7]. In other words, free online MT outputs are not suitable for publication, as their system cannot be customized according to the language pair or the type of text and purposes (ibid.).

Niño (ibid.) addresses a list of positive and negative aspects of free online translators. In particular, wide availability, immediacy, and a large range of languages appear to be among the positive features. In addition, online MT tools are effective with lexical translation as they can translate short lexical units reasonably well. Online MT tools are also good with repetitive and simply-structured texts, as they work reasonably well with not so complex structured texts such as weather reports or technical manuals.

On the other hand, outputs of free online translators include many errors and keep original structures of source languages. They also include many grammatical inaccuracies, producing inaccuracies in connectives and co-reference between the sentences. They also involve spelling errors and orthographical inaccuracies such as punctuation and capitalization errors, letter omissions or unnecessary letters. In addition, online MT tools are unable to account for cultural references and sometimes present unnatural writing. As regards students and language teachers' perception on online translation systems, according to a survey conducted by Niño [7], "while the students accepted free online translator positively, the teachers perceived that in the future, when the quality of the online translation systems' output is better, they can start thinking about incorporating MT into the language class". Furthermore, according to McCathy [5], the use of online MT is usually due to a lack of time, energy, imagination, linguistic insight or a lack of confidence. However, according to Steding [14], teachers should also be aware that a large number of online translation services very often use the same third party products, which is a reason why different website produce identical translation mistakes. Besides, Anderson [1] specifies that "the current major Machine Translation evaluation effort [...] shows that when compared to expert human translators, MT systems perform only about 65% as well on the average".

In order to consider how online machine translators could be useful in the development of multilingual competence, we should firstly clarify its definition. So, talking about multilingual competence we do not only refer to the knowledge of many languages along with the experience of many cultures, but also to the individual's ability to handle the total of this linguistic and cultural capital [3]. The multilingual competence is neither the superimposition, nor the juxtaposition of distinct competences, but quite the opposite it is about a complex competence, which embraces mediations and passing arrays between languages [2]. Internet is a dynamic medium, which provides teachers and students with immediate access to tools and resources [10]. In particular, working on multilingual competence development in class requires a large

amount of linguistic valid resources. This would be impossible for the teacher, if it wasn't for the free online language resources, such as online multilingual dictionaries or online machine translators. In the following section we are going to present a research that we personally conceived and conducted, in order to study if the teacher can rely on online machine translators in order to develop within their pupils a multilingual competence.

3. Contribution to knowledge

3.1. Research Methodology

Our research consists on a teaching unit personally conceived. The theme was "Invite a foreign friend to my house" and the main goals were: raise pupils' awareness on European multilingualism, develop pupils' metalinguistic competences, valorization of pupils' linguistic repertoire, knowledge transfer and learning strategies, raise pupils' phonological awareness, limit stereotypes about foreign languages, raise awareness of linguistic similarities and differences, study linguistic similarities and differences through a cross-linguistic approach, raise familiarity with syntax, lexicon and morphology of foreign languages, develop multilingual communicative competence. Our sample involved 117 5th and 6th graders in 6 Primary Schools in the region of Evros (Northern Greece). One of the participating classes (11 pupils) served as a pilot group, in order to check the duration, but also the quality of the equipment and the format of the material used. Our experiment was based on a sequence of six activities personally conceived and designed. The proposed activities invited pupils to study in parallel, four unknown to them foreign languages: Hungarian, Dutch, Portuguese and Swedish. The activities' subject was to give instructions to a foreign friend in their mother tongue, to come to their house. Thus, the activities invited pupils to a parallel work on the same linguistic content (vocabulary, grammar and syntax) in 4 unknown languages (Hungarian, Swedish, Dutch and Portuguese), including all four linguistic skills (written and oral comprehension and production). We also minded to diversify the type of the activities (matching activities, multiple choices, brainstorming, and free production). Our language selection criteria were: the Dutch because it is a relative language to English and German, the Swedish because it is not very popular in Greece although the masses of Scandinavian tourists visiting Greece during summer, the Portuguese because it is related to French (the 2nd foreign language learnt by the pupils at school) and, finally, the Hungarian because it has no relation with any other European language. Concerning the linguistic material's fixing, scouting and crosscheck, we applied the following method: a)

determination of the linguistic material aligned to the learning objectives, b) linguistic material' detection and listing in the chosen languages, and finally c) crosscheck of the material's correctness and validity made by native speakers. The subject's selection criteria were: vocabulary similarity, compatibility of the aimed competences with those already developed in other foreign languages taught at school. Our data collection tool was the pupils' written answers on their worksheets.

The online machine translators used were: <http://translate.reference.com/>, http://www.worldlingo.com/en/products_services/worldlingo_translator.html <http://translate.google.com/>, <http://www.freetranslation.com/> The criteria for the use of these translation tools were: free accessibility, no cost, immediateness, ergonomic words' treatment (copy-paste) and finally the variety of possible combinations among languages. We chose to use more than one translator, in order to avoid targeting a specific online translator, but also extract global and more valid output.

3.2. Research Results

The following table presents the instructions given in each activity.

Table 1. Activities' instructions

Act.1	<i>You are going to listen to four groups of words. Guess in which language they are: Portuguese, Dutch, Swedish or Hungarian?</i>
Act.2	<i>You are going to listen to the same groups of words. Try to match what you hear with one of the following groups.</i>
Act.3	<i>Cross out the word that does not match with the others.</i>
Act.4	<i>Observe the following arrows. Towards which direction should we turn in order to go to school, to the park, to the museum, to the police station, and to the hospital?</i>
Act.5	<i>Observe the following sentences: a) underline the words that you already know or those that ring you a bell, b) Guess in which language they are (Portuguese, Hungarian, Dutch or Swedish), and c) try to find their meaning</i> 1. Ik woon in Venizelosstraat 30. 2. Neem bus 40 en stap bij de halte "Venizelou". 3. Mijn huis ligt naast het postkantoor. 4. Sla rechtsaf en ga rechtdoor. 1. Moro na rua Venizelou 30. 2. Apanha o autocarro 40 e desce na paragem "Venizelou". 3. A minha casa é ao lado dos correios.

4. Vira à direita e segue em frente.

1. Jag bor på gatan Venizelou 30.
2. Ta buss 40 och gå av vid busshållplatsen "Venizelou".
3. Mitt hus är bredvid posten.
4. Sväng höger och fortsätt rakt fram.

1. A Venizelou utca 30-ban lakom.
2. Szállj fel a 30-as buszra és szállj le a Venizelou megállónál.
3. A házam a posta mellett van.
4. Forduljon jobbra és menjen egyenesen.

Actív ity 6 *A Portuguese/Hungarian/Swedish/Dutch friend of yours would like to visit you. You are sending them an email to their language in order to explain how they could get to your home. Fill in the following email form by putting the words that you are given in the following order: I leave 30 Venizelou street. Take the bus number 40 and get off at "Venizelou" station. My house is next to the post office. Go straight ahead and turn right. If you choose for Swedish, your text should start with Tja Sven and end with hej då. For Dutch, start with Hallo Willen and end with dag. For Portuguese, start with Olá Felipe and end with adeus. For Hungarian, start with Hélló Agoston and end with Szia. After writing the email, fill the following map with the correct indications.*

The output received by the MT used in order to find the linguistic content needed for the first three activities of our teaching unit is presented in the following tables:

Table 2. The words retrieved from the first MT

http://translate.google.com/ as language source	Swedish	Dutch	Portuguese	Hungarian
Οδός (street)	gata	straat	rua	utca
πάρκο (park)	park	park	parque	park
μουσείο (museum)	museum	museum	museu	múzeum
εστιατόριο (restaurant)	Restaurang	restaurant	restaurante	étterem
ταχυδρομείο (post office)	postbuss	mailbus	correio	levélbusz
λεωφορείο (bus)	cykel	auto	ônibus	autó
αυτοκίνητο (car)	tåg	fiets	carro	bicikli
		trein	bicicleta	vonat

ποδήλατο (bike)			trem	
τρένο (train)				

Table 3. The words retrieved from the second MT

http://www.freetranslation.com/	Swedish	Dutch	Portuguese	Hungarian
Οδός (street)	Gata, park	Street park	Street park	Utca park
πάρκο (park)	museum	museum	museum	múzeum
μουσείο (museum)	restaurant	restaurant	restaurant	étterem
εστιατόριο (restaurant)	postbus	postkantoor	postoffice	postabus
ταχυδρομείο (post office)	cykel	auto	ônibus	autó
λεωφορείο (bus)	tåg	fiets	carro	kerékpár
αυτοκίνητο (car)		trein	bicicleta	vonat
ποδήλατο (bike)			comboio	
τρένο (train)				

Four native speakers (one for each language) were asked to correct and to comment on the sentences given by the online translators. All of them asked for the original sentences as they couldn't even guess the meaning of some of the sentences. The following tables present the results given by the MT for the sentences in the 5th activity. The source language was Greek, our mother tongue.

Table 4. The sentences retrieved for the 5th activity for Swedish

Source Sentence (given in English)	http://www.worldlingo.com/en/products_services/worldlingo_translator.html	http://translate.google.com/	http://translate.reference.com/	Native speaker
I live in 30, Venizelou street	Jag återstår i vägen Benizeloy 30.	Jag bor på 30 Venizelos	JAG Venizelou street 30	Jag bor på gatan Venizelou 30
Take the	Ta bussen	Ta bussen	Ta bussen	Ta bussen

bus number 40 and get off at the station "Venizelou"	40 och får av på postera "Venizelou",	40 och stig av vid Venizelos	r 40 och att avbryta Venizelou	gå av vid busshållsplatser "Venizelou".
My house is next to the post office	Mitt hus är bredvid t-nolla postar	Mitt hus ligger bredvid postkontoret	Mitt hus ligger intill post	Mitt hus är bredvid posten
Keep on going straight ahead and turn right.	Det som är rakt på fortsatt och vänd rätt	Fortsätt rakt och sväng höger	Fortsätt rakt och gå åt höger	Sväng höger och fortsätt rakt fram

Table 5. The sentences retrieved for the 5th activity for Dutch

Source Sentence (given in English)	http://www.worldlingo.com/en/products_services/worldlingo_translator.html	http://translate.google.com/	http://translate.reference.com/	Native speaker
I live in 30, Venizelou street	Ik blijf in de weg Benizeloy 30	Ik woon op 30 Venizelos	IK woon in Venizelou street 30	Ik woon in Venizeloustraat 30
Take the bus number 40 and get off at the station	De busnummer 40 van Paros en u daalt in de houding „Benizeloy“	Neem bus 40 en stap uit bij "Venizelos"	Neem busnummer 40 te stoppen "Venizelou"	Neem bus 40 en stap bij de halte "Venizelou".

n "Veni zelou "				
My house is next to the post office .	Mijn huis is naast to post	Mijn huis ligt naast het postkan toor	Mijn huis is naast mail	Mijn huis ligt naast het postkant oor.
Keep on going straig ht ahead and turn right.	Het ging rechtdoor verder en draait net	Ga rechtdo or en sla rechtsaf	Verder rechtdo or en ga rechts	Sla rechtsaf en ga rechtdoor .

Table 6. The sentences retrieved for the 5th activity for Portuguese

Source Sentenc e (given in English)	http://ww w.worldli ngo.com/ en/produ cts_servi ces/worl dlingo_tr anslator. html	http://tr anslate. google. com/	http://tr anslate. referen ce.com/	Native speaker
I live in 30, Venizel ou street	Eu vivo na estrada Benizelo y 30.	Eu vivo na rua Venizel os 30.	Eu vivo na rua Venizel ou 30.	Moro na rua Venizelo u 30.
Take the bus number 40 and get off at the station "Veniz elou"	O noymero 40 e você da barra- ônibus de Paros vai para baixo na atitude "Benizel oy"	Apanhe o autocar ro 40 e desça na "Veniz elos"	Apanhe o autocar ro número 40 e para parar "Veniz elos"	Apanha o autocarro 40 e desce na paragem "Venizel ou".
My house is next to the post office.	Minha casa é ao lado do borne de to	Minha casa fica ao lado da estação de correio s	A minha casa é próxim a ao correio	A minha casa é ao lado dos correios
Keep	Ele em	Contin	Contin	Vira à

on going straight ahead and turn right.	linha reta no continua do e voltas para a direita	ue em frente e vire à direita	uou e reto e navegar direito	direita e segue em frente
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Table 7. The sentences retrieved for the 5th activity for Hungarian

Source Sentenc e (given in Englis h)	http://ww w.worldli ngo.com/ en/produ cts_servi ces/worl dlingo_tr anslator. html	http://tr anslate. google. com/	http://tr anslate. referen ce.com/	Native speaker
I live in 30, Venizel ou street	Én továbbra is a közúti Benizelo y 30	Élek 30 Venizel osz.	Én pedig élek a Venizel ou utca 30	A Venizelo u utca 30-ban lakom
Take the bus number 40 and get off at the station "Veniz elou"	Párosz szigetérő l származó borok busz noymero 40 és menj le a "Benizel oy"	Busszal száma 40 és szálljon le a "Veniz elosz"	Vegye le a busz száma 40, "romok "	Szállj fel a 30-as buszra és szállj le a Venizelo u megállón ál
My house is next to the post office.	A ház mellett van a t o post	A ház mellett a posta	A ház mellett van a mail connect or	A házam a posta mellett van.
Keep on going straight ahead and turn right.	Tovább egyenes en és jobbra forgó	Tovább egyene sen és jobbra	Tovább egyene sen és jobbra való navigál áshoz	Forduljo n jobbra és menjen egyenes en.

Analysis of the translations proposed by the online tools showed a significant difference between words and sentences' translation accuracy, mainly regarding online translators with many languages. The problems for the most part concern grammar and syntax, whereas lexical inappropriateness are less frequent, but still in some cases, we received

different translations by different online translators for the same term. In general, Internet offers very important auxiliary tools for teaching materials' development for a multilingual awareness, provided that online translation tools are not considered as grist to the teacher's mill, but they are used in an appropriate way so as to equip teacher with valid and trustworthy material. Internet language resources in no case can they replace the language teacher; they can just offer them knowledge that they haven't. These resources can become precious tools, provided that they are used in a reliable, logical and adjusted to the teaching context way. In fact, computer can only recognize word to word, so as it goes for communicative situations, there is also the pragmatic parameter which is involved, and which is not recognized by the computer.

The errors concerned mainly lexical, grammatical and spelling inaccuracies. In some cases, MT use synonyms (in Dutch *weg* Venizelos were *weg* means "road" instead of "street" as it was in the source language, in Swedish, *Jag återstår i vägen Benizeloy 30* means *I remain in the way Benizeloy 30*, instead of *I live in 30, Benizelou street*). In other cases there were some irrelevant words that appeared in the sentence (Mijn huis is naast mail (NL), Ta buss nummer 40 och att avbryta Venizelou (SE) where *avbryta* means cancel, instead of get off). There were also inappropriate syntactic structures (NL, Neem bus nummer 40 te stoppen "Venizelou" instead of *Neem de bus nummer 40 en stop in de "Venizelou" stop*). Finally there are also sentences without making any sense in the target language (*De busnoymero 40 van Paros en u daalt in de houding* (NL)). As regards the Hungarian, we were very surprised to find out that the sentences retrieved from the MT were completely different, and had no common points.

The qualitative analysis of the pupils' worksheets leads us to the following results.

Table 8. Pupils' scores in activities 1 to 5

	Correct answers	Wrong answers	No answer
activity 1	NL= 54 PT= 51 HU= 63 SE= 44	NL= 54 PT= 51 HU= 63 SE= 44	14
activity 2	NL= 90 PT= 91 HU= 89 SE= 88	NL= 14 PT= 13 HU= 15 SE= 16	13
activity 3	1 st group = 104 2 nd group= 102 3 rd group= 89	1 st group = 5 2 nd group= 7 3 rd group= 20	8

	4 th group= 91	4 th group= 18	
activity 4	112 correct	none	5
activity 5	79 correct	none	38 incomplete

As regards the 6th activity, we retrieved the following data:

Table 8. Pupils' scores in the 6th activity

	Totally correct	several mistakes	wrong order	many mistakes	incomplete	no answer
Swedish	11		5	1	3	13
Dutch	18	3	6	1	6	
Hungarian	18		4	1	2	
Portuguese	13		2	2		

As we can see, pupils' scores are relatively high. For the first activities which mainly concerned vocabulary, we used the linguistic content retrieved from the online machine translators. We should also notice that pupils' performance progressively improves, and that in the last activity there are only several mistakes. However, regarding the 5th activity, we could not risk the validity of our work and so we chose to use the translation proposed by the native speakers.

4. Conclusion

At the end of this experience, the main conclusion that can be drawn is that Internet offers a range of free and accessible resources. As regards the multilingual competence, online machine translators appear to be an easy, quick and safe solution for vocabulary activities, aiming at a raise of awareness of multilingualism and of linguistic relations (similarities, differences, loan words). However, if it is about developing translanguaging abilities through working on sentences in order to study the syntax and the morphology of languages through a cross-linguistic approach, or even develop communicative competences in several languages, then in this case, teachers or any other person concerned should resort to native speakers, in order to assure the validity and objectivity of their work. Internet offers very important auxiliary tools for teaching materials' development for a multilingual awareness, provided that online translation tools are not considered as grist to the teacher's mill, but they are used in an

appropriate way so as to equip teacher with valid and trustworthy material. Internet language resources in no case can they replace the language teacher; they can just offer them knowledge that they haven't. These resources can become precious tools, provided that they are used in a reliable, logical and adjusted to the teaching context. For all these reasons mentioned above, possibilities offered by free online translators are for the moment of a limited potential.

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Session 28: Global Issues in Education

Collaborative Success: Teaching Mathematics Using Collaborative Instruction in a Low-Income, Culturally Diverse Middle School
(Author: Michael P. O'Connor)

The Effectiveness of Using the Flipped Learning on Students' Achievement and their Attitudes towards University Courses
(Author: Azizah Saad ALRowais)

Children's Shared Understanding of Media Marketing
(Author: Lyse Anne LeBlanc)

Addressing Student Learning Needs in the Age of the Internet
(Author: Manny Estabrooks)

Collaborative Success: Teaching Mathematics Using Collaborative Instruction in a Low-Income, Culturally Diverse Middle School

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Abstract

This presentation reviews the literature on collaborative teaching, an educational technique originally designed as an in-class support for students with mild to moderate disabilities being served in general education classrooms. Research is presented indicating co-teaching has also demonstrated improved instructional outcomes for students without disabilities, particularly students disadvantaged by poverty and/or ethnicity, as well as students with disabilities. Best practices in collaborative teaching are presented and discussed, including collaborative teaching practices found to be successful in practice in an academically-challenged middle school in the southeastern U.S. Finally, an actual collaboratively-taught lesson in mathematics is described and modeled by the audience. This lesson, in addition to using collaborative teaching, employs a cooperative-learning design in which students work as team members within small groups.

The Effectiveness of Using the Flipped Learning on Students' Achievement and their Attitudes towards University Courses

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Abstract

Although the flipped learning is considered to be one of the main forms of blended learning, no studies were conducted at Saudi universities on the effectiveness of this form of learning. The main objective of the present study was to investigate the effectiveness of flipped learning on the students' achievement and attitudes towards studying courses at Salman bin Abdul-Aziz University. The present study employed the descriptive method to determine the principles of flipped learning to prepare the flipped classroom courses, and the quasi-experimental method to measure the effectiveness of the independent variable (flipped learning) and its impact on the dependent variables (achievement and attitude). Sixty four students who represent the sixth level of the college of education were selected randomly. Achievement test and attitudes scale were used to gather the data. The study showed that there was positive effects of both the students' achievement and their attitudes towards studying courses.

1. Introduction

Flipped learning has gained increasing attention among educators and practitioners worldwide as a consequence of the widely accepted trend to shift the focus from teacher to learner in instruction. There is general agreement in the literature that learner achievement grows, in part, out of the individual learner's acceptance of responsibility for his or her own learning. Learners must take at least some of the initiative to give shape and direction to the learning process and must share in monitoring progress and evaluating the extent to which learning targets are achieved.

A flipped (or inverted) classroom is a specific type of blended learning to move lectures outside the classroom. It is a form of learning in which students learn new content online by watching video lectures, usually at home, and what used to be homework (assigned problems) is now done in class with teachers offering more personalized guidance and interaction with students, instead of lecturing. This is also known as backwards classroom [1].

To counter common misconceptions and bring clarity to discussions about "Flipped Learning", the governing board and key leaders of the Flipped Learning Network (2014) announced a formal definition of the term: "Flipped Learning is a pedagogical approach in which direct instruction moves from the group learning space to the individual learning space, and the resulting group space is transformed into a dynamic, interactive learning environment where the educator guides students as they apply concepts and engage creatively in the subject matter" [2].

The idea of a "flipped classroom" is most often attributed to two high school science teachers, Jonathan Bergmann and Aaron Sams, who used online videos to provide instruction to their students so as to free up more time for lab work; and to Salman Khan, whose Khan Academy videos teaching people math techniques were so popular that teachers began assigning them to students to watch outside of school time. In a recent interview, founders of the flipped classroom movement, Jon Bergmann and Aaron Sams, explained that a flipped classroom shifts the emphasis of teaching from the instructor to the learner [3].

In higher education, teaching faculty have a history of moving the course content to outside the class. To engage in Flipped Learning, teachers must incorporate the following four pillars into their practice: Flexible Environment, Learning Culture, Intentional Content, Professional Educator (FLN, 2014). Studies have indicated support for the appropriate use of flipped learning strategies. The goal of such studies is to allow students to choose the learning methodology that best fit their individual, so students can receive multiple methods of learning major concepts outside the classroom. Students could read a textbook, view a PowerPoint presentation, or watch a video lecture online [4] [5] [6].

Some studies also have indicated that open-ended problem solving experiences can be learning style conducted within the classroom environment to allow for more engaged pedagogies [7].

Findings of a number of studies support the potential of flipped learning in education and instruction [8] [9] [10]. But these studies were conducted in non-Saudi surroundings, a case further justifying the need for the study being implemented

in the Saudi community.

2. Theoretical Basis

The flipped classroom approach is rooted in socio-constructivist theories of education and active learning, but also includes and values educational media for delivery. Vygotsky (1978) posited the theory of The Zone of Proximal Development (ZPD) which is a theory of how students' learning is dependent on their prior knowledge in the area and how they fit new knowledge into their already existing mental schema. The theory of ZPD includes the assertion that students can reach some understanding of a topic area on their own through independent learning, but they need the assistance of a capable educator to reach their full potential specifically through educator and peer modeling, scaffolding, and specific feedback [11].

The theory of ZPD informs the flipped class because instructional media can be assigned to introduce new knowledge, but without the guidance and feedback from a qualified educator, a student may not be able to make sense of the deeper meaning of the content. Collaborative learning and peer instruction during class time adds new knowledge and understanding to their prior knowledge in a topic area.

How People Learn, the seminal work from John Bransford, Ann Brown, and Rodney Cocking, reports three key findings about the science of learning, two of which help explain the success of the flipped classroom. Bransford and colleagues (2000) assert that:

“To develop competence in an area of inquiry, students must: a) have a deep foundation of factual knowledge, b) understand facts and ideas in the context of a conceptual framework, and c) organize knowledge in ways that facilitate retrieval and application” [12].

The flipped classroom helps students learn to correct misconceptions and organize their new knowledge by providing an opportunity for students to use their new factual knowledge while they have access to immediate feedback from peers and the instructor.

Flipped learning has attracted research and practice-based attention for its potential to incorporate digital technologies in a new pedagogical method that is better aligned with current collaborative constructivist educational practice. Also known as ‘the flipped approach’ or ‘the inverted classroom’.

The essence of the flipped method is that content is delivered before class time, and lectures themselves become forums for discussion, integration, and application of that content. The pre-

delivered content may take several formats, most typically a series of short videos recorded using simple video-capture software and uploaded to the internet. These videos may be supplemented by Web 2.0 resources or platforms such as wikis, blogs, discussion forums, social media sharing, and social networking sites, which support active and social learning by acting as venues for collaborating, constructing and sharing information in support of active and social learning [13]. In class time, the lecturer acts as facilitator, guiding students in discussion either individually or in groups.

The benefits to this inverted model are many. Students pace and direct their own learning, exploring pre-delivered materials in their own time, repeatedly if they wish. The approach demands their active engagement in the learning process. The lecture room becomes an interactive space where students collaboratively construct their own knowledge in ways that is meaningful to them, receiving personalized guidance and becoming a part of a community of inquiry [14].

3. Statement of the problem

The problem of the present study lies on the fact that high education students in Saudi Arabia face difficulties in learning, as a result of using traditional teaching methods unsuitable to their age stage such as Lecture-based instruction that allows students to take a passive learning role. Students who are motivated and engaged will do well, but others will fail simply because they are not forced to think critically and engage in the content. Furthermore, there is continuously a need for improvement and innovation of teaching methods and learning types. The current study is linked to the developmental dimension especially embodied in the teaching methods, related to the students' requirements and abilities, the requirements for innovation, going out of the borders of traditional methods, concerning the methods relevant to all implications of psychological and mental characteristics which should be observed.

In the light of the above, the researcher felt the need for the application of this study as a response to the calls of education scholars for the employment of various educational methods and techniques, concerning the characteristics of age stage and students' requirements to develop self-autonomy. This study -according to the researcher's best knowledge- is highly probably one of the pioneering studies in the KSA aiming at application of flipped learning and examine its effectiveness on Saudi students' achievement and attitude towards learning university courses. The problem of the study was identified in the following main question: (What is the effectiveness of flipped learning on the students'

achievement and attitudes towards studying courses at Salman bin Abdul-Aziz University?".

3.1. Study Hypotheses

To answer the study question, the following hypotheses were tested:

1. There are no statistically significant differences at (0.05 level) between the mean scores of the experimental group and the control group in the post application of the achievement tests of university courses.
2. There are no statistically significant differences at (0.05 level) between the pre and post measurement of the experimental group attitudes towards studying university courses.

4. Research Method

In order to test the hypotheses, the present study employed the descriptive method to determine the principles of flipped learning to prepare the flipped classroom courses, and the quasi-experimental method to measure the effectiveness of the independent variable (flipped learning) and its impact on the dependent variables (achievement and attitude). Sixty four students who represent the sixth level of the college of education were selected randomly. Achievement test and attitudes scale were used to gather the data.

4.1. Study Participants

The study sample was composed of Sixty four students who represent the sixth level of the college of education at Salman bin Abdul-Aziz University for the second term of the year 2013-2014. Two classes were randomly selected from one of the departments of the college of education, and randomly assigned to the experimental and control groups of the study.

4.2. Study Instruments

The study instruments included the achievement tests of the courses that were pre-post-administered to measure the students' achievement of the experimental and control groups, and the scale of students' attitudes towards learning and studying courses which was pre-post-administered to the students of the experimental group.

4.3. Study Procedures

The study procedures included the pre-administration of the study instruments, the treatment and the post-administration of the instruments.

4.3.1. The pre- administration of the instruments

The researcher pre-administered the two achievement tests to measure the Sixth level students' achievement of the experimental and control groups and identify their level in the two courses: (Teaching Methods & Communication Skills) before the experiment. Also she administered the scale of students' attitudes towards learning and studying courses which was pre-administered to the students of the experimental group before the introduction of the treatment. The pre-administration of the instruments was conducted at the beginning of January 2014. It was administered to sixty four students at Salman University, before they were exposed to the treatment. Table (1) shows the results of the independent samples t- test for the differences between two groups on the pre-administration of achievement test of the course "Teaching Methods":

Table 1. Independent Samples T-test

Group	No.	Mean	T-value	p-value
Control	32	10.15	-1.62	0.11
Experimental	32	11.13		

Table (2) shows the results of the independent samples t- test for the differences between two groups on the pre-administration of achievement test of the course "Communication Skills":

Table 2. Independent Samples T-test

Group	No.	Mean	T-value	p-value
Control	32	15.92	- 1.36	0.17
Experimental	32	18.00		

4.3.2. The Treatment

The treatment lasted 12 weeks to investigate the effectiveness of flipped learning on the students' achievement and attitudes towards learning courses at Salman bin Abdul-Aziz University. The researcher chose the content from the two courses: (Teaching Methods & Communication Skills) and lessons plans were developed for the courses based on the applications of flipped learning model. The materials the researcher used in the treatment were textbooks,

video lectures online, PowerPoint presentations, and course management systems. The researcher was involved in teaching the two groups: the experimental group (taught through the flipped classroom applications) and the control group (taught through the traditional method). The subjects of the experimental group were taught by the researcher through the applications of the flipped classroom. Students received instruction at home from videos and PowerPoint presentations on the website, and in class, worked in small learning communities to problem-solve.

The following steps were used for the experimental group through the treatment:

- Before the class, instructor prepares learning opportunities through creating videos PowerPoint presentations and using course management systems. Students gain necessary knowledge before class through reading textbooks, watching video lectures online and PowerPoint presentations at home. Students guided through learning module that asks and collects questions.

- At the Beginning of Class, students have specific questions in mind to guide their learning, and Instructor can anticipate where students need the most help.

- During Class, students practice performing the skills they are expected to learn. Instructor guides the process with feedback and mini-lectures. During class, students are broken into small groups and engaged in active learning assignments such as problem solving, presentations and discussions.

- After Class, students continue applying their knowledge skills after clarification and feedback. Instructor posts any additional explanations and resources as necessary and grades higher quality work. Students are equipped to seek help where they know they need it.

4.3.3 The post-administration of the instruments:

After implementing the treatment, its effectiveness was evaluated by post-administration of the instruments. The content of the pre-administration and the post-administration was the same. The achievement tests of the courses were post-administered to measure the students' achievement of the experimental and control groups, and the scale of students' attitudes towards learning courses was post-administered to the students of the experimental group. The statistical procedures were applied on the data obtained using the means and t-tests. Table (3) shows the results of the independent samples t- test for the differences between two groups on the post-administration of achievement test of the course "Teaching Methods":

Table 3. Independent Samples T-test

Group	No.	Mean	T-value	p-value
Control	32	10.65	-10.36	0.00
Experimental	32	18.68		

Table (4) shows the results of the independent samples t- test for the differences between two groups on the post-administration of achievement test of the course "Communication Skills":

Table 4. Independent Samples T-test

Group	No.	Mean	T-value	p-value
Control	32	23.37	- 5.00	0.01
Experimental	32	35.63		

Table (5) shows the results of the paired samples t- test for the differences between the pre-post administrations of scale of students' attitudes towards learning the two courses:

Table 5. Paired Samples T- Test for the differences between the pre-post administrations of the scale of students' attitudes

post administration	No.	Mean	T-value	p-value
Pre-admin.	32	2.58	-13.18	0.00
Post-admin.	32	3,84		

5. Conclusions and Recommendations

In the light of the findings of this study, the main conclusions were:

1. There are statistically significant differences at (0.05 level) between the mean scores of the experimental group (taught through the flipped learning strategies) and the control group (taught through the usual method) in the post application of the achievement tests in favor of the experimental group.
2. There are statistically significant differences at (0.05 level) between the pre and post measurement of the experimental group attitudes

towards learning the university courses in favor of the post measurement.

Based on the results of the study, it was recommended that:

1. The faculty members are advised to adopt applications of flipped learning and the use of e-learning tools and educational software in teaching because of its effectiveness in the development of the knowledge and skills of students and their attitudes.
2. More attention should be paid to the preparation of workshops and training courses for the training of faculty members at universities on the use of flipped learning strategies and employing e-learning tools and make use of them in the design of courses.
3. The need to provide the necessary capabilities and material support to universities that are required for teaching through management systems and using e-courses, and to provide the necessary equipment to activate its role in improving the level of performance.
4. Course designers are advised to include the four pillars of flipped learning into their practices in order to provide different types of learning styles to shift the focus from teacher to learner in instruction.

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Children's Shared Understanding of Media Marketing

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Abstract

“Children think differently from adults and there are qualitative differences in the way children of different ages understand the world around them” (Greg & Taylor, 1991, p.31); a world, today, that greatly encompasses media. In Western societies, where contemporary digital and electronic media forms and the marketing messages they disseminate are primary social and cultural influences, it is crucial that educators have a solid understanding of children's developmental ability to interpret and engage critically with media forms. Through an examination of the contextual relationship between children's ability to understand the mental states and intentions of others and ourselves, known as Theory of Mind (Premack & Woodruff, 1978; Doherty, 2009; Astington & Edward, 2010; Miller 2012) and media literacy, this innovative research study will provide a unique contribution to the fields of both education and psychology, in its production of knowledge about and for children's understanding and well being.

Addressing Student Learning Needs in the Age of the Internet

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Abstract

The teaching-learning aspect of education in the technological age is rapidly changing in response to the ways and means of delivering education. Various programs and technological devices often employ fast delivery of content with the expectation of programmed responses. However, it may be that the technology itself has a tendency to exploit various aspects of brain function. This may result in avoidance behavior on the part of the learner so as to circumvent efforts to learn in a focused and concentrated manner. This paper attempts to explore various ways and means of providing 24-7 learning materials accompanied with classroom management strategies that lead to greater student engagement leading to greater success in the educational setting.

1. Introduction

There is no doubt that the internet has proved to be a great boon to individual expression and social awareness as well as providing a new era for accessing information unprecedented in history. Perhaps no sector of our socioeconomic society has benefited more than the education component. With its interactive capability and the delivery of educational content in a 24-7 format, it promises that education and learning can now be designed to fit into the learner's time and space constraints and thus ensure greater success in achieving educational goals.

Despite this, the author is of the opinion that these features benefit the independent learner more so than the student who is less focused but with greater expectations of success. Furthermore today's student often has a feeling of entitlement with the expectation of higher grades with less effort on his or her part to assume responsibility for learning.

This paper will focus on College level statistics and efforts by the author to address the very diverse needs of students in several sections of the course. Success in statistics requires a medium level of algebra and math skills accompanied by an appropriate level of reading and study skills. The lack of an appropriate level of skills in these areas,

coupled with constraining factors such as extra-curricular activities, outside work and addiction to social media all provide a complex interplay of variables which play significant role in success. Without appropriate schemes in place to address the issue of student success with these constraining factors in place, the instructor is faced with high dropout and failure rates in the class

This then begs the question as to how an instructor or professor is able to address the diverse needs of such students and at the same time ensuring greater student success without sacrificing course content and grade inflation.

2. Research Rationale

In an effort to address these issues, the author has identified several strategies to meet the diverse learning needs of the student and provide greater opportunity for students to learn in his or her own time-space.

The author feels that traditional mathematics and statistics textbooks often have intimidating page layouts filled with formulas and very tight text layouts. Moreover the coverage is often so vast as to be very daunting to the beginner level student.

Presented with these constraints, the author has developed a 280 page "class workbook" intended to provide a focus of activity for the student. This workbook features minimal theory and numerous word problems. The workbook layout provides space for students to demonstrate through hand written techniques the methodology to solve various types of problems.

In addition, negotiations with a publisher resulted in the adoption of a customized text book with internet access at a substantially less cost than previously was available. The on-line content provided a means for self-testing with appropriate feedback allowing the student to undertake a more or less independent approach to learning and allowing self-assessment to gauge one's skill level.

Finally, the author developed 39 on line videos of 10 to 15 minutes duration, corresponding to 35 class hours. Each video addressed a topic that was covered in each class and these same questions appeared in the workbook thus enabling the student

to do the workbook problems at home using these on line videos. The videos were made available in a 24-7 time frame in order that students be able to access the video content at any time.

Finally, the author provided a detailed weekly study guide specifying which videos to watch, workbook problems to be completed, on-line assignments available as well as what was the focus for each class.

In 2009 an effort was underway to assess the effectiveness of these strategies.

3. Methodology

In the winter term 2009, two sections of Statistics were identified to assess two teaching-learning methodologies. Group A consisted of one section conducted utilizing a more or less traditional approach with primary lecture techniques with PowerPoint presentations. The classroom workbook was used for a 10-15 minute problem solving session. Group B consisted of a second section of statistics conducted with the extensive use of videos, and very detailed weekly summaries of what sections of the textbook to read, problems to do and videos to watch. This class was conducted with a 15-20 minute presentation of key content material and problem solving techniques. Approximately 30 minutes of class time was devoted to group work with instructor availability for individual help. This time allowed for student engagement with a focus on problem solving and group work. This scheme is often referred to as the inverted classroom.

During the period January to Feb 18 of 2009, both sections were conducted in a very similar manner. The same tests and assignments were used as was the same PowerPoint presentations. Both sections wrote the same mid-term test in order to establish somewhat of a benchmark or level of achievement for each section.

At the February 20, 2009 break, the two methodologies were put into effect as outlined above. There was little difficulty with Group A as the teaching-learning methodology was no different from that previously used in the class.

However, Group B methodology appeared to be meeting with success almost immediately. The instructor did spend considerable time emphasizing the on line videos and the need to view these videos prior to class. On two occasions, the instructor did present a video during the class time, it was noticeable that student attention span was of such short duration that some students became involved with his/her cell phones and/or involved with doing an assignment for another course. Perhaps expectedly two students fell asleep during the viewing. Obviously the videos were not viewed in subsequent classes.

In April 2009 after classes finished the results were compiled for Group B and compared with the results for this same group at the beginning of the course. Figure 1 below illustrates a comparison between these two groups for the same time period.

	Delivery Method	
	Traditional	Non Traditional
	Group A	Group B
Class Size	47	42
Pre Test	38	42
Mid Term	54	56
Overall	56	66
Dropout	5	4
Failure	6	5
Dropout Rate	11%	10%
Failure Rate	14%	13%

Figure 1. Comparison between these two groups for the same time period

A glance at this figure shows that Group A performed much the same during the entire semester with marginal improvement during the semester. This is considered typical of lecture based delivery classes.

The figure above reveals that Group B experienced a significant change. At the mid-term, Group B mean was 56, standard deviation 21 with 3 cluster points of 27, 47 and 77. At the final overall for group B, the mean was 66 with a standard deviation 17 with a much more clustering of data in the 56-76 range. The clustering at 47 had in effect changed having moved upward to the 57-70 range. Furthermore, there were more students performing at the |A and B grade levels. Significant however was the fact that the bottom 20-30% did not appear to have moved and did not benefit from the classroom strategy.

It seems clear that the Group B benefited significantly from the classroom engagement and instructor attention during class. Moreover, students began to help each other in problem solving situations as well as making suggestions regarding which videos to view, which learning resources to use for study and so on. Overall, there appeared to be a greater sense of satisfaction with what was happening in the classroom. Indeed there were several occasions when a student would voice aloud that s/he was enjoying the classroom experiences.

It is worthy of note that the instructor was a benefactor of the approach used in Group B. Not only was there less stress in preparing for class, there was much less effort in the delivery of content in the actual classroom. The instructor did in effect relinquished control of the learning to the students. In effect, the instructor performed the role of “guide on the side” rather than “sage on the stage”, the latter considered typical of a lecture based system.

4. Discussion

It is considered difficult to apply standard statistical methods to the data in question because the

same instructor was involved in the deliver with both schemes. As such, it was difficult to block out behaviors of the instructor as a factor in student learning outcomes. Furthermore, one cannot treat the sections as being random samples from a population as the two sections were simply the only sections held during the semester.

In an attempt to identify potential variables relating to student success or lack thereof, questionnaires were designed and administered with phone or personal interview follow-up. On the basis of the feedback obtained, the following “factors” were identified:

- Lack of an appropriate math & study skills ;
- Number of courses enrolled;
- Outside work, often 16-24 hrs per week;
- Time spent on student activities & sports;
- Social media, internet & cell phone use;
- Personal issues, family, relationships, money etc;
- Timing of the class, mid-day vs late day times;

Various other factors were recorded but are considered to be of a much less significance in this context.

For the past four years, the methodologies of Group B have been used in all class sections of statistics with similar success. Unfortunately, the success in recent years has been less dramatic but deemed to be successful none the less. The lessening of the degree of success of the methods outlined above are due in part to the changing dynamics surrounding the student. The following observations and speculations may be considered:

- Students less willing to assume responsibility for his/her learning;
- Greater feeling of entitlement & expectations;
- Greater connectedness to cell phones and social media to the extent that these devices with their rapid response and continuous engagement features tend to capture students attention subverting attempts to focus on one line of thought for a short period of time;
- Difficulty with comprehension and understanding word problems, especially those involving more than 30 to 40 words;
- Students in too big a hurry to take time out from technology to focus in a concentrated fashion and put thought together in a cohesive manner.

Currently, efforts are underway to address these issues by working closely with students on a one to one basis in order to effect greater commitment to success in the course.

5. Conclusions

From this study, it seems obvious that the various strategies outlined above contributed to an overall sense of engagement leading to increased student success. Obviously, it is not one single strategy that can be attributed to this success, but an approach involving multiple strategies.

Given the fact that delivery of content is no longer an issue, it would appear that an instructor would be best advised to focus on student engagement in a classroom setting in a multiple of ways. Engagement may take many forms including group work and problem solving sessions, as well as project based learning. Such a setting allows the instructor to better interact with the students and provide greater focus on monitoring individual student progress leading to greater success.

Based on the authors own experience, it appears that a new paradigm is evolving whereby the instructor’s role in the classroom is becoming more of a coaching role, much like in sports. Individual attention and the monitoring of student progress are considered the features of such a model.

But this model does involve properly designed learning environments as well as new training programs for instructors in order to take full advantage of the scheme.

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PhD and Doctorate Consortium

The idea of writing a research paper or developing a topic of research interest that can lead to a PhD / Doctorate degree or proposal is always an endless thinking of where, when, why, what and who. Therefore, becoming an experienced researcher and writer in any field or discipline takes a great deal of practice. The Consortium has the following objectives:

- Provide a supportive setting for feedback on current research that will stimulate exchange of ideas;
- Guide on the future research directions;
- Promote the development of a supportive community of scholars and a spirit of collaborative research;
- Contribute to the conference goals through interaction with other researchers and conference events.

The PhD and Doctorate Consortium highlights possible solutions in response to the lack of competence demonstrated by young researchers and PhD and Doctorate students, and the understanding of what contributes to knowledge gap.

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