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Qualitative Insights from a Canadian Multi-institutional Research Study: In Search of Meaningful E-learning

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Qualitative Insights from a Canadian Multi-institutional Research Study: In Search of Meaningful E-learning

Abstract

This paper reports the qualitative findings of a mixed methods research study conducted at three Canadian post-secondary institutions. Called the Meaningful E-learning or MEL project, the study was an exploration of the teaching and learning experiences of faculty and students as well as their perceptions of the benefits and challenges of e-learning. Importantly, e-learning was conceptualized as the integration of pedagogy, instructional technology, and the Internet into teaching and learning environments. Based on this definition, participants reflected on e-learning in relation to one or more of the following contexts: face-to-face (f2f) classrooms in which instructional technologies (e.g. learning management systems, video and web-conferencing, mobile devices, etc.) are used; blended or web-enhanced learning environments; and fully online learning environments.

Data collected for the study included survey data (n=1377 for students, n=187 for faculty); narrative comments (n=269 for students, n=74 for faculty); and focus groups (n=16 for students, n=33 for faculty). The latter two sets of data comprise the basis of this paper. Four major themes emerged based on the responses of students and faculty. Represented by the acronym HIDI, the themes include human connection (H), IT support (I), design (D), and institutional infrastructure (I). These themes and sub-themes are presented in the paper as well as recommendations for educators and administrators who aspire to make e-learning a pedagogically meaningful experience for both learners and their teachers.

Cet article présente les résultats qualitatifs d'une étude de recherche à méthodes mixtes menée dans trois établissements canadiens d'études supérieures. L'étude, intitulée « The Meaningful E-Learning » ou projet MEL, consistait en une exploration des expériences d'enseignement et d'apprentissage de professeurs et d'étudiants ainsi que leurs perceptions des avantages et des défis de l'apprentissage électronique. Chose importante, l'apprentissage électronique a été conceptualisé pour que soient intégrés la pédagogie, la technologie éducative et l'emploi d'internet pour former des environnements d'enseignement et d'apprentissage. Sur la base de cette définition, les participants se sont penchés sur l'apprentissage électronique par rapport à un ou plusieurs des contextes suivants : la salle de classe en situation de face-à-face, où des technologies éducatives (par ex. systèmes de gestion de l'apprentissage, vidéo-conférences et conférences web, appareils mobiles) sont utilisées, des environnements mixtes ou optimisés par le web et des environnements d'apprentissage entièrement en ligne.

Les données recueillies lors de l'étude comprennent des données d'enquête (n=1377 pour les étudiants, n=187 pour les professeurs), des commentaires narratifs (n=269 pour les étudiants, n=74 pour les professeurs) ainsi que des groupes de discussion (n=16 pour les étudiants, n=33 pour les professeurs). Les deux derniers ensembles de données constituent la base de cet article. Quatre thèmes principaux ont été mis en lumière en fonction des réponses des étudiants et des professeurs. Représentés par l'acronyme HIDI, les thèmes comprennent la connexion humaine (H), le soutien par technologie de l'information (I), le design (D) et l'infrastructure institutionnelle (I). Ces thèmes et sous-thèmes sont présentés dans l'article et sont accompagnés d recommandations à l'intention des éducateurs et des administrateurs qui souhaitent faire de l'apprentissage électronique une expérience pédagogique significative tant pour les apprenants que pour leurs professeurs.

Keywords

e-learning, human connection, design, support

Cover Page Footnote

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The capacity to deliver course, program, and degree offerings via flexible modes has led to rapid growth in the use of e-learning. While the benefits of e-learning are clear in relation to access and flexibility, various challenges also exist. These challenges include, but are not limited to geographic and technological barriers, insufficient instructional design support, inadequate or unreliable infrastructure, and varying degrees of faculty and student experience with e-learning environments (Salyers, Carter, Barrett, & Williams, 2010).

While the e-learning literature is vast with an array of definitions, in general, e-learning extends beyond face to face approaches and typically involves a variety of learning technologies and teaching approaches (Moore, Dickson-Deane, & Galyen, 2011). More than distance learning as defined by geography and more than online learning which uses a variety of technologies to deliver learning, e-learning has adopted some of the characteristics of each. In this paper then, the term e-learning refers to the integration of pedagogy, instructional technology, and the Internet into teaching and learning environments. Based on this definition, e-learning environments may include face-to-face (f2f) classrooms in which instructional technologies (e.g. learning management systems, video and web-conferencing, mobile devices, etc.) are used, blended and web-enhanced learning environments, and fully online learning environments (Salyers, Carter, & Barrett, 2010; Salyers, Carter, Barrett & Williams, 2010).

In 2012, three Canadian post-secondary institutions collaborated in a research project known as the Meaningful E-Learning or the “MEL” Project. Prior to this study, few Canadian post-secondary institutions had explored the e-learning experiences of both students and faculty. In particular, through the MEL study, the teaching and learning experiences of faculty and students, as well as the benefits and challenges of e-learning, were examined. Through a mixed methods approach, the researchers sought to discover teaching and learning activities that are effective, meaningful, and sustainable in the post-secondary e-learning context. This paper reports the qualitative findings of the study. The quantitative findings are reported elsewhere.

Review of the Literature

There is no dispute that e-learning has exploded in popularity (Allen & Seaman, 2013; Cramer, Collins, Snider, & Fawcett, 2007; Kerns, McDonough, Kolynch, & Hogan, 2006; McCord & McCord, 2010; Muirhead, 2007). This limited review of the literature highlights the perspectives of e-learning stakeholders including faculty and students, as well as the role of design in e-learning.

E-learning: The Student Perspective

Today’s students have, in general, grown up with technology and use it in various ways including socializing, personal banking, gaming, and accessing ‘apps’ for managing their lives (Buzducea, 2010; Carter, Salyers, Page, Williams, Hofsink, & Albl, 2011). Based on this phenomenon which Brocade (2011) has called e-living, it follows that many post-secondary students may expect to use e-learning strategies in their studies. With a plethora of mobile devices to choose from to support their learning, students may also want to be free to engage with resources and ideas in various ways. Such flexibility in e-learning requires understanding of how institutions think about time, place, instructional pace, delivery methods, and learner entry (Fisher, 2009).

Educators may facilitate the process of flexible learning by leveraging the social aspect of e-learning and balancing this with pedagogical strategies that foster student satisfaction with the learning experience. Social presence and pedagogy grounded in practices of interactivity and engagement have been repeatedly identified as tied to student satisfaction and learning success in e-learning contexts (Brocade, 2011; Cobb 2011; McCord & McCord, 2010). In short, e-learning experiences that include opportunities for social engagement and interaction tend to influence learning outcomes positively.

The concepts of collaboration, community, and connectedness permeate the e-learning literature (Bolliger & Inan, 2012; Wenger, 2004; Wenger, McDermott, & Snyder, 2002; Yukawa, Kawano, Suzuki, Suriyon, & Fukumura, 2008). By contrast, while most students appreciate the flexibility provided by e-learning environments, there are also students who may struggle with it for various reasons including learning style differences and limited technical skills (Dorrian & Wache, 2009; Perry & Edwards, 2010). Understanding that “one size [never] fits all”, universities that embrace e-learning must be prepared to respond to the needs and preferences of individual learners (Guri-Rosenblit, 2005).

E-learning: The Faculty Perspective

There has been increasing interest in faculty perceptions of e-learning including its adoption and utilization. Although the early e-learning literature profiles keeners and early adopters, it also describes faculty reticence or resistance to e-learning implementation (Bower, 2001; McKenzie, Mims, Bennett, & Waugh, 2000; Naidu, 2004; Newton, 2003). In more recent literature, many of the same themes appear. Reasons cited for resistance to adoption relate to workload, lack of experience, accessibility, connectivity, and lack of institutional infrastructure to support e-learning (Allen & Seaman, 2006; Bolliger & Wasilik, 2009; Cook, Ley, Crawford, & Warner, 2009; Georgina & Olson, 2008; Kennedy, Jones, Chambers & Peacock, 2011; Panda & Mishra, 2007; Ward, Peters & Shelley, 2010).

Inadequate technology skills have also been associated with resistance to e-learning by some faculty. Technology changes quickly, and many faculty are unable to keep up with the knowledge, skills, and expertise required to deal with the moving target of technology (Childs, Blenkinsopp, Hall, & Walton, 2005). According to some researchers (e.g., Childs et al., 2005; Jones & Wolf, 2010), faculty must develop competencies in order to integrate technologies successfully into their teaching and learning practices. Faculty involved in e-learning must likewise integrate web-based and online delivery techniques, engagement strategies, and other activities grounded in evidence-based pedagogical principles into their e-teaching repertoires. In the case of online learning, Reeves and Reeves (2008) have suggested that success is based on pedagogical dimensions that work well online. These dimensions need to be carefully considered during e-learning development with effort taken to assist faculty in aligning various educational technologies with specific content and pedagogies. Institutional strategic plans that support faculty adoption of e-learning and provide for e-learning resources and infrastructure is critical (AACTE, 2008; Darling-Hammond, 2006; Miller, 2009).

E-learning: Designing for Engaged Learning

Two terms prevalent in the literature on e-learning design are scaffolding and engagement. This should not be surprising: the two are intricately related with the first enabling the second.

Effective e-learning experiences require scaffolding rooted in learning theory and instructional design practices that enable diverse occasions for interaction. When e-learning occurs this way, the engagement and skill challenges experienced by many e-learners are often resolved (Winter, Cotton, Gavin, & Yorke, 2010). Stated another way, scaffolding is a framework that enables the learner to pace learning and internalize knowledge as manageable chunks of learning (Baker, 2010; Kim & Hannafin, 2011; Lipscomb, Swanson, & West, 2004; Verenikina, 2008). As such, scaffolding can increase motivation and accommodate the student's ability to self-regulate, self-assess, and engage in experiences with peers while the instructor provides benchmarking opportunities (Murtagh & Webster, 2010).

Because there are important design considerations as part of the scaffolding process, the teacher is encouraged to seek early and active engagement with an instructional designer and learning technologist. Through the guidance of the instructional designer and the learning technologist, scaffolding can unfold as follow: 1) identification of what the student can do, 2) establishment of shared goals, 3) provision of ongoing assessment of learning needs, 4) provision of individualized assistance, 5) reflection on activities and identification of what works well, and 6) inclusion of opportunities for internalization and generalization of the learning (Ginat, 2009). Similarly, in 2000, McKenzie articulated the characteristics of educational scaffolding: these characteristics include clear directions about what is to be accomplished; clear expectations and statement of purpose; structures and guidelines to keep the learner on task and time; assessment strategies that relate to expectations; and credible resources. When these characteristics exist within the scaffolding, learners are focused and spend appropriate time on tasks. They are not unfairly surprised, uncertain, or disappointed. Instead, learning is an experience of positive momentum as knowledge with skills building over time. While McKenzie did not formulate his ideas about scaffolding in the context of e-learning, they are particularly important in e-learning contexts.

Interaction in the e-learning environment comes in many guises. Most common though are activity-based and collaborative initiatives. E-learning offers potential for a wide range of tasks, projects, simulations, and scenarios all of which require the student to do something including think critically and act authentically (Schank, 2002). Moreover, as new technologies continue to emerge and others are finessed, the opportunities for collaborative e-learning will only increase and become less cumbersome than in the past. Given this phenomenon, guidelines that govern collaborative assignments and the behaviours of group members are highly recommended (Carter & Rukholm, 2008).

In summary, designing for e-learning is, perhaps, the most important consideration for faculty. Through careful design, the challenges of e-learning can be overcome and learning facilitated. Stated simply, instructional design sets the teacher and the student up for the greatest possibility of success.

The MEL Study

Theoretical Principles Guiding Data Collection

This mixed method study used a concurrent triangulation design to guide data collection. At designated points, both quantitative and qualitative data are collected and then triangulated (Creswell, 2009; Creswell, Plano Clark, Gutmann, & Hanson, 2003). Data are compared in order to identify similarities, differences, gaps, and unanswered questions. Because this paper focuses

exclusively on the qualitative findings of the study, evaluation of the triangulation design by the reader is not possible.

Research Aims and Questions

The aim of this study was to provide students and faculty the opportunity to share their e-learning experiences in order to identify strategies for ensuring meaningful learning. The significance of the MEL project extends across distance and classroom-based teaching and learning environments given contemporary trends of online and blended learning modalities within courses and curricula in post-secondary institutions. The research questions explored in this study were as follows.

1. What technology knowledge and skills do students and faculty require in order to effectively utilize e-learning strategies for their learning and teaching?
2. What challenges do students and faculty experience when utilizing e-learning strategies?
3. What are the characteristics of exceptional e-learning courses?

The first question was explored principally in the quantitative phase of the study; the second in both the quantitative and qualitative phases; and the final question in the qualitative phase.

Methods

This two-year three-phase project used a descriptive mixed-methods design. Students and faculty from three Canadian post-secondary institutions were invited to participate in the study. The lead university has an enrollment of nearly 12,000 students who take a variety of credit-based programs and courses leading to bachelor's degrees, applied degrees, university transfer courses, diplomas, and certificates. The second institution provides post-secondary technical education and skills training, and is recognized nationally and internationally for educational innovation. This institution serves 26,000 distinct students with programs that touch every sector of the economy and provides a number of courses and programs through distance education. The third university enrolls nearly 6,500 full- and part-time students in three faculties: education, arts and science, and professional programs including business and nursing. The majority of programs are at the undergraduate level. Registrations in online and blended learning programs are increasing at a rate of approximately 20% per semester.

Participants at the three institutions were provided with information about the specifics of the study including its purpose, benefits, and anticipated risks. Potential participants were assured that their information would be held in strict confidence and that survey responses would be anonymous. Data collection occurred from January to April of 2012 and again from September to December 2012. Each data collection period was open to a specific student population so as to prevent cross contamination of the results. Ethics approval was obtained at each academic institution prior to data collection. Two data collection strategies sources including online surveys with quantitative and qualitative items and semi-structured questions during focus group sessions were used. As noted in the Introduction to this paper, quantitative findings based on the survey tool are reported elsewhere. This paper reports qualitative findings based on focus group work.

Focus Group Procedures

Students ($n=16$) and faculty ($n=33$) were recruited to participate in focus groups through a two-fold campaign including print flyers and an email invitation. The semi-structured questions for the focus groups were developed collaboratively by the four lead researchers with input from other team members. Examples of focus group questions are as follows: “In your opinion, in the context of e-learning, what elements require dedicated support in relation to (a) educational practices, and (b) technology aspects, so that your use of e-learning is meaningful, relevant and effective?,” and “What recommendations do you have so that e-learning technologies are meaningfully and effectively integrated into educational experiences/practices?”

Focus group sessions were approximately one hour in length and occurred either in face to face settings or by teleconference. At the beginning of each focus group discussion, an explanation of the study was provided, and the definition of e-learning developed by the researchers was provided to participants to establish context for discussion. Following each focus group session, the videotape record was transcribed. To ensure anonymity, all identifying characteristics were eliminated from the transcripts.

Other Sources of Qualitative Data

As noted earlier, an online survey developed by the researchers was distributed to all participating students and faculty. Each survey—the faculty survey and the student survey—, included 34 items. Each item used a 5-point Likert scale (1=strongly disagree; 2=disagree; 3=agree; 4=strongly agree; and 5=not applicable), and each survey functioned as an e-learning skills inventory (ESI). Areas covered in the surveys included the following: level of knowledge about e-learning, prior experience using e-learning, access to e-learning and other resources, and general level of technology usage. The surveys also provided participants the chance to share narrative responses to open-ended questions. These narrative responses were triangulated with the focus group responses as part of the data analysis procedures previously outlined. Narrative comments from the online survey were collected from students ($n=269$) and faculty ($n=74$).

Data Analysis

The overall approach to data analysis followed the method outlined by Miles and Huberman (1994); data collection is followed by data reduction, display of findings, and drawing and verifying conclusions. Initially, the qualitative data were sent to a statistician who used NVivo 9.0 to independently code all the data as the first step in inductive thematic analysis (Ryan & Bernard, 2003). In addition to the actual coding, this step included constant comparison of codes, identification of emergent themes, memo-writing about category and theme development, and iterative analysis (Charmaz, 2006). When the themes and sub-themes were generated, they were then forwarded to the researchers for further consideration. As part of a data triangulation process, each member of the research team ($n=7$) independently reviewed the focus group transcripts and narrative responses from the online surveys and compared them to themes and sub-themes provided by the statistician to validate the data.

The data were then examined together as a group looking for pattern codes. These pattern codes were further coded and reduced to establish consistent coding among the group. The

principal investigator examined the themes and categories as well as identified inferences and discerned meanings in the data. This work was then discussed with the other investigators and agreed upon to ensure reliability.

According to Sandelowski (2000), the goal of most qualitative research is to produce a descriptive summary of an event, organized in a way that presents the data that will be relevant to the audience for whom it is written. Accuracy in summarizing the event is important. In this study, through the use of relevant questions, the researchers were able to reveal the “who, what and where of the relevance of the event to participants” (Grant, L., personal communication, March, 2013).

Findings

Four major themes emerged based on the responses from students and faculty during the focus group discussions and the narrative comments generated through the online surveys. Notably, participants’ insights into the research questions about the challenges of e-learning and characteristics of exceptional e-learning experiences are reflected within these themes.

To assist with organizing the data, the acronym HIDI was developed to designate the four thematic areas: human connection (H), IT support (I), design (D), and institutional infrastructure (I). Data were further organized into sub-themes. Figure 1 provides a visual representation of the themes and sub-themes represented by the acronym HIDI.

H: Human Connection

The theme of human connection emerged as important to both learners and teachers. Sub-themes under human connection included social presence, timely feedback, and engagement strategies that promote positive student-faculty and student-student interactions. Related to the importance of social presence, interactions, and timeliness of feedback, one participant stated the following:

When I am seeing the professor I get the feedback and I get it right away. Even from his body language I know if where I am going is the right direction or the wrong direction. By the time I send an email and organize my thought to the professor, it is two, three days later, and then it takes twenty-four, to thirty-six hours later [for the instructor] to return [to me with a response], if [the instructor] understood my query completely.

Another participant described engagement strategies as valuable in establishing and maintaining a human connection:

E-learning is great IF there is adequate interaction with an instructor who is both knowledgeable about the subject matter being taught and proficient in navigating, trouble-shooting, and teaching and learning in e-environments.

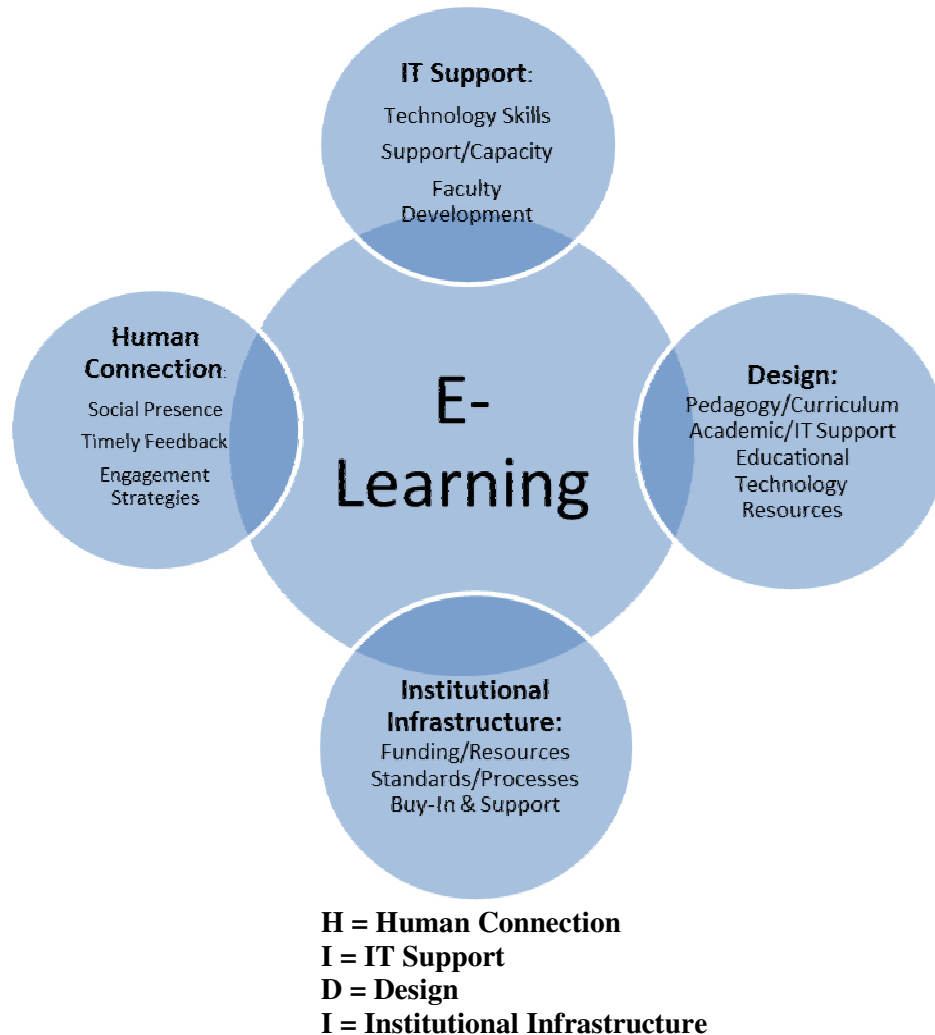


Figure 1: HIDI Themes and Sub-Themes

I: IT Support

The theme of IT support was a dominant one. Students and faculty at post-secondary institutions have varying levels of technology literacy despite experience with e-learning and technology. E-learning can be a major source of discomfort and frustration if sufficient supports are not in place. Sub-themes that emerged in the MEL study included the need for adequate technology skills, IT support, capacity to address issues as they occur, and faculty development activities to enhance technical skills. One faculty participant emphasized the importance of technical proficiency among students:

Students should be taught how to install programs, plug-ins, and applets on their computers. They appear to be simple tasks but they could become major stumbling blocks for some students. Once a student masters these tasks, e-learning technologies can really enhance the learning experience...I do not feel adequate enough in my computer skills to use them efficiently as I can, so [I do] not feel as successful. Also, using computer resources seems like another step in the process...with no training, I have to figure out the e-learning tools.

Students and faculty also expressed the need for timely IT support for e-learning. Given that some students may want to participate in e-learning “anywhere, anytime,” respondents commented that it would be ideal if IT support was available 24 hours each day 7 days per week. The focus group sessions and narrative comments further revealed that post-secondary institutions require improved IT infrastructure and capacity if they are to engage with e-learning in a robust way. Some of the identified infrastructure needs included library resources, reliable Internet access, user-friendly learning management systems, and technology-equipped classrooms.

Faculty participants mentioned the need for IT support and training to enhance their e-learning efforts. Some of their requests were as follows: easy to follow instructions, in-service sessions, and faculty development sessions. One participant commented on the need for dedicated e-learning staff:

A dedicated ed tech or IT professional to assist us as we plan new curriculum and learning strategies would be so beneficial because we would use these things more. We cannot be experts at nursing practice and at all things IT, so the e-education features that would make the environment more learner-centered are often sacrificed, I believe.

Students commented that faculty must understand the technologies they ask students to use and be able to explain them to students, “When [an] instructor does not know how to use e-learning, that is when the course becomes more difficult to follow through with [and] finish.”

D: Design

The importance of design to support e-learning initiatives was a major theme. Under the theme of design, the following subthemes emerged: adherence to pedagogical principles, IT and academic support to design meaningful e-learning courses, and curriculum specifically designed for e-learning.

Commitment to pre-determined learning objectives was recognized as a contributor to effective e-learning contexts and maintenance of academic standards. To ensure that e-learning materials meet important academic standards, faculty must have time to develop their e-resources and courses as well as time to collaborate with peers and receive support from IT professionals. One faculty participant commented on the need for IT and educational technology support to assist in this process:

Courses that use a lot of e-learning technologies are often confusing and unclear with information and course material scattered over multiple platforms. It is too often assumed that more technology will lead to better learning outcomes, and I do not agree with this. Even with the current generation of students, I think that old fashioned learning (discussion and debate, face to face interaction) produced the best learning outcomes; and, I should add, that I’m a younger faculty member who has grown up around technology.

The idea that curriculum must be specifically designed for e-learning also emerged as important. Contrarily, a lack of congruence between the content and the delivery experience was

noted as problematic and not conducive to learning. One participant remarked on this idea in the following passage:

It's appropriate to use e-learning when the content and the medium of the e-learning has been structured appropriately for the e-learning environment. I've worked in various courses where it was essentially a distance education course... that was just put on the web. That's not appropriate.

I: Institutional Infrastructure

The final theme related to institutional infrastructure. Subthemes focused on funding and resources, standards and processes to support e-learning, institutional buy-in, and overall support. Faculty participants were vocal about the need for dedicated funding and resources at the institutional level. Technical requirements including adequate bandwidth, up-to-date hardware, and innovative software were reported as necessities in e-learning contexts. Research funds for investigating technological infrastructure and e-learning techniques were also recommended. One participant described the situation this way:

Actually, one of my areas I'm researching currently is data mining [of] educational data. Blackboard does have the ability to record a massive amount of information with respect to student interaction, what they're using in the courses, how they're using it. And there are known data mining techniques which will elicit those particular techniques or uses or technologies that are actually, I guess, quantitatively, by student marks, making a difference. So that technology is out there. It's available. It's something we've never adopted yet, basically because like X said, it's [a] financial constraint.

Another participant commented on the need for investment in e-learning infrastructure as follows, "...the more resources and money you put into a faculty or staff... is going to pay big dividends in the end because you're planting seeds."

Technical expertise, support, and maintenance were noted by both groups as essential in e-learning. In addition to facilitating development and delivery of e-learning opportunities, technical experts are required when faculty and students use new software applications and equipment upgrades happen. One faculty participant concluded that technical support for e-teaching should include a variety of items, big and small, with support starting at the top of the institution:

And I think checking the links—or whatever we're using in there—that they work, if the embedded software or whatever the people need to work with; whatever link is expected, that those are checked and they're working. I'd have to agree with X there. Support's at the top of your pyramid and then any other things that will help with learning after that.

Discussion

In this study, meaningful e-learning has emerged as a system composed of four distinct components represented by the HIDI model: human connection, IT support, design, and institutional infrastructure. In essence, the experience of the whole is a function of the subsystems. The subsystems are interdependent and, when they work well in their interdependence, the result is a positive e-learning experience.

In response to how we can make e-learning effective and thus meaningful, the one idea that runs across all four themes is that faculty and students require greater support than their institutions currently offer. Participants also spoke of a trickle-down effect in the provision of support; one study participant summarized this idea as follows, “It is vital that instructors (faculty) be supported by their institutions if they are to be successful in their use of e-learning strategies.” If faculty experience adequate support, it is likely that their students will also be supported and reap rewards.

Deriving from the requirement for excellence in support are questions about who manages e-learning services and the nature of these services. These questions tie to the larger question of institutional support for e-learning and models ranging from centralized to de-centralized approaches. The role of educational development centres through which instructional design expertise is typically available is part of this discussion. Further complicating the discussion are massive open online courses (MOOCs), personal mobile devices, and sophisticated classroom designs. All of these phenomena present opportunities and challenges with potential to disrupt institutional structures. Support of technology-enabled teaching and learning is not just about technology; it is about infrastructures and processes that were designed, in most cases, before the advent of e-learning on university campuses.

While some university administrators suggest that technology is everywhere and does not need to be embedded in academic plans (Allen & Seaman, 2013), the authors argue that not to do so is shortsighted: unless the role of technology in 21st century universities is acknowledged, managed, and supported in planned ways, the potential for mishap is just too great. How we adopt, diffuse, and integrate technology into how we teach, learn, and undertake research is not an even playing field.

The politics and language of technical support as well as its history are clearly components in the e-learning discussion. For instance, IT departments tend to manage different client needs than do e-learning departments. IT departments typically provide support for the administrative functions of the university including enrolment management and tracking; student information systems and alumni, community, and fund-raising systems; and HR functions, payroll systems, and records management.

In order to meet the e-learning needs of faculty and students, a different support model is required; this model should be grounded in a specific mandate and carefully articulated roles. While the participants in the study were asked to share their experiences and challenges with e-learning, they were not explicitly asked about the capacity of post-secondary institutions to address the gap between and among the promise, the expectation, and the reality of e-learning. This discussion is one that we must not defer but initiate on our campuses as soon as possible.

What then does e-learning support include such that the outcome is meaningful and sustaining? According to Dahlstrom, Walker, and Dziuban (2013), e-learning units must include instructional designers, professional development staff or educational developers, videographers, graphic designers, apps developers, and learning management system experts. Such centres

should also include supports for e-based classrooms, audio-visual systems, lecture podiums with computers, document cameras, and various embedded room control systems. High functioning classroom technologies are important to the adoption and diffusion of technologies within the post-secondary organizations.

A learner-centered framework that honours human connection is, according to study participants, at the heart of a meaningful e-learning community. Through this connection, the student experiences the safety and support he or she needs for learning. Indeed, one of the biggest challenges of those involved with e-learning is to design educational experiences where technology is used to support students and their learning experiences. Furthermore, the learning design must value and support diverse learners in highly accessible contexts (McCombs, 2004).

E-learning design, development, and adoption are closely associated with the thorny issue of managing the metrics of faculty workload. The development of an online course typically requires more time than the development of a face-to-face course. The bottom line is that e-learning requires an investment in faculty and staff that extends well beyond technical considerations. E-learning when done well exists in an ecosystem of organizational design and support. Within this ecosystem, resources are required that range from educational development to expertise in e-learning design to 24-7 support for anytime, anywhere service for faculty and students (Carter & Graham, 2012).

The MEL study revealed four components of the e-learning system which if, acted upon, will, ideally, ensure effective and meaningful learning. At the same time, human connection, IT support, design, and institutional infrastructure comprise only the “tip of the e-learning iceberg.” As suggested in this study, post-secondary institutions need to reflect thoughtfully on the organizational and cultural shifts occurring around and within them rather than on more investments in technology. Effective e-learning is far more than technology: institutions may need to reallocate resources and assess their e-learning infrastructures. Additionally, the needs of learners are changing, thus challenging educational institutions to continue to change. Refusal to change is a risk that most universities cannot afford to take based on the needs and interests of today’s students.

While the previous discussion has focused on emergent themes, we would remiss not to return to the questions around which discussion occurred in the focus groups: questions about the challenges of e-learning and the characteristics of exceptional e-learning experiences. Based on the above themes and sub-themes, the following (see Table 1) is offered as partial answers to the two questions.

Table 1

Challenges and Characteristics of E-learning: Student and Faculty Perceptions

Challenges of e-learning: Faculty	<ul style="list-style-type: none"> • Insufficient technical support and training • Inadequate instructional design support • Minimal or a lack of institutional support
Challenges of e-learning: Students	<ul style="list-style-type: none"> • Insufficient technical support • Inadequate technical proficiency • Instructors who are not timely in their responses
Characteristics of exceptional e-learning: Faculty	<ul style="list-style-type: none"> • Human connection including easy interactions with students • Instructional design support to ensure that curriculum is appropriate for e-delivery and to facilitate ease in navigation • Adequate technical support • Adequate institutional support
Characteristics of exceptional e-learning: Students	<ul style="list-style-type: none"> • Human connection including timely feedback, social presence, easy interactions with the instructor and other students, interactive learning strategies • Adequate technical support

Limitations

The sample size limits generalizability beyond the universities where the study was conducted. Further, based on the sample size, identification of participants may have been possible. As well, data collected from focus groups and surveys were self-reported and, therefore, may have been subject to bias although a number of steps were taken to mitigate bias including the anonymous nature of the survey and explanations to focus group participants that only aggregate data would be reported. Demographic information including gender, age, and professional discipline was deliberately omitted as part of the sample description.

Participant availability was another limitation of this study. Often student and faculty schedules preclude them from participating in focus groups and completing surveys. The researchers found this to be the case and made the decision to undertake a limited number of individual interviews as well as focus group discussions. This decision was based on time restraints and in order to avoid further schedule conflicts.

Follow-up or formal second interviews were not undertaken. Second interviews might have enhanced this study and enabled additional probing about the ways in which participants understood the findings and recommendations. However, participant availability precluded this from occurring. In spite of these limitations, there was richness in this data that pointed to the need for more research into identify the knowledge, skills and attitudes required for meaningful e-learning as well as the challenges and opportunities of excellent e-learning experiences.

Conclusions and Recommendations

Based on this study, the authors propose a number of recommendations. Whether the discussion is about information technology in general or the application of a specific educational technology, there is a requirement to manage complex expectations around e-learning. The following itemizes the recommendations that emerged from the study:

1. The institution needs to separate the administrative functions involving technology from the technological needs of faculty and students engaged in e-learning. The importance of adequate technical infrastructure and other supports for e-learning cannot be overemphasized.
2. Every effort should be made to ensure that the human connection remains front and central in the e-learning experience.
3. Scaffolding and instructional design are central to the development and delivery of effective e-learning for both faculty and students.
4. Learning activities and strategies that encourage engagement and interaction are important in e-learning.
5. The e-learning evolution needs to be an explicit part of the academic and strategic planning processes of universities so that the eco-system of services that support e-learning actually works. Further, individuals responsible for academic planning and oversight should become involved in leading e-learning initiatives in order to acquire deep understanding of the complexity of e-learning.

In closing, given the uptake of e-learning at Canadian post-secondary institutions, the findings of this study are important and timely. Additionally, there is a need to continue to involve learners and faculty in this discussion and to investigate opportunities to work as co-researchers in e-learning. Although e-learning has existed for some time now, there are still aspects that require exploration. Specifically, there is a need for more research that targets the design, development, and delivery of exceptional e-learning experiences within institutional contexts and acknowledges teachers and students as persons who require, above all, the human connection that teaching and learning has always involved.

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