Knowledge Management & E-Learning
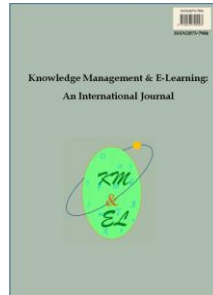
An analysis of user-generated comments on the development of social mobile learning

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Abstract: In this study, the authors used a mixed-method approach to analyze user-generated comments on social mobile learning from three leading news sites that report the latest development in higher education. Koole's mobile learning model was used to code comments made by the public on the three news sites. Results showed that social mobile learning has gained an increasing public engagement in the past four years. Responders' discussion in the comments primarily focused on four themes of social mobile learning: technology adoption, effective design, faculty training, and student training. In the end, the authors discussed the implications for developers and educators and concluded with recommendations for future research in social mobile learning using user-generated comments.

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1. Introduction

According to the Horizon Report, an internationally-acclaimed research project that identifies the global trend of emerging educational technologies, mobile learning has been recognized as one of the most influential technologies for six consecutive years (Johnson, Adams, & Cummins, 2012). It is a type of learning mediated through mobile or wireless technologies. With the rapid development and popularity of social technologies, a growing interest has been shown in the interweaving of social learning and mobile learning in higher education as mobile technologies free users, technologies, and learning from the restriction of physical locations, and enable learners to participate in social interactions with enhanced mobility (Boyd & Ellison, 2007; El-Hussein & Cronje, 2010; Pachler, Ranieri, Manca, & Cook, 2012). The marriage of social learning and mobile learning, or in another name called social mobile learning, is a type of mobile learning in which learners' existing knowledge system changes as a result of their interaction, negotiation, and/or collaboration in a wide social context (Park, 2011; Reed et al., 2010). In a typical social mobile learning environment, students may take mobile devices outside class and use them to get instructions, seek information, and communicate and collaborate with each other to investigate and solve authentic problems (Lu, Chang, Kinshuk, Huang, & Chen, 2011; Yang, Fu, & Huang, 2012).

Several research models have been proposed in mobile learning (Chong & Chen, 2007; Issa, Bahadili, & Abuhamdeh, 2011; Koole, 2009; Mostakhdemin-Hosseini & Tuimala, 2005). The Helsinki model takes the design of mobile learning system as a holistic design of mobile usability, wireless technology, and e-learning system (Mostakhdemin-Hosseini & Tuimala, 2005). In Issa, Bahadili, and Abuhamdeh's (2011) scalable hierarchical mobile learning framework, three criteria were proposed in the design of a mobile learning environment, namely, mobile device, quality, and learner's requirements. While these two models focused on the design of a mobile learning system or environment, Chong and Chen's (2007) conceptual framework and Koole's (2009) model were proposed from the product and process aspects of mobile learning respectively. Chong and Chen (2007) explored mobile learning from the product perspective and investigated the factors affecting effective knowledge delivery in mobile learning. Koole's Framework for the Rational Analysis of Mobile Education (FRAME) model takes the social aspect as one of the critical component of a successful mobile learning process. It depicts mobile learning as a convergence of three aspects, namely, the Learner aspect, the Device aspect, and the Social aspect. The Learner aspect focuses on individual learner's experience with mobile devices. The Device aspect covers the hardware and software design and how it affects learning and interaction. The Social aspect refers to the process of social interactions and collaboration as well as other socio-cultural beliefs and values in mobile learning. While the Device-Social aspect takes into account the impact of mobile technologies on the interaction and collaboration of multiple learners, the Device-Learner aspect focuses on how mobile technologies affect individual learner's behavior and performance. The Learner-Social aspect refers to the impact of other learners, experts, and the environment on an individual's learning. The Device-Learner-Social aspect is grounded on the belief that effective mobile learning should integrate all of the three aspects. *"Effective mobile learning provides an enhanced cognitive environment in which distance learners can interact with their instructors, their course materials, their physical and virtual environments, and each other"* (Koole, 2009, p.38).

A review of literature showed that research in mobile learning is still in its early stage (Hung & Zhang, 2012; Hwang & Tsai, 2011; Wu et al., 2012). While there is a lack of social mobile learning research published in peer-reviewed journals, the news

magazines or newspaper, especially those focusing on the field of education, provide an excellent coverage on the latest development of social mobile learning and share with the readers the early adopters' fresh experiences, lessons, and best practice of social mobile learning or teaching (Chung & Yoo, 2008; Karlsson, 2011). Most of the online versions of the news magazines or newspaper now offer readers' the opportunity to interact with other readers and news editors through email and commenting features (MacDougall, 2005). Readers may use the comment link to post their reflections to the web site. When other readers find the topic interesting or have thoughts on a comment, they may start a new thread of comments or use the reply button to start a conversation. These user-generated comments promote the public engagement in the latest development of events, and have demonstrated some impact on altering readers' perceptions (Boczkowski & Mitchelstein, 2012; Laslo, Baram-Tsabari, & Lewenstein, 2011; Lee, 2012; Wagner & Jiang, 2012). As a matter of fact, the readers of online news sites are not the general public all the time. According to the results in Meyer's (2010) study, many of the responders who read and posted the comments on the higher education news sites were the professionals working in academics or education-related industries. Their comments reflected their observation and experiences in higher education and hence were valuable to practitioners, researchers, and technology developers in higher education. Although many studies were conducted to analyze user-generated comments in areas such as business and information science, there is a dearth of similar studies in educational technologies (Kaiser & Bodendorf, 2012; Meyer, 2010; Thelwall, 2007).

Therefore, this study aimed to examine user-generated comments made on some leading news sites in higher education and identify the current development of the social mobile learning. In the following sections, a mixed-method design of this study was described following the interpretation of results. Implications as well as the limitation of this study for developers, practitioners, and researchers in social mobile learning and user-generated comments were presented at the end of the article.

2. Research questions

The purpose of this study was to analyze the user-generated comments on the development of social mobile learning. The scope of the study was narrowed down to the comments posted on the leading news sites in higher education from 2009 to 2012 as reviews of recent studies showed that mobile learning in higher education has increased dramatically after 2009 (Hwang & Tsai, 2011; Wu et al., 2012). The research questions are as follows:

1. What is the overall pattern of user-generated comments made on social mobile learning from 2009 to 2012?

2. What major opinions did the users share in relation to the social mobile learning in the leading news sites?

3. Methods

3.1. Data collection

Three news sites with international reputation on publication in higher education were selected for this study because they were considered as the leading news publication of

higher education (Jobbins, 2002). The three news sites were Chronicle of Higher Education, Campus Technology, and Times Higher Education. They provide commentary features that are usually displayed at the bottom of an article page. On the web sites of Chronicle of Higher Education and Times Higher Education, users have to sign up for an account before they are able to post a comment. On the site of Campus Technology, users can post comments directly without login.

A two-tier search was conducted to find the related user-generated comments posted on these three news sites in recent four years (2009-2012). At first, a number of keywords such as mobile, smart phone, cell phone, and tablets (including iPad, iPod) were used in the search engines of the three sites to find user-generated comments about mobile learning in higher education. At this stage, comments that did not have the keywords listed above but were in the articles of mobile learning were also included in the results. 765 comments were generated from the first-tier search. Then, a manual trawling approach was used to filter the comments that were not related to social learning in higher education (Hookway, 2008). For example, comments that discussed applications for campus service were dropped in the second tier. At the end of second tier search, one hundred and sixty-eight comments that discussed issues of social mobile learning in higher education were kept for further analysis.

3.2. Design

Both qualitative and quantitative methods were used in the analysis of user-generated comments. At first, Koole's FRAME model was adopted in the qualitative content analysis as it focuses on social aspect of learning and has been demonstrated in some studies as a useful model in applying or analyzing social mobile learning (Kenny, van Neste-Kenny, Park, Burton, & Meiers, 2009; Palmer & Dodson, 2011; Park, 2011). Comments were downloaded and imported into NVivo10, a qualitative analysis program. They were coded into seven aspects of mobile learning according to Koole's model. Initial coding was performed independently by two researchers. Then they met to compare, discuss, and resolve the differences between each other's coding (Creswell, 2012). Each comment was coded in meaningful chunks and tagged with the following attributes: the year when it was published, the resource site it came from, the ID of the author as shown on the news sites, and the authors' professional roles as identified or unidentified in their posted comments. After the completion of the initial qualitative analysis, quantitative analysis was conducted to identify the development of user-generated opinions on social mobile learning. In the end, an in-depth qualitative inquiry was deployed for further investigation. At this stage, an iterative comparison analysis was employed in the individual as well as collaborative coding process to compare the emerging themes across the seven coded aspects of mobile learning (Strauss & Corbin, 1998).

4.   Analysis and results

Among 168 comments, 157 comments were posted by 130 responders with IDs if each unique ID was identified as one person. The rest of eleven comments were made by anonymous responders. Forty (30.7%) responders revealed their profession as instructors according to the comments posted by them.

A Friedman Test was conducted to examine the responders' contribution in comments related to social mobile learning from 2009 to 2012. An overall significant

change was found in the average number of user-generated comments ($\chi^2(3)$=90.116, p<0.01) (Fig. 1). Results of the post-hoc analysis showed a significant increase in the average number of comments posted in 2012 ($Z_{2012\text{-}2011}$=-3.961, p<0.01) and 2011 ($Z_{2011\text{-}2010}$=-2.673, p<0.01) when compared to those made in the previous years.
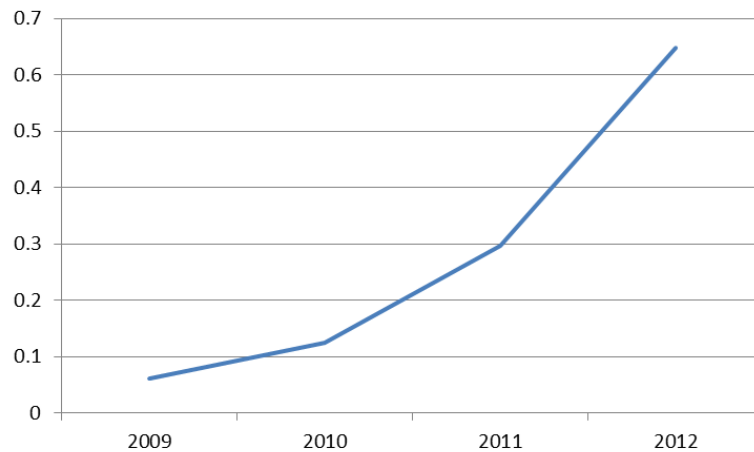

Fig. 1. Means of comment numbers that every respondent made to the social mobile learning articles in 2009-2012

151 comments were coded into seven social mobile learning aspects using Koole's FRAME model. Seventeen comments were not coded as they did not directly address issues of social mobile learning. For example, if a responder only posted an external link in a comment, that comment was not coded. Several Friedman Tests were performed in quantitative analysis to examine the change of the number of comments posted in different social mobile learning aspects from 2009 to 2012. Qualitative inquiry was then followed to further explain the results with statistical significance from the quantitative analysis.

4.1. Device aspect

17 responders posted comments on the Device aspect. They compared the hardware configurations of different mobile devices and discussed applications running on those devices. Although the average number of comments had a steady increase from 2009 to 2011, no statistical significance ($\chi^2(3)$=3, p=0.392) was found in this growth.

Example 1. You connect to an external display, including a projector, using a dock connector to VGA adapter. It's $29 (http://store.apple.com/us/product/MC552ZM/A). The iPad can also print. There is no USB type A port on the iPad, but the but its 30 pin dock connector connects via USB to any device, including a printer or USB hub, using the cable it comes with. (Nagel, 2010)

4.2. Learner aspect

Discussion focusing solely on individual learner's characteristics was scarce (N=4) and it did not appear until 2011. Responders discussed learners' technology competence and thought that the digital divides still existed among college students.

> *Example 2. ......but making them essential will contribute to social divides. Important that tech leaders and pioneers in education recognise that not everyone is "web enabled" even amongst the "traditional" university age group of 18-22 year olds. (Eyres, 2012)*

4.3. Social aspect

Only three comments were found that discussed the pure Social aspect in social mobile learning. All focused on the social culture of a class or an institution.

> *Example 3. Problem is, our public schools don't push their charges-it might make them "uncomfortable." Grade inflation is only an outcropping of a more serious syndrome at work, and Facebook for those who have nothing to say is only a medium for expressing the problem in a more public way. (electronicmuse, 2011)*

4.4. Learner-social aspect

Fourteen responders discussed how individual learners affected and were affected by their peers, experts, and systems. No significant changes were found on the average number of comments in the past four years (χ^2(3)=5.429, p=0.143). Discussions were mostly about responders' reflection on their prior experiences of interacting with students and its effect on students' learning.

> *Example 4. The thing is, students want feedback and teachers read it "Oh we need to tell them more, instantly!". But feedback must feed back to the asking student and how to do this is an intellectual question, not a delivery question. (Lian, 2011)*

4.5. Device-learner aspect

Fifty-seven responders participated in the discussion related to how mobile technologies affected individual learner's behavior and learning. Results of a Friedman Test showed a significant change in the average number of the comments posted between 2009 and 2012 (χ^2(3)=43.571, p<0.01) (Fig. 2). Among them, more comments were posted in the years of 2010 ($Z_{2010-2009}$=-2.456, p=0.014) and 2012 ($Z_{2012-2011}$=-2.219, p=0.027) than in their previous years. Apple's iPad was first released in 2010 and institutions were soon reported to experiment iPad in classes. Dissenting opinions emerged in the comments on the institution's experiment with only one mobile device. Different mobile devices were compared on their durability, affordability, accessibility, and functionality while responders argued on whether a class should use a single device in mobile learning.

> *Example 5. I am baffled that so many higher education institutions would go all in on the iPad just before droves of competitor devices running the latest Android OS (2.2) and Chrome OS are about to hit the market. These devices will have equal to better processors than the iPad, front facing cameras for videochatting, a mobile browser that has been demonstrated to literally run circles around the iPad's (http://techcrunch.com/2010/05/20/android-froyo-speed-ipad/), USB ports and *gasp* will run Flash. (Ryan, 2010)*

Example 6. I think you may underestimate some of the real differences with the iPad beyond being "shiny and new". Price is 1/2 to 1/3 the cost of tablet PC's - an important factor for students (and school) budgets. User interface is just enough easier to remove one more barrier to student use. The engagement factor - probably what you write off as "shiny and gimmicky" is also no small thing when trying to get already busy students to increase study time. Weight and size are also important "ease of use" factors that increase the likelihood of additional study time. (Winick, 2010)

Some responders thought that students should be allowed to use their own mobile devices to participate in social mobile learning.

Example 7. …… they would have developed ways to distribute their content via apps for ANY mobile device the students may be using now (Blackberry, iPhone, Android based phone, etc.). Forcing the students into iPad use only is purely a high tech gimmick. Don't have the students purchase any other device when absolutely not necessary…… (Brian, 2010)

The voice alike was echoed in 2012 when cases reported in the news sites proposed a new concept that advocated students to "bringing your own devices" (BYOD) to participate in learning activities in class. Proponents of BYOD stressed that learning content should be accessible from desktops and multiple mobile devices that students owned. If a single mobile device was required but not provided in class, some students may not be able to afford it. At the same time, if a single device is only provided in class for a limited length of time (e.g. a semester) students would no longer have access to the learning content or activities after the semester ends and the devices were taken back.

Example 8. Your experience also echoes some of my concerns. Students will have to return the iPads at the end of the semester, and they will need my permission to download apps. I worry that this is too limiting, but it has been difficult to balance the college's traditional IT approach (limited and controlled) and the very nature of tablet (customized and accessible). (professorcomp, 2012)

Example 9. Very few of our students were able to afford an iPad, and being a relatively poor HBCU in the middle of North Carolina's ongoing budget crisis, there was no real possibility of the school putting them into student's hands, where perhaps they could make a contribution. (Gregory_Sadler, 2012)

Feedback from responders' experiences triggered the discussion of appropriate use of technologies for social mobile learning. After reflecting on their experiences, these responders suggested that instructions should be designed for the sake of students' learning rather than the mobile technologies.

Example 10. Unlike other technologies that have been introduced to the classroom environment, the iPad does not have a specific purpose until the faculty member gives it purpose.......Gaming apps, such as Hotel Tycoon, have the ability to be learning tools from the start, but the learning must be informed by classroom instruction and reflected upon by the student after the game is used. (jjulius, 2012)

Training was proposed as one way to inform faculty of the appropriate use of technologies. Student training was also suggested to enhance the quality of social mobile learning.

Example 11. Don't just hand out a tool without any training to the students (or instructors for that matter). (Anonymous, 2012)

On the other hand, discussions derived from responders' observation of students' social mobile learning experience inferred one principle in the design of educational applications: Learning about social mobile technologies should not take much of students' time that they were supposed to spend on the subject-matter content.

> *Example 12. I, too, just finished teaching a course in which each student was lent an iPad. The students, I learned a little too late, had assumed they would learn to use apps in lieu of learning algebra. The class as a whole learned no more than students in other classes. However, for a few students it was excellent. (candora, 2012)*
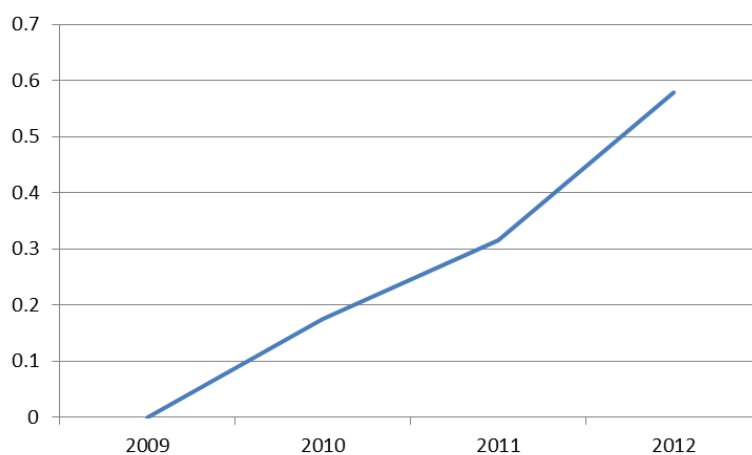

Fig. 2. Means of comment numbers that every respondent made to the device-learner aspect in 2009-2012

4.6. Device-social aspect

Twenty-four comments were posted on how mobile devices and applications affected collaboration and information exchange between multiple learners. An overall significance was found in the average number of comments according to the results of a Friedman Test ($\chi^2(3)=19.6$, $p<0.01$) (Fig. 3). Follow-up pairwise comparisons showed that the responders had significantly active discussions in 2012 when they argued on the impact of social mobile technologies on interpersonal communication in class ($Z_{2012-2011}=-2.216$, $p=0.027$).

> *Example 13. As I was discussing with a high school parent with a shy teen son a few days ago, learning how to communicate and network is arguably *the* most valuable aspect of the college experience. Some emphasize that human interaction is most *efficiently* mediated by social media... and that's their focus, rather than teaching young people how to knock on a door, go to lunch, look someone in the eye. But guess what, most people *like* to be around people and interact with them. (Williams, 2012)*

While responders agreed that interaction was very important in class, they argued on which and how technologies should be selected. For example, some responders thought the social media norm drove the educational use of social technologies while other responders opposed against this opinion and thought the learning objectives should be the driving force on the selection of technologies.

Example 14. And for right now, and the past several years, FB and Twitter are absolutely social media norms. Might this change in the future, probably so, but they are norms for this time period and the ones being used right now, hence appropriate for the course and activity. (chrisfreeman, 2012)

Example 15. why does it have to be a "norm"? What is important is using a tool that actually works. There are no such things as norms in the social media world anyway - what is hot today will be dead tomorrow. (csgirl, 2012)

Example 16. I think which one would be the best choice depends on the learning objective. If the objective is for the students to experience and understand the situational and normative effects of a global social media, then it seems like Twitter is the better choice. But if the goal is to use educational technology to enable deeper / longer, real time communication then Piazza would be the better choice, it seems to me. (Schuster, 2012)
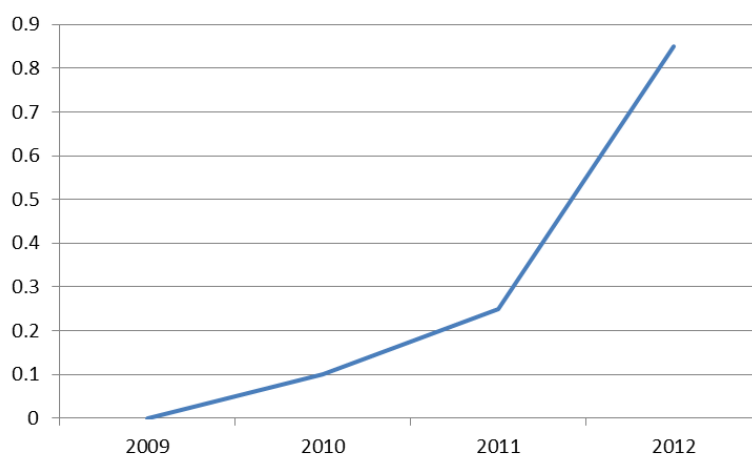

Fig. 3. Means of comment numbers that every respondent made to the device-social aspect in 2009-2012

4.7. Device-learner-social aspect

Twenty-six responders joined in the discussion of social mobile learning from the convergence of Social, Learner, and Device aspects. The analysis on the discussion yielded an overall significant increase between 2009 and 2012 ($\chi^2(3)=56.154$, $p<0.01$) (Fig. 4). Results of post-hoc analysis showed that the responders posted significantly more comments from the Device-Learner-Social aspect in 2012 ($Z_{2012-2011}=-4.491$, $P<0.01$).

In other words, responders took a comprehensive view of social mobile learning instead of focusing on any single aspect or interaction of any two aspects in 2012. They discussed choices that instructors had towards mobile technologies in class. Agreements were reached that rather than spending a lot of effort banning or ignoring students' use of mobile technologies in class, instructors may open the door to mobile technologies and leverage them to promote students' learning in class.

Example 17. As instructors we have three choices. Ban the technology, ignore the technology or use the technology. The first is silly, students will find a way to use it

if they want to. The second is sillier, you need only sit in the back of a large class where the instructor ignores it to appreciate how much they ignore the instructor. The third holds promise (I wrote a paper on this at http://tinyurl.com/samson2010) wherein I created software (http://www.lecturetools.com) to poll students, allow students to question me, take notes and tell me when they're confused. Students surveyed in these classes reported increased engagement. My take-away from this work is that the capacity for distraction remains how we conduct class and less the technology we use. (Samson, 2012)

Example 18. I do hope that people question their choice to prohibit (and, with your addition, to "ignore") these technologies in the classroom. Yet, ultimately, you are right to note that it comes down to more than just the tools. It's a much larger matter of how the class is conducted. (Farman, 2012)
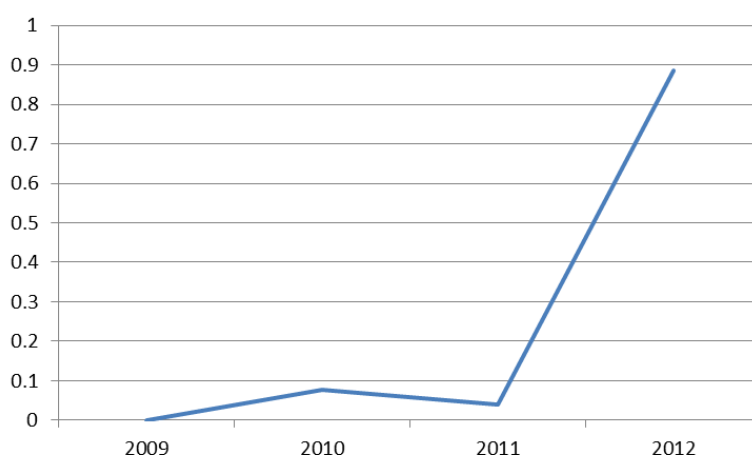

Fig. 4. Means of comment numbers that every respondent made to the Device-Learner-Social aspect in 2009-2012

Responders suggested that instructors spend more time designing effective social mobile learning activities to enhance student engagement and interactions with their peers and instructors.

Example 19. Discussions of mobile technology in the classroom often present mobile devices as a potential distraction, or as a set of tools tools to facilitate interaction behind or around the normal flow of the class (e.g., the "back-channel"). As you show with your second and third examples ("Exploring the Space of Campus" and "Narrative and Mobile Devices") mobile devices don't have to be a distraction - instead, they can be thoughtfully integrated into the "front-channel" as well.

We're trying this approach with our recent mobile initiative - http://lss.wisc.edu/mobile - where we're thinking of mobile technologies as tools that can assist with innovative task design, specifically in the areas of pair and group work.

The goal is to explore how mobile technologies directly facilitate common classroom tasks, and allow instructors to explore new areas and opportunities in their task design.

Thanks for the article! (L&SLSS, 2012)

Example 20. We've been using Twitter in our freshman course, S'Park, at the Park School of Communications at Ithaca College for the past 3 years. It's a great way for our students in a large class (about 140) to take collaborative notes, post related links, and to ask questions of the speakers we Skype in. We save the Twitter feed and post it on the course site for later review by students (to refresh their memories about what was said in class and to explore some of the links shared) and for us as professors to review what was going on in the heads of our students. (dianegayeski, 2012)

When implementing social mobile learning activities in class, responders observed divides of students' technology competence as well as comfort in online communication, which made the need to teach students those skills appealing.

Example 21. Some students cannot get over the technical aspect, others have trouble with this mode of communication (which I attribute to not being able to see their peers, so they cannot feel out their peer's reactions), while others thrive because of the "independent in my voice" freeing effect. (Paxton, 2012)

This need was reinforced by another responder's viewpoint from the demand of the current society.

Example 22. Considering the roles we expect college graduates to play in the future of society, it makes sense that colleges would want to consciously prepare them with that kind of knowledge and experience. (Schuster, 2012)

5. Discussions and implications

5.1. What is the overall pattern of user-generated comments made on social mobile learning from 2009 to 2012?

This study used Koole's FRAME model to analyze user-generated comments on social mobile learning from three leading education news sites. Results showed that the number of comments, which is an index commonly used in prior research to represent public engagement in online news, had a steady growth from 2009 to 2012 (Boczkowski & Mitchelstein, 2012; Laslo, Baram-Tsabari, & Lewenstein, 2011). This growth suggested that social mobile learning, in particular, three device-related aspects, namely the Device-Social, Device-Learner, and Device-Learner-Social aspects in social mobile learning has gained an increasing public engagement in the past four years. Although device or technologies were the words people often read in discussions of social mobile learning, what the responders has really been focusing on was the impact of those technologies on students' learning behavior, performance, and social interaction instead of the technologies alone.

5.2. What major opinions did the users share in relation to the social mobile learning in the leading news sites?

While reports published on the news sites may be biased due to editors' preferences and publication priority, the user-generated comments represented a diversity of opinions from users in different institutions and education-related industries. Responders not only provided feedback on their use of existing mobile technologies, but also discussed the

effect of those technologies in higher education on promoting class interactions and students' learning.

Four themes that ran across different aspects of social mobile learning were identified from responders' comments and deemed important to educators, researchers, and developers in social mobile learning. They were technology adoption, effective design, faculty training, and student training. First, responders thought that social mobile learning needs to be driven by learning objectives. Social media norms or popular use of social mobile technologies may make some technologies easily available to students and instructors. However, it should not be the only reason for classroom adoption. What drives the decision-making on the adoption of a technology should be whether its integration in learning activities would support instructors' teaching and enhance students' achievement of learning objectives. Another criterion proposed by responders in technology adoption was that social mobile learning should be affordable and accessible to students owning different mobile devices. This gave developers a design tip that their applications should be able to run on multiple operating systems and devices so as to allow students to use their own choices in social mobile learning. In addition, responders implied that social mobile learning technologies should be designed to engage learners in content. If learners spend too much time figuring out how to navigate around the interface of an application, they would not have sufficient time focusing on the content learning. Thirdly, responders' discussion revealed that most negative attitudes towards social mobile learning came from inappropriate understanding or use of social mobile learning, which could be adjusted if instructors received training before the implementation. As a result, responders suggested that faculty training should be offered and promoted in higher education institutions before faculty designed and tested social mobile learning in their classes. The training should include not only technologies, but also the methods on how to select and implement appropriate social mobile technologies in teaching. Last, but not the least suggestion derived from the responders' comments was student training of social mobile learning. Although the net-generation students were thought as technology-savvy students in colleges, not all of them were competent in technologies or felt comfortable in learning with technologies. They need to be trained before they used the technologies to learn the subject-related content and communicate with the class. Training would hopefully improve students' technology and social mobile learning skills and prepare them to be competent workers as expected from the current society.

6. Limitation

As the data were collected from the three most prominent higher education news websites based on the keyword search, some comments that were related to social mobile learning issues but did not write out those keywords explicitly may be filtered in the search process. In addition, social mobile learning comments posted on other news sites were not included in this study, either, due to the limitation of manpower. As a result, the findings in this study may be representative but they may not present a complete picture of public opinions in social mobile learning. Future research should be undertaken to identify strategies to systematically analyze the qualitative data in a large amount. For example, an effective data mining method with automated analysis would help to generate quick and unbiased results, which would enable researchers to collect a large amount of data and further identify how interests, opinions, topics, and themes in social mobile learning evolve over time (Abdous & He, 2011; Abdous, He, & Yen, 2012; Chan, Huang, Hui, Li, & Yu, 2013; He, Chee, Chong, & Rasnick, 2012).

7.   Conclusions

This study used a mixed-method approach to investigate current public opinions on social mobile learning as reported from three leading online news sites in higher education. Results showed an increasing public engagement regarding the impact of social mobile learning on learners' social interactions and learning in the past four years. Based on the analysis of these user-generated comments, four courses of actions were therefore suggested for educators and technology developers in social mobile learning. The first course of action suggested by responders was that technologies should be selected and adopted based on the learning goals, and should be affordable and accessible to students as well. Secondly, social mobile learning should be designed in a way that minimizes students' time in familiarizing the features of a tool and allows them to focus their attention on the content learning. Thirdly, training should be offered to faculty on efficient use of social mobile technologies. Likewise, training should be offered to students to improve their technology literacy as well as social mobile learning skills. Further investigations are needed to explore other user-generated comments that are related to social mobile learning issues but did not display in the search results in this study. It is also suggested that future research should be conducted in the methodology field that allows systematic analysis of large amount of qualitative data.

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