Chapter #19

PROMOTING MOBILE LEARNING THROUGH THE ESTABLISHMENT OF A MOBILE LEARNING COMMUNITY

Lixun Wang
The Education University of Hong Kong, Hong Kong SAR

ABSTRACT

With the fast development of mobile technologies, mobile learning has been adopted by more and more students and staff in higher education institutions. This chapter reports on a project which aimed to promote mobile learning in higher education. In order to find out students' and teachers' experiences and perceptions of mobile learning in a tertiary institution in Hong Kong, over 100 students and around 50 staff members across different disciplines were surveyed online, and follow-up interviews were carried out. The research findings suggest that both students and staff were generally positive towards mobile learning. Based on the findings, students and staff were invited to form a mobile learning community and share their mobile learning or mobile-assisted teaching experiences through various activities, such as writing app reviews, compiling mobile learning e-portfolios, participating in sharing sessions and offering seminars about mobile learning. To facilitate sharing among community members, a website titled 'Mobile Learning @ EdUHK' has been created to showcase good practices of mobile learning. The framework of creating and maintaining a substantial Mobile Learning Community (MLC) will be summarised. It is hoped that our study will shed some light on how mobile learning can be promoted effectively in higher education institutions.

Keywords: mobile learning, mobile learning community, higher education, Hong Kong.

1. INTRODUCTION

Teaching and learning in the 21st century has experienced the substantial growth of wireless and mobile technologies which has changed "the delivery of knowledge through the digital learning from distance learning (dLearning) to electronic learning (e-Learning) and eventually to the mobile learning (m-Learning) model of today" (Bidin & Ziden, 2013, p. 721). Sharples, Taylor and Vavoula (2007, p. 4) define mobile learning as "the processes of coming to know through conversations across multiple contexts among people and personal interactive technologies". Kukulska-Hulme (2014, p. 12) points out that mobile learning "has undergone a significant transformation due to rapidly growing ownership of smartphones and tablets, accompanied by the proliferation of apps, social networks and mobile-friendly open access resources". Mobile devices (e.g., smartphones, tablets, apps, etc.) which are widely available, more convenient, and less expensive (Wu et al., 2012), have greatly enriched and assisted students' subject learning in higher education, especially in Hong Kong where there is free Wi-Fi service in many public places and people can get relatively cheap data packages for smartphones with Internet access (Wang & Ma, 2017). Through mobile technologies, students in higher education can learn anytime, anywhere (Chan et al., 2006; Wong & Looi, 2011). Students' in-class learning experiences are

connected with those out-of-class (Lai & Gu, 2011), which helps to contextualise the learning and facilitate students' academic success (Kukulska et al., 2011). Rich place-based learning experiences would be greatly enhanced if the power of mobile devices were fully embraced (Searson, 2014, p. xiii). Wu et al. (2012) report that mobile technologies have recently been widely implemented in teaching and learning diverse subjects at different education levels. However, caution is needed when using mobile technology in teaching and learning; otherwise, its effectiveness is in doubt. Scott McQuiggan, Jamie McQuiggan, Sabourin and Kosturko (2015, p. 1) comment that mobile technology "offers a plethora of features and benefits that enable it to break the educational system wide open, engaging students in new ways and making educational experiences more meaningful, if schools can effectively utilise structured, integrated approaches for implementation of this new technology".

As English is the major medium of instruction in Hong Kong tertiary education, our study links mobile technologies with subject learning through English and showcases the vitality and creativity of tertiary students of different levels (undergraduates, masters, doctorates) and from different disciplines (Science, Social Science, Education, Arts and Humanities, etc.) in mobile learning. A broad definition of mobile technologies will be adopted in this study: various mobile devices (ordinary phones without internet access, smartphones with internet access, laptops, Tablet PCs, MP3s/MP4s, and handheld electronic dictionary) connected to a network and equipped with online technologies (Ma, 2016). The participants come from different contexts with different learning intentions, and therefore, they need different things for learning. This ultimately results in creating the mobile learning community, a new form of learning environment, which "leads learners share daily practice to exchange collaborative reflection via mobile networks. Learners who have memberships can improve their levels of reflective practices based on situated learning theory. They develop social product extend beyond individual project" (Lee, 2015, p. 69).

The Department of Computer Science at the University of Illinois developed the Mobile Learning Communities (MLCs) in 2010 to enable students to share trusted educational services with each other via iPods, cell phones, and other handheld mobile devices. Moreover, students are encouraged to develop MLC software applications and to share these applications with other students. It is hoped that students will have a new avenue for collaborating with classmates and making new connections through the Mobile Learning Community (https://cs.illinois.edu/news/illinois-faculty-developing-mobile-learning-community). During the 2013-2014 school year, the Winston-Salem/Forsyth County Schools (WSFCS) in the US introduced the Mobile Learning Communities Program (MLCs): Bring Your Own Device model to achieve the following goals: (1) Enhance student learning by integrating digital resources to create, communicate, and collaborate in 21st Century spaces. (2) Help students achieve media literacy mastery and aid in the development of positive online, safety practices, and digital footprints. (3) Leverage the use of all types of digital resources to engage students and extend learning beyond the four walls of the classroom. (4) Provide a digital-rich learning environment for students (Sherrill, 2013). Similarly, one of the objectives of our project is to further develop a mobile learning community among tertiary students and academic teaching staff, motivating them to use mobile technologies in learning and teaching various tertiary level courses. In this case, learners from diverse disciplines contribute, share resources and information and learn together with the help of mobile technologies, which is not only seen as "facilitating members' practices and communication but also playing a central role in advancing their learning" (Wang & Ma, 2017, p. 21). This paper reports on a project which aimed to promote mobile learning in higher education through the Mobile Learning Community (MLC).

2. STUDENTS' AND TEACHERS' EXPERIENCES AND PERCEPTIONS OF MOBILE LEARNING

Over the past decade mobile learning has grown from a minor research interest to a series of significant projects in schools, workplaces, and museums etc. around the world (Lam & Duan, 2012). It has become increasingly important to investigate how mobile devices and learning software/apps facilitate teaching and subject learning in tertiary institutions, and how mobile learning can be promoted effectively in higher education. Our research focus is on the development of mobile learning in local tertiary institutions. Most recently, Lai and Gu (2011) investigated Hong Kong university students' use of technology outside the classroom to self-regulate their language learning. Dukić (2015) conducted a research on undergraduate and graduate students enrolled in Library and Information Science (LIS) study program at the University of Hong Kong through an online questionnaire survey to give an overview of smartphone use for academic learning in higher education. A case study carried out by Ma (2016) investigated a group of twenty-five Hong Kong university language learners, making use of a selection of rich data from multiple sources as well as concrete evidence of the learning process supplied by the participants themselves. The above studies showed the researchers' interest in understanding students' experiences and perceptions of mobile learning, but teachers' experiences and perceptions of mobile learning was not discussed.

In our study, both teachers' and students' experiences and perceptions of mobile learning were examined. Quantitative and qualitative research methodologies were used to investigate mobile learning and mobile-assisted teaching practices among students and lecturers in the Education University of Hong Kong (EdUHK). For quantitative methodology, both students and lecturers were invited to fill in an online questionnaire survey respectively. We received 49 responses from lecturers of various departments; while 110 students from different disciplines (Science, Social Science, Education, Arts and Humanities, etc.) responded to our survey. The qualitative data was collected through the follow-up individual interviews with both students and lecturers. Each individual interview lasted for about 30 minutes and we interviewed 11 teaching staff (22.4%), and 35 students (31.8%).

The research findings suggest that both students and staff were generally positive towards mobile learning as around 75% of the respondents from both groups thought mobile learning should be encouraged in subject learning and teaching. Teachers (81.6%) agreed because mobile technologies can allow them to engage students in learning in a flexible manner, and encourage this learning to continue outside classroom. Moreover, mobile devices can increase students' interest and motivation in learning (71.1%). Meanwhile, students (70%) agreed that mobile learning would be a more flexible method of learning as it could be done anytime, anywhere. Their agreement is also reflected in the follow-up interviews. For examples, Student 1 (S1) said, "In Year 1, a teacher used Edmodo in class, asking us questions and we needed to give responses. I think we were more involved in the learning process." S2 pointed out, "Our peers used 'Kahoot' in their presentation, asking us questions and we were eager to answer them. It was fun and we enjoyed it." S3 said, "I enjoy watching YouTube videos which can help conceptualise my mathematical knowledge." Teacher 1 (T1) stated, "Facebook is a useful learning platform. I tried to establish a group on Facebook to facilitate students' learning."

Apart from agreeing that mobile learning should be encouraged in subject learning and teaching, there were reasons for disagreement as well. The majority of teachers (90.9%) and students (60.7%) thought usage of wireless handheld devices in classrooms will distract students' attention and traditional face to face teaching is more effective than mobile learning. T2 stated, "I do not allow them to use mobile phones in class as I am afraid they use their phones to communicate with their friends, distracting their learning." T3 said, "About 5 to 7 years ago, it became usual for my students to have mobile phones in school, and university teachers started to have debates with the students whether or not to use the mobile devices in the classroom. The first response is that students would be distracted. I still have colleagues both in Hong Kong and the United States feel that way about mobile devices, so do I." T4 expressed, "I know some students would visit Facebook or do other things but I think it depends on the attractiveness of the topic. If your teaching topic is attractive, then I believe students would take the lesson seriously and would not do other things with their mobiles." T5 stated, "We are getting devices around, so I think asking students to keep phones away is a bad idea." S4 said, "Sometimes the teachers do not allow us to use the mobile devices in class because they do not know what we are doing during the lessons, and maybe because some of us are studying, but some are on WhatsApp or Facebook…" S5 pointed out, "In one of my courses, printing out notes is one of the course requirements by the teacher. Maybe she is afraid we will be distracted by mobile devices." S6 said, "I'd rather print out the notes myself as I like writing on paper while listening to teachers. Also, I do think traditional teaching is better than mobile learning." S7 expressed, "I prefer taking notes on paper because if I jot down notes on laptop, I am afraid I will lose focus, you know teenagers are always addicted to social media. I find my peers looking through websites during the lessons."

Smartphones with internet access and laptop computers were considered the most useful mobile devices for preparing or carrying out subject-related activities by both teachers (70.2%) and students (67.3%). The former mostly used those devices to prepare teaching materials at home and in office (about 60%). However, the majority of students pointed out that most teachers only used desktop computer in classroom teaching, showing the PowerPoint slides or videos and only two student interviewees stated that their teachers, apart from using computers, used mobile devices as well. S8 said, "I don't have any teachers who use mobile devices in teaching." S9 expressed, "I have two teachers who use iPad. One is to show us the apps for teaching in an English course. The other one shows us his PPT slides and photos on his iPad via the projector." Students, in some cases, used more than one mobile device inside and outside the classroom. S10 said, "I usually use smartphone on public transport to read articles and during lessons to look for definitions of some difficult words. Tablet is used in class to look through the PowerPoints and to read eBooks, and I use laptop at home to do assignments and revisions."

Meanwhile students mostly used smartphones with internet access and laptop computer at home/dormitory (81.8%) and during lectures/tutorials (76.4%). In addition, lecture PowerPoint slides (71.8%) and course-related videos (64.5%) were the two teaching materials that students were interested in accessing on a handheld mobile device. Fewer students were interested in accessing interactive educational games (35.5%) and course related online discussion/interaction (40.9%) on a handheld mobile device. The reasons might be the interactive educational games were not attractive to tertiary students and they were not interested in doing online discussions. Most student interviewees pointed out that they did online discussions only because this was one of the course assignments required by teachers on Moodle.

Regarding the biggest obstacles to the use of mobile technologies in teaching and learning, teachers thought they were: 'limited storage' and 'size inconvenience'. The latter (smartphone's small screen) was considered one of the major barriers to using smartphones for academic learning by students at the University of Hong Kong (Dukić, 2015). Meanwhile 'lack of training' and 'devices too varied' were the two biggest obstacles considered by students. It is interesting to find out that three teacher interviewees showed their intention of learning more about apps for teaching through seminars or workshops. Meanwhile, lack of training was considered the least obstacle by teachers, as one of the teacher interviewees (T6) stated, "It is easy to use mobile technologies to assist teaching once you have time to do it, but you need to invest time." However, Scott McQuiggan et al. (2015) point out the importance of training for teachers because they consider it is not a way to make the best use of the mobile devices if teachers are not given guidance and training. Students considered 'lack of training' the biggest obstacle. Some student interviewees indicated that they would usually try out different learning apps by themselves and would delete those they thought were useless while keeping those that were helpful.

In general, teachers were more willing to pay a reasonable price for an app that would facilitate their teaching, while students would rather look for free resources/substitutes unless they were required to buy certain apps/online resources by the teachers/institution. Moreover, both teachers and students shared the same view that the use of mobile technologies to support teaching and learning would become popular and even a trend in the coming future. However, it would take more time for teachers to adapt to the use of mobile technologies in teaching as many of them were not familiar with certain apps/software for teaching. According to the teachers, appropriate use of mobile technologies was very important, especially in teaching as the overuse of mobile technologies in teaching would bring negative effects on student learning. In addition, mobile technologies were good tools to engage students in learning if the learning activities were associated with sound learning strategies and pedagogical goals. On the other hand, according to the teachers, the ineffectiveness of using mobile technologies in subject teaching and learning was that using mobile technologies in the classroom required teachers to spend a substantial amount of time planning for the lessons, and training with the hardware before classes began. Moreover, some technical problems might arise during class, such as network failures and individual students having problems with the hardware, which required the teacher to troubleshoot the issues as well as instructing individual students on how to resolve problems.

3. THE MOBILE LEARNING COMMUNITY (MLC)

Through the research findings, a rich collection of teachers' and students' mobile learning practices was obtained, such as their favourite mobile devices for teaching and learning purposes, frequently accessed online teaching and learning resources, various teaching and learning apps and tools, strategies for self-regulating their mobile learning, and perceived difficulties associated with mobile learning. Based on such rich information, a Mobile Learning Community (MLC) was formed, which is similar to the one established by the Department of Computer Science at the University of Illinois, to encourage the community members to share information and resources of mobile learning with one another. To strengthen the community membership, a website (http://corpus.ied.edu.hk/ml-eduhk/) was launched to accommodate and share diverse mobile learning information and resources contributed directly by students and teachers. This website serves as the main platform to disseminate mobile learning information and

allows community members (students and teachers) to share mobile learning resources, to share their valuable insights and to disseminate good practices to other students and teachers who are interested in mobile learning. The current website features the following sections: homepage, sharing sessions, students' e-portfolios, app reviews and useful links.

The mobile learning homepage features an introduction that informs the visitors of the different resources available on the site. Visitors can also click on the 'membership' hyperlinks (for students or teachers) to fill in the membership form and become a member of the MLC. Quick Links are provided as well so that members can get access to various sections of the website easily.

A series of knowledge sharing sessions in the form of seminars/workshops on mobile learning given by staff and experts within our institution and from outside the institution were organised to further disseminate project outputs. During the project period (2016-2018), eight seminars on mobile learning were organised: two were given by internal teaching staff while six sessions were offered by external experts in the filed around the world. A student sharing session was held to disseminate students' practices and experiences in using mobile technologies in language learning and subject knowledge learning. As students and staff might not be able to attend these sharing sessions due to time conflicts or other constraints, video recordings of the seminars have been made available online, which provides opportunities to all community members to learn and benefit from these valuable sharing sessions. Such meaningful and interactive sharings form the main learning activities for community members.

The 'App Reviews' section features 120 language and subject learning app reviews contributed by students of different majors. The apps introduced by students are divided into seven categories: Listening (21), Reading (15), Vocabulary & Grammar (26), Dictionaries (20), Phonetics & Pronunciation (2), Speaking (17), and Others (19). Apart from a basic introduction to the app being presented, a critical review is provided with clear information on both the strengths and weaknesses of the app. Information such as language skills addressed and intended learner levels (beginner, intermediate or advanced) is also included. For downloading purpose, app icon, and the hyperlink to the app can be found in the app review.

An e-portfolio is "a digitized collection of artefacts including demonstrations, resources, and accomplishments that represent an individual, group or institution" (Lorenzo & Ittelson, 2005, p. 2), which can be used for critical reflection and learning purposes. One of the functions suggested by Lorenzo and Ittelson (2005) is to share teaching philosophies and practices. Therefore, our project aims to collect e-portfolios of rich and diverse evidence of students' and teachers' mobile learning and teaching experiences that facilitate deep, critical self-evaluations of the learning and teaching experiences, which help students and teachers to further strengthen their subject knowledge learning and their course teaching respectively through the use of mobile technologies. A rough template was provided to guide their e-portfolio building. In the template, the following elements are included: subject area, focus of learning/teaching, apps used, strategies employed when using the apps to assist learning/teaching, artefacts as evidence (icon of apps, screenshots, audio/video clips about the mobile learning/teaching experience, etc.), and reflection on learning/teaching. The e-portfolios consisted of multimedia resources: text files, audio files, video clips and artefacts (e.g., screen shots or e-notes). The Mobile Learning E-portfolio Competition for students was held during the project period to collect students' mobile learning e-portfolios so as to share their experiences in using mobile devices to learn English and subject knowledge. In the competition, students had to create an e-portfolio using any platform (e.g., Google Sites, Mahara, Sway, etc.), write one to two app reviews

(at least 200 words each) explaining how the apps were used to help learn English or other subject knowledge, write a personal reflection (at least 150 words) on how mobile technologies facilitate learning and include relevant images (e.g., screenshots of the apps), and produce short video clips about the apps so as to illustrate their own learning experiences. When recording the video, students could use English or Cantonese, and a transcript of the speech needed to be provided and shown under the video (alternatively, students could provide subtitles in their video clips). The e-portfolios were assessed in the following four areas: Content, Layout, Organisation and Language. Altogether, 20 e-portfolios from students were collected in 2017, and another 15 were collected in 2018, which were uploaded onto the website.

However, no teachers' e-portfolios have yet been collected. Hall and Hord (2001) consider change in education as a complex process that takes a minimum of three to five years, while large-scale innovations take longer time. In general, teachers seem to be more conservative in adapting to technology. Moreover, they may consider producing e-portfolios time-consuming when they are loaded with numerous work related tasks, and learning how to use technology effectively is challenging and time-consuming as well. Instructors incline to use technology that requires considerably more preparation time, and it is hard to provide instructors and learners access to technologies that are easy to use (Herschbach, 1994). In this case, our project team needs to think of the ways to motivate teachers to produce e-portfolios about mobile assisted teaching, or may even try to boost their acceptance of technology. Lee (2000) states that "the next generation of students will feel a lot more confident with information technology than we do".

As for useful links, we provide the community members with web links in the following areas: Dictionaries, Listening & Speaking, Reading & Writing, Grammar & Vocabulary, Others, including International e-News Websites and Local e-News Websites. Visitors can access those websites easily by clicking on the links.

4. EVALUATING THE EFFECTIVENESS OF THE MLC

Three sets of assessment tools were developed to evaluate the effectiveness of the mobile learning community: (1) a questionnaire to collect participants' views on the various community activities organised by the MLC, i.e., various sharing sessions/seminars/workshops on mobile learning; (2) an online survey form to collect users' views on the MLC website; and (3) an evaluation form for evaluating the overall effectiveness of the MLC, which were completed by two invited experts in the field of mobile learning. To find out if the MLC is operating effectively, various community activities have been evaluated. Standard evaluation questionnaires were developed and handed out to the participants at the end of each activity. The data collected show that on average 97% of the participants agreed or strongly agreed that the sessions were worth attending and provided them with valuable information about how mobile technologies facilitate language learning and subject learning. Some participants left very positive comments, as can be seen as follows:

"Insightful ideas provided. Many useful cases to introduce the theories."

"Wonderfully shared! Great learning experience."

"Thank you for the sharing. It's helpful and applicable. Please continue your great job!"

"I have never heard of this kind of technology in education field before. Great insights."

"Thank you for the talk."

An online evaluation form was designed and uploaded onto the website to invite all website visitors (members or non-members) to evaluate the effectiveness of our mobile learning resources published on our MLC website. The form intends to gather both quantitative and qualitative data regarding users' perceptions of various mobile learning resources. An 8-item questionnaire coupled with two open-ended questions was designed and hosted on the website. The 6 Likert scales are: Strongly disagree (1), Disagree (2), Partly Disagree (3), Partly Agree (4), Agree (5), and Strongly Agree (6). Question items include the following: 'The content presented on the Website is informative for mobile learning/teaching'; 'I am inspired by the content presented on the website for mobile learning/teaching'; 'The website is well-designed.' etc. We received 41 responses: 30 students and 11 teaching staff. The respondants were asked to rate the website in terms of eight aspects. The third aspect 'The content is easy to understand.' recieved the highest mean score of 5.29; while the sixth aspect 'The website is well designed.' received the lowest mean score of 4.85. The most favourite section on the website was 'Sharing Session' (70.73%) and the next was 'Students' e-Portfolios' (65.85%), 'App Reviews' (60.98%), 'Useful Links' (24.29%) and 'Home' (4.88%). On the whole the respondants were satisfied with the website as no negative responses were received. Some of them remarked that the sections of app reviews and students' e-portfolios were helpful and students' work were very creative and inspiring. One student commented, "As we know, there are plenty of self-learning software and free courses online, but how we can benefit from these resources is in doubt. This project shows us other students' real experiences in the use of these resources and their improvement. Moreover, they also prove the strong aspects of each app, which can help other students to choose the one that fit themselves." The respondants welcome the 'Sharing Session' as they could get more information about mobile learning through listening to the talks given by different speakers.

Two experts in the field of mobile learning were invited to formally evaluate the effectiveness of the MLC activities and the MLC website, and the feedback received is very encouraging. The MLC website is considered a very successful platform for resource sharing, for nurturing the growth of the MLC and for promoting mobile learning in general. One expert conclued:

"Overall, the freely and publicly available website provides a valuable resource for not only students and teachers within the university, but also the general public who may be interested in learning more about the advantages and values of mobile learning."

As for the MLC activites, one expert commented:

"The activities and information hosted through the project are multifaceted and help to promote students' and teachers' mobile learning and teaching through various venues: affective support (peer experience sharing); capacity support (specific resource recommendations and reviews); social support (the concept of a mobile learning and teaching community); and cognitive support (guidance on mobile learning). Thus, the support provided on the site was quite comprehensive and targeted various components that are critical to enhancing students' and teachers' engagement with mobile learning."

5. CONCLUSION

To build up a Mobile Learning Community is challenging as it targets at recruiting members from various departments (teachers) and disciplines at different levels (students) and there is a gap of acceptance of technology between teachers and students. To establish a successful mobile learning community, a number of key factors need to be considered: we need to recruit proactive community members who are the driving force of the activities organised by the MLC, establish a Mobile Learning Community website as a platform for resource sharing and idea exchange, organise a wide range of student and staff sharing sessions on mobile learning, make a positive impact on students' learning and staff development, and evaluate the effectiveness of the mobile learning community. Only through a concerted effort of members of the whole community, can we promote mobile learning effectively. It is hoped that our study will shed some light on how mobile learning can be promoted effectively in higher education institutions. Although the project has completed, the website is still freely accessible to the public, and the author has applied for a new project related to mobile learning, hoping to continue promoting mobile learning among students, and at the same time engage teachers further by promoting good practices of mobile-assisted teaching.

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AUTHOR'S INFORMATION

Full name: Lixun Wang
Institutional affiliation: The Education University of Hong Kong
Institutional address: Department of Linguistics and Modern Language Studies, The Education Univrsity of Hong Kong, 10 Lo Ping Road, Tai Po, N.T., Hong Kong
Email address: lixun@eduhk.hk
Short biographical sketch: Dr. Wang Lixun is Associate Professor in the Department of Linguistics and Modern Language Studies at the Education University of Hong Kong. He has published widely in areas such as corpus linguistics, computer-assisted language learning, e-learning, and multilingual education, in reputable journals such as System, Language Learning and Technology, Eudcation and Information Technology, International Journal of Bilingual Education and Bilingualism, and International Journal of Mulilingualism. He is the author of Introduction to Language Studies (2011) and co-author of Academic Writing in Language and Education Programmes (2011) and Trilingual Education in Hong Kong Primary Schools (2019).