Enhance, Extend, Empower: Understanding Faculty Use of E-Learning Technologies

Squires, Vicki[a]; Turner, Nancy[b]; Bassendowski, Sandra[c]; Wilson, Jay[d] and Bens, Susan[e]

[a]Department of Educational Administration, University of Saskatchewan, Canada; [b] Gwenna Moss Centre for Teaching and Learning, University of Saskatchewan, Canada; [c]College of Nursing, University of Saskatchewan, Canada; [d]Department of Curriculum Studies, University of Saskatchewan, Canada; [e]Gwenna Moss Centre for Teaching and Learning, University of Saskatchewan, Canada.

Abstract

There has been scant nation-wide assessment of institutional use of learning technology in Canada (Grant, 2016) and where assessment has been done of student access to e-resources, considerable variability within and across institutions has been reported (Kaznowska, Rogers, & Usher, 2011). With a broad vision of improved and increased use of learning technologies, one university wanted to explore the use of e-learning technologies across campus. The purpose of this study was to identify instructors' needs and aspirations with respect to how learning technologies at the university could be designed, implemented, and supported. The 3E framework of Enhance, Extend, Empower, proposed by Smyth, Bruce, Fotheringham, & Mainka (2011), was useful in examining the underlying purposes of using e-learning technologies. For this qualitative study, the research team engaged 32 instructors in individual interviews or in focus groups to discuss how they currently use e-learning technologies, how they hope to advance their uses of these technologies, and their perceived barriers or enablers to implementation. The study has implications for practice and policy at postsecondary institutions; additionally, this study suggests possibilities for further research into the scholarship of teaching and learning in the context of e-learning technologies.

Keywords: E-learning technologies, postsecondary, scholarship of teaching,

1. Introduction and Background to the Project

"Learning technology is the broad range of communication, information and related technologies that can be used to support learning, teaching, and assessment." (Association for Learning Technology, 2016, para. 1).

The key needs for embracing learning technologies have been echoed in National fora where the importance of students' ability to use digital technology to "access, evaluate, create and communicate information" are seen as central to their academic and professional success (Universities Canada, 2016, p. 4).

The use of learning technologies is identified as moderate and inconsistent at the university that was the focus of this research, based on available metrics (e.g. Blackboard log-ins). There has been scant nation-wide assessment of institutional use of learning technology (Grant, 2016) and where assessment has been completed of student access to e-resources, considerable variability within and across institutions has been reported (Kaznowska, Rogers, & Usher, 2011).

With a broad goal of improved and increased use of learning technologies, an institutional committee identified that a range of concerns and opportunities needed to be better understood in order to identify required supports, infrastructure, and policy. Given this need, a project was undertaken in the 2015-2016 academic year to identify instructors' needs and aspirations with respect to ways that learning technologies at the university could be designed, implemented, and supported. A university sanctioned steering committee engaged a smaller working group of four academic researchers, and then guided and supported the work of the project.

1.1. Research Questions

As directed by the institutional committee of teaching and learning, the researchers wanted to better understand the concerns and opportunities of instructors regarding e-learning technologies in order to identify required supports, infrastructure, and policy. For this purpose, these research questions were established:

(1) How do instructors currently use learning technology in their teaching practice?
(2) How do instructors envision learning technology supporting their future teaching practice?
(3) What are the barriers to their use of learning technology?
(4) What enables their use of learning technology?

1.2. Conceptual Framework: 3E Framework (Smyth, Bruce, Fotheringham, & Mainka, 2011)

Three broad uses of technology, existing on a continuum, provided a useful framework for this research project. The uses are defined by the types of learning they enable. An underlying assumption of both this continuum and this research project is that it is possible to use technologies to benefit teaching and learning. The uses of technology will vary, including but not limited to uses that: create efficiencies, improve accessibility and/or timing, encourage enriching interaction, and foster development of key skills, abilities, and literacies (Laurillard, 2002). The 3E Framework, designed and developed by Smyth et al. (2011) from Edinburgh Napier University, is presented in Figure 1.

A range of learning tasks and activities can align with any of the three levels within the 3E Framework – meaning that these categories are not clearly distinct. A blending may be commonplace in practice, especially between the *enhance* and *extend* levels.
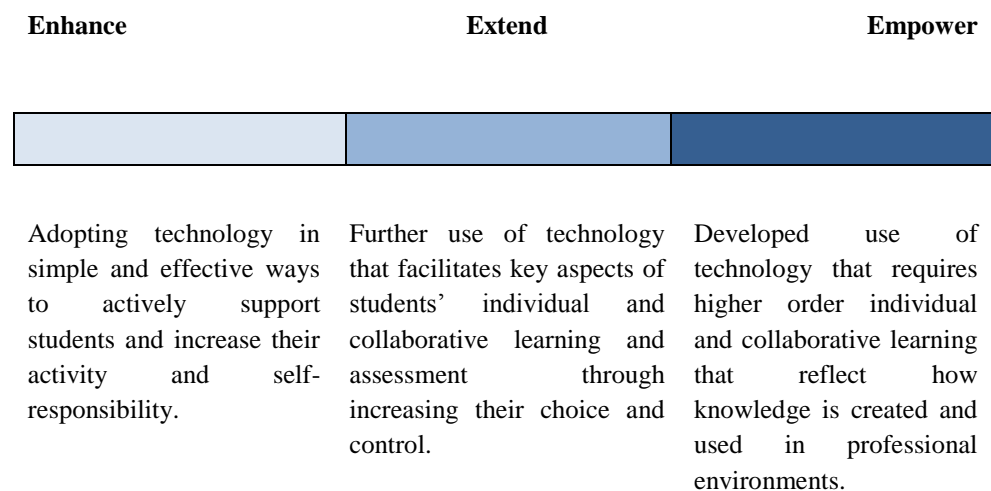
Enhance	**Extend**	**Empower**
Adopting technology in simple and effective ways to actively support students and increase their activity and self-responsibility.	Further use of technology that facilitates key aspects of students' individual and collaborative learning and assessment through increasing their choice and control.	Developed use of technology that requires higher order individual and collaborative learning that reflect how knowledge is created and used in professional environments.

Figure 1: 3E Framework (adapted from Smyth, Bruce, Fotheringham, & Mainka, 2011, p. 3)

It is important to note that the 3E Framework does not promote the empower level as an ideal; in fact it may work less well in some subjects, whereas enhance is regarded as working well in any subject at any level of study.

2. Method

To follow the direction and intent of the institutional steering committee, and to answer the research questions, a qualitative approach was utilized for the research. Because of the moderate and inconsistent use of learning technologies understood to exist at this campus, it was necessary to delve into instructor perspectives, needs, and concerns by being able to probe and discuss at some length the opportunities and issues with the use of technology in supporting their pedagogic goals. Thus, a qualitative case study approach (Creswell, 2014; Merriam & Tisdell, 2015) was used because the team wanted to examine one institution's e-learning environment in-depth, incorporating the perspectives of multiple instructors.

2.1 Sample

To set the conditions for rich discussion, it was decided that the data collection would occur using semi-structured interviews of instructors conducted in pairs or groups of three. Where schedules did not permit a paired or grouped interview, individual interviews were conducted. In total, eight grouped interviews were conducted from January to May 2016, along with eleven interviews, for a total of thirty-two instructors participating, from twelve colleges and schools.

The term "instructor" was chosen and used in this report to be inclusive of faculty and sessional instructors; the terms faculty and sessional are used in this report only where it was felt necessary to contextualize the findings. Instructors were individually identified as potential participants by the project team and by referral from invited participants. The team sought diversity with respect to disciplinary area, stage of career, and in particular the type of learning enabled by technologies using the 3E Framework of enhance, extend, and empower. Given the limits of the researchers' networks, there were surely instructors using learning technologies who were not identified as potential participants and whose points of view may be missing from this research project.

As expected, it was easiest to identify instructors at the enhance level where students were supported in their learning activity and self-responsibility by the use of technology. There were also many using learning technologies at the extend level where students' collaborative learning, choice, and control were increased through the use of technology. Empower, where higher order individual and collaborative learning reflects how knowledge is created and used in professional environments, proved to be the level of use by instructors most difficult to locate. Here, again, given the limits of internal researcher networks and inability to discern this particular level of use, potential participants may have been left out.

2.2 Interviews

The research team collaboratively developed the interview questions, and potential participants were contacted. One team member conducted all the interviews which were transcribed by a campus research lab. Questions focused on interests or opportunities that facilitated engagement with learning technologies, concerns or challenges encountered, types of technologies used, and perceived benefits of using learning technologies. The research team then used the software package NVivo to collaboratively analyze the data, determining themes and subthemes, comparing and contrasting codes (Saldaña, 2013).

3. Results and Discussion

The findings are organized into four thematic sections, with regard to why instructors use learning technology, how they use these technologies, what enables their use of learning technologies, and what institutional supports facilitate this use.

3.1 Why do we use learning technology?

Almost all participants reported selecting and using learning technology based on pedagogic goals. These choices ranged from providing better access to, clearer communication about, and stronger engagement with, content. In-class use provided a means of breaking up periods of content delivery. Use was also noted as driven by the desire to enable active learning and discussion in class as well as to provide timely and regular formative feedback to students to support learning. More experienced technology users discussed tools that they implemented to facilitate student collaboration, sharing, and peer-to-peer feedback. In addition, more experienced users reported providing student controlled spaces where they could support their own and peers' learning (Skype, Webex, Google docs, Blackboard email). A small portion of participants used technology to empower students as content creators through tools like Mahara, blogs, social media, and Google docs. Technology also met several needs in student assessment ranging from use for student self and peer assessment, before or in class quizzes, online exams, and facilitation of reflective practice. A small number of instructors also reported using technology to support evaluation of their teaching.

In addition to pedagogically focused motivations for use of technology, several instructors also noted a desire to meet the needs of current students and, to a certain extent, match their expectations of a 21st century education. There was a sense of urgency noted by some who suggested that students would go elsewhere to study and learn if technology was not used and if the environment or teaching approach was seen to be antiquated.

A recurring theme from the data was the need for increased capacity for learning technologies to be compatible with instructors' teaching philosophies and with students' learning styles. Instructors were not suggesting that there was a "right" way to utilize

learning technology, rather the use needed to fit the learning outcomes, the philosophy of the instructor, and the needs of the particular student group.

Learning technologies were also noted as enabling flexibility and accessibility to meet the needs of an increasingly diverse student population. Many instructors stressed the importance of students being able to learn where they live and access content and learning experiences at times and locations that suited them. Flexibility and accessibility were noted as particularly important for students who had responsibilities for caring for others, who were working and studying, and who would benefit from easy and repeated access to course materials (e.g. for students with English as an additional language). The affordance of technology to help organize and provide access to extensive content was of value in courses that were perceived to be content heavy.

While there was general enthusiasm amongst this group for use of learning technology, there were cautions around it ever completely replacing face-to-face interactions. From almost all participants, learning technology was seen to compliment rather than take the place of face-to-face interactions with and among students.

To summarize, the overriding motivation for instructors to use technology in their teaching was to support achievement of student learning. Technology was reported as improving engagement, enhancing student connections to content and each other, and improving opportunities for communication amongst the class. Also mentioned were the flexibility and engagement that technology affords and the potential for collaborative learning. For a smaller proportion of participants, perhaps influenced by the type of teaching undertaken, technology was seen to allow students to be more independent in their learning and enable a shift from students as content consumers to content creators. This shift is in line with the student as producer pedagogical model where students are collaborators in the production of knowledge and, like researchers, share their outputs beyond their immediate instructor (Neary & Winn, 2009). The potential for technology to enable this type of conceptual and practical pedagogic shift is significant (for example see: Kleefeld & Rattray, 2016; London School of Economics, 2016).

3.2. What tools do we use? To what end?

While the pedagogic needs and aspirations were foregrounded by participants there were many references to a variety of learning technology tools employed in teaching practices. Some of these were references to particular tools (e.g. Blackboard learning management system), some were more broadly references to a particular medium of delivery or engagement (e.g. video). Overall, the request for tools that were intuitive and easy to use was central to the findings.

Participants identified a range of general and specific tools that they use to support their teaching and students' learning. Video was the most widely reported and used technology for instructors regardless of their experience in the classroom. Some were using existing video resources while others were creating their own materials. Video also impacted pedagogy with the structuring of courses (such as flipping the classroom or lecture capture) or use of video as a communication tool for remote students. Blackboard, despite its noted faults, was made to work by a large number of participants to deliver course material and provide a place for students to interact. Student response systems were integrated by many for a range of purposes (attendance, clarity of lecture, assessment).

There were a number of tools that were not pervasive but piqued the interest of some instructors. The potential for use of tools like Mahara, blogs, Twitter, or Facebook to facilitate reflection and build a portfolio of practice to be shared with others was seen as significant but not by a large number of participants. Overall interest in tools that enable student collaboration, particularly student "controlled" spaces, was also of interest.

Guidance and support in use of third party/web based tools was noted frequently as was the need for careful consideration of use of resources provided by textbook manufacturers. Use of technology to facilitate peer feedback was an area that some identified as worthy of further exploration. As instructors struggle to look into the future given the rapid changing of learning technology, it was noted that the institution needs to be agile in the provision of learning technology infrastructure and support in its use.

3.3. How does/could support enable our use?

Participants noted that when they first engaged in learning technology use, they began doing so by working alone and in isolation. As they became more comfortable in technology use, they began to seek out supports available and connections to others engaged in similar practices. The reported experience of not feeling able to seek help initially is one that bears further exploration to see if it is pervasive. If this phenomenon proves to be widespread, strategies to provide direct support to individuals will be important to ensure their initial activities are relatively positive ones that engender a desire to continue to develop these practices

It was implicit in many of the participant statements that the choice or selection of technology depended to a great extent on the values and beliefs of the instructor. As noted in an earlier section, the instructor needs to believe that using technology will improve the teaching and learning environment before an effort will be made to engage with its use. Participants were particularly drawn to technology that empowers students and instructors, creates communities, fosters communication, streamlines processes, and/or promotes collaboration.

The call to bring more awareness and interest to the technology available at the university needs to be considered carefully, however. The importance of local and disciplinary practices in relation to learning technology use should not be overlooked. The potential for support to be provided to active technology users to explore practices that fit with the needs and pedagogical aspirations of a program, department or college is great and shouldn't be lost in the desire to provide institution wide solutions. This approach would also enable what several participants called the opportunity to "blue sky" with colleagues wanting to achieve similar outcomes. While central units were noted as an important support, the call for innovation was largely about fostering dedicated time and space for innovative thinking with colleagues. Capitalizing on innovators to collaborate, generate ideas, lead, and share practices relevant to disciplinary and departmental cultures is in line with understandings of effective strategies to support technology adoption (Rogers, 2003).

Overall, consistent institutional support was seen to be important by participants regardless of location, setting, building, or program. Consistent support across sites and colleges was described as needing to include professional development, Information, Communications, and Technology (ICT) incident response, and release time or other similar supports for instructors willing to trial a new technology. Establishing mentorship relationships between instructors with different skill levels was described as a significant enabler of adoption. There was a clear call for the provision of time and space for experienced technology users to imagine, plan and implement new strategies individually and collaboratively. Creation of a supportive learning technology user community was seen as an essential element. Some participants also called for consideration of student digital literacy development. Where this development would best be undertaken (e.g. within and/or outside the formal curriculum) needs further consideration.

3.4. How do institutional and local resources and rules shape our use?

The decision to begin using learning technologies is made by individuals influenced to varying degrees by the culture, common practices and structures they encounter (e.g. facilities, policies), and who feel more or less willing to act depending on the characteristics and perceived benefits of the innovation they are considering (Rogers, 2003). Participants noted many factors that influenced their or their colleagues' adoption of technology to support student learning.

Many participants noted that more pervasively available, appropriate, and reliable facilities would support in class use of technology. Relatedly, reliable and immediately available support for use of classroom technology was seen as essential. The perception that the institution favours enterprise tools like Blackboard and discourages use of third party tools was seen to be a barrier to use by many, particularly in regard to new and innovative applications or tools used in other contexts (e.g. Google) selected to meet particular needs.

The perceived lack of flexibility in the scheduling of teaching and the lack of openness to approaches that counter the typical teaching timetable were also seen as barriers to use of technology. Echoing findings noted earlier, the lack of time for meaningful engagement in learning about, planning for, and implementing use of learning technologies was noted by many.

Perceived privileging of research over teaching by the institution was also noted as a problem, somewhat offset by a sense that their college or department did value good teaching practices. Participants noted a clear vision for learning technology use by the institution, perhaps framed by the question, "What problem does technology help us to solve?" would be useful to inspire increased adoption.

4. Conclusions

The findings outlined above, considered in the context of scholarship in this field, led to a set of recommendations to improve and meaningfully increase use of learning technologies at this university. However, other campuses may consider these recommendations helpful in examining their own practices, and further promoting use of e-learning technologies at their own institutions.

4.1 Implications for Policy and Practice

The institution can offer the necessary infrastructure through developing a strategy and subsequent roadmap for an ecosystem of teaching and learning applications. The ecosystem, integrated by a central learning management system, would reflect the principles and desires identified in this research: a) interfaces that are intuitive and easy to navigate b) increased availability of video tools c) provision of student owned spaces online d) increased tools for communication, collaboration, and reflection e) tools that foreground accessibility, and f) connection to tools hosted outside the institution. Other changes to institutional practices could better facilitate the development of e-learning technologies. These recommendations include developing and implementing strategies to cultivate local learning technology innovators and support them in imagining, sharing, implementing, and leading. Similarly, student capacity to use e-learning technologies needs to be facilitated either through co-curricular offerings, in-class or tutorial support, or programmatic inclusion of e-learning technology skills. Most importantly, learning technology must become integrated explicitly into the teaching quality framework of the institution, including recognition for teaching innovation and use of emergent strategies. The institution needs to incorporate e-learning technology into its priorities through strategic planning processes.

4.2. Implications for Research and Future Scholarship

This study used the 3E framework proposed by Smyth, et al. (2011), to initially establish categories of expertise in using e-learning technologies and to suggest codes or themes regarding objectives for implementing these technologies. While the framework was helpful in examining how instructors used technology, it was perhaps a less useful lens to view the institutional environment that can either impede or facilitate use of these e-learning tools and techniques. Employing a policy analysis framework in future studies may be useful for further examining the dynamic of institutional expectations, supports, and strategic positioning in promoting a teaching and learning environment that incorporates e-learning technologies.

Furthermore, ongoing research regarding best practices for supporting development of e-learning technologies would be helpful to explore potentially beneficial practices such as developing communities of practice among instructors. Additionally, student success in relation to the introduction of particular technologies would help develop the persuasive case to invest institutional resources for supporting the implementation of e-learning and for the recognition of excellent teaching.

References

Association for Learning Technology. (2016, June 13). What is learning Technology? Retrieved from https://www.alt.ac.uk/about-alt/what-learning-technology

Creswell, J. W. (2014). Research design: Qualitative, quantitative, and mixed methods approaches (4th ed.). Thousand Oaks, CA: Sage Publishers.

Grant, M. (2016). Learning in the Digital Age. The Conference Board of Canada. Retrieved from http://www.conferenceboard.ca/reports/briefings/learning-digital-age/executive-summary.aspx

Kaznowska, E., Rogers, J., & Usher, A. (2011). The state of e-learning in Canadian Universities, 2011: If students are digital natives, why don't they like e-learning? Toronto: Higher Education Strategy Associates. Retrieved from http://higheredstrategy.com/wp-content/uploads/2011/09/InsightBrief42.pdf

Kleefeld, J., & Rattray, K. (2016). Write a Wikipedia article for law school credit - really? Journal of Legal Education, 65(3). Retrieved from http://jle.aals.org/home/vol65/iss3/6/

Laurillard, D. (2002). Rethinking University Teaching. A conversational framework for the effective use of learning technologies. (2nd ed.). London: Routledge.

London School of Economics. (2016). LSE Learning Technology and Innovation [London School of Economics webpage]. Retrieved from http://lti.lse.ac.uk/students-as-producers-lse/

Merriam, S. B., & Tisdell, E. J. (2015). Qualitative research: A guide to design and implementation. John Wiley & Sons.

Neary, M., & Winn, J. (2009). The student as producer: reinventing the student experience in higher   education. In L. Bell, M. Neary, & H. Stevenson (Eds.), The Future of Higher Education: Policy, pedagogy and the student experience. London: Bloomsbury Publishing.

Rogers, E. M. (2003). Diffusion of Innovation (fifth). New York: The Free Press.

Saldaña, J. (2013). The coding manual for qualitative researchers (2nd ed.). Thousand Oaks, CA: Sage.

Smyth, K., Bruce, S., Fotheringham, J., & Mainka, C. (2011). Benchmark for the use of technology in   modules. Edinburgh: Edinburgh Napier University.

Universities Canada. (2016). Canadian Universities and our Digital Future: A workshop by Universities Canada (workshop report) (p. 13). Vancouver. Retrieved from http://www.univcan.ca/media- room/publications/digital-future-report/