Expectations and perceptions of students on empowering mobile-assisted social e-learning

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Abstract

The current study's objective was to strengthen the mobile assisted social e-learning (eMASE) module used in higher education settings and developed using the social constructivism paradigm. In this study, expectations and attitudes of a group of undergraduates towards e-cooperative learning utilizing mobile social networking apps are examined. The eMASE module of the class was thoughtfully created by setting up a variety of group activities with the goal of fostering social interaction and collaborative learning among the students. Two sets of questionnaires that were given out at the beginning and end of the course provided the data. The findings showed that implementing Web 3.0 technologies in a classroom setting improved teamwork and boosted students' confidence and motivation for studying

Keywords: *mobile techs; social networking apps; cooperative learning; social constructivist*

Introduction

Mobile wirelessly networked technologies are contributing to new forms of learning in this generation of learners. Innovative curriculum integrated with multimedia and technology involvement has changed the ways teachers teach and the ways students learn. As users of mobile technologies become dramatically widespread worldwide, it is more likely that they will become ubiquitous in the lives of learners (Looi et al., 2010). The increasing and ubiquitous use of Web 2.0 activities, such as social networking, wikis, and blogging, provides a viable avenue for cooperative learning proactively (Ajjan & Hartshorne, 2008; Wang, Wang, Fang, & Lin, 2010). Pedagogically, engaging learners in cooperative learning involving sharing their ideas and work

cooperatively and helpfully to complete group projects is one of the major pathways to scaffold learning development (Effandi & Zanaton, 2007; Johnson & Johnson, 1994) as learning is a social activity (Chen & Bryer, 2012; Smith & MacGregor, 1992; Vygotsky, 1978). In other words, when working and collaborating with other peers, students become highly engaged and learn more. Thus, social media tools as known as Web 2.0 activities have been used in today's classrooms to promote collaboration between students in hoping to scaffold student's learning development (Ford, Bowden, & Beard, 2011; Grodecka, Wild, & Kieslinger, 2009; Koh & Lim, 2012).

In addition, with advanced Web 3.0 service features, more importantly, learners can network and have 24/7 access to resources through a hand-held device without time and space boundaries (Borovik, 2011). Based on social constructivism, cooperative learning truly responds to the meaningful learning in this information society where people focus more on team work as communication skills are essentially important. Cooperative learning also represents a shift from a teacher-centered approach to a more student-centered learning in small groups (Bauersfeld, 1995; Effandi & Zanaton, 2007; Kan, 2011).

Purpose of the Study and Research Questions

The aim of this study was to gather information about college students' perception and learning experience of the e-cooperative learning course through the mobile assisted techs in a social learning environment. The focus is (a) to discover the impact on e-cooperative learning from mobile techs, and (b) to ascertain the benefits of mobile techs in a social learning environment. A range of free mobile apps were downloaded and implemented in this study hoping to obtain more adequate for some learning scenarios, e.g. 1) Facebook app for collaboratively posting status updates regarding the project progress about experience exchange, tagging and sharing links to resources for reaching a group project goal; 2) LINE and WeChat apps for inquiring information and help requests and constructive feedback to peers for a project or class material and also for staying connected closely and collaboratively with peers between classes; 3) Short Message Service (most commonly known as SMS, as known as text messaging) for sending quick inquiries and short announcements of interest for a project; 4) YouTube for posting rehearsal presentation for a project and offer critical feedbacks to peers; 5) Email for sending and receiving a project documentation; and 6) Skype and Google+ Hangouts for holding a video teleconference with peers. Thus, this course integrated with the assisted mobile techs led the students into such a social learning environment, called empowering Mobile Assisted Social E-learning (eMASE) module in this study. Obviously, all these apps were interchangeable. Students selected the apps they felt best suited to their needs.

The research questions examined are:

1) What are the impacts on e-cooperative learning using eMASE module?

2) What are the students' attitudes toward learning using eMASE module?

Theoretical Background

1.2 Use of Mobile Techs

Portable and ubiquitous, mobile technologies such as mobile phones (e.g. iPhones, smartphones), tablets (e.g. iPods, iPads, Kindles, Nooks), and personal digital assistants (known as PDAs) are contributing to new forms of learning which are no longer confined to the classroom environment (Ally, 2009; Traxler, 2009). Mobile technology indeed offers a very helpful way to reach learning goals (Deb, 2012). Mayer (2001) declares that learning from books and from computer-based environments results in better performance compared with learning from the text-only books. Similarly, mobile technologies can be interfaced with text, voice, graphics, videos, shared workspaces, or combinations of these forms. Mobile learning is profoundly more interactive, involves more human to human cooperative and communicative interaction (Deb, 2012). MoLeNET (2007) defines mobile learning as "the exploitation of ubiquitous handheld technologies, together with wireless and mobile phone networks, to facilitate, support, enhance and extend the reach of teaching and learning." Through the mobile technologies, users not only consume information, but actively contribute and share information (Ally, 2009; Kukulska-Hulme, 2010; Traxler, 2009). The use of mobile technologies is not always necessary to educate students, but, in the right context, it can help today's educators to embrace a truly learner-centered approach to learning. Mobile technology can be used for a variety of learning activities including:

1) Mobile devices are most widely used for SMS. Learners can use SMS for project work, content delivery, or a quick question and an answer. SMSs provide more communication and collaboration with people.

2) Books or course materials can be downloaded onto mobile devices (smart phones, tablets, PDAs, laptops). Particularly at higher education level, podcasting can be used to review live lectures (Schreiber, Fukuta, & Gordon, 2010) and to provide opportunities for students to rehearse oral presentations. Podcasts provide supplemental information to enhance traditional lectures (McGarr, 2009).

3) As a large number of smart mobile devices came onto the market, it is safe to assume that mobile devices are increasing emerging as part of daily life, particularly with university students. Educators or government investors will need to advise on the range of devices most suitable for the curriculum. Mobile devices can be used to support the learning process as relatively lighter, faster, and less expensive than PCs (Godwin-Jones, 2008).

4) Mobile technology has excellent potential for providing students with rich, real time, collaborative and conversational experiences both in and outside the classroom (Lan, Sung & Chang, 2007). This value should be used and cared.

1.3 Social Constructivist and Cooperative Learning

Most social constructivism models stress the need for collaboration among learners. Cooperative learning requires students to work together in groups to complete tasks collectively toward academic goals. Results from Johnson and Johnson (1975) study reported positive outcomes from cooperative learning including increasing higher level reasoning, increasing generation of new ideas and solutions, and enhancing transferring of learning

between situations. Studies (Tsay & Brady, 2010; Wang et al., 2010) also support that cooperative learning is an active pedagogy that fosters higher academic achievement. Five essential elements identified in cooperative learning include positive interdependence, individual accountability, group processing, social skills, and face-to-face interaction (Johnson & Johnson, 1989).

2.4.1 Communication Services

Facebook: Facebook created by Mark Zuckerberg in 2004 is the most popular SNS in North America and the largest proportion of overall Internet traffic. Facebook provides opportunities for sharing social and emotional support, information resources and bonds with other people (Cheung, Chiu, & Lee, 2011). In March 2012, the number of mobile active users was 490 million solely through mobile apps (Facebook 2013). However, some countries had issued access bans to Facebook, such as China, Vietnam, Iran, and Syria.

LINE: LINE created by NHN Japan in 2011 is the most popular social networking app in Japan and Taiwan. It is a proprietary instant messaging application for hand-held devices and PCs. LINE users can send their images, video, audio media messages to their friends who can view one another's profiles and make free VoIP calls. Throughout the world, LINE has 100 million users and 400 thousands active users daily (Nay, 2013).

WeChat: WeChat (also known as Weixin) launched by Tencent China in 2011 was one of the most popular mobile social networking app in China. It is a mobile phone text and voice messaging communication service. WeChat provides multimedia communication flexibility with text messaging, voice recording and messaging, broadcast messaging, file sharing, video calls and location sharing. With the location-based social plug-ins feature, it also provides unique meet-and-greet features like "Look Around", "Shake It", and "Drift Bottle" to chat with and befriend with local and international WeChat users (strangers). As of January 2013, WeChat has 300 million users (WeChat, 2013).

2.4.2 Video Teleconferencing Services

Skype: Skype established by Estonian developers in 2003, one of the top 10 most popular social networking apps, is now owned by Microsoft Inc. It is a proprietary VoIP service which allows its users to communicate with peers through voice, video, and instant messaging. Unlike other VoIP services, Skype is a hybrid peer-to-peer system which was originally called Sky Peer-to-Peer. Skype is popular for its file transfer and videoconferencing services. Voice calls and videoconference calls including screen sharing between two people within the Skype service are free of charge. With premium charge, the users can make calls to landline phones and mobile phones, and also make group video calls (videoconference calls) with up to 10 people together (Skype, 2012).

Google+ Hangouts: Hangouts providing a video chat service with up to 9 people on Google+ was launched in 2011. In turn, only Google+ users can join the Hangouts. Google+ is a multilingual social networking and identity service owned by Google Inc. The Google+ mobile app became the most popular free application in the Apple App Store (Tsotsis, 2011). Google (2013) reported that Google+ has a total of 500 million users and 235 million monthly active users. Hangouts provides video chat services for users to chat and/or watch YouTube

video clips together with a maximum of 10 people for free of charge. However, Google limited Hangouts features in few countries, such as China, Thailand, and Vietnam.

Data Collection

Data were collected from the students on two surveys. The students completed the expectation form of the questionnaire (Q1) at the start of the course for the first time survey, and the perception form of the questionnaire (Q2) and the final course evaluation at the end of the course for the second time survey. All of the participants understood that they were completing the questionnaires and evaluation voluntarily and independently. The printed questionnaires and evaluation were completed during timetabled face-to-face course hours. Data were obtained from the two forms of questionnaires and the course evaluation questionnaires. Descriptive analysis was performed. The paired t-test was implemented to assess whether students were satisfied with their e-cooperative learning and the course experience by comparing scores from two sets of questionnaires, expectation. If the scores from these two sets of the questionnaires were not different, then students' expectations were fulfilled and it could be concluded that students were satisfied with the course learning experience. To what degree students satisfied with the course experience, a descriptive analysis was applied to analyze the course evaluation scores. Paired t-test was also implemented to determine if there was any difference between Q1 and Q2.
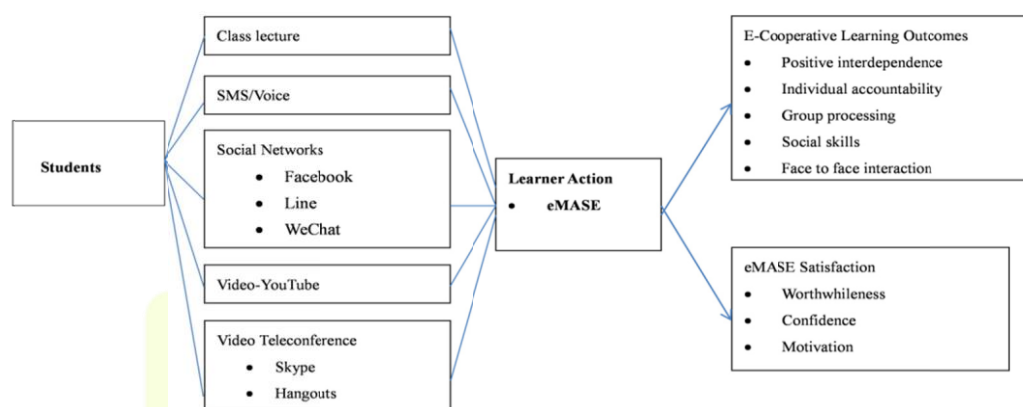

Figure 1: eMASE Module

A total of 55 students completed the Q2. The results showed that students experienced the learning environment of the course as eMASE module with a mean score of 3.34 (SD= .31). Perception questionnaire scores on all subscales were rated in the same way as student's expectation scores that students rated the highest on the subscale of positive interdependence (mean= 4.72, SD= .39) and the lowest on the subscale of face-to-face interaction (mean= 1.17, SD= .43). Two sets of questionnaire scores were compared using the paired *t*-test and no significant difference was found (Table 2). The results indicated that students' expectation was fulfilled and students were satisfied with the cooperative learning experiences.

Learning takes place when a task or a group goal is completed clear (Wang, et al., 2010). In turn, group members could benefit by acknowledging their efforts were part of group contribution toward their group goals. An

analysis of the data indicated that a majority of the respondents (94%) truly believed that efforts benefited their group toward to the group project. The most marked feeling was that almost every of the learners (93%) described that they were glad to learn to use their mobile devices to access social networking apps as their new learning approach that appears powerful cooperation capabilities.

Element 1 *Positive Interdependence*: A majority of the respondents (95%) truly believed that their efforts helped their group previous achieve their group goals on their projects. This finding was consistent with a previous study (Johnson & Johnson, 1989) that found that the success of one learner is dependent on the success of the other learners.

Element 2 *Individual Accountability*: A majority of the respondents (91%) reported that they assessed themselves and gave feedback, which benefited others by being able to see where improvement was needed. In addition, more than half (64%) agreed that they received support and encouragement through the mobile apps in completing the group projects. This finding was consistent with a previous study (Johnson & Johnson, 1994) that has found that having interaction with the peers, the learners can speed up their learning.

Element 3 *Group Processing*: Most (81%) of the respondents believed they maintained a well working relationship. Similarly, more than half of the respondents (60%) believe they were effectively achieving their common goals through the use of mobile apps. Therefore, by group processing, students were encouraged to work toward their group goals (85%). This finding was consistent with previous studies (Ally, 2009; Kukulska-Hulme, 2010; Traxler, 2009) that have found that mobile techs help students actively share information.

Element 4- *Social Skills*: A majority (93%) of the respondents indicated that this learning experience helped them learn how to effectively work with diversity via trust-building, communication. Two-third (62%) of the respondents reported that communicating through mobile apps helped them solve the conflicts with their fellow peers. This finding corresponded to conclusion by other researcher (Koh, 2012) that high sociability encouraged more communication and encouraged group members to discuss the task at hand. More importantly, as Deb (2012) claims that mobile techs provide more interactive and communicative interaction between human and human. Mobile techs also extend the learning from inside the classroom to outside the classroom (Lan et al., 2007). In this study, with the mobile apps, group members obtained an opportunity to support each, communicate, and know each other. This finding supported the results of previous studies (Kreijns, Kirschner, Jochems, & van Buuren, 2007) that social interaction has been shown to be an important dimension in computer-mediated learning.

Element 5 *Face-to-Face Interaction*: Although using social networking apps did helped student in learning, most (92%) of them still felt that face-to-face interaction promoted each other's success. In this part, students did real work together, sharing information, supporting, and complementing each other's efforts to learn. The results support a previous study (Johnson & Johnson, 1994) that claimed that "cooperative learning fosters exercises that require students to talk and listen, to write, to read, and to reflect on what is being studied rather than listen passively to a lecture" (p. 20). Essentially, cooperative learning represents a learning environment evolved a student-centered learning approach in small group. Overall, the students indicated that they were able to

cooperate with each other. With the clear goals they have in mind, they were able to help each other to complete the project and reach their goals together. Thanks to a variety of innovative mobile technologies, the teaching approach integrated with mobile apps created excellent opportunities for students to engage in more meaningful learning with the help of their group members. In summary, there was no relationship between demographic variables and all five elements of e-cooperative learning.

Usefulness: A majority (81%) of the respondents reported that they felt this experience on this course was useful. Similarly, they (77%) enjoyed using the mobile apps as an integral part of their learning activities. Many (77%) of the respondents agreed that the mobile social networking apps helped them learn. This result was consistent with a previous study (Deb, 2012) that mobile technology helps students reach their learning goals.

Confidence: Results revealed that usefulness with the use of mobile social networking apps was perceived as the highest score (mean= 4.27). Many of the respondents (89%) agreed that they felt confident using the mobile apps on this course and they (87%) felt confident to take another course using mobile apps like this in the future.

Motivation: Overall motivation with the course was also perceived as positive (mean= 3.66, SD= .85). Majority (81%) of the respondents agreed that they felt using the mobile apps on this course really worthwhile. More than half of the respondents (64%) reported that they felt being motivated from interacting with their instructor on the mobile apps. The students have interaction with their instructor as a facilitator providing encouragement or help when needed. This finding was consistent with the findings of recent studies (Effandi & Zanaton, 2007; Kan 2011) that the more the facilitators appeared online interacting with students and participating in discussions, the mores students were encouraged and motivated.

Satisfaction: The students were asked to rate their satisfaction on the mobile social networking apps, including Facebook, LINE, WeChat, and Google+ Hangouts. The overall mean score of students satisfaction toward the use of different apps was 3.20 (SD= 1.10) with the highest score on Facebook (mean= 4.83) and was followed closely by LINE with mean score of 3.26. A total of 94.3% of the respondents strongly agree that they were very satisfied using Facebook for their projects. Overall, the results from the course evaluation questionnaires reported that students were satisfied very much using the mobile social networking apps for their group projects. One interpretation of this data is that students will use the tools they are familiar with and meet their needs (Clough, Jones, McAndrew, & Scanlon, 2009). Therefore, when the students become comfortable with mobile and social media, it is likely they will use them for their learning needs. Not surprisingly, only few (21%) agreed that they were satisfied using Google+ Hangouts for doing group projects. Only very few (7%) indicated that they have experiences in using Google+ Hangout prior this course. Part of the explanation for that may be the location where the students lived. Most of the students in this study lived around the campus. That is, students, in general, found it more convenient to discuss group projects face-to-face rather than video teleconference. Instead meeting via the Hangouts app, they could choose to meet face-to-face for the group assignments or oral presentation rehearsals.

From this study, a pattern emerged of mobile social networking apps users as more confident students are

typically engaged in their learning. Whether higher frequency of using mobile networking apps increases student's confidence is unclear from the data. To determine the direction of the relationship between e-cooperative learning and the use of social networking apps, experimental studies could be developed. More research needs to be done to inform educators about the effects of mobile learning on student achievement. In the meantime, the finding highlights the value of mobile techs on teaching and learning. It might be a resource for anyone considering making use of Web

Conclusions

In conclusion, mobile social networking apps have proved to be a technology valued by students. This study aimed to see whether there were significant differences between students' expectations about e-cooperative learning with mobile social networking apps, at the start of a course, and what they had to say about their experiences of eMASE module, at the end of a course. In addition, this study determined whether students were satisfied with the use of mobile social networking apps toward to their learning from the student course evaluation questionnaires. The dataset was from 55 undergraduate students taking one of the courses, set in the arts to obtain answers to the research questions. The course was developed, designed, and implemented with the use of social networked learning based on social constructivism theory. Various group projects and activities were included for students to generate, communicate, and collaborate their learning, and constructed their new learning in a course. Overall, the analyses of the results indicated that the students benefited from working in an e-cooperative environment along with the assistance from the using of mobile apps. Their uses of mobile apps were limited to a few familiar apps, such as Facebook and LINE. However, overall, they really enjoyed themselves while using eMASE module throughout this course and the entire learning experience in the course was perceived as useful to their learning. From the results, it can be seen that the students were actively participating in their learning process individually and also as part of learning community. It enabled students to instantly engage with friends across chat platforms including Facebook, LINE, or Hangouts. Additionally, the findings suggest that students were in control of their use of mobile apps working on their learning activities without teacher's directions. These students whether or not using mobile apps frequently or rarely outside the classroom were in fact supporting and continuing their classroom learning. Apart from learning, they also developed their skills and confidence in the usage of multimedia and Web apps which is one of the important elements in this rapid developing country.

This course promoted a social constructivist learning environment in which students perceived that new knowledge was constructed and reported that they were satisfied with the course. This study is useful in showing that these undergraduate students had positive feelings about mobile networking learning. It is also useful in showing that there are possibilities to implement wireless and mobile education in higher education settings and there are no good reasons to suspect that social networking apps are the tools distract students from learning. The synergy between mobile education and cooperative learning holds enormous potentials.

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