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**Web-Based Technology Integration and Student Engagement in a Fully Online
Graduate Program**

By

**Linda Gaines
EdD Student
Drexel University**

Supervising Professor: Dr. Kristen Betts

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Web-Based Technology Integration and Student Engagement
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Linda L. Gaines
Drexel University

Abstract

Higher education learning management systems (LMS) incorporate web technologies into online courses to support student engagement with course content, the instructor, and peers. However, these technologies are often not optimized. This study examined how online faculty use web technologies and how the utilization of these technologies within a fully online master's program affects student engagement within courses. The study found that a limited number of technologies within the LMS were utilized for asynchronous student-instructor and student-student interactions. Second, professional development and ongoing support is important for faculty who integrate technology into their courses. Third, synchronous student-instructor and student-student interactions occurred through video-conferencing technologies. Finally, usage of web technologies supports student engagement and asynchronous student-instructor and student-student interactions.

Aim

Optimizing LMS web technologies or integrating web technologies into online higher education courses is a complex issue. Research has shown that the inception of web technologies has created opportunities for faculty to implement technology in online courses to enhance student engagement and learning dynamics (Diaz, 2008; O'Connor, 2012). Web technologies encourage interactive learning for students by helping them focus on social connectivity, including student-student and student-faculty interactions, which translates into interactive and collaborative student learning (Chiou, 2011; Diaz, 2008; Reid, 2014).

Problem and Purpose

Utilizing web technologies has been shown to engage students with course content and empower them to participate, communicate, create knowledge, and have more control over the learning process in a 21st-century learner-centered online learning environment (O'Connor, 2012). Given the increase in online enrollments, Title IV institutions must ensure their distance education courses align with the DOE's (2014) definition of distance education, which in part states, "education that uses one or more technologies to deliver instruction to students who are separated from the instructor and to support regular and substantive interaction between the students and the instructor synchronously or asynchronously" (para. 2).

Technology use within and outside of the LMS provides faculty with tools to support interaction. Therefore, research was needed to explore how technology was being used in one online graduate program to ensure student-student and student-to-faculty interaction in compliance with the DOE's requirements for distance education and Title IV funding. The purpose of this study was to understand how online faculty used web

technologies in courses within a fully online master's program and how these technologies affected student engagement within those courses.

Methodology

This study employed a sequential explanatory mixed-methods study utilizing a quantitative survey distributed to 92 students in courses within a fully online master's program. Additionally, semi-structured interviews were conducted with four full-time faculty who taught in the same online program. The researcher developed a multifaceted representation of the problem by including both quantitative and qualitative methods in the study. Using both methods provided a more robust picture of the research problem than using one method alone would have (Creswell, 2015). Additionally, these two methods consisted of combining, connecting, building, and embedding all the data collected to offer answers to the research questions.

Research Findings

The following eight findings emerged from analysis of the quantitative data: (1) fewer than half the technologies within the LMS were utilized to support asynchronous student-instructor interactions; (2) students were satisfied with the technologies they utilized within the LMS and found them to be useful in supporting asynchronous student-instructor interactions; (3) fewer than a quarter of technologies within the LMS were utilized to support asynchronous student-student interactions; (4) students were moderately satisfied with the technologies they utilized within the LMS and found them to be useful in supporting asynchronous student-student interactions; (5) the majority of students used Google Docs technology outside the LMS to support their asynchronous interactions with their instructor and their peers; (6) students were satisfied with Google Docs and found it to be useful in supporting their asynchronous interactions with instructors and peers; (7) students used Blackboard Collaborate more than any other technology to support their synchronous interactions with their instructor and their peers; and (8) students were more satisfied with Blackboard Collaborate and found it more useful than any other technology for supporting synchronous interactions with their instructors. However, they found Google Hangout and Skype more satisfying and useful for synchronous student-student interactions.

The following four findings emerged from the analysis of the qualitative interview data: (1) online faculty used web technologies within the LMS to disseminate course information; (2) using web technologies within the LMS helped faculty support students to learn and apply material; (3) web technologies outside the LMS supported collaboration between faculty and students; and (4) technology support was necessary for students as they learn and apply web technologies in their courses.

The qualitative findings supplemented the quantitative findings by showing that online faculty who were interviewed used web technologies both within and outside the LMS to support student learning and application of course material, interaction with each other, and conveyance of course information. However, it was noted that students needed support to use technologies unfamiliar to them. This study showed that only a few of the available web technologies were utilized to support student engagement in online courses. Therefore, institutions must consider how faculty is engaging students in online courses.

Discussion

These findings provide evidence consistent with research from Ajjan and Hartshorne (2008), Reid (2014), and Buchanan, Sainter, and Saunders (2013), which posited faculty utilized a limited number of web technologies within the online courses they taught. The dependability and complexity of technology, faculty self-efficacy, faculty support, professional development type/format and effectiveness, and faculty experience with technology are all potential issues within the broad scope of "instructional technology adoption" (Reid, 2014, p. 398).

Additionally, supported by research by Ahadiat (2005) and Reid (2014), this study demonstrated that different support systems need to be in place as the faculty learn new technologies. Workshops and appropriate training are helpful in assisting faculty to be savvier with technology; thus, it should be continued and enhanced. Finally, consistent with research by Venugopal and Jain (2015) and Chen, Lambert, and Guidry (2010), this study found that using web technologies supports student-instructor and student-student interactions, as well as student engagement within courses. One example is to use the scaffolding technique to integrate web technologies into lectures, discussion boards, and assignments helps develop students' technology skills and engagement in courses.

Research Implications

Student engagement plays a critical role in online education. Student-student and student-instructor interaction is required in order for an institution to receive Title IV funding. This study showed that only a few of the available web technologies were utilized to support student engagement in online courses. Therefore, institutions must consider how faculty are engaging students in online courses. Higher education institutions should annually survey faculty and students about which technologies are being used to support both interaction and engagement within online courses. This information will benefit higher education institutions when making future licensing decisions regarding their LMS.

References

Ahadiat, N. (2005). Factors that may influence or hinder use of instructional technology among accounting faculty. *Campus-Wide Information Systems, 22*(4), 210-232.

Ajjan, H., & Hartshorne, R. (2008). Investigating faculty decisions to adopt Web 2.0 technologies: Theory and empirical tests. *The Internet and Higher Education, 11*(2), 71–80. doi:10.1016/j.iheduc.2008.05.002

Buchanan, T., Sainter, P., & Saunders, G. (2013). Factors affecting faculty use of learning technologies: Implications for models of technology adoption. *Journal of Computing in Higher Education, 25*(1), 1-11. doi:10.1007/s12528-013-9066-6

Chen, P. D., Lambert, A. D., & Guidry, K. R. (2010). Engaging online learners: The impact of web-based learning technology on college student engagement. *Computers & Education, 54*(4), 1222-1232. doi:10.1016/j.compedu.2009.11.008

Chiou, Y. (2011). *Perceived usefulness, perceive ease of use, computer attitude, and using experience of Web 2.0 applications as predictors of intent to use Web 2.0 by pre-service teachers for teaching* (Doctoral dissertation). Retrieved from Proquest Dissertations and Theses. (ATT No. 3466156)

Creswell, J. W. (2015). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (5th ed.). Upper Saddle River, NJ: Pearson

Diaz, V. (2011). Cloud-based technologies: Faculty development, support, and implementation. *Journal of Asynchronous Learning Networks*, *15*(1), 95–102.

O'Connor, E. (2012). Next generation online: Advancing learning through dynamic design, virtual and Web 2.0 technologies, and instructor attitude. *Journal of Educational Technology Systems*, *41*(1), 3–24.

Reid, P. (2014). Categories for barriers to adoption of instructional technologies. *Education and Information Technologies*, *19*(2), 383–407. doi:10.1007/s10639-012-9222-z

US Department of Education. (2014). *Title IV of the Higher Education Act programs: Additional safeguards are needed to help mitigate the risks that are unique to the distance education environment.* Retrieved from http://www2.ed.gov/about/offices/list/oig/auditreports/fy2014/a07l0001.pdf

Venugopal, G., & Jain, R. (2015). *Influence of learning management system on student engagement.* Paper presented at the 2015 IEEE 3rd International Conference on MOOCs, Innovation and Technology in Education (MITE), pp. 427-432. doi:10.1109/MITE.2015.7375358

Author Biography

Dr. Linda L. Gaines is a recent Drexel graduate, having earned her Ed.D. in December 2016. She became intrigued by online education when she completed her Bachelor's degree in a hybrid format from Marist College, and then went on to receive her Master's degree from Drexel in a fully online format. It was a natural progression to work towards and complete her doctoral degree from Drexel completely online and have her dissertation focus on online education.

Linda teaches online for Marist College in the School of Professional Programs and on campus at Dutchess Community College in the Behavioral Sciences department. She also is a senior level Academic Coach and assists underprepared students to achieve their goals at DCC. She recently was invited to be a part of the Achieving the Dream initiative at DCC, which helps community college students complete their college education and have more opportunity for economic success. She is married and has two sons, Daniel (24) and Jacob (15). She loves to hike, geocache, and cook. Even though she lives in New York, she and her husband travel to Philadelphia often as it is one of her favorite places to hike.