University of Alberta

Technology-mediated learning: A Jamaican Context

by

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Abstract

While extensive research has been done on technology-mediated learning (TML) in North America, such research is not easily transferable to the Caribbean, as there are notable socio-cultural and economic factors that affect such methods of course delivery. Limited research has been recorded about TML within a Caribbean context. This study employed a qualitative research methodology to gain an understanding of the individual and collective experiences of Jamaican educators who are using technology-mediated learning within the classroom. The methodology employed solicited the participation of one group of educators for this research. The two approaches that were used to collect data were group interviews and one-on-one interviews. The findings revealed that while faculty were keen on leveraging the available technology, there were still faculty, student and institutional challenges that were being encountered, ultimately affecting the effectiveness of the technology used to complement the teaching and learning process.

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Origins of the Study

My past experience is the main reason why I decided pursue my thesis. I was an employee of the University of Technology, Jamaica, before I began pursuing my Masters at the University of Alberta. When I reflected on the Learning Management System, MOODLE that they had recently begun using alongside the traditional face-to-face delivery and distance learning programmes, I thought to do my research within this area.

While extensive research has been done on technology-mediated learning (TML) in North America, such research is not easily generalizable to the Caribbean, as there are notable socio-cultural and economic factors that affect such methods of course delivery. Limited research has been recorded on TML within a Caribbean context. This limited research which I had to draw upon presented a challenge for me, but it equally presented an opportunity for me to add to the body of literature and to highlight challenges regarding the use of TML within the Caribbean. The analysis of the research findings will inform the recommendations made to universities operating both within Jamaica and the wider Caribbean.

Background

In 1958, the University of Technology (UTech), Jamaica, was first established as the Jamaica Institute of Technology and in 1959 they adopted the name of College of Arts, Science and Technology (CAST). CAST's rapid growth first led to its' recognition as a degree-granting educational institution in 1986, then a decade later, in 1995, it was formally accorded university status (Boufoy-Bastick, 2001).

UTech undertook several new initiatives to establish itself as a technical university offering programmes of international quality to both Jamaica and the wider Caribbean, building on CAST's polytechnic traditions, but adding emphasis on the university tradition of professional qualifications and research (Al-Zubaidy & George, 2000). With these initiatives in place, the University has placed increased focus on improved teacher quality and has embraced a student-centered approach to learning.

"Over 11,000 students are reading for UTech courses of study in the disciplines of law, sports sciences, nursing, dentistry, business and management, hospitality and tourism, architecture, construction management, engineering, computing, pharmacy, health sciences and teacher education"(Morrison, 2007, p.2). The majority of the courses delivered by the university have been done via the traditional face to face means. As the demand for training evolves, the University has sought to continuously expand and upgrade their academic offerings and services (Morrison, 2007); to this end they have begun offering online distance education courses to the wider Caribbean and a few blended method courses to on-campus students. The courses delivered via blended methods incorporate both the traditional face to face classes and online classes (for example, using Moodle). This infusion of blended learning is described by Rovai and Jordan (2004) as a flexible course design which offers some of the conveniences of fully online courses, while retaining some amount of face-to-face contact, thus, likely resulting in a more vigorous educational experience. With the increased demand for tertiary education in Jamaica and by extension the Caribbean, and limited classroom facilities on campus, it might be possible that technology-mediated learning can allow UTech to continue offering a high quality education within the confines of space.

Purpose

The Internet and its' associated technologies continues to impact teaching and learning like never before; educational institutions and teaching professionals have faced significant challenges in the implementation of these new information and communication technologies (ICT) (Bennett & Marsh, 2002). UTech educators will undoubtedly face various opportunities and challenges as the university seeks to embrace new technologies to enhance student-centered learning and to improve the delivery of education, particularly the delivery of technology-mediated learning. The purpose of this study is to address the following question: What are the challenges facing and supports provided to educators at the University of Technology (UTech), Jamaica, in developing and facilitating technology-mediated learning?

Two sub-questions will be addressed in the study:

1. What are the roles that UTech educators assume when adopting technology-mediated learning?

2. What professional resources are available to UTech educators in their use of technology-mediated learning?

Significance of the Study

According to Beaudoin (1990) "in addition to being adept at both content and process, faculty must recognize the role of instructional technology as a learning resource ... Teachers must know something about the potential of technology to facilitate learning and to enhance their own effectiveness" (p. 21). When educators have gained knowledge of the technical and pedagogical ways in which they can engage with the technology to

enhance their practice, they will become more comfortable with employing blended learning delivery methods.

At a meeting held in the Caribbean by the Commonwealth on Learning, it was noted "all countries rated teacher development as the top priority, with technical and vocational education and training being identified as another key area. They flagged gender as a crucial area of intervention, requested capacity-building in all areas of technology-mediated learning, and sought course materials in professional fields" (COL, 2009, p.18). In recognizing the advances in educational technology, Caribbean educators are seeking ways to improve their practice in technology-mediated environments.

This study will provide a basis for future professional development for UTech's educators who have been entrusted with the responsibility of developing and facilitating a technology-mediated environment.

Delimitations and Limitations

Delimitations. The specific parameters of the study are stated in the following delimitations:

1. Participants were restricted to the University of Technology, Jamaica.

2. Participants in the survey were restricted to faculty who had previously or were currently using blended learning in their course delivery

Limitations. Limitations include the following:

1. The study was limited to faculty who volunteered.

2. The study did not look at student perspectives.

3. Time and resource constraints prevented me from including programme leaders and managers, who directly supervise faculty experienced in using blended learning, in the study.

4. Faculty who were inexperienced using blended learning, were excluded from the study, however, their perception could have provided invaluable information for the University's future directions.

5. The limitations inherent to focus group interviews. These limitations are further discussed in Chapter Three.

Definition of Terms

Blended Learning

Garrison and Kanuka (2004) describe blended learning as an "emerging trend in higher education" where institutions "blend text-based asynchronous Internet technology with face-to-face learning" (p. 96). Rovai and Jordan (2004) further defines blended learning as "a flexible approach to course design that supports the blending of different times and places for learning, offering some of the conveniences of fully online courses without the complete loss of face-to-face contact" (pp. 3-4).

Blended Course

Rovai and Jordan (2004) defines a blended course as a course that falls "anywhere between the continuum anchored at opposite ends by fully face-to-face and fully online learning environments" (p. 4).

Online Learning

Online learning is defined as "[t]he use of the Internet to access learning materials; to interact with the content, instructor, and other learners; and to obtain support during the learning process, in order to acquire knowledge, to construct personal meaning, and to grow from the learning experience" (Ally, as cited in Ally, 2008, p.17)

Technology-mediated Learning (TML)

According to Alavi and Leidner (2001) "TML is defined as an environment in which the learner's interactions with learning materials (readings, assignments, exercises, etc.), peers, and/or instructors are mediated through advanced information technologies" (p. 2).

CHAPTER 2: REVIEW OF LITERATURE

This study examined the challenges of technology-mediated learning (TML) that educators at a Jamaican university faced. The term technology-mediated learning as used in this context is an overarching topic which includes computer-mediated communication, online education, online distance education, web-based learning and blended learning. Essentially, it is any environment where advanced information technologies are used to mediate the learner's interactions with materials, peers and/or instructors (Alavi & Leidner, 2001). This review will examine the Community of Inquiry Framework (2) the future of TML (3) the opportunities and challenges of TML.

Community of Inquiry Framework

At the turn of the 21st century, Garrison, Anderson and Archer, researchers at the University of Alberta, developed the Community of Inquiry (COI) Framework. Their perception that the use of computer-mediated communication was becoming increasingly common in institutions of higher education (Garrison et al., 2000) led to the development of the COI framework. (Garrison et al., 2000) speculated that the elements within this framework and their interrelationships were "crucial prerequisites for a successful higher educational experience" (p. 87). Since its development sought to provide direction for teachers and students who used computer mediated communication (CMC) within the classroom, this portion of the research will review the framework and determine how best it supports it mandate.

The COI framework has three overlapping core elements: cognitive presence, teaching presence and social presence. Its' development was intended to improve the practice of computer conferencing in higher education (Garrison, Anderson & Archer,

2001). It focuses not only on the core elements, but also on the interrelations of these elements.

Figure 1 depicts these elements and the expected outcomes as they interact with each other. At the intersection of social, cognitive and teaching presence both teachers and students alike will have a rewarding educational experience.
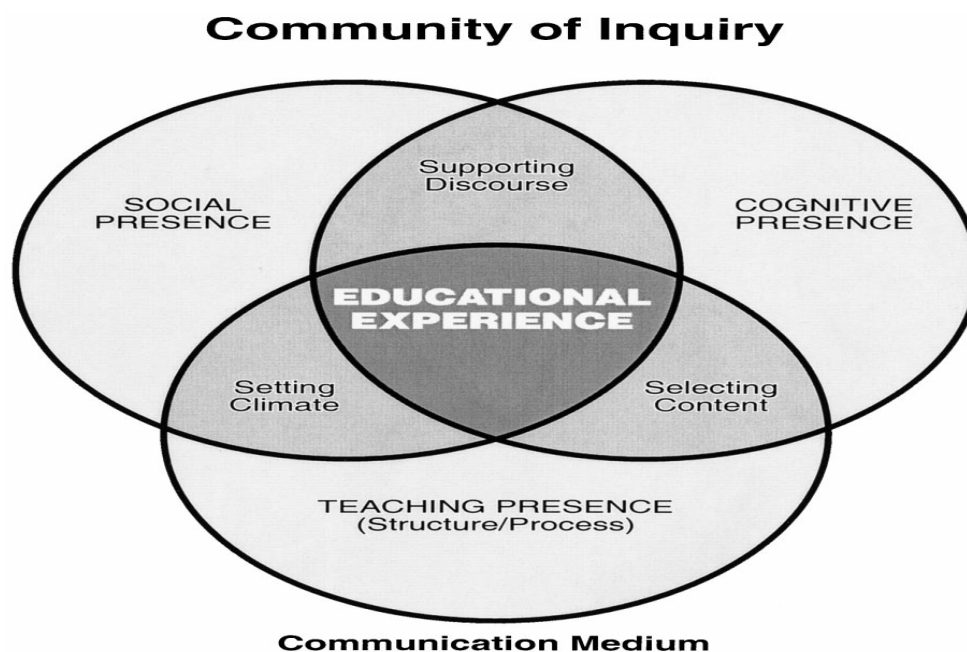
Figure 1. The COI Framework.
Retrieved from http://www.communityofinquiry.com/model. This figure illustrates the elements required to attain a successful educational experience.

Cognitive Presence

In an attempt to better understand web-based learning, Hannafin, Hill, Oliver, Glazer and Sharma (2003) researched the cognitive and learning factors involved in web-based and computer-mediated learning. An individual's mental process is initiated or stimulated by cognitive factors; "in effect, cognitive factors optimize the unique ways individuals process knowledge to optimize personal relevance and meaning" (Hannafin et al., 2003, p. 246). The cognitive presence element, sought to evoke critical thinking in

CMC environments. Within education, the philosophy of critical thinking is that it is vital to true autonomy in our complex society (Glen, 1995). This notion of cognitive presence is grounded in theory of critical thinking.

Cognitive presence as defined by Garrison (2007) is "the exploration, construction, resolution and confirmation of understanding through collaboration and reflection in a community of inquiry" (p. 65). In an educational setting, a student typically encounters a triggering event - which may be an issue or dilemma posed by their teacher. This trigger leads the student to explore the issue at hand through critical reflection and discourse and this is usually characterized by questioning, brainstorming and information exchange. Based on the information collected in the exploration phase, the student begins his or her own construction of knowledge, assessing the relevance of the information present with the dilemma being faced. The greatest challenge is then faced at this point, as the teacher will need to ascertain and diagnose any misconception the learner might have constructed at this stage. Resolution, which represents the final stage of this element, exists when the dilemma or issue posed by the teacher has been resolved by the student. The student has applied a practical solution to the problem and the teacher can now present another triggering event, which will require the critical inquiry process to be repeated. According to (Garrison et al., 2000), cognitive presence is considered a "vital element in critical thinking, a process and outcome that is frequently presented as the ostensible goal of all higher education" (p. 89).

Social Presence

The next core element is social presence. While the student is exploring and resolving their dilemma, their interaction with their peers and instructor fosters the social presence in a CMC environment. Rourke, Anderson, Garrison and Archer (2001),

defines social presence as the learners ability to "project themselves socially and emotionally in a community of inquiry" (p. 54). They note that its function "is to support the cognitive and affective objectives of learning. Social presence supports cognitive objectives through its ability to instigate, sustain, and support critical thinking in a community of learners" (Rourke et al., 2001, p. 54). While Garrison (2007) posits that there are three categories within this element, open communication, group cohesion, and affective expression, others argue that there are only two categories within the social presence.

Teaching Presence

The third core element of the COI framework is teaching presence. While this can be performed by any participant within the community, it is usually the responsibility of the teacher within an educational setting. This element has two main functions, designing an educational experience and facilitation. According to Garrison, Anderson and Archer (2000):

> The first of these functions is the design of the educational experience. This includes the selection, organization, and primary presentation of course content, as well as the design and development of learning activities and assessment. A teacher or instructor typically performs this function. The second function, facilitation, is a responsibility that may be shared among the teacher and some or all of the other participants or students. This sharing of the facilitation function is appropriate in higher education and common in computer conferencing. In either case, the element of teaching presence is a means to an end to support and enhance social and cognitive presence for the purpose of realizing educational outcomes. (p. 90)

Summary

The researchers Garrison, Anderson and Archer, sought to develop a conceptual framework (COI), which they posited would provide a successful educational experience for both teachers and students who were using computer-mediated communication (Garrison et al., 2000). The three elements of the COI, cognitive presence, the social presence and the teaching presence were discussed and also the interrelations of these elements - which are tantamount to the framework's ultimate goal of educational experience. Now that I have brought this framework to the fore, I will now review literature pertaining to the future of TML.

Future of TML

As many consider the impact that TML has had on the educational sector, it is equally important that we prepare for and anticipate its reach in the not too distant future. An awareness and understanding of the future directions of TML will aid institutions in creating a blueprint which will inform their educational technology undertakings. The reach of the traditional classroom has been far surpassed with the unparalleled access to instructional resources that TML offers to learners (Olson & Wisher, 2002). TML has not only influenced teaching and learning in the traditional classroom, but also in the realm of distance education. Peters (2003) has suggested that distance education has catapulted in its third era with the "un-heard of advances in information and communications technologies and their increasing use" (p. 88). Though much of the readily available literature on this topic was focused on North America, this review aimed to be more inclusive, highlighting happenings in Asian, African and Australian contexts as well. This portion of the review will look at literature from faculty and administrators and national and international agencies that spoke to the future of TML.

Faculty and Administrators

Futurists believe that a great deal of interest in the design and application aspects of TML will be generated in the current and foreseeable future as educational institutions continue to allocate significant resources to implement such learning environments (Alavi & Leidner, 2001). Downes (1998) argued the introduction of new technologies and practice has led to the almost daily evolving of the discipline of online learning. He further noted that despite the rapid changes there were trends that pointed to the future of online learning. Garrison and Kanuka (2004) opined "given the increasing evidence that Internet information and communication technologies are transforming much of society, there is little reason to believe that it will not be the defining transformative innovation for higher education in the 21st century" (pp. 95-96).   According to Alavi and Leidner (2001) numerous traditional colleges and universities are embracing information technologies in a bid to create new learning models geared at enhancing the effectiveness and expanding the reach of their programs.

Kim and Bonk (2006) conducted a study aimed at exploring the future trends of online education within post-secondary institutions. It involved surveying college instructors and administrators who were either members of Multimedia Educational Resource for Learning (MERLOT) or Western Cooperative for Educational Telecommunications (WCET). Noting that this is an American-based study, it made predictions "regarding the changing roles of online instructors, student expectations and needs related to online learning, pedagogical innovation and projected technology use in online teaching and learning" (p. 23). In their findings, the respondents predicted that in the next few years there will be (a) little growth in the offering of online master's or doctoral programs, but much growth in the offering of online certification and

recertification programs in the next few years; (b) increased emphasis, on the infusion of blended learning in all programs as opposed to fully online courses; and (c) advanced Internet technologies will more than likely increase the use of multimedia, games and simulation in online learning.

With all the investments that have been made in technology, the question remains, does the use of technology increase learner interactions and outcomes? Piccoli, Ahmad and Ives (2001) posited "while technology itself does not determine learning outcomes, technologies differ significantly with respect to the learning environments they foster" (p. 405). Galloway (1998) identified three levels of Web-use and the kinds of interactions that they fostered. As teachers ascend each level the amount of direct instruction or explicit teaching is reduced while the amount of student to student interaction is increased.

> In Level 1, the Web is used to post course material with little or no online instruction. The instructor guides students to the relevant information rather than obliging the students to search for information. In Level 2, the Web is used as the medium of instruction. Course assignments, group projects, and lecture notes are posted on the Web. The teacher becomes the facilitator of knowledge, guiding the student rather than telling them what to do. In addition, there is increased student-student interaction. Courses that are offered completely online fall into Level 3. Teachers and students interact only over the Internet, and know [sic] how to use the technology is extremely important at this level. (Olson & Wisher, 2002, p. 4)

International and national agencies

Educational opportunities are being expanded with the use of the Internet (Galloway, 1998) as countries seek to meet the United Nations Millennium Development Goal that focuses on making access to basic education imperative by 2015 – 'Education For All'. In line with this goal, the Commonwealth of Learning (COL) is seeking to make this a reality for members of the commonwealth by exploiting the technological advances in education. In their three year plan for 1997-2000, COL noted their mission statement "Recognizing knowledge as key to cultural, social and economic development, The Commonwealth of Learning is committed to assisting Commonwealth member governments to take full advantage of open, distance and technology-mediated learning strategies to provide increased and equitable access to education and training for all their citizens." In commenting on one of the studies they commissioned in 1997 on virtual education, they noted that although there were pedagogical concerns and legal considerations "the consensus is that virtual learning is a solid direction that education is taking, not a fad" (COL, 1997, p. 9).

In a similar thrust the United Nations Educational, Scientific and Cultural Organization (UNESCO) has also predicted a promising and bright future for TML as, the last two decades "has witnessed a dramatic increase in the development of technology-based teaching and learning" (Alavi & Leidner, 2001, p. 1). UNESCO (2002) in their booklet Open and Distance Learning stated:

> It is more than ever clear that open and distance learning will be an important element of future education and training systems. It is approaching acceptance within mainstream education and training in such a way that it will make up part of the repertoire of most educational institutions in the future. The emergence of

new forms of distance learning based on new information and communication

technologies; in particular those supported by the Internet and using the World

Wide Web, has significant pedagogical, economic and organizational

implications. (p. 10)

The acceptance of TML in mainstream education and training, as purported by

UNESCO, was evident in a survey of higher educational institutions in the United States

in Fall 2004. It revealed that 2.35 million students were enrolled in online courses, noting

that "online education was becoming an important long-term strategy for many post-

secondary institutions" (Kim & Bonk, 2006). Further research done by Sloan Consortium

(Allen & Seaman, 2009), revealed an increase in the number of students taking at least

one online course for the sixth consecutive year. In Fall 2008, there was a 17% increase

over the previous year and this accounted for 4.6 million online students. This increase in

the number of students taking at least one online course demonstrates the proliferation of

TML in institutions of higher education within North America. But, is the influence of

technology within the educational sector as pronounced in other parts of the world as it is

in North America?

Taking a look at the Asian region, it is evident that the use of technological

resources in educational institutions is also prevalent. In 2002, the Korean government

gave e-learning a substantial boost when it implemented the 'E-campus Vision 2007', a

subset of its larger program, 'Comprehensive Plan for the Encouragement of Using

Information Communications Technology (ICT) in Universities', initiated in response to

the struggling state of ICT in universities (Leem & Lim, 2007). In fact, Korea's Ministry

of Education & Human Resources Development (MEHRD) posited, notwithstanding the

increased problems related to cyber terror and other negative side effects of ICT, "the level of ICT utilization in Korea is the highest in the world as far as infrastructure and utilization are concerned (MEHRD, 2007, p.19). The following are some of Korea's accomplishments and commitments with regards to fostering TML environments, as stated by MEHRD (2007):

1. Operate and develop 100 experimental schools after developing and applying digital textbooks for 25 courses by 2011

2. Minimize the number of students with limited access to education due to financial resources by providing educational expenses to the children of the unemployed in 1998 and children of low income earners in 2000

3. Opening an eLearning portal site for disabled students EDUABLE and increase the number of recipients of personal computers and internet services from 100,000 to 139,000

4. Implementing an execution plan for the promotion of ICT in education in 2007 aimed at improving accessibility to education, promoting local education, improving education welfare by revitalizing public education, renovating academic education, disseminating lifelong education and augmenting the benefits of education welfare.

5. Implementing a research competition on adapting ICT for Education in 2007. The competition was aimed at offering new learning and teaching methods in order to improve learning in the classroom. Exemplary cases are made available online and in printed format for easy adaptation by other schools.

6. Developing and operating numerous programs aimed at educational content sharing and adapting ICT for the national education. Some examples of these programs are EDUNET – a centralized Teaching and Learning Centre, The National System for Sharing Educational Information and Cyber Home Learning.

7. Improving training for teachers to enhance their use of ICT and meet their specific needs. The training is made up of four sections, basic ICT use, ICT application, further learning for school curriculum teaching and innovative leadership.

The aforementioned points demonstrate the Korean government's commitment to supporting the use of TML in its educational institutions. Not to be outdone is the African region with the varied initiatives that have been implemented to support the use of technology in mediating their learning environments. Nwagwu and Abanihe (2006) highlighted that new forms of local and international collaborations supporting educational developments in Africa had begun to emerge owing to the relationship being formed by both African public and private sector agencies and other countries. According to Nwagwu and Abanihe (2006) some of the major e-learning initiatives which these alliances have led to include:

- African Virtual University (AVU) – In 1997, this university was developed under a World Bank project and was established to use a technology-based and distance education network to build capabilities in science and engineering as a strategy for meeting some of the challenges of higher education in Africa. By partnering interested sub-Saharan African Universities with expertise content from Canada, America and France, the AVU have sought to address the problems of access and capacity building. With more than 13 years of experience, AVU has now acquired

the largest eLearning network in Africa with more than 50 Partner Institutions in 27 countries; they now boast their delivery of programs through ICT, design and implementation of Multinational eLearning projects, development of African-based residential and eLearning materials for Partner Institutions, establishment of state of the art eLearning centers in Partner Institutions and the training of Partner Institution staff in eLearning methodology (AVU, 2010).

- The Association for African Universities (AAU) – AAU is considered the summit organization for information exchange and cooperation among the institutions of higher education in Africa; it provides the framework necessary for such institutions to interface and interrelate by supporting their networking in teaching, research, information exchange and dissemination (AAU, 2010). Within Africa, the AAU has initiated numerous e-learning projects which have influenced their e-learning networking initiatives. In addition to forming a Network for Regional Cooperation in Graduate Training and Research, they have also developed the Database for Thesis and Dissertation (DATAD). DATAD addresses the issue of indexing masters and doctoral degree theses. This allows for knowledge sharing on what has been done or what needs to be done in different areas of research.

- Education/Business Partnership – ICT companies in developed countries have begun partnering with institutions of higher education in African in the awarding of educational certificates and degrees.

The literature demonstrates that the African region is making strides in the implementation of technology mediated learning to improve communication among

educational institutions and to address the issues surrounding geographical barriers that restrict access to educational resources.

In 2003 a study funded by the Commonwealth and commissioned by the Australian National Training (ANTA), sought to explore and compare the current and future trends of e-learning, to inform the planning cycle for initiatives within the Australian Flexible Learning Framework (Eklund, Kay & Lynch, 2003). The study was particularly aimed at providing an overview of the possible issues and implications arising from the use of technology mediated learning and delivered instruction within the vocational education and training (VET) sector.

Although Eklund, Kay and Lynch (2003) theorized that the varied factors driving ICT-enabled instruction could be classified as technical innovation, organizational and business developments, and the needs and demands of the individual learner, they were quick to point out that base technologies were the driving force behind educational applications - which tends to significantly lag behind in its maturity cycle. In examining the literature, they discovered a growing maturity on the part of educational institutions with their acknowledgement of the past failures of e-learning to deliver on a set of unrealistic goals. Noting that these failures were largely as a result of misguided enthusiasm, as early initiatives and expectations were largely driven by organizations caught up in the hype of adopting the technology in order to gain market advantage and to be seen as "technologically progressive".

According to Eklund, Kay and Lynch (2003), since the only certainty is change, having sound processes is the only way to effectively accommodate change:

Forces that are aligning to shape the future for e-learning may be categorised as technical, teaching and development practices or organizational initiatives. Dramatic changes in hardware and software and the continued mainstreaming of technologies into our lives through e-commerce and entertainment are providing a powerful and unstoppable force for the growth of e-learning...organizations, including schools, are developing better IT infrastructure and systems for efficient business and will be seeking to leverage off those efficiencies for the delivery of training (p. 28).

This study conducted by these Australian researchers, have not only posited the future trends for the integration of ICT in educational institutions, but have highlighted the major factors which led to the dissonance of early adopters. They sought to redirect the focus of institutions from a mere trendsetter status, inviting them to look at investing in technology which was learner-centred, having competent practitioners at the helm.

Summary

Educational institutions and other organizations, along with their countries are preparing to embrace technology mediated learning for teaching and training purposes. More and more countries are developing initiatives that will foster a learning environment that will include technology. Convinced of its ability to enhance learning, remove geographical barriers and increase flexibility, the Commonwealth of Learning has undertaken studies to surmise the needs of member countries and mitigate the challenges that they might encounter. UNESCO's millennial goal of Education for All has also been a motivating force, especially for developing countries, who recognize that online learning might be best route for achieving this goal.

Opportunities and Challenges of TML

Researchers are still divided on the impact that technology mediated environments has on learning, while some researchers focus on the opportunities (Daniel & Mackintosh, 2003; Swan & Shih, 2005; Zenger & Uehlein, 2001) presented by TML, others tend to be more cautious, pointing to the possible demise of implementing such programs on a large scale. Both sides of the divide need to be explored. Alavi and Leidner (2001) encourage researchers to take a more expansive and comprehensive approach to understanding, designing and researching technology-mediated learning. Piccoli et al. (2001) cited research that suggests TML may improve student achievements, attitude towards learning and evaluation of the learning experience. Proponents speculate that in comparison to the traditional classrooms, TML will potentially eliminate geographic barriers, increase flexibility, convenience, student retention and feedback; others note some drawback of TML may include feelings of isolation, anxiety and frustration or reduced interest in the subject at hand (Piccoli et al., 2001). In this section of the review we will examine the opportunities and challenges presented by TML as it relates to financial concerns and adaptation.

Financial Concerns

Though course delivery costs are relatively inexpensive, the upfront costs associated with investing in technology mediated environments are high (Zenger & Uehlein, 2001), and may be a factor in determining the scope to which such investments are made. Initial conversion and acquisition costs associated with technological resources often prove to be expensive. In order for institutions and organizations to make such investments, the perception that online learning will provide major benefits (Ally, 2008) must be present. Traditionally, an investment made by the business sector is hinged on

the projected value or return on that investment; businesses are more concerned with the value that the investment will accrue than on the absolute cost (Inglis, 2003). Similarly, many educational institutions have taken the plunge and invested in TML environments owing to the promised return on investment, and some have opted to shift the costs to the learners (Inglis, 2003). King and Lawler (2003) noted "financial concerns are important for any organization, whether public or private, for-profit or not-for-profit. The bottom line determines whether classes can be scheduled. As a culture of downsizing and cutbacks has become commonplace in the global marketplace, many questions arise" (p. 8).

Without question, financial concerns rank high on list of challenges institutions face when undertaking the implementation of technology based education. However, how are these investments justified and who or what determines the benefits realized by these investments? Cost-benefit analysis for technology-mediated learning is usually conducted by two groups, educational institutions and private sector businesses (Cukier, 1997). From her research, Cukier summarized the advantages and disadvantages of the four types of cost-benefit analysis utilized in TML and then proposed an integrated framework for such analyses. She noted that although costs were more clearly defined than benefits, the focus of the cost-analysis varied to reflect the user, the institutions or the course. The four analyses to cost-benefit analysis identified were values, mathematical models, comparative studies and return on investment.

The values approach "considers the pedagogical needs and values of an educational institution in analyzing cost-benefits of online education" (Jung, 2003, p. 719). For example, an institution that values small-group interaction will see this

functionality as a benefit to be derived. While an institution that is more concerned with increasing its student base and not at all concerned with class size will value expansive delivery as a benefit to be realized. The mathematical approach which to a great extent models an institution's value, intrinsically or otherwise, quantifies selected costs and benefits related of the technology being assessed. The comparative study, which according to Cukier (1997) is the most common method of analyzing TML, is where at least two types of course deliveries are assessed. For instance, an institution can choose to assess one course that is delivered in a traditional face to face format and also delivered totally online. The return on investment approach, which is normally employed by companies with training situations (Cukier, 1997) measures the monetary gains as it seeks to attribute the economic value of adopting a new medium (Jung, 2003) of delivering its training.

Cukier (1997) proposed an integrated approach to cost-benefit analysis for TML that would involve separately evaluating the benefits and costs whilst maintaining consistencies of evaluations across technologies. Although a subjective evaluation is unavoidable, institutions should strive to conduct a flexible and multi-level analysis that will address performance-driven benefits, value-driven benefits and indirect benefits (Cukier, 1997).

The cost of the technology required for investing in TML tends to be a concern for institutions. It will cost institutions to buy hardware and software, upgrade their network infrastructure, provide staff training, and employ additional technology support staff, among a host of other things. While this is a valid concern, institutions need to

undertake a comprehensive cost-benefit analysis of the technology or technologies to ascertain which best fits their needs.

Adaptation

The challenges that educators face in TML are quite considerable and should not be underrated as numerous educators are yet to complete programs in an online environment, resulting in limited background experiences from which they can draw on (Bennett & Marsh, 2002). McQuiggan and Taylor (2008) amplified this challenge by explaining that commonly held assumptions of what faculty needs to know are the determinant factors when training or developmental programmes are designed.

In many Caribbean countries online teaching is still relatively new. This paradigm shift requires online educators to acquire new skills in order to facilitate instruction. However, the "constant guessing game" or "hit-or-miss" approach will not result in these skills being acquired (McQuiggan & Taylor, 2008). In order to ascertain the nature and severity of the challenges faced by educators, it is necessary to conduct a thorough needs-based analysis. The information garnered can then be used to determine the appropriate professional programs needed and the kind of technical support required. Failure to conduct an analysis of this nature is very likely to result in educators still be playing 'catch up' long after online teaching has become the norm.

The ability to keep abreast with technological demands is another challenge that is faced by institutions (Arabasz & Baker, 2003; Bonk & Park 2007). The dynamic nature of technology has proven to be unmanageable for some institutions. Others are sometimes lagging in this respect, as long-term measures have not been put in place to address these changes. Arabasz and Baker (2003) explained "the bottom line is that institutions must continually balance the growth in the number of e-learning courses with the changing

dynamics of support" (p. 8). As institutions expand their technology-mediated course offerings, they will also need to increase the resources which are necessary to adequately sustain these initiatives. Watkins and Kaufman (2003) highlighted "proactive change creation moves institutional planning and needs assessment away from a responsive mindset to one focused on adaptability and creation" (p. 508). It will not be sufficient for institutions to assume a reactive or wait and see approach. Instead, the successful implementation of technology mediated environments will require thoughtful and strategic planning.

Finally, there arises the challenge of adapting to the changes in the technology mediated environment. Bennett and Marsh (2002) suggested that "many tutors moving into online teaching are literally being asked to run before they can walk, with little clear image of how the route to their educational aims and objectives may be different from that followed in established, so-called traditional teaching and learning contexts." Even though the content and the objectives of a course may remain the same, the contextual difference of teaching an online course can prove challenging for educators.

The research performed by Bonk and Park (2007) stated that the "lack of a sense of community and feelings of disconnectivity often have been expressed as challenges to online learning" (p. 247). Additionally, the anxiety expressed by learners in the online environment has been shown to negatively impact their experiences (Bonk & Park). TML environments without a personal touch and feel is a challenge that both learners and educators have to contend with. Depending on the nature of the technology that is employed, social and interpersonal relationships can be greatly constricted. Educators might not be able to 'read' their students facial expression or just simply attach a face to a

voice. Until recently, students were not able to indicate their feelings while in these classes and teaching for the most part was one-way (moving from educator to learner) process.

As Shearer (2003) postulated, "there is no one best technology" in the development of technology mediated courses; instead, "it is usually a combination of technologies that produces the best course in terms of meeting the learner`s educational objectives" (p. 285). Currently there are web-based technology that allows for video-conferencing, file sharing, text-based chat and voice conferencing. As a myriad of newer technologies enter the market they will become more affordable and institutions will need to be more deliberate in their selection of these technologies.

<div align="center">**Summary**</div>

This review has revealed that notwithstanding challenges of TML, opportunities exist for institutions to supplement the traditional classroom experience thus making TML a viable venture. Financial concerns and adaptation issues have not prevented institutions from embracing this kind of learning. Many institutions are considering or have already implemented different aspects of TML. Additionally numerous countries have been supporting TML initiatives within educational institutions. With limited available research on TML within a Jamaican context and the University of Technology's thrust to have increased amounts of blended courses offered to its students, this research has identified the challenges faced by educators, widening the body of available data and making suggestions as to future research directions which can inform educational institutions in the Caribbean.

CHAPTER 3: METHOD OF STUDY

As discussed in the introductory chapter, the purpose of this study was to explore the challenges faced and the supports provided to UTech educators in the facilitation and development of technology-mediated learning. This chapter outlines the methodology of the study, a description of the research participants, data collection techniques, data analysis techniques, and the study's trustworthiness.

Qualitative Research Methodology

In describing a qualitative approach to research design, Creswell (2003) elucidated "[it] is one in which the inquirer often makes knowledge claims based primarily on constructivist perspectives (i.e. the multiple meanings of individual experiences, meanings socially and historically constructed, with an intent of developing a theory or pattern)" (p.18). A qualitative research usually involves the investigation of the quality of relationships, activities, situations or materials, thus placing greater emphasis on the holistic description of a particular activity or situation (Fraenkel & Wallen, 2000). This research employed a qualitative research methodology to gain an understanding of the individual and collective experiences of Jamaican educators who are using technology-mediated learning within the classroom. This study was less concerned with generalizability and more concerned with the transferability of the findings. The methodology involved provided a narrower but more in-depth view of the study. Since the experiences of Jamaican educators are framed within a different socio-cultural and historical setting from that of North American educators, there were additional challenges that were unearthed in this research.

Research Participants

The research participants involved in this study were educators at the University of Technology, Jamaica who were involved in development and facilitation of technology-mediated learning. Based on conversations with the office of the Associate Vice President - Continuing Education, Open and Distance Learning and the Associate Vice President - Academic Management and Quality Assurance at UTech, on the use of Moodle within the university, it was decided that a non-probabilistic, purposive sampling procedure would be used. Purposive sampling technique, as the name suggests, involves choosing the sample for a specific purpose (Cohen, Manion & Morrison, 2000). According to Fraenkel and Wallen (2000) "based on previous knowledge of a population and the specific purpose of the research...researchers assume they can use" this knowledge "to judge whether or not a particular sample will be representative" (p. 112) and will provide the data needed. The idea behind conducting a qualitative research is to purposefully select participants or organizations that will "best help the researcher understand the problem and research question" (Creswell, 2003, p. 185). The criteria that were used to select the participants were as follows:

1. Prior experience with developing and facilitating technology-mediated learning.
2. Various educational backgrounds and work experience.
3. Champions of technology within UTech context.
4. Willingness and availability to participate in the study.
5. Ability to articulate thoughts and ideas about their experiences with technology-mediated learning.

Focus Group Participants

Initially six participants were selected as adequate for the focus group session; however, conflicting schedules and unforeseen circumstances resulted in the decision to conduct two small group interviews. Krueger and Casey (2000) states "small focus groups, or mini-focus groups, with four to six participants are becoming increasingly popular, because the smaller groups are easier to recruit and host, and they are more comfortable for participants" (pp. 73-74). Since this study sought to provide an in-depth understanding of the challenges faced by the participants, the small group was sufficient. As Morgan and Scannell (1999) notes, the goal of having a focus groups "is to gain insight and understanding, by hearing from people in depth" (p. 56).

One-on-One Interview Participants

Some participants who were unable to attend the focus group interviews were invited to participate in individual interviews, see Appendix C for ethics information. Two individuals who consented to be interviewed individually were interviewed for this study.

Data Collection

Two approaches were used to collect data for this research. Based on the research problem, the main methods of data collection that was used were semi-structured group interviews and semi-structured one-on-one interviews. While focus groups can give researchers a greater range of responses in a shorter time period, in-depth interviews provide greater depth from individual responses (Hesse-Biber & Leavy, 2006).

Fetterman "describes interviewing as the most important data-collection technique a qualitative researcher possesses" (as cited in Fraenkel & Wallen, 2006). According to

Kvale and Brinkman (2009) an interview is more than just "the spontaneous exchange of views in everyday conversations, and becomes a careful questioning and listening approach with the purpose of obtaining thoroughly tested knowledge" (p. 3). Interviews can generate in-depth data from participants owing to its adaptive nature (Gall, Gall & Borg, 2005).

Semi-structured Interview Questions

The semi-structured interview guide was developed by coining questions that were related to the three core elements of the COI framework, cognitive presence, social presence and teaching presence. I began by asking general questions about the participants' use of the technology in the teaching and learning process and invited them to share some memorable experiences that they had. I then probed deeper to ascertain the extent to which the cognitive, social and teaching presence influenced the challenges that they were facing in designing and facilitating blended learning.

1. What phrase or sentence comes to mind when you hear the term teaching with technology?

2. Describe some of the most, or one of the most memorable experiences that you have had in watching your students learn in a technology mediated environment.

3. How do the technologies influence how your students use the course content?

4. How do students view the social interaction with each other within these environments?

5. How does peer to peer interaction with the technologies affect their learning the course content?

6. What teaching challenges have you faced when using technology mediated learning?

7. Which of these teaching challenges have been resolved and how were they resolved?

8. How do you see your role as a facilitator within this kind of environment, has it changed?

9. What advice would you give to a lecturer who is considering engaging in technology mediated learning?

Focus Group Interview

Two group interviews were conducted; one involving two educators and the other involving three. Group interviews lasted for approximately 45 minutes and consisted of faculty members from three of UTech's faculties, namely Faculty of Computing and Engineering, Faculty of Business and Management and the Faculty of Education and Liberal Studies. The participants eagerly participated in the group sessions and though they disagreed on some points they engaged each other with questions and also made suggestions regarding the concerns that were raised.

A focus group interview creates a supportive environment; the focused questions that are asked by the interviewer are intended to encourage discussion among the participants and an expression of their different points of view (Marshall & Rossman, 2006). All the questions did not generate as much discussion as anticipated. Many of the participants requested that I explain or rephrase the third interview question as they did not initially understand what was being asked. As highlighted by Krueger (1994), focus group techniques are prone to some of the following limitations:

1. The interviewer has less control in focus group sessions than individual interview sessions.

2. The analysis of the data is more difficult as group discussions generate a social

    environment. Researchers have to be mindful of this when analysing the data, so

    as not to lift comments out of context.

3. The technique requires carefully trained interviewers. Untrained interviewers can

    at times achieve remarkable results; however the odds of success are greater when

    skilled interviewers are used.

4. Groups can vary considerably; each group tends to have its own unique

    characteristics.

5. Groups are difficult to assemble. It requires individuals to take time to be at a

    designated place for a specific time, to share their perception with others.

6. Discussions must be held in an environment conducive to conversation. On the

    contrary, an individual interview can be held in a private location and at a time

    most convenient for the interviewee.

   In organizing the focus group sessions I encountered some difficulty in assembling the group, as some participants had schedules that conflicted with time of the group interview. I however went ahead and conducted group interviews with the participants who were available for two agreed upon times.

One-on-One Interviews

   Hesse-Biber and Leavy (2006) notes that it is a common design strategy to employ focus groups as the primary research method and follow-up interviews with some or all of the focus group respondents. They further state:

   This methodology allows researchers to gain initial group data, which produces an

   overall group narrative, and then seek more data on specific components of the

   narrative. This design allows respondents to share their experiences in the group

setting and then have individual time to elaborate on their personal experiences, attitudes and beliefs, including any impact of the focus group (p. 211).

I decided to forgo follow-up interviews with the group interview respondents as the groups were smaller than I had anticipated and I did not perceive that any of the participants were reluctant in sharing information within the group setting. The one-on-one interviews that were conducted were between 30 and 45 minutes in length, and although the participants were not involved in the group interviews, they were open in sharing the experiences that they had designing and delivering blended courses. By reviewing the responses of the group interview sessions I was able to probe some of the responses shared by the individual interviewees.

Data Analysis

Data collected in the focus group interviews and one-on-one interviews was examined using data analysis and a spiral design (Hesse-Biber & Leavy, 2006). Following the suggestion made by Krueger (1994) on the analysis of focus group results, I carefully and deliberately examined, categorized and tabulated the evidence (p. 119) that were contained in the transcripts. Locke, Silverman and Spirduso (1998) describes analysis as the "process of manipulating and inspecting" the data (p. 84). For this study, the analysis of the data began once I started collecting the data (Krueger, 1994) as I took note of what was taking place during the interviews. After conducting the focus group interview, I reviewed the notes that I had taken and listened to the recordings to determine what issues or questions needed further probing in the one-on-one interviews.

Upon completing all the interviews I transcribed the recordings and then reviewed them, based on the notes that were taken during the interview. Afterwards, I examined the

data by printing a copy of the transcript notes and highlighting the "instances of expression" (Locke, Silverman & Spirduso, 1998, p. 85) relevant to the question being asked. Later, I developed themes or categories which these expressions could be sorted in and then inspected "the content of all the categories" (Locke, Silverman & Spirduso, 1998, p. 85). I then refined the themes and, by diving in and out of the data, I was able to gain new understandings and also a greater level of detail (Hesse-Biber & Leavy, 2006); thus identifying sub-themes within the larger themes that were unearthed. In employing a spiral model of data analysis, I had the flexibility to use this information to double back and gain more information (Hesse-Biber & Leavy, 2006).

Trustworthiness

The purpose of addressing trustworthiness is to make transparent my assumptions about teaching, learning and technology. In this section I will share my beliefs and assumptions, then I will indicate how the four major concerns outlined by Guba (1981), credibility, transferability, dependability and confirmability provided a basis for the study's trustworthiness.

Beliefs and Assumptions

As an individual that supports the use of TML within institutions of higher education, I believe that there are numerous opportunities for using new methods to educate UTech's faculty members. I believe that individuals learn by doing; subsequently, I subscribe to the notion that faculty will only become comfortable with the technologies if they are provided with "hands on" experience in using these technologies. With proper implementation, planning and training, I believe that advanced technologies can supplement and not only accessorize the traditional classroom environment. I believe

that once adequate support and incentive is in place, more faculty members will be motivated to migrate from the traditional to a more blended learning platform.

While I was a former UTech staff, there were ongoing talks about creating smart classrooms. I had doubts that that initiative had already materialized, owing to the slow pace that I was used to seeing similar plans being put into motion. I was also pleasantly surprised when I learnt of the ways in which participants were teaching with technology. I expected that MOODLE would have been the highest level of technology used, but this study demonstrated that faculty were using other technologies that were available.

The willingness of some of UTech's educators to embrace TML is, I believe, largely curtailed by the availability of resources and their predispositions.   I also believe if audience is given to their concerns and they can have their challenges tabled, that they will be able to work together with the administrators to propose ways in which they can move forward in providing above standard blended courses to the students. I hoped that the outcomes of this research would help to encourage and direct new and ongoing TML initiatives at UTech.

Credibility

...naturalistic inquirers are most concerned with testing the credibility of their findings and interpretations with the various sources (audiences or groups) from which data were drawn. The testing of credibility is often referred to as doing "member checks," that is, testing the data with members of the relevant human data source groups. (Guba, 1981, p.80)

Member checks and peer-debriefing were used in the analysis to address any credibility concerns that may arise.

Member Checks. This is the process by which data and interpretations are continuously tested by members of different audiences from which the data were collected. (Guba, 1981). For this study member checks entailed having the participants review the interview notes which were transcribed from the audio recordings, in order to have them validate or invalidate the information presented.

Peer Debriefing. Creswell (2003) notes "this process involves locating a person (a peer debriefer) who reviews and asks questions about the qualitative study so that the account will resonate with people other than the researcher" (p. 196), thus exposing the inquirer to searching questions and testing their growing insights (Guba, 1981). During the data analysis and interpretation, I engaged in peer debriefing with my research supervisor and with two disinterested colleagues. They were able to question the analysis that I made and identified themes within the data that I had not originally identified. The discussions corroborated and also invalidated some of the ideas that I deduced from the data collected. It was a real valuable exercise as I gained additional insights from individuals who were interpreting the data from different angles and this aided in the credibility of the study.

Transferability

According to Guba (1981)

... the concept analogous to generalizability (or external validity) is transferability, which is itself dependent upon the degree of similarity (fittingness) between two contexts. The naturalist does not attempt to form generalizations that will hold in all times and in all places, but to form working hypotheses that may be transferred from one context to another depending upon the degree of "fit" between the contexts. (p.81)

In addressing transferability, purposive sampling and thick description were used. The participants were chosen based on their expert knowledge on the topic, and the research aimed at describing the context surrounding which the data was collected. As much as possible, thick descriptions were given to give a better understanding of realities in which the research was done. The context, time and place of the research inform the extent to which the findings are transferable. The inclusion of participants representative of four faculties, aims to provide a broader spectrum from which to transfer findings and make generalizations about the instructors at the university. The generalizations are also extendable to the Caribbean as three of the educators also teach distant courses to students in other Caribbean islands.

Dependability and Confirmability

Like quantitative studies, qualitative studies are also concerned with the dependability and confirmability of the data. Guba (1981) notes dependability is concerned with how stable the data are, "but researchers must make allowance for apparent instabilities arising either because different realities are being tapped or because of instrumental shifts stemming from developing insights on the part of the investigator-as-instrument." (p. 86). Being aware of one's predisposition, "naturalists shift the burden of neutrality from the investigator to the data. (p.81). In addressing the stability and accuracy of the data, I have noted my assumptions, in addition to being as reflexive as possible in dealing with the data. Questioning my beliefs about the topic, journaling the various occurrences and engaging in reflection on the research project have been the means whereby dependability and confirmability were addressed.

Ethical Considerations

This study was overseen by the University of Alberta's regulation for ethical procedures in research involving human subjects. The participants were contacted via email where they were invited to participate in the study. Attached to the Letter of Invitation (Appendix A) was a Letter of Consent (Appendix C), outlining their role in the study. By signing the Letter of Consent, participants indicated their willingness to be volunteers in the study. The following ethical issues were addressed:

1. Participants were informed of the purpose of the study, the degree of commitment required and the specific activities that they would be involved in.

2. The participants were reminded of the nature of their participation being completely voluntary and their right to withdraw at any time without repercussion.

3. The confidentiality of the information collected. Participants were informed that the recordings and transcriptions would be kept under lock and key at my home and would both be destroyed after five years.

Summary

The two qualitative methods of data collection primarily used to address the research questions were, focus group interviews and one-on-one interviews. There were two focus group interview sessions that were conducted and two one-on-one interviews. Five staff took part in the group interviews and two took part in the one-on-one interviews. Using content analysis various themes were identified in the data. Spiral design, was then used to unearth more detailed and specific information by means of iteration, resulting in sub-themes emerging from the data.

Trustworthiness in this study was addressed using credibility, transferability, dependability and confirmability. The methods used were peer de-briefing, member checks, purposive sampling and thick description.

The next chapter will outline in detail, the findings that were gleaned from the data collected.

CHAPTER 4: FINDINGS

The purpose of this research was to identify the challenges that UTech educators faced as they employed new technologies aimed at enhancing program delivery. The research problem addressed was: What are the challenges facing and supports provided to educators at the University of Technology (UTech), Jamaica, in developing and facilitating technology-mediated learning?

In order to better explore the research question, the following sub-questions were addressed:

1. What are the roles that UTech educators assume when adopting technology-mediated learning?

2. What professional resources are available to UTech educators in their use of technology-mediated learning?

This chapter presents the data gleaned from the interview. Four main themes were identified in the analysis of the data: faculty issues, institutional challenges, student challenges and opportunities of TML. These themes were further broken down into sub-themes.

Faculty Issues

The interview participants shared and discussed numerous issues that they were encountering while facilitating learning in a technology mediated environment. The sub-themes that emerged were centered on roles, incentives, training, course design support, resources and preparation.

Roles (Increased Roles & Time)

All the participants mentioned that technology mediated learning resulted in an expansion of their roles and required that they invest more time in designing and delivering courses. In highlighting some of the duties that has now been assumed, one participant (P) said

A lot of administrative effort, daily. Ok, one thing I do is I get everybody's emails and cell numbers and then I find out the company, so I email class announcements and text them also. So just being up to date on that takes some administrative responsibility.

Another participant (A) noted

Another major challenge is the actual conversion of a face to face course to putting it using the technology. If you are going to do it blended, it takes a lot of time to think through how you are going to design, to think through the activities and then actually to type it up and we don't have any support, we have to do it ourselves. But it takes a lot of time to prepare the course.

Participant M noted that online programs are manageable if done correctly, but pointed out that managing such programs required more work to be done. Participant H said "...you're doing your regular slew of work and you're asked to spend this additional time to develop and that has not yet been resolved." According to all the participants, infusing technology in the learning environment led to increased demands on the instructor's time and availability.

Incentive (Lack of Incentive)

In talking about increased roles and responsibilities the participants started discussing their expectations with regards to financial incentive. Participant M was under the impression that the convenience of TML was more likely to motivate faculty instead of financial incentive, noting

Most teachers already accept the fact that this is just another delivery mode. So it's part of your delivery, it's not usually something you expect to get paid to do. So it's not a money problem at all. It's more the convenience. It's difficult to move people away from the traditional way of doing things without that way being more convenient. I believe if people find online assistance more convenient and actually helpful, the will have no problem doing it.

However, many of the other participants spoke of the importance of providing the financial incentive/compensation for faculty who were required to make additional time commitments in order to develop and maintain online curricula. They noted that while there were discussions on the topic an agreement was yet to be finalized. Participant A stated:

Well I can tell you, there is a big conversation going on right now. Because, lecturers are not compensated for the additional time that they take to redesign a course or a module, to get it up online, and then to teach it. I know there is conversation going on, people are trying to see if they can negotiate, but it hasn't come to any head way as yet. For example, 3 hours face to face class is equivalent to how many hours online? Because students are going to ask you questions 24

hours and they're not all in one classroom at the same time, so that becomes a major cost that nobody is picking up at this time.

Participant H noted that it was firstly a financial thing and questioned "how do you compensate lecturers who have to spend all this time to develop?" In response, Participant L said "you have to provide the incentive". Participant W, then shared with the group that there were recent meetings which were held to discuss the incentives which could be given to staff that were both doing their research and developing online courses.

Training

With the exception of two participants who considered themselves more adept in technical things, the others indicated that they had sought and received training and assistance from the university's Continuing Education Open and Distance Learning (CEODL) Unit and Learning and Technology Support (LTSU) Unit. Participant A noted

We do get support from CEODL, we do get support from LTSU. In my own experience, I have never had a problem and it was not resolved almost immediately. For example, the vice dean asked me yesterday to put a course up for her, but I wasn't able to facilitate it straight away. I called LTSU and they were able to facilitate it straight away. So in my own experience I don't have a problem there even though we have limited support.

Participant W and H spoke of how accommodating CEODL was and mentioned the help desk and walk-in clinics which were offered to all lecturers. Participant L also shared experiences where the support units went the extra mile in assisting with the technicalities encountered in creating online programs:

The support from them is very, very good and they encourage you if you have a

problem to talk to someone. Because even for example the games module I had

mentioned, this was not in their version of Moodle at the time and it was

something that they went and they passed it on to LTSU [Learning and

technology support unit] who investigated, tested it a little bit and then they

incorporated it with it.

Notwithstanding the assistance provided by these units, Participant C spoke of the

negative initial workshop that she had with the external trainers, who, in her estimation

conducted the training under some misguided assumptions:

But that training - mine was very negative, because the computer they gave me

malfunctioned. I was frustrated from the first hour, looking forward to when it

will end... I don't mind learning something I don't know, but there must be

provision. When you go to these courses it's like "ok everybody click here,

everybody". So because there are like five or seven or ten of you depending on

how many of you attended that particular session, you might not end up having

that individual attention. Because they are telling you to click here and you don't

know why you should click here and why your computer is not responding, so

you find yourself frustrated. So the training, they have to improve more on the

training. It's so stereo-typed, because they have done it over and over; they

believe everybody is on the same platform. It's not as easy as that.

Course Design Support

This sub-theme was one of the harder themes to identify. While it emerged from

all of the interview sessions it at times took on a different look and feel. This was partly

due to the fact that most of the participants who were saying that they got support from CEODL and LTSU whenever they needed it were also saying that there was not enough support. In the meantime the participants who were self-taught in using the available technologies and knew of the support available were still saying there was not enough support.

Participant L pinpointed this by stating "so you find that the technical support is there, it's just that the rest of it now, like the content related thing you have to do." Participant W in dialoguing with the other participants questioned whether it was faculty's drag content that caused students to be constantly on their laptops engaged in everything else but Moodle. Later, Participant W reasoned that faculty should consider designing content based on student demography; "maybe it's something that we need to look at. To say that this is an online module that anybody can use [is insufficient]. I think maybe we need to look at the groupings and even tweak it a bit for them. More work, but I don't know."

> Though advising that others settle on a technology, Participant P admitted:
> I haven't quite settled myself yet, what I am saying is every year I kind of try and improve and so because of that I don't think I've gotten to really assess well. Every year I try to do something better or do something more to improve on the previous year, so the effort it takes in developing the new element will take away from the actual delivery of the course. So I am still waiting for the opportunity to just deliver like I did the previous year with the bugs out of the system.
> Participants A and C noted how vital and accommodating a 24-hour help desk

would be especially for faculty who didn't consider themselves skilled in technology

mediated learning or for those who needed more one on one contact. "The actual designing of the course online," reasoned Participant A "we don't have a lot of the graphics and the clips and so that you would want to put in. As [Participant C] mentioned before, we don't have the technical assistance to help us to put those things into the course." Participant A later went on to say

> I don't think there was anybody when we started out on distance, we didn't have any expert hired by the university. I think we had one, but the expert did not turn out to be the kind of technical expertise that was required. But when it comes to the people to actually help to get the modules online, to help you to design them we didn't have that. Because we just got an instructional designer, I think it was two years ago, so we were putting up a lot of courses online and didn't have any instructional designer.

Resources (Access to Resources)

Access to resources was a subtheme that permeated all the major themes. All the participants identified this as being a major challenge which, to some extent, determined how flexible and creative they could be with incorporating technology mediated learning. Participant P stated

> I have to use my own or source my own laptops sometimes when I make delivery through Power-point presentations. Sometimes, so I can't use for example, UTech's. I can't use UTech's because they wouldn't have all the technology that I would want. They would just have the basic PowerPoint and I wouldn't be able to do other things I would do if I had other programs on the computer.

Participant C who was in a separate interview session from Participant P
reiterated similar sentiments to the one above noting:

I teach a lot using, and most of us do that, our personal [laptops]. The laptop you

see there is my personal laptop; this bag is only for extensions, power cord

extensions that I had to buy with my own money. The projector I have here is

another personal one, so you find that you want to use the technology but you can

only do so much, because you can't afford to go all the way with it.

Participant M identified frustration on the part of both faculty and students as a

big problem; further highlighting that "the delivery of the course is severely affected by

computers or the quality of the computers." Students are at times scheduled to use the

computer labs on campus for the online portion of the course, "but" as Participant H

explains, "the main thing is access."

Preparation

The challenges, though seemingly overwhelming at times, had participants

speaking on the importance of faculty being prepared for technology mediated learning.

This preparation was not only in regards to the practical but also encompassed the mental

preparation that was necessary to tread the sometimes lonely road. Participant L noted:

Another challenge though, is just in terms of the preparation of the material and

the resources that you're going to place there. I think that the form that we

normally fill out which asks you to outline all of the objectives and what you want

to do and the things that you are going to use to help to achieve those objectives. I

think if you can do that before [it would be better] and perhaps this is not just a

proposal, but the way to go... If you know from start to finish, before the course

starts all of what you are going to be doing, and have the time to prepare the materials, then it helps. Because sometimes as you go on, you might say, Okay, well for this week I want to try this or I want to try that, but it's the time for the preparation of the material that is sometimes a challenge. Because you find that there are some things that you had wanted to do and if you had prepared sufficiently before, then it would have really made a difference.

"For one" Participant P stated, "you're on your own. I have found it to be kind of a lonely road. Be prepared, understand it's a lot of administrative effort...so if you are going to go into it, there might be times of frustration." Participant M mentioned that the most important thing was for faculty to have all their course materials ready and upfront prior to starting the course. Participant C spoke of the importance of planning and knowing what one was entering to; advising that persons "should start little by little because it can be overwhelming" and eventually discouraging. Participant A agreed with the notion of planning and made reference to the flexibility of being able to explain things in a face to face session as opposed to an online session – therefore, "the planning part of it needs to be done way ahead of the actual teaching."

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Institutional Challenges

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Another major theme that was evident in the data gathered was institutional challenges. This theme was further broken down in two sub-themes: resources and policies.

Limited Resources

This sub-theme echoed in all of the interviews conducted with the participants. Limited resources had a negative impact on technology-mediated learning effectiveness.

They indicated that there were limitations in integrating technology-mediation within the learning environment as in some cases there were limited hardware and software available for use and at other times there were issues with the university's band width. Most of them indicated that they had to resort to borrowing from others or purchasing and using their own personal hardware resources. With regards to software, many participants used the freeware that were available on the Internet to aid in their course delivery.

In response to a question asked, Participant P responded:

No, Ok here is what I mean by support. Like, I approached them about [if they] would be able to provide touch screen laptops for lecturers who might want to use that to enhance their learning -because it's kind of easier. [But they didn't] so I had to source one for myself. Well actually the assistant lecturer that works with me he has a touch screen; so, his is the one I used for every class this semester. I think it would be better if there were ones that the university owned that I could access. Then at home I bought a graphics tablet to use with my computer at home to do the same thing.

As it relates to the speed of the university's network Participant C stated:

It's a bit better, but you see this computer, I just got it recently, before now this is what I was using. It didn't have space, it didn't have the speed. So the speed could be from the server, the internet provider that we're using as well as the age of the machine itself. So they can increase the speed wherever the provider is increasing it, but in your office you are not getting it because what you are using is outdated.

The limited resources seemed to negatively impact the instructor's enthusiasm. Participant A confirmed what Participant C had stated but further went on to point out the inability of the network to accommodate certain class sizes and noted:

> Yea I agree, the speed has improved, but if right now you go on the internet, on to Moodle and let's say we have about 3 live courses running at the same time, I can tell you, some students will not be on. You can't accommodate a chat, you have to break the group into smaller groups and let them do chats at different times, because it would be very slow. So if you have a class of 30 and they are doing a chat it would be difficult. Usually what I do I break the class into groups of five or six and then it will be faster - when you type in the message it will go quicker.

"Bandwidth is a challenge, but there are ongoing efforts to expand it," commented Participant H, "again it comes back to finance." Participant W noted her frustration with such challenges as it had in recent times prevented her from conducting her planned class:

> No it wasn't in Moodle I was putting in something else, I was trying to make the module a little more interesting and worthwhile but then that didn't happen. And then, one lecturer came to me quite concerned and said that she was told by someone when the same thing happened to her that some people are basically locked out of the system. So I spoke to LTSU and they said no, that's not it. What is happening is just that problem with bandwidth. So we can plan a class and it doesn't work and that can be frustrating. So we are in the process of trying to upgrade that, so until that happens we'll have these little hitches, we'll have to work with.

Participant M, being quite direct said "the computer speed is a problem and the network speed is definitely a problem. If things are not coming through nice and clean, it's a little frustrating on people and sometimes it's at the mercy of the school computer system - which is usually a disaster."

During the interview, the participants noted that the university had recently upgraded one of its lecture theatres transforming it into a smart classroom. This one classroom was however insufficient to meet the increased number of blended courses that were being implemented.

Policies

The institutional policies which are in place at the university also impacted the designing and delivery of blended courses. Although only a few of the participants indicated such issues in their response, I thought it was important enough to be included. Participant P explained it this way:

> If I would need to put more programs on the laptop that is not in the faculty, I would have to call IS [Information Systems Unit] and get them to install this and that. And then I do my own, I have my own software and things like that to aid course delivery. So there would be probably policies that wouldn't allow IS [Information Systems Unit] to install some things. I'm not talking piracy, software from what you call un-trusted sources and things like that.

Participant A made mention of the various protocols which had to be followed in order to deliver courses via online distance, which at times added to the delay in the delivery of courses:

When we are using the webcam for example, it's like a whole day to prepare for it. You have to check with LTSU [Learning Technology and Support unit], you have to make sure that the room is available at the library and then you start off and then by the time you make clearance with the other country, you have a broadband problem. You can see them but you can't hear them or you can hear them but you can't see them. So we still have those kinds of limitations in doing the videoconferencing and webcams.

Participant P further noted that the policies surrounding the use of the smart classroom at times adversely impacted the delivery of lessons:

And sometimes the facilities exist but they are not accessible easily. So I have a lot of problems this semester with one LT9B, the new smart classroom, because it's under lock and key. I have a class at eight o' clock and whenever something happens sometimes I'm locked out of the room, because they don't open the room; sometimes locked out of the actual multimedia system. So last week a class starts at eight and I didn't get it open until nine fifteen. Probably about half of the sessions this semester were delayed by about ten, fifteen minutes because either the room wasn't open or the tech facilities weren't open.

Student Challenges

Another theme that was evident in the data was student challenges, which greatly impacted the pace of the course delivery and the learning environment. From this theme three sub-themes, namely, information literacy skills, resources and disengagement surfaced.

Information Literacy Skills

The participants highlighted that there was an underlying problem of information illiteracy with some students, thereby resulting in their resistance to learning in a technology mediated environment.

Participant M pointed out that when the suggestion was made to his class to have a Moodle discussion the overwhelming response would be no. When asked why this was the case, Participant M remarked "as I'm saying, just the difficulty of coordinating themselves to the computers and unfortunately, some students are not completely computer literate so they have computer phobias."

Participant C noted that in order to go online two skills were necessary, the reading skills and the computer skills. "Once you lack in any of those you will suffer in online [environments] ...Some of them are really horrified", noted Participant C who proceeded to describe an adult student whose typed assignment bore no semblance of being typed with a computer formatting. Participant A agreed that some students, mostly the mature ones, were afraid to type or simply send emails. Notwithstanding these concerns, the participants expected the students to be reading ahead as most of the course content was placed online, long in advance of the delivery of the lecture. Participant H, noted his pre-cursor to some face to face classes, "well, I usually start by saying: well you know that lecture was posted two weeks ago and I take it that you've read it, so therefore I'm now starting..."

Access to Resources

While Participant M posited that "in Jamaica access to computers and access to the Internet is never a problem", the other participants said otherwise. All the other

participants noted that because of their student's limited access to resources, they had to try to schedule lab times for their students in order to have some components of their courses done online.

Participant A commented

They get frustrated when they can't access the room, they can't print down the material and they can't get Internet access, those sorts of things...We tried to book two labs for them, but it's a hundred and fifty something students, so a lot of times they have competition for the use of the rooms. But at least we try to book two hour each week for them.

In speaking about the resources available to students, Participant H noted that "the main thing is access."

Well as I said, my challenge is just that we decided to go blended although we had wanted to have at least a few classes that were totally online. But we recognized that the majority of students responded when we did the survey, I think it's probably five or most ten percent indicated that they had [internet] access at home...In my particular case, if I found a computer lab on campus that was vacant, then I structured it so that they go into the lab and I don't necessarily have to be around. But that may be once a week or so, but the whole idea is to get them into the feel - so I am not in the room. When they are there and they are interacting sometimes I go home - I operate from home.

Disengagement

Student disengagement was another matter that plagued all of the blended courses that were being delivered. This disengagement was at times triggered by one of or a

combination of factors. In the participants' estimation it was at times, the format of blended course delivery, the design of the course, time constraints, bandwidth issues, access to resources and at other times they just were at a loss as to the reason for the disengagement. Participant L noted that the level of participation that was present was lacking.

> They do go on, the part-time persons more so. You find that, overtime the participation decreases. Sometimes it is that they have too many things to do, they just don't have the time. For whatever reason, you just don't have that participation. When you check the views for example, you see that they go on to view whatever resources are there. But in terms of participating in the forum and so on, you see that overtime everything gets less and less.

> Participant W in responding to Participant L's statement stated

> Because I taught some fully online ones like the one I discussed previously, I find that those people tend to go on more. When you have the blended, they tend to say ok I'm at class I don't need to do this part. But when it's fully online, they tend to go on more frequently, I've found that.

> According to Participant M because the time between the actual discussion was so long the students lost focus; "if they were online simultaneously" they would be more engaged, but even then "you would still miss the face to face, that impersonal reaction."

> Participant H made an observation of his undergraduates

> Well, I am beginning to realize that the youngsters find the lectures boring, monotonous. You have to put out extra effort to get them to be participants especially when it's not their course of [study]. I don't know how you find it in IT

[information technology]. But I find in the business area, if you're specializing in

Finance, fine. But what you call the non-core subjects, the electives and all of

that, they are really interested only when the exam is coming up and they come to

the lectures to find out… what is going to be on the exam or the test. But the run

of the mill thing, they are not interested in the lecture thing.

Participant A also recognized that the initial excitement that was shown by the

students waned over time.

What I find is that some of them, when they could not access the labs, they started

complaining, and when they were not getting answers from their postings... For

example the forum discussions, they thought they were going to get immediate

response. So when they got it like within 48 hours or later, they became real

grumpy and then you find that they were not logging on as often as in the

beginning...So it started out, they were quite excited but what I found was that

during the delivery, the excitement kind of levelled off.

Opportunities of TML

The final, but by no means least important theme that emerged was the

opportunities presented by technology mediated environments amidst the challenges and

concerns. The opportunities included richer classroom experiences, better preparedness

on the part of students, flexibility, increased social interactions and transfer of

information.

Class preparation

 The sentiments echoed by most of the participants was that their use of

technology promoted student's preparation for class and increased the value as they were

able to present complementary information in the traditional classroom setting and progress through in-class teaching with the expectation that materials were accessed prior to the classes. Participants noted that many students were better prepared for class as they were able to access the course content online in advance of the classes. Participant C commented students "could access it, read ahead and then come to class and question what they don't understand or what they feel has another perspective to it."

Richer Classroom Experiences

The classroom experiences were enhanced when traditional lectures were blended with various technologies. Participant A highlighted the ability to "make the content a little bit richer by linking them to some other websites on the internet, some other resources on the internet." Some of the blends voluntarily encouraged greater participation by the students, at other times participation was encouraged by assigning a grade to the work done online. Participant P noted that they were better able to convey complex concepts via the simulation offered by technology:

> Some of it is not just pure video, but something where I can interact with the computer and do something that gives a sense of the real world, I think they appreciate that. So it's good to just see something click [with the students], because of the technology, and the enhancement makes some things more practical - more tangible to them. I've seen myself struggle to explain something and they immediately, upon viewing the technology supported teaching aid, they immediately grasped it, so that's appreciated.

Participant W, after trying unsuccessful to have post discussions based on online readings, resorted to making the exercise in an assignment,

An assignment that was maybe worth fifteen points. So they had to find this

article which I gave them and then by doing that now, I think they were able to

compare. They looked at different educational systems and said what happened in

Australia and elsewhere. They looked and because of that now, I was able to have

a discussion, some of them in looking managed to look at something else. So it

was kind of like a forced way of getting them to do it, but just saying to them go

and check and come back for class discussion, they didn't really respond too

readily to that.

Participant L's infusion of an online game module drew some excitement on the

part of the students "we have a game module. I think it was crossword puzzle or Sudoku,

one of those things, and the students liked it, they enjoyed it. They were just saying they

had difficulties with the grading aspect of it"

Increased social interactions and transfer of information

The speed at which information can be transferred has somewhat provided a 24-

hour door open policy, as many students tend to email instructors at their convenience

and are expecting the response to be, at times fairly quickly. This enabled participation

during non-traditional (evening) classroom hours and has resulted in increased student-

teacher interactions, which some lecturers actually welcome. Participant L said,

Going back a bit, in terms of what works. I find that even the consultation aspect

of it, where the students know they can send a little message and get a response,

that part works very well. I mean almost every week I have some students asking

me some questions.

Participant M highlighted that his students overwhelmingly preferred information being emailed to them, citing that the time which it took to access the data and the passwords that was required from Moodle when attempting to access the information, may have been the cause for this. "Most of the students ask me to just email the work to them - PowerPoint and whatever I'm putting [up]. I still put everything on Moodle, but they prefer when I email it to them, so I do both."

The participants, who had experienced teaching some courses fully online, opined that the interactions among the students were commendable and brought to a higher level than that of those in blended environments. Participant A noted:

Well we are not there in person so we can't see, we see these things because they are in the lab on campus here with us. But they pay attention to their work, they access their work. We just completed one module and one is starting today and the kind of feedback you get from them, how much they have learnt, they are excited, interested. I think basically we achieve our objectives with them, their grades are quite good... You could actually see that they read, like for example the discussion forums. They read their colleagues comment or postings and comment sensibly.

Participant W, who had taught both fully online and blended courses, grappled with the best method of delivery and noted a mix of students in both modes of delivery.

In that one class I had three sets [of students], the group that was tight, the group that was so-so and the other one that didn't do anything. So I can't draw any conclusion. I just think that there is a mix and some people still want to have the choice. Maybe we should treat it as when we were moving to metric, where they

said, if you keep putting the two people will never learn, you need to just move to

kilograms. I don't know if we can take that approach but there could be a

discussion on that one. Can you do that to people? I can't say that I can draw a

conclusion.

Participant C posited that the speed at which information could be transferred

caused increase interaction among students.

Another thing in terms of student to student interaction: I have noticed that

because of the use of the internet, email and so forth, students tend to pass

information so quickly to each other. So it is not like before now when it would

take a couple of hours, or days or weeks to get to the other person. So you see

them sharing, if it is group assignment – sharing information with each other

through emails or through whatever means, or making phone calls, using SKYPE

or whatever. So there is that immediate communication

Increased Flexibility

All but one of the participants identified with the idea that the online offerings of

part or all of a course resulted in increased flexibility and convenience. Participant M

noted that the assumption that students were doing courses online because they had the

time was flawed. "Those programs assume these people have time when they are not in

class, and that is not true. The only time these people have any time to spare on anything

like that, is when they dedicate some time to class."

For the most part, many of the students were enthused with the idea of attending

classes outside of the confines of the traditional classrooms. Participant H, in sharing an

experience, said:

Once when they returned to a face to face session, a few of those who were into it said to me, 'well why doesn't the university continue to do this? Because I find that I can go on, we can interact, I don't think we need lectures, I mean face to face lectures. I think this is what we should have so that if I get up at seven in the morning and you are up at seven we can interact, rather than my taking the bus to travel all the way from Portmore to come here and I am usually late.'

Participant W shared that although most students mentioned their preference of seeing the instructor, the convenience of studying anywhere was the main motivator that kept them on track. "I think the convenience of it for another five of them was enough to make them feel that this was the best thing, so they were willing to put up with everything else."

Participant A noted the students' excitement "oh we don't have to come to classes, you know, they can stay home. So they were very, very excited with using the technology, knowing that their notes were going to be up on the internet."

Summary

This chapter outlined the findings of the research based on the sub-questions identified in the first chapter. From the findings the four major themes that emerged were faculty issues, institutional challenges, student challenges and opportunities presented by TML. The next chapter will seek discuss the findings of the research in light of the literature review that was done and the theoretical framework.

CHAPTER 5: DISCUSSION, RECOMMENDATIONS AND REFLECTIONS

The purpose of this study was to explore: a) the challenges that educators face when developing and facilitating technology mediated learning; b) the roles educators assume when adopting technology-mediated learning and, c) the professional resources available to these educators. Numerous research on similar topics have been conducted within a North American context; however this research explored these concerns within a Jamaican context, as there are differing underlying cultural and social realities, which informs the use of technology-mediated learning in educational institutions. In this chapter, I will discuss the key themes from the findings and how they relate to the literature, as well as the resulting implications. I will also offer recommendations as to further areas for future research and share my personal reflections on the research process.

Discussion

A wealth of findings that described the experiences of educators at the University of Technology, using TML was presented in the previous chapter. The major themes, faculty issues, institutional challenges, student challenges and the opportunities of TML, were identified in the findings. In this section, I draw on wheel barrow analogy to discuss the use of TML, particularly focusing on faculty issues. I then discuss the themes in relation to the literature pertaining to this field, and then conclude with recommendations and reflections.

Wheel Barrow Analogy

In order to better understand this concept and how different factors relate to each other, I drew on the analogy of a wheel barrow. A wheel barrow which is widely used in the Caribbean can be found on most construction sites, farms and in home gardens. Usually consisting of one wheel, two handles and a barrow or barrel, it is normally used to carry bulky materials or loads from one point to another. In order to propel it, an individual needs to take hold of the two handles hoist the back of the wheel barrow off the ground and then use the handles to direct the wheel to the desired location. Using a wheel barrow, an individual is able to carry more weight than they normally would. When pushing a wheel barrow, by placing the bulk of the weight over the wheel instead of the handle, the load will be considerable lighter. A wheel barrow with a narrow wheel is more easily manoeuvred in small spaces; however it is prone to tipping over. While it could be more difficult to wheel a wheel barrow that has a wider wheel, it is less prone to tipping and able to carry heavier loads. (Better Homes and Garden, n.d.).

In order for a wheel barrow to be operated, four components need to be present, the wheel, the barrow, the two handles and an operator. I would liken the wheel to the faculty issues, the barrow to teaching and learning resources, the two handles to institutional practices and policies and the operator as the instructor. The wheel barrow in and of itself can be seen as the TML delivery method. Let's say an institution's failure to address faculty issues results in a narrower wheel, while on the flip side addressing these issues results in a wider wheel. Like the wheel barrow, technology mediated learning is meant to supplement the teaching-learning process, thus making the 'load' lighter for the operator or increasing the operator's capacity to increase 'output'.

In the same way that an operator can choose to use the wheel barrow to transfer bulkier loads and use his/her hand to transport lighter loads, technology-mediated learning presents instructors with an alternative method of conveying more difficult concepts, or just more reading materials and the flexibility of using the traditional method of delivery to teach other things. However, the benefits associated with using a wheel barrow is dependent on the proper usage and on the functioning of all its parts. If the instructor is not educated or trained on the proper usage of the technology, then using TML may be of less benefit to the teaching-learning process. Simply knowing where to place the 'load' in the barrow will determine the effectiveness of its use.

Faculty concerns will always exist; in fact, it is necessary for the operation of TML. However, addressing these concerns will make all the difference in whether or not the wheel-barrow is likely to tip over or carry bulkier weight. The handles too, though seemingly unimportant, are necessary for the process to work. Institutional policies and practices go hand in hand and ultimately their functionality affects the nature and scope of TML an institution is able to undertake.

The Wheel – Faculty Issues

I chose to look at the faculty issues or concerns as the wheel of the wheel barrow. Figure 2 demonstrates this concept, the spokes are the subthemes: roles and time, incentives, training, course design support, resources and preparation.
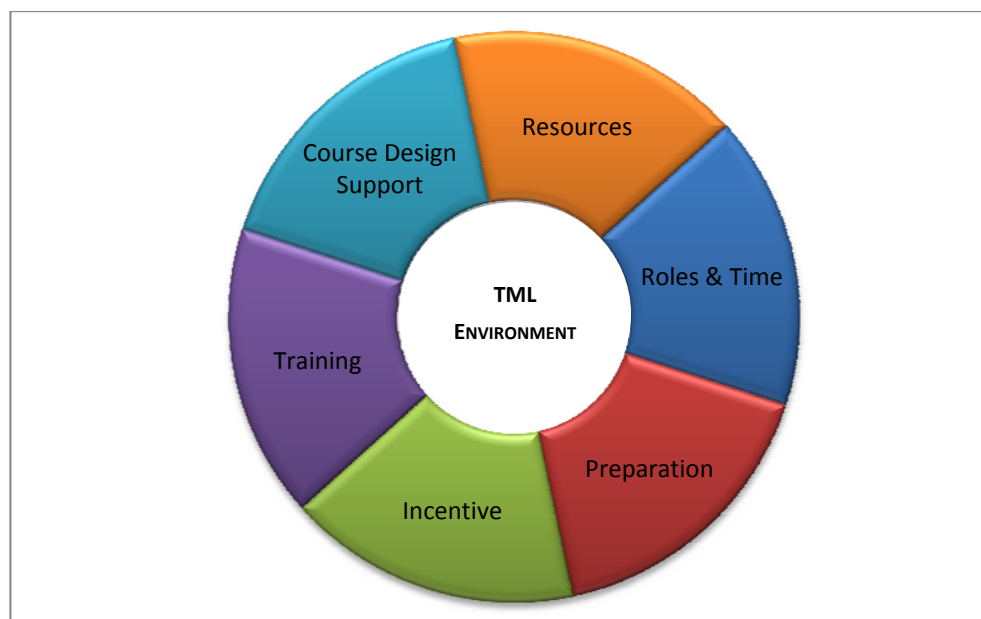
Figure 2. The Wheel.

Depiciting faculty concerns in TML.

Roles and Time

The challenge of increased roles and time commitment required on the part of faculty resonated with all the participants. They all consented that facilitating learning in a technology-mediated environment necessitated that they commit more time to prepare material, interact with students, understand the technology, trouble shoot technical issues and more, to name a few. Some comments included "even though it's blended it tends to be the person who is delivering the course who does everything", "you moderate, you grade, and you do everything", "it does help me to improve my skills, you know tech based skills, quite unrelated to TML itself", "understand it's a lot of administrative effort" and "posting the things online...is really not as easy as it sounds". Literature pertaining to faculty issues, frequently identifies increased roles and work load as an important

consideration. A major concern of faculty is that TML, "might be leading to a new learning paradigm and changed roles for the faculty" (Dirr, 2003, p. 469). Clearly, facilitating TML requires much more than the knowledge of which button to press to send an email or which HTML code is needed in order to insert an image on a webpage. (Bennett & Marsh, 2002). The three characteristics of teaching presence as defined by Anderson, Rourke, Garrison and Archer (2001) - design and organization, facilitating discourse and direct instruction, were evident from the findings. However the roles identified by faculty demonstrated an additional dimension of "technical" support role. While Anderson, Rourke, Garrison and Archer (2001) argued that Berge's forth category of technical support role would decrease as user experience increased and online learning tools became more intuitive and ubiquitous, the reality of the multi-dimensional digital divide challenges the premise of their argument. The technical role is to a great extent assumed by educators at UTech, Jamaica. Given that technology integration is not as advanced in Jamaica and the wider Caribbean as it is in some North American countries, it is likely that its importance will increase in the short and medium term. In addition, many institutions have only recently embraced the notion of TML, and the rate at which institutions, faculty and students are accessing technological resources is predicated on the economic realities of developing countries.

Incentive

Following right on the heels of this challenge is the matter of incentive. Taylor and McQuiggan (2008) notes, that apart from intrinsic motivation, the provision of participation incentives is one good way of encouraging faculty to use TML in the delivery of courses. With the exception of one of the participant, the majority felt that

they should be compensated for the increased work load, or at the least, that some form of incentive should be worked out for those who use TML in the classroom. They questioned who would pick up the additional cost associated with developing the online portion of the courses, and the extra time required to deal with email queries fielded by students on a 24 hour basis. It was evident from the interviews that talks, regarding the provision of incentives for those who were using TML, were underway; however, they could only say that faculty should hear of the decisions "soon". While intrinsic motivation seemed to have been the trigger that stirred the participants to use TML, the fact that they brought the matter of incentive to the fore, indicates that they were looking forward to the university's encouragement of such actions.

Training

Though limited in its reach, the participants who utilized the two support units CEODL and LTSU, had nothing but accolades for the way in which their training needs were met. In addressing the needs, CEODL started offering walk-in clinics and one-on-one training for faculty. The external training sessions which were provided for staff, seemed to have been somewhat generic, ignoring the needs of faculty who were less competent in the use of the technology. Although only one participant mentioned that the external training was "so stereo-typed", and reasoned that this may have occurred due to the numerous times these trainers conducted similar training, I thought it important to highlight this concern as it had seemingly manifested itself in the response of the majority of faculty members.

Notwithstanding the fact that training was provided, many faculty members were not using TML; participants reiterated that this was a "lonely road". It was also

interesting that even though, one of the participants in tandem with a Canadian company, professionally developed a course fully online, the course was not being used by other faculty. As noted by the participant "they may refer it, the students may go on and access the Power Points. But in terms of delivering it online, that's not happening."

The literature does highlight the importance of providing training for faculty who are embarking on or already using TML. Gray (1997) postulated, that critical to successful implementation of TML, was effective training. She noted that the three main factors affecting the effectiveness of training were: the role of computers, as envisioned by teachers and administrators, training delivery and institutional and individual access to the Internet. It's important that the mindset of teachers and administrators are understood. At the most basic level, the computer is seen as a productivity tool and is used to create things like certificates, grade-sheets and hand-outs. At the next level computers are used as delivery systems, enhancing "the learning environment by making the delivery of traditional pedagogy more appealing, by illustrating concepts and relationships more effectively and providing access to more extensive sources of information" (p. 329). At the highest level, they are used as cognitive tools for collaboration on learning projects.

Gray (1997) noted that the second factor of training delivery involved two opposing approaches, outside consultants versus in-house experts. Employing outside consultants is a valuable and necessary step in piquing the interest of faculty; however, with the limited time allotted many consultants end up demonstrating instead of training. It is therefore important that in-house experts are identified and nurtured to assist with the bulk of the training that will be needed long after the consultancy period has ended. The

findings were supportive of Gray's (1997) assertion, as the internal training, though limited, made a greater impression on the participants, than the external trainers.

Course Design Support

As mentioned in the previous chapter, course design support was the most obscure sub-theme to be identified. Bearing semblance to training and technical support, faculty knew how to describe what their need was, but was uncertain as to the how to name it. If faculty needs are not properly analysed then it is very likely that they will not be adequately addressed. Gray (1997) suggested that prior to the initiating a faculty training program, it would be "helpful to perform a needs assessment". (p. 330). Participants kept referring to the support that they were not getting, although CEODL was providing support.

Few participants managed to zero-in on what support they were missing, noting that support was needed in "content related things" and "we maybe have to do a little more with it- and there are many features of Moodle, even straight PowerPoint that we are not using". Another participant mentioned that in other universities there were dedicated departments which faculty could hand their course outline to and indicate how they wanted the courses set up online. Still yet another participant lamented that it was a learning process for them as they were designing and facilitating blended courses by themselves and only got an instructional designer two years earlier. The literature review in this study did not focus on research regarding course design; however there is literature that speaks to the professional development needs of faculty which needs to be known prior to the development of training resources. Taylor and McQuiggan (2008) posited "designers of faculty development programs typically rely on commonly held

assumptions about what faculty need to know" (p. 29). Many faculty development

programs, they continued, focused solely on the "technical side of teaching online" thus

ignoring pedagogy. (p. 30). It was evident from the findings that the institution was

lacking in providing support and training on the pedagogy of online teaching.

Resource

Limited resource was another challenge that permeated all the themes identified in

the findings. At times, some faculty wanted to do more were held back by the lack of

resources, other times, the lack of resources caused some faculty to seek out alternative

ways of using TML in the classroom. The Commonwealth of Learning has acknowledged

that member countries would have to receive support in charting the course of TML, as

the issue of available resources would impact those countries ability to meet their mission

(COL, 2009). In many ways, an institution's investment in resources indicates the extent

to which they are committed to the task at hand.

Preparation

The final sub-theme which permeated faculty concerns was that of preparedness,

not on the part of the institution or the administration, but on that of faculty. The

participants surmised from their own experiences, that faculty who had the intention of

teaching blended courses, needed to be prepared. As noted by one participant "when you

are going to put your things online using the technology, whether it's web-assisted or

blended ...they have to design it; they have to plan it as [Participant C] says, because the

design now is going to be different."

This theme resonated with the teaching presence element of the COI framework.

Anderson, Rourke, Garrison and Archer (2001) suggested "teaching presence begins

before the course commences as the teacher, acting as instructional designer, plans and

prepares the course of studies, and it continues during the course" (p.5). The participants

realized a different kind of approach had to be taken to planning and preparing the online

aspect of the course as the environment was not as dynamic as the traditional classroom

setting. The pre-service training which many of these participants received and their vast

teaching experiences have primarily been along the lines of traditional teaching; teaching

in an online environment will therefore demand some amount of hands-on training within

that arena. After conducting their research on faculty training programs, Bennett and

Marsh (2002) concluded that online teaching practice was a necessary aspect of the

training, since many faculty members have only had extensive experience from teaching

in traditional classroom settings. With the training in such aspects, faculty will have a

better understanding of how to prepare and what to prepare when they about to facilitate

online portions of their course.

Institutional Challenges & Student Challenges

Extending from faculty issues were institutional and student challenges. Although

these challenges were categorized as different themes they too were representative of

some of the challenges faculty experienced. MOODLE was available for faculty to use,

but insufficient hardware or out-dated hardware combined with network speed prevented

faculty from using the technology in ways that they wanted to. This demonstrates that

the Internet technologies need to be looked at holistically, in order to ensure that all major

points are covered.

Arabasz and Baker (2003) suggests that the provision of sufficient support entails

"a variety of resources—technical infrastructure, training, course/curriculum

development, and support. Each resource must be viable, ensuring that, for example, a pedagogically sound course is not hampered by inadequate bandwidth or a lack of instructor/student proficiency in course management software" (p. 5). Understandably, when faculty was unable to use the technology as planned, it caused frustration on both their part and that of students. Minimizing such occurrences requires an assessment of the institutions hardware in relation to their student base and the expected bandwidth demands they may have at any one time.

This issue of resource was at times compounded by the existing institutional policies. The policy determines how resources are used and the procedures that need to be followed. Having one smart classroom is a step in the right direction; however the logistics and security surrounding its use resulted in missed class time, which usually cause a reduction in the momentum and excitement of delivering the lesson.

Student challenges also affected the delivery of TML at UTech. All the participants indicated that they time-tabled computer lab times to address the problem of lack of resources on the part of students. While they were lacking in resources, the effort on the part of many students to access the information before hand and prepare ahead, resulted in richer classroom participation. Although not demonstrated in its entirety, the richer classroom experiences that faculty noted seems to result from the triggering event that initiates the cognitive presence (Garrison, Anderson & Archer, 2001) within the technology-mediated environment. The findings suggest that many of the students were yet to reach the exploratory phase within cognitive presence, as the enthusiasm with which they began the course usually declined shortly after the course began.

Disengagement was identified as a challenge that some students were experiencing. In many ways the participants questioned the reason for the decline in participation as the semester progressed, especially since the students' interest in using social media networks and other technologies remained on a constant high. The lack of course design support may be the main factor that caused this disengagement. Anderson, Rourke, Garrison and Archer (2001) highlights the importance of discourse facilitation within a course as being vital to "maintaining the interest, motivation and engagement of students in active learning" (p. 7). Faculty needs to not only learn the technical skills for developing and delivering blended courses, but also need to understand the pedagogy involved in teaching online.

The student and institutional challenges will also impact the extent to which courses can be blended and mutually beneficial to faculty and students. Working to address the institutional challenges will result in the elimination of some of challenges faced by faculty and students; however the financial commitment and nature of policy changes that are required will largely determine how soon these changes can occur.

<center>**The Findings and COI Framework**</center>

As highlighted in the literature, the COI framework, as touted by its' designers, was paramount to having a successful educational experience (Garrison, Anderson & Archer, 2001) within computer-mediated environments. Each element in the framework, cognitive presence, social presence and teaching presence, were further broken down into distinct categories. Within the framework, the interrelations of the core elements are equally important as the elements themselves. However, considering the research was conducted outside of a North American context, to what extent do the findings

corroborate or fit within the COI framework? While the participants discussed various aspects of teaching presence, their discussions surround social and cognitive presence was limited.

Below, I have identified the cognitive, social and teaching presence components of the framework and described the extent to which they were or were not discussed by the participants in this study.

Cognitive Presence

The elements within the framework were evident in the findings in varying degrees. Teaching presence was much more dominant than that of social presence and cognitive presence. Cognitive presence, the vital element in critical thinking and the apparent goal of all institutions of higher education (Garrison et al., 2000) was not discussed at length by the participants. Those who facilitated blended courses described many of their teacher-student interactions within the online aspect of the courses as involving the exploration phase of the cognitive presence. On the flip-side, two participants who indicated that they also taught online distance courses had more conversation surrounding all the phases of cognitive presence being demonstrated in both their teacher-student and student-student interactions. Students who were in the online distance courses were more focused, engaging in meaningful discussions and providing valuable feedback to their peers; while those enrolled in blended courses engaged in more superficial discussions.

In many cases, MOODLE was mainly used as a resource repository. Faculty posts lecture notes, assignments, links and discussions questions in MOODLE; students log on to read or print the information that is online, and then the 'real' discussion takes

place in the face to face setting. The participants surmised that online discussions were largely unsuccessful due to access and also due to the fact that students knew they would be meeting face to face and could have their class discussions then. One participant stated "To me, just reading and doing the discussion online is not adequate for our full time students, they still want you to come and explain it to them and discuss it. So in the long run, why put it online?" Another participant suggested that their Master's students were more accepting of TML, but the undergraduates were yet to be "encultured" into the system, as many of them relied on getting the print off of the postings from their friends.

Interestingly, another of the participants who was seemingly more adept with various technologies, managed to prepare a TML environment that mimicked the traditional classroom, "No I haven't tried group discussions, just [the software], where they come and I lecture and they are there. I do see a little interaction. Sometimes the interactions are a little bit more, between me and them". In the delivery of blended courses, many of these participants have only managed to scratch the surface of the cognitive presence of the COI framework as many of the students are yet to pass the exploration phase of this element. While many of their discussions did not display cognitive presence in its truest sense, it might be prudent that the educators re-examine the theory which guides not only the design, but also the facilitation of blended courses. Additionally, when faculty is able to identify where they are at, with regards to their level of web use (Galloway, 1998) they will be better able to foster cognitive presence within blended courses.

Social presence

The participants also had minimal discussions surrounding social presence in the facilitation of TML. This too ties back to the level of web-use and also nature of the LMS or media (Richardson & Swan, 2003) being used. One participant indicated that they could not comment on the social interaction of their students as they did not have that exposure in their delivery of blended courses. Another participant noted that "some of the environments have no social interaction or doesn't necessarily inculcate social interaction", another commented "I don't know that there is any kind of social interaction. In fact, that's what the program removes." Still yet, in some of the courses, students were seemingly more interested in having social interactions than course related discussions. Two participants mentioned that the students "loved" the social interaction within a TML environment. Their reference to what the students loved using (for example, Facebook, HI5, and messenger chat), does not allow for any conclusion to be drawn on the matter. For all we know, the students could be interacting with anyone in the world and not necessarily with their fellow classmates.

In their conversations, participants described a few instances of open communication and group cohesion among their students. They shared anecdotes like "somebody had posted and said 'ok guys, let us try and work together as a team to solve this problem' and he got the responses". They indicated that occasionally there were sustained interactions, at times owing to the discussion topic other times owing to the group dynamics. In this context, social presence was "both a factor of the medium and of the communicators and their presence in a sequence of interactions" (Richardson & Swan, 2003, p. 3).

Interestingly, the findings overwhelmingly suggested that there was an increased use of emails and cell phones in both student-student and student-teacher interactions, whether it was in completing group work, sharing information, noting concerns or receiving feedback. The findings also delineated that there was more of a continuum along which the participants' experiences displayed social presence. This continuum of social presence is anchored by traditional face to face and totally online classes at either ends; there were four distinct points along this continuum at which faculty experiences could be identified.

Teaching Presence

According to Garrison, the growing body of literature suggests "teaching presence is a significant determinate of student satisfaction, perceived learning, and sense of community" (p. 67). However did the findings of this research support that notion? Of the COI's three core elements, teaching presence was the most dominant that came through in the experiences which the participants shared.

From the findings, it was evident that the participants were all actively involved in designing the "educational experience" (Garrison et al., 2000). Not having a unit, dedicated to course design support, the participants sought assistance from CEODL and other "expert staff" in organizing and delivering the online components of their courses. It seemed that in the online distance courses, facilitation was a shared responsibility of both faculty and students; while in the blended courses, faculty was solely responsible for the facilitation.

In some instances, 'facilitation' was the term being used, but the method described was more of 'lecturing' in an online setting. Either ways, the findings did

support the influence teaching presence has on the students' perceptions of learning, sense of community and satisfaction. From the findings, I also recognized that faculty's enthusiasm of using or exploring the technologies impacted the extent to which many of their students' ventured to use the technology.

<div align="center">**Recommendations**</div>

The findings that emerged from this research entail some key implications for consideration in the development of policy and practice involving technology-mediated learning. These recommendations that I have suggested for the Jamaican context, is largely similar to those at times given in a North American context. However, my focus is not on solving all the challenges with a stroke of the brush; instead, it is on making recommendations that are best suited to the reality of the Jamaican educational and technological climate. They are practical and can readily be converted into 'SMART' (specific, measureable, achievable, realistic and time-bound) goals. Focusing on the numerous resource constraints can be a daunting task, but chiselling away bit by bit can alleviate some of the existing issues. For example, having an instructional design support team may be a far way down the pipeline, so assessing and providing quality faculty training is one way of addressing the issue of course design support while 'buying some time'. Likewise, CEODL's ability to meet the needs of those who wish to infuse blended learning within their classrooms can be accentuated by creating peer support groups and providing incentives for 'in-house experts' who provide technical and pedagogical assistance to faculty. The following are the recommendations based on the literature and the findings.

1. Faculty needs are to be formally assessed and feasible solutions implemented. In many ways faculty satisfaction or dissatisfaction results in a chain reaction, involving students, administrators and other stake holders. The development of a faculty training plan should not be based on the whims of 'the core administrative leaders' or 'the technology of the day'; instead it needs to be deliberately informed by a thorough faculty needs assessment, and later executed.

2. For faculty training, blended learning could be offered as an alternative to face to face delivery for those wishing to experiment with technology and methodology. The majority of faculty experiences are made up of the traditional face to face delivery and little or no online delivery. Individuals are likely to be more comfortable with the technology if they are more familiar with it. Providing blended courses for faculty is a way of whetting their appetite and also giving them the opportunity to experience both the teaching and learning with the technology. Opportunities to become involved in such TML environments could serve to address some of the challenges which were identified by the participants in the study.

3. Faculty wide peer support for TML is important to success. This involves seeking out and nurturing "in-house faculty experts" (Gray, 1997) and also the creation of an active academic support network. Peer to peer support will save on costs and will also foster knowledge sharing surrounding best practices in the use of technology-mediated learning. Of course, faculty concerns such as incentives and reduced workload, which emanated from the findings of this study, will need to be addressed accordingly.

4. Administrative leaders and faculty need to be in dialogue. The vertical lines of communication need to be open in order for a conversation to begin. This will allow for a plan of action to be developed to address the institutional policies that are inadvertently constricting the very learning methods (blended learning) that the university is promoting.

5. Alternative means of technology mediation needs to be explored. Since access to resources presents a challenge for students and will ultimately influence the rate or level at which blended learning is infused, alternative means of technology-mediation should be investigated. The Caribbean, but more so Jamaican mobile phone usage and users have grown exponentially in the last decade. Mobile technology may prove very useful in addressing the issues of resource access.

Suggestion for Further Research

The field of technology-mediated learning is no longer new, but its' dynamic nature demonstrates that it is a constantly evolving discipline. Although many institutions within the Caribbean have begun embracing and delivering blended and online distance courses, there is a limited body of related research from within the region. This study has barely scratched the surface of wealth of data that need to be researched. The following two topics piqued my interest while I conducted this research and are additional areas of research that would inform our growing understanding of this field:

1. Mobile technology to enhance higher learning in Jamaica. To what extent would this address issues of resource constraints and geographical barriers?

2. Blended learning versus traditional learning. On what basis should these delivery methods be compared?

Summary

This study set out to identify the challenges facing and the supports provided to Jamaican educators who are facilitating technlogy-mediated learning. All three elements of COI framework were not visibly evident from the findings; however, the framework does provide a basis for educators that are using blended learning. While majority of the challenges of the Jamaican educators were present in the body of research, the dynamics within the environment for example, resource availability and information literacy, determined the extent to which the challenges were exacerbated. It is however very encourgaging, that notwithstanding the challenges, faculty were defying the odds and working with the resources, though limited, to develop and ehance a technology-mediated learning environment.

Personal Reflections

This journey was a challenging but rewarding one. My decision to complete a thesis based Master's was a thoughtful one. For me, the topic chosen had to be practical and needed. I scanned the hundreds of dissertations stacked on the shelves and wondered to myself how many of these research were actually used. It was based on this that I researched something that was I was passionate about. In my experience, I have noticed that faculty technological needs are often overlooked, so I was really interested in doing research surrounding such issues.

Returning to Jamaica to conduct the research I was filled with mixed emotions. Although I knew some faculty, it felt weird because of the capacity in which I was meeting with them. I encountered some difficulties getting the anticipated focus group size, as my arrival date had changed and the planned sessions coincided with the

University's study week. Apart from that little glitch, things went as planned. The participants were very open in sharing in the interviews and were excited about my decision to research this area. The second half of the research was twice as involved as the first half. In hindsight, I should have integrated more of the theory into the practical. Pursuing a research that I was really interested in, kept me motivated to see what the findings revealed.

This research process was not easy one, at times that I struggled with procrastination and other times writer's block. I sometimes questioned, why did I decide to do this research again? However, looking back, I really value the process involved in engaging in the entire research study. I have learnt so much about myself just doing this research and I am grateful for great family and friends that supported me all the way to the end. Will I undertake a venture like this again? Only time will tell.

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Appendix A: Letter of Invitation

Introductory letter the Interview participant

Dear Prospective Study Participant,

I am a former employee of the University of Technology, Jamaica where I was member of the ISAS project implementation team. Since leaving the university, I've have enrolled in a Master of Education degree with a specialization in Adult Education at the University of Alberta, Canada. The final requirement for completion of my degree is the research and thesis.

I have received your contact from the office of Continuing Education, Open and Distance Learning and would like to invite you to participate in a study entitled: Technology-Mediated Learning: A Jamaican Context. I am seeking volunteers for my research and I believe you are a good candidate and a good source of information.

This letter will introduce you to the study and outline your role if you chose to participate.

Technology-mediated learning is an environment in which the learners' interactions with learning materials, peers and or instructors are mediated by advanced information technologies. UTech's use of Moodle to supplement both the traditional face-to-face and distance learning programmes is representative of a technology-mediated learning environment. Employing such blended learning and online distance learning programmes presents their own challenges. The objective of this research is to explore the challenges facing educators at the University of Technology, Jamaica, in developing and facilitating technology-mediated learning.

The study involves focus group and individual interviews. You will be asked to participate in a 1.5 to 2 hours focus group interview. You may be asked to further participate in a follow-up 30 minutes one-on-one interview to discuss issues that emanated from the focus group interview. I anticipate that the interviews will take place April 2010.

This study provides confidentiality and anonymity. I will not reveal individual information to anyone. Your participation in the study is completely voluntary. Myself and my supervisor will be the only ones that will have access to the data. The plan for this study has been reviewed for its adherence to ethical guidelines and approved by the

Faculties of Education, Extension and Augustana Research Ethics Board (EEA REB) at the University of Alberta, Canada. For questions regarding participant rights and ethical conduct of research, contact the Chair of the EEA REB at (780) 492-3751 or my supervisor, Dr. Heather Kanuka (780.492.2812 or heather.kanuka@ualberta.ca). The results of this study will be made available to you upon completion of the study.

This is an important research topic and I value your input. If you have questions about the interview and/or focus group, please do not hesitate to contact me or my supervisor. A copy of the consent form is also attached for your review to this letter. Your response to this email indicating that you would like to participate in this study will constitute your initial desire to participate. Further details on the interview, focus groups and study will follow. Thank you for considering my invitation to advance research in technology-mediated learning. Please do not hesitate to call me or my supervisor if you have any questions on this study.

Thank you for your consideration. Please contact me at 780-707-9454 or email wallenro@ualberta.ca or my supervisor, Heather Kanuka at heather.kanuka@ualberta.ca with any concerns you may have.

Sincerely,

Sharonette Wallen-Robinson

Appendix B: Interview Questions

1. What phrase or sentence comes to mind when you hear the term teaching with technology?

2. Describe some of the most, or one of the most memorable experiences that you have had in watching your students learn in a technology mediated environment.

3. How do the technologies influence how your students use the course content?

4. How do students view the social interaction with each other within these environments?

5. How does peer to peer interaction with the technologies affect their learning the course content?

6. What teaching challenges have you faced when using technology mediated learning?

7. Which of these teaching challenges have been resolved and how were they resolved?

8. How do you see your role as a facilitator within this kind of environment, has it changed?

9. What advice would you give to a lecturer who is considering engaging in technology mediated learning?

Appendix C: Participant Consent Form

Interview and Focus Group Consent Form

This consent explains what the research is about and what your participation involves. The consent form is part of the process of informed consent. If you would like more information about something mentioned here, or information not included here, please feel free to ask. Please take the time to read this carefully and to understand any accompanying information before you reply to my request to participate in the interview.

Invitation to Participate & Purpose: the purpose of this study will be to explore the challenges facing educators at the University of Technology, Jamaica, in developing and facilitating technology-mediated learning. These data will provide further direction for assessing the strengths and challenges of online learning, making a contribution in assisting to meet the growing instructional needs within the University of Technology, Jamaica and perhaps beyond. This study is part of my Master's research program at the University of Alberta.

Interview Participation Process: If you decide to participate, you will be one of approximately 6 participants interviewed. The questions in this study focus on teaching with technology. Your feedback will help advance research on this topic.

Research Design: This phase of the study is based on open-ended interviews and focus groups.

Participant Role: Your signature on this consent form will be interpreted as your consent to participate. You will be asked to participate in a 1.5 to 2 hours focus group interview. You may be asked to further participate in a follow-up 30 minutes one-on-one interview to discuss issues that emanated from the focus group interview. I anticipate that the interviews will take place between April 12 and 23, 2010. I do not expect any risk to you in participating in this study. Although individual monetary remuneration is not possible, study benefits are summarized at the end of this form. The study is not structured to involve psychological or emotional manipulations. There are no known harms associated with your participation in this research.

Information Shared: You will be provided with a brief overview of the study at the start of the interview and focus group to minimize bias in data collection. All study participants will be provided with notification on publications from the study by email.

Withdrawal from Study: You may refuse to answer certain questions during the interview and you are free to withdraw from the study at any time. Your participation is entirely voluntary. You may end your participation in the study by simply letting the interviewer know during the interview. You will have the option of informing me that the hand written interview notes collected to that point can be used in our study, or informing me prior to May 15, 2010 to destroy the hand written notes immediately so your interview cannot be used in our study.

Anonymity and Confidentiality: Your identity as a participant in the study is confidential and anonymous. I will keep any personal information gathered about you during the study confidential and will never be made public. All responses to questions will be kept confidential. The identity of participants will be excluded from all published materials related to this study.

Data Storage: Data will primarily be stored on my laptop which will be locked and password protected. Data access will be limited to myself and my supervisor. All data will be kept in a personal steel, locked cabinet for the duration of the study in my office. I will be the only one with access to the cabinet and the key locking it. My supervisor and I will be the only ones with access to the data involving participant identification details i.e., name, email address. Upon completion of the study, the data containing any personal information will be cross-shredded. The period of data retention up to project completion will not exceed five years.

Study Benefits: Study benefits to participants involve the opportunity to participate in research and give back to the professional community.

Future use of Data: As this data collection is designed to build on an initial exploration into a new topic, the data collected may be useful to the University of Technology, Jamaica in later expanded or follow up studies. If you would like to limit your responses to this study only, please let me know by email or at the start of the interview.

By participating in the study, in no way does this waive your legal rights nor release the investigators, sponsors, or involved institutions from their legal and professional responsibilities. You are free to withdraw from the study at any time. Your continued participation should be as informed as your initial consent, so you should feel free to ask for clarification or new information throughout your participation.

Your signature below indicates that you would like to participate in the interview, and will constitute your consent.

_____   _____

Signature of Research Participant   Date

_____   _____

Witness   Date

Contact Information:

Sharonette Wallen-Robinson   Heather Kanuka, PhD
Med Candidate   Academic Director, CTL
Educational Policy Studies   Professor, Educational Policy Studies
Faculty of Education   Faculty of Education
University of Alberta   University of Alberta
Edmonton, AB T6G 2R1   Edmonton, AB T6G 2R1
Tel: 780.707.9454   Tel: 780.492.2812
Email: wallenro@ualberta.ca   Fax & Email: 780.492.2491,
                                     heather.kanuka@ualberta.ca

Appendix D: Permission to Use COI Framework Figure

From Dr. D. Randy Garrison <garrison@ucalgary.ca>

To Sharonette Wallen-Robinson <wallenro@ualberta.ca>

Cc Heather Kanuka <hakanuka@ualberta.ca>

Date Mon, Apr 11, 2011 at 6:26 AM

Subject Re: Permission for Master's Thesis

You have my permission.

Thanks for acknowledging the source.

Best wishes,

DRG

On 4/10/2011 12:58 PM, Sharonette Wallen-Robinson wrote:

Good Day Dr Garrison,

My name is Sharonette Wallen-Robinson and I am currently a graduate student at the University of Alberta.

My supervisor Dr. Heather Kanuka has advised that I contact you and request permission for the use of the diagram depicting the COI framework which is located on your website, www.communityofinquiry.com .

Looking forward to your response.

Regards,

Sharonette

--

D. Randy Garrison, Professor

Director, Teaching & Learning Centre

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