The Use of Mobility and Social Media to Improve Student Involvement

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Abstract: The present study examined the effects of integration of mobile technologies and social media through the lens of remote teaching on quality and quantity of student interactions. Classroom interactions were observed over two academic semesters with a separate group of students each semester. The sampling frame included college students enrolled in a social sciences introductory course. Students comprised two separate groups, based on the course they attended. Group 1 included the students in the fall semester of the course. Group 2 included the students in the spring semester of the course.

A paired samples *t* test was completed for the total sample (Groups 1 and 2) frequency of comments. This showed no significant difference between the frequency of in class (M=3.71, SD=4.418) and online (M=5.31, SD=2.309) student comments (p = .055). A paired samples *t* test was also completed for the total sample (Groups 1 and 2) quality of comments. This showed a statistically significant difference between the quality of in class (M=1.78, SD=1.037) and online (M=2.36, SD=0.519) student comments (p < .05).

Keywords: Social Media, mobile learning, interaction

Introduction

Mobility and means of communication are increasing as an array of devices and media outlets expand the interconnectedness of individuals. Incorporation of familiar mobile technologies instantly expands the classroom beyond the geographical location of the learner to include the diverse expanse of expertise available through mobile devices. This is especially true when compared with traditional lecture-based teaching models.

Beyond inclusion of mobile devices in the educational setting, social media provides a forum for dissemination of information. Students are able to utilize the ubiquitous technology to access networking sites that are increasingly becoming a component of daily interactions. Integration of social media through mobile devices into the educational setting allows for increased instantaneous communication, feedback and information dissemination for the educator and learner alike.

The present study examined the effects of integration of mobile technologies and social media through the lens of remote teaching on quality and quantity of student interactions. The researchers observed student interactions on social media facilitated by educator and interactions within the traditional classroom structure.

Mobile learning

As technology is constantly evolving and the breadth of mobile technology is vast, it is difficult to form a distinct, all-encompassing definition of mobile learning. However, a working definition of mobile learning utilized for this study will be, "…learning by means of wireless technological devices that can be pocketed and utilized wherever the learner's device is able to receive unbroken transmission signals" (El-Hussein, Osman, & Cronje, 2010, p. 12). The devices utilized in mobile learning encompass personal electronic devices such as laptops, tablets, smart phones, and compatible media players (Baldridge, Reed, & Knettle, 2013). In order for mobile learning to be constructive for

students, the student must actively participate, utilizing a mobile device. El-Hussein, Osman, and Cronje (2010) identify the "mobility of technology, mobility of learner, and mobility of learning (p. 17)" as key components of mobility in the educational setting. However, other sources include that mobile learning may be conducted within the confines of the classroom, merely using mobile devices for information dissemination and student participation (Baldridge et al, 2013). With the increasing rate of mobile device ownership, with 98% of students owning at least one mobile device dating back to a 2007 study (Diamanduros, Jenkins, & Downs), it is important to assess the utility of mobile technology in higher education. The incorporation of this seemingly ubiquitous technology into educational settings appears to hold great promise for the advancement of the traditional classroom, incorporating mobility and learner-centered instruction.

Remote teaching

An extension of mobile learning that has been relatively uncharted is the concept of remote teaching. This study will utilize an adapted definition of remote teaching from Baldridge, Reed, and Knettle. (2013) being: The use of mobile devices to deliver course content remotely, without the necessity of face-to-face interaction. Remote teaching employs many of the same characteristics as distance education in that remote teaching is mediated, collaborative learning between the professor and students separated from one another by location (Moore, Dickson-Deane, & Galyen, 2011). Remote teaching offers a unique educational experience as mobile devices are utilized to relay information, mediate discussion, and facilitate active learning. Remote teaching could take place in both face-to-face teaching models as well as integrated into online courses.

Utilization of current mobile learning techniques in combination with distance learning principles can form a basis for foreseeable benefits of remote teaching in educational settings. Interactive capabilities of social networking sites can be employed to encourage an open learner-centered environment merely facilitated by the distant educator. For example, the use of Twitter through mobile technology is beginning to be explored to facilitate discussion and interaction outside of the traditional classroom (Dunlap & Lowenthal, 2009; Rinaldo, Tapp, & Laverie, 2011). A student utilizing Twitter for course interaction tweeted a question pertaining to course material, to which she received responses from professionals within the field of question who were thoroughly educated on the distinct topic at hand (Dunlap & Lowenthal, 2009). Incorporating the use of such media and social networking capabilities allows students to actively participate in seeking information from a source outside of the classroom, making the professor the facilitator of education, but not the primary source of all information (Baldridge et al, 2013). Students are able to access primary source information that otherwise may not have been available in the traditional lecture method.

Social media

With the evolution and expansion of social media, the growing number of social media outlets makes the term difficult to inclusively define. For the purpose of this study, a definition by Junco, Heiberger, and Loken (2011) will be used: "Social media are a collection of Internet websites, services, and practices that support collaboration, community building, participation, and sharing" (as cited in Joosten, 2012, p.9).

Methods

The present study was an exploratory study to compare the frequency and quality of student comments for both in-classroom discussions and remote teaching through social media. For the in-classroom discussions, the professor utilized traditional pedagogy through both the lecture and active models of classroom learning. Lessons typically consisted of traditional lecture, small group interaction/discussion, and project-based learning.

For the remote teaching, the professor utilized the social media site Facebook, and allowed students to determine whether to interact on mobile phones, tablets, or in rare instances, on laptop computers. The remote teaching lessons typically consisted of facilitating both synchronous and asynchronous discussions via Facebook. Discussions took place both in class (i.e. during a film, while students were completing community based projects) or outside of class based on course content. Additional lessons included mobilizing the students to locations outside of class and pushing/receiving content with the class on the course Facebook page. Lessons were based on current best remote teaching pedagogy as defined in the literature (Baldridge et al, 2013).

The Facebook remote teaching was facilitated through a class group page, and students joined the page prior to the remote class meetings. A researcher other than the course professor conducted observations of the student interactions. Frequency of student comments was calculated manually. Quality of student interactions was based on a rubric adapted from John Immerwahr (2008) resulting in a rating of one to three. Scores of one indicated lower levels of quality while scores of three indicated high levels of quality in student discussion/interaction.

Sample

The population for this study included students attending a mostly traditional, residential, faith-based liberal arts university in Texas. The sampling frame included college students enrolled in a social sciences introductory course during the 2013 academic year. This sampling frame yielded 41 (# of students enrolled in the course). Students that did not complete the course or did not want to participate in the study were not included in the sample.

Students comprised two separate groups, based on the course they attended. Group 1 included the students in the fall semester of the course. Group 2 included the students in the spring semester of the course.

Human subjects protection

Students were given the option to participate in the study, and participation was not required for course completion. All students who chose to participate in the study signed a participation and confidentiality agreement before participating therein. Students were provided both written and verbal confirmation that participation in the study would not have an effect on the individual's grade. No incentives were given to students that chose to participate in the study.

Instrumentation and procedures

Data were gathered into Google documents and exported to Excel. Data were analysed through the Statistical Package for the Social Sciences (SPSS). In SPSS, frequency and *t* test analyses were completed. Data was analyzed at the .05 level of significance.

Data collection

Classroom interactions were observed over two academic semesters with a separate group of students each semester. Students from both semesters were enrolled in the same course. The content in both semesters of the course was identical. In addition, the same professor and research observer were used for both semesters to ensure consistency in the course content and comment evaluation. The research observer attended every class meeting in order to prohibit students from knowing which class discussions were and were not being rated.

Classroom observation

Student comment frequency and quality were rated during the classroom discussions.

Online observation

Online discussions were rated for student comment frequency and quality after interactions were complete.

Results

Frequency of student comments

Frequencies were calculated for the number of student interactions both in the classroom and remotely online. As Table 1 indicates, the average number of interactions for both Group 1 and Group 2 were higher for the online discussions as compared to the in class discussions.

Table 1. Frequencies of the Number of Student Comments

	N	Mean	Median	Mode	SD
Classroom					
Group 1	22	3.46	1.37	.00*	4.658
Group 2	18	2.91	1.00	.00	3.573
Online					
Group 1	22	5.53	4.33	4.33	2.607
Group 2	19	5.78	4.66	4.00	3.370

*More than one mode was found, and the lowest mode was reported.

A paired samples *t* test for Group 1 revealed no statistically reliable difference exists between the average frequency of comments between in class (M=4.53, SD=5.066) and online (M=5.33, SD=2.011) comments (p= .499). However, for Group 2 a paired samples *t* test revealed a statistically significant difference between the frequency of in class (M=2.90, SD=3.643) and online (M=5.29, SD=2.641) comments (p<.05).

A paired samples *t* test was completed for the total sample (Groups 1 and 2) frequency of comments. This showed no significant difference between the frequency of in class (M=3.71, SD=4.418) and online (M=5.31, SD=2.309) student comments (p = .055).

Quality of student comments

Frequencies were calculated for the quality of student interactions both in the classroom and remotely online. As Table 2 shows, the average student comment quality for both Group 1 and Group 2 was higher for the online discussions as compared to the in class discussions.

Table 2. Frequencies of the Quality of Student Comments

	N	Mean	Median	Mode	SD
Classroom					
Group 1	22	1.69	1.71	.00	1.266
Group 2	18	1.61	1.75	.00	1.038
Online					
Group 1	22	2.19	2.12	1.44*	.450
Group 2	19	2.49	2.65	1.81*	.529

More than one mode was found, and the lowest mode was reported.

A paired samples *t* test for Group 1 revealed no statistically reliable difference exists between the mean average quality of comments between in class (M=1.87, SD=1.085) and online (M=2.24, SD=.449) comments (p = .187). However, for Group 2 a paired samples *t* test revealed a statistically significant difference between the quality of in class (M=1.68, SD=1.012) and online (M=2.48, SD=.569) (p < .05).

A paired samples *t* test was completed for the total sample (Groups 1 and 2) quality of comments. This showed a statistically significant difference between the quality of in class (M=1.78, SD=1.037) and online (M=2.36, SD=0.519) student comments (p < .05).

Discussion

While the current study was relatively small and isolated, the implications it presents to teaching pedagogy (both face-to-face as well as teaching incorporating the utilization of many types of media and technology) are noteworthy.

Frequency of student interactions

As detailed previously, the cumulative number of interactions between online discussion and face-to-face discussion with students was not significant. This, however, should not be interpreted as an indictment on using social media to facilitate learning. It should be considered that using social media paired with mobility actually increases the opportunity for instructors to conduct class outside of the traditional four walls of the classroom. While tradition (even active learning tradition) may dictate class only takes place between certain hours each week in a physical location, the initial findings of studies such as this indicate that learning can take place without students being in the physical classroom (referring to face-to-face classroom models). Utilizing social media to facilitate synchronous communication between instructor and students actually provides a more direct and effective way to engage in active learning as defined

in the review of literature by Malik & Janjua, (2011). By enabling discussion to take place wherever students are, this study suggests that there is no differentiation between being face-to-face with a professor and being engaged in social media discussion regarding the frequency of in-class interactions. Instructors can expect a similar amount of discussion to take place whether students are in class or anywhere else physically (even around the world). This opens the door for many possibilities of active learning, including, but not limited to instructors teaching students engaged in community based learning projects, students located at internships away from campus, teaching while instructors are traveling, or engaging students in lessons that require them to be in different locations. By allowing the instructor to give and receive information from students regardless of location, possibilities are great in the amount and quality of active learning that can take place.

Another implication of these results pertains to the use of asynchronous learning. While these results were largely collected during class hours, the use of most online platforms (including Facebook or other social media outlets) can remove the requirement for synchronous learning. Face-to-face classes rely exclusively on immediate discussion and feedback. Based on the lack of difference between the number of interactions during class both on social media and in a physical classroom discussion as measured by this study, it is possible to expect that the number of interactions would possibly increase throughout the time students are outside of class. An example of this may be a student who thinks of a comment after class is over. In an exclusive face-to-face environment, they would not be able to make this comment to the group. By using online platforms as described in this study, however, students can literally comment on class content 24 hours a day, 7 days a week. This is even possible after the semester is over.

Quality of interaction

Possibly some of the most important implications from this study are suggested by the significant difference in the quality of interactions between the face-to-face discussions and the discussions facilitated via social media. As discussed in the review of the literature, active learning is the active synthesis and evaluation of information (Malik & Janjua, 2011), within the context of a classroom or group environment. Active learning as a group or a class is contingent upon discussion and quality synthesis of information as a collective. This simply cannot take place without students being willing to speak (quantity of comments). In addition to this, it could be argued that an even more important aspect of the active model is that it cannot happen without a certain depth and quality of conversation. If the active model is truly seeking to help learners construct their own knowledge (as opposed to accepting that of the instructor), quality of integration is essential (Cojocariu, 2010). While it may not be responsible or accurate to state definitively that moving class discussion to social media would accomplish higher levels of active learning, the results of this study suggest that moving aspects of class discussion and activity to these platforms could greatly enhance students' abilities to be involved in deep, meaningful conversations with one another, as well as the instructor, about class content. By limiting class conversations to face-to-face alone, instructors may be missing out on a vital aspect of communication that is prevalent today and could be used to bring about a greater level of learning and synthesis than traditional pedagogy would dictate.

Conclusions

The results of this study extend beyond those discussed above. Based on the initial findings, there are important implications to consider in the area of teaching, research, and policy.

Teaching

Learning has traditionally been contingent upon the instructor's own knowledge or experience; students could only learn what the instructor already knew. By incorporating different learning methodologies as described in this study, however, learning can be shaped and influenced not only by the instructor, but by the other students as well. Instead of simply lecturing about class content, the instructor now has the option of sending the class out of the classroom to experience the content first hand, all while staying in synchronous contact with one another and the instructor. In the hard sciences this could be realized by having students go observe a natural phenomenon in person, and communicate with one another about the experience. In the social sciences this could take the shape of students going and working directly with a population instead of simply learning how to work with said group. With the ability to push and gather information to and from students, the possibilities for learning are greatly expanded. The results of this study suggest that quality and quantity of interactions may not be decreased (or may actually be increased in some circumstances) and allow for instructors to take a much more passive role in relaying information to their students, along with enabling them to have students discuss and interact with course content on several different levels (without a loss of quality). This could be attributed to students feeling a part of a community with fellow learners due to being involved in both a face-to-face setting (class) as well as an online setting (social media). These results are consistent with the literature suggesting that students, when involved in community based learning, could be more encouraged to be actively engaged in their own learning (Joosten, 2012).

Online education

While this study pertained solely to face-to-face instruction, the implications of the results span to online education as well. By integrating learning as described in this study, community based learning and class participation can mimic that of a face-to-face class, even if learners are spread throughout the world. By having the ability to push information directly and instantly to mobile devices, online education no longer has to be limited to the traditional model. This is true for both synchronous as well as asynchronous teaching models. Using remote teaching methods enables courses to contain rigorous, engaging classes both "live" as well as at the pace of the learner.

Limitations

The limitations presented by this study are both substantial and recognized. One of the largest limitations of this study is an extremely small sample size (N = 41). Inferences made about results with a sample size this small should be taken with extreme caution. While further research should be done that incorporates larger numbers of participants, the availability of students and professors willing to use this pedagogy is still very small.

Another limitation that should be noted is the use of only one rater when examining student interactions. While the use of the same rater may have ensured some level of

continuity, multiple raters would have allowed for establishment of inner-rater reliability and would have greatly strengthened the results of the data.

Finally, this study only looked at a small amount of content from a specific course. Overall course learning throughout a semester was not examined. This study did not account for different disciplines or differing ages of students. All of these factors certainly have the potential to significantly alter results.

References

Baldridge, S.N., McAdams, A., Reed, A., & Knettle, A. (2013). Mobile classrooms: Using mobile devices to enhance BSW education. *Journal of Baccalaureate Social Work.* 18, 17-32.

Cojocariu, V. (2010). (Inter)active learning – Value and applicability. *Petroleum – Gas University of Ploiesti Bulletin, Educational Sciences Series, 62(1B),* 154-161.

Diamanduros, T., Jenkins, S., & Downs, E. (2007). Analysis of technology ownership and selective use among undergraduates. *College Student Journal, 41(4),* 970-976.

Dunlap, J.C., & Lowenthal, P.R. (2009). Tweeting the night away: Using twitter to enhance social presence. *Journal of Information Systems Education, 20(2),* 129-135.

El-Hussein, M., Osman, M., & Cronje, J.C. (2010). Defining mobile learning in the higher education landscape. *Journal of Educational Technology & Society, 13(3),* 12-21.

Immerwahr, J. (2008). *Participation rubric from Traditions in Conversation.* Retrieved from https://www.temple.edu/tlc/resources/handouts/grading/ParticipationRubric.pdf.

Joosten, T. (2012). *Social media for educators: Strategies and best practices.* San Francisco, CA: Jossey-Bass.

Junco, R., Heiberger, G., & Loken, E. (2011). The effect of twitter on college student engagement and grades. *Journal of Computer Assisted Learning, 27(2),* 119-132.

Malik, S. & Janjua, F. (2011). Active lecturing: An effective pedagogic approach. *International Journal of Academic Research, 3(2),* 963-967.

Moore, J., Dickson-Deane, C., & Galyen, K. (2011). E-learning, online learning, and distance learning environments: Are they the same? *The Internet and Higher Education, 14(2),* 129-135.

Rinaldo, S.B., Tapp, S., & Laverie, D.A. (2011). Learning by tweeting: Using twitter as a pedagogical tool. *Journal of Marketing Education, 33(2),* 193-203.