

Engaging students in higher education through mobile learning: lessons learnt in a Chinese entrepreneurship course

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Received: 18 November 2010 / Accepted: 3 December 2011 / Published online: 27 December 2011
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Abstract This evaluative–exploratory case study reports pedagogical experiences with using mobiles phones, wikis, and other mobile learning approaches such as podcasts and walking tours as educational tools in the context of an undergraduate course on Chinese Entrepreneurship and Asian Business Networks taught at a university in Singapore. Conceptualized as mobile learning, the paper argues that information and communication technologies (ICT) devices used by Gen Y students as part of their everyday life such as hand phones in combination with social media platforms such as course wikis and other proven pedagogical methods such as mini lectures, field visits, and walking tours can greatly enrich learners’ experience and produce valuable learning outcomes on the basis of blended learning provided their usage is easy and effectively integrated into the respective instructional strategy.

Keywords Mobile learning · Teaching · Social media · Web 2.0 · Higher education · Singapore

1 Introduction

While many universities have incorporated the use of educational technologies into their mission and vision statements, the response of educators towards leveraging on mobile technologies such as handphones, PDAs, or portable laptops has been quite the reverse.

Paper presented by Thomas Menkhoff at the ELLTA Conference at USM, Penang, Malaysia, February 2011.

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“Turn your handphones off!” or “Now, please close your laptops” are statements often made by instructors at the beginning of class in order to get the attention of their students. What is often overlooked by university teachers is the potential of these mobile technologies to provide an interesting and enriching learning experience in the context of blended learning (McCarthy 2010). Spot checks in our classes have revealed that students not seldom do make use of their phones and laptops in the classroom to exchange topical infos about the subject matter discussed by the instructor, to clarify certain terms or issues and to provide help and guidance to locate particular resources in textbooks or online directories. This paper argues that mobile learning technologies provide a good opportunity for integrating mobile technologies into students’ learning experiences as they represent everyday tools students are familiar with and indispensable for communication, information, and knowledge management as well as networking (Lundin et al. 2010, p. 3; Bakardjieva 2005).

We will critically discuss the following three research questions: 1. What is mobile learning and how can technology enrich it in order to engage Gen Y learners in institutions of higher learning? 2. How can hand phones and social media tools such as wikis or podcasts be effectively integrated into course designs? 3. Besides the opportunities which mobile learning offers for both instructors and students, what are the key challenges when it comes to implementing respective initiatives?

This exploratory study reports instructors’ and students’ experiences with using mobiles phone, wikis, and podcasts as educational tools in the context of a higher education (undergraduate) course on Chinese entrepreneurship and Asian business networks taught at a university in Singapore. The paper is structured as follows: First, we explore the role of IT in education based on current research, followed by comments about opportunities of ‘mobile learning’ in higher education. After that we describe with the help of five examples how we integrated the use of mobile phones, wikis, and podcasts into the course design. The paper concludes with a summary in form of lessons learnt, challenges ahead and prospects for further research.

1.1 Technology in education

Past research on the use of technology in education has mainly focused on the classroom as place of learning while alternative venues and modes have been neglected. One of the strengths of Generation Y is their ability to leverage on various kinds of mobile technologies and to use them almost simultaneously to tackle various tasks, such as homework assignments, queries of peers, staying in touch with fellow students and/or researching the latest literature about scholars and music stars (Green and Hannon 2007; Arnold and Paulus 2010). While more and more students turn such mobile devices into routine parts in their learning activities (Saeed et al. 2009), universities themselves are arguably not ready to leverage on this trend due to ignorance and lack of skills in areas such as technology-enabled learning. That there is a wide gap between opportunities and practice becomes obvious if one visits a modern contemporary museum such as Singapore’s Asian Civilisations Museum (<http://www.acm.org.sg/students/podcast.asp>) with its attractive and interactive learning devices, such as podcasts, games, videos, SMS-enabled scavenger hunts and so forth. In an attempt to ensure survival as an organization, many museums the world over have introduced a variety of new social media so as to attract visitors and to exceed their expectations. Institutions of higher learning can do likewise (Sung et al. 2010).

As Lundin et al. (2010, p. 5) have stressed in their review of current research on mobile learning, the increased use of mobile phones is an international phenomenon. Mobile technologies allow students to get connected and to manage their work more effectively: “As

educational activities increasingly are conducted in project and group form, issues of coordination becomes of greater importance. But not only in a sense that people need to arrange to meet each other, they also must coordinate themselves towards common goals, negotiate and divide work tasks in cooperation, as well as orient themselves to co-students efforts in the groups work”.

More and more websites provide information and overviews about suitable mobile learning devices and applications. An example is <http://www.molenetprojects.org.uk/moletech/>. In our class context, we wanted students to act as empowered *creators* rather than consumers of learning content and to apply that to a wide range of learning situations through writing, reporting and synthesising information as well as publishing activities. To achieve such a purpose, learners need devices that are easy to input (camera/audio/text), share (wireless/data bundles/bluetooth) and possibly manage centrally (Wankel 2009). The specific devices used in the context of the course featured in this paper shall be discussed further below.

The course which forms the case study of this paper is an elective (undergraduate) course of SMU’s Bachelor of Business Management programme entitled “Chinese Entrepreneurship and Asian Business Networks” (Menkhoff and Gerke 2002). Key objectives include to enable students to explain what makes ethnic Chinese business in Asia tick; to appreciate both structure and functions of Chinese business organizations, networks and their global reach; to challenge some of the culturally biased misperceptions about the business conduct of ethnic Chinese in Asia such as their homogeneity, tribal image and socio-economic exclusivity; and to critically discuss the challenges, which the rapidly progressing integration of East and Southeast Asia’s market cultures into the global market system pose, for ethnic Chinese entrepreneurs, their family businesses, conglomerates and network ties.

When the mobile learning strategy of this course was designed, the instructor was guided by two expected learning outcomes to be achieved in groups of 4–6 students: 1. The further development and finalization of a collaborative knowledge website (= course wiki) featuring selected and reputable Chinese business scholars and 2. the conceptualization and finalization of a novel mobile learning group project fine-tuned during the proposal stage in close consultation with the instructor aimed at enabling students to learn on location rather than in the classroom by using mobile learning devices. Students were encouraged to expose themselves to interesting locations such as business firms, museums or other urban spaces to get inspired and to finalize their group agenda to be tackled by preparing/writing/sending commentaries/informative texts/SMS, photos/images/video clips based on the particular topic onto a central platform portfolio, i.e., the course wiki, via hand phones and/or other mobile devices if available or suitable. Students were informed at the beginning of the term that they would receive the same grade for these group assignments. Upon completion, all students were expected to have enhanced their learning curve virtually so to speak by compiling these outcomes *and* by sharing their peer learning outcomes online. Figures 1, 2, and 3 exemplify the two types of wiki outcomes produced by altogether 8 student groups comprising 49 undergraduates from various disciplines, such as IT, business, accounting, economics, and social sciences.

2 New focus on mobile learning: towards a theoretical framework

Learning experts such as the members of the reputable London Mobile Learning Group (<http://www.londonmobilelearning.net>) have proclaimed the emergence of Generation CX



Fig. 1 Screenshot of Chinese scholars' course wiki



Fig. 2 Screenshot of mobile learning project on Eu Yan Sang on course wiki

who generate their own learner generated context (= CX) prompted by 'learning hint' text messages. One of the group's leading members, Cook (2007a), defines mobile learner generated context as being conducted by a learner or learners who are using mobile devices to communicate or individually reflecting 'on the move'. These learners raise context-creating

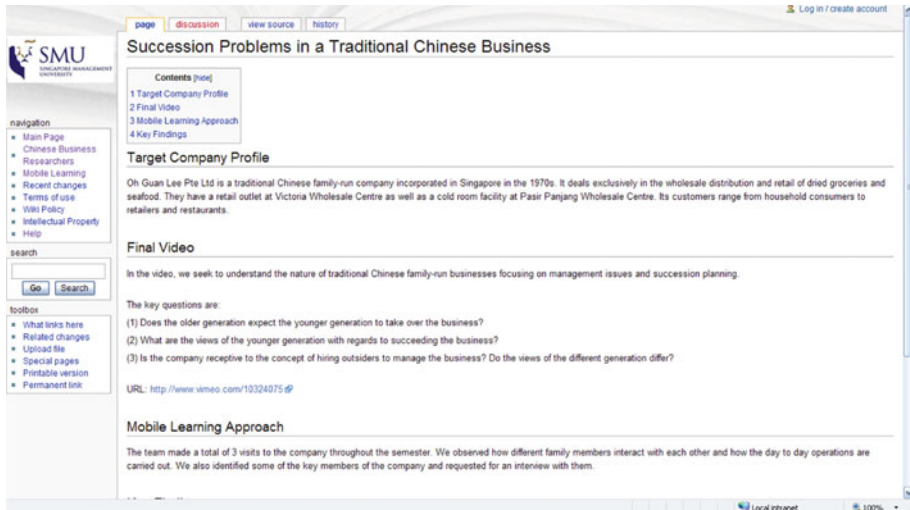


Fig. 3 Screenshot of mobile learning project on corporate succession problems in a traditional Chinese business on course wiki

questions during a dialogue with others and/or while interacting with multimedia resources. When other learners provide answers to these context-based questions, new insights and new knowledge are being generated which supports learning outcomes (Cook 2007b).

The use of mobile learning devices empowers students to embark on different pathways to build up their own knowledge representations of the task in hand. Depending on the degree of collaboration, this can assist learners in identify knowledge gaps and to achieve successful learning outcomes (Soloway and Norris 2005). Mobile learning devices help learners to explore and investigate real physical environments—sometimes with the help of digital guides. While doing so, they can discuss with their peers, synchronously or asynchronously, key insights and observations either face-to-face in the context of group-based assignments or virtually. They can capture and record data in form of sounds, images, videos, text, location-specific features, etc., and model those data with digital tools. Mobile learning also emphasizes sharing of data and digital products via collaborative software aimed at internalizing relevant content.

Key is to enhance the act of learning at two levels: (i) the discursive level between instructor and students as well as students themselves with the help of productions, concepts, ideas, questions and comments; (ii) the experiential level based on the respective task goals, trial actions, actions, feedback, and revisions. Mobile learning devices supplement traditional learning methods, such as lectures, class presentations, or practice exercises (Laurillard 2007) if they are pedagogically aligned with the course objectives. Embedded in field trips and walking tours, cameras, handphones, ipods, video cameras, etc., are useful tools to achieve meaningful learning outcomes.

3 Research method

Methodologically this study follows the tradition of interpretative case study and exploratory research (Eisenhardt 1989; Yin 1994; Stebbins 2001) based on the analysis of relevant

literature, discussions with course participants, colleagues and mobile learning experts as well as observations during students' mobile learning activities. As such the paper develops several implicit evaluative arguments about theory and practice of mobile learning which will be useful in future, more quantitative research (based on explicit hypotheses) to be conducted by others (Klein and Myers 1999). A key motivation is to share with other educators proven examples and strategies of leveraging on social media tools in higher education. As part of our triangulated research strategy (Stake 1995), we used multiple sources and methods of data collection such as expert interviews (e.g., other Web 2.0 savvy instructors), consultations with professional mobile learning specialists, participant observation and narratives. Both validity and inter-subject reliability were enhanced by discussing data/text interpretations with teaching assistants, instructors, and other experts (Miles and Huberman 1994). While certainly not generalizable, this type of research approach is useful because the research topic is rather new and not sufficiently backed up by concepts and robust theoretical frameworks.

4 Results: five examples of mobile learning approaches

In the following we showcase and critically discuss five concrete examples of utilizing mobile learning approaches in higher education based on the authors' experiences at an Asian university. First, we describe a simple photo-sharing exercise aimed at exposing students to pedagogically relevant class locations; secondly, we reflect about a SMS-enabled scavenger hunt aimed at imparting relevant knowledge about the course subject matter into the students 'on location'; thirdly, we introduce some of the principles behind the development of a comprehensive course wiki with a focus on certain scholars, followed by showcasing a case-related podcast assignment. Finally, we report our experiences with organized walking tours. All of these mobile learning approaches are free of charge and publicly available. Mediawiki, for example, is an open source application. Most if not all students have a mobile phone, albeit with different technological features. Walking tours, too, are basically free of charge unless instructors hire a professional walking tour company. As all students in the class had a mobile phone, the only cost incurred was the charges for SMS. The type of wiki used is called "mediawiki", which is the same software that powers Wikipedia. Mediawiki is open source software that is free to download and install. The university already had mediawiki installed on a server, and therefore it was used for the course. However, many Learning Management Systems have a wiki, and there is a whole range of publicly available wikis such as wetpaint or pbwiki that are free and easy to use.

4.1 Example 1: photo sharing on Flickr

The first example features a sort of pedagogical warming up exercise which we used at the beginning of the course to enable the students to appreciate the complexity of the course subject matter. Students were 'invited' at the beginning of class to take out their cell phones and to go for a walk (45 min). In particular, they were asked to explore in groups the nearby civil district surrounding the University and to take some 'relevant' pictures (max. 2 per group) of 'things Chinese' in line with the course objectives. They were then asked to send those images from their cell phones to the following address: cams48social@photos.flickr.com. Once they returned to class, we jointly accessed the photo-sharing site and students were invited to present and evaluate the Chineseness of the evidence they had provided

to appreciate the complex nature of ‘Chinese identity’ which represents an important course topic.



An example of the images generated is provided above. It shows a “Traditional Chinese Medicine Mannequin in Red Garment” which some of the students spotted in a Chinese medicine shop near the University. As the group pointed out during the subsequent plenary session, both Chinese medicine and the color red have significant meanings in Chinese culture as they represent important markers of Chinese ethnicity. The broad objective of this outdoor activity was to gain some practical experiences with “mobile learning” and to enable the students to appreciate the power of mobile learning tools such as cell phones in anticipation of their main class projects. A short evaluation exercise conducted in class revealed that the students liked this kind of mobile exploration of their own identity and that they are prepared to tackle tougher assignments via mobile tools. As one student remarked:

It probes a crucial part of my identity which has been overlooked for most part of my life - who am I in terms of ethnicity? I especially liked the good mix of pedagogy and learning sources the instructor uses. These include lectures, interactive learning with peers, excursions and other resources

The photo-taking exercise was a refreshing experience as we had to walk and look around at buildings that were of cultural value, it imbued a sense of what was left behind by memories of others and the heritage that existed. Being able to move around and to capture the information on the go brings about convenient and ‘real-time’ learning as the mind is fresh at the scene.

As young people are highly involved with their mobile phones, educators can leverage on their high prevalence and enrich learning due to their psychological and pedagogical benefits such as enhanced connectivity or functionality in terms of enabling students to take pedagogically meaningful photographs (Walsh et al. 2011). Critical comments by students included queries about alternative media platforms which were often unknown to the instructor but seemingly common knowledge amongst Gen Y students which points to significant social media related learning needs of baby boomer instructors.

4.2 Example 2: SMS-enabled treasure hunt

The interactive, motivating potential of SMS as a low-threshold application used by students to quickly send text-based short messages which promotes a more active learning environment has been highlighted in several studies (e.g., [Market et al. 2006](#)). Against this background, we developed an SMS-enabled treasure hunt which we conducted in week 3 of the term. The treasure hunt forces learners to leave the comfort of their seminar room and to explore pedagogical topics outdoors in an engaging manner. In our case, students were tasked to explore historical places and traditional Chinese business clusters in the vicinity of SMU and the Singapore River (once the very lifeblood of Singapore, its main trade artery and the heart of entrepot trade) to appreciate location-specific, historical and ethnic features of Chinese business. Specific mobile learning locations in Singapore to be visited by the students included Fort Canning Hill, North Canal Road, Boat Quay, and the Singapore River.

4.2.1 Implementation and learning approach

In line with our group-based learning approach, student groups had to appoint one leader who was asked to provide the instructor with his/her handphone number (and vice versa) prior to the hunt so that both groups and instructor were contactable via SMS. The student leader also had to ensure that students behaved appropriately and safely. Further details were provided in a hand-out with the following infos.

4.2.2 Info handout

- Group leaders will receive one question from the instructor which requires them to reply to the latter with a short message (usually 1 word only; at times 5–10 words max.) via SMS.
- If they SMS the correct answer to the instructor, the group leader will receive the next question, etc.
- Each correct question will earn the group points (1 for qu 1, 2 for qu 2, 3 for qu 3, 4 for qu 4 and so forth).
- Students are required to move from one location to another to get the correct answer.
- They must also snap photos at location and send it to the Flickr photo-sharing website as evidence.

4.2.3 Roadmap

To facilitate the process, students were given the following roadmap as a hardcopy once they had reached the 1st location to provide more orientation and context.

1st Location: Fort Canning Hill

Note: Students have to meet the instructor at the original site of Raffles' home on "Government Hill" at 9.15 a.m. latest. They will then be given the first question.

Question 1: This question dealt with Sir Stamford Raffles (1781–1826) and his house on "Government Hill", the founder of Singapore.

Answer: ... Note: 1 photo of "Raffles House" (with students on it) is required!

Question 2: This question tested students' knowledge about the history of former British Fort Canning located on Fort Canning hill.

Answer: ...

2nd Location: North Canal Road

Question 3: This question dealt with the rise and current challenges of business clusters along the Singapore River.

Answer: ...

Question 4: This question also dealt with business clusters along the Singapore River.

Answer: ... Note: 2 photos are required here!

Question 5: This question tested students' knowledge of typical trading goods distributed by Chinese shops along the river such as shark's fins which represent traditional cultural markers of ethnic Chinese.

Answer: ...

3rd Location: Boat Quay

Question 6: This question tested students' knowledge of Mandarin.

Answer: ... Note: 1 photo of "Boat Quay" (with students on it) is required!

Question 7: This question tested students' knowledge of a particular Chinese dialect: Hokkien.

Answer: ...

4th Location: Singapore River

Question 8: This question was aimed at motivating the students to appreciate locally significant art displays along the river in the context of modernization and social change.



Answer: ... Note: 1 photo of "the lady" (with students on it) is required!

Students were subsequently asked to move on to the next location and to await a new challenge. Once completed, students had to go back to the classroom. Overall, students enjoyed this mobile component as they got to walk through a park early in the morning and were exposed to various historically significant sites surrounding the university. As one student said:

It was a great experience ... The locations were well selected which allowed us to understand the different trades and their history. I suggest this to be carry on during the next term.



Photo above: Students enrolled in the Chinese Entrepreneurship course with their handphones

The SMS-enabled treasure hunt led to enhanced peer learning as students were forced to quickly interpret cues and to exchange ideas aimed at finding correct answers to the various questions asked. This is indicated by the following quotations from student evaluations:

This was really an interactive lesson ... we had to get to venues based on clues and smses, answering questions while equipped with just a phone. In this way we can interact and learn about places that bear significance to the course while having an enjoyable time.

The SMS scavenger hunt 'forces' us to go to a particular place to solve a problem. This is where knowledge is being gained because we have to be there physically to observe and think to find an answer to the question.

While the broad learning goals were accomplished, some students stressed that they had expected more challenging questions (even though many had failed to answer the original queries adequately). At the same time it is worth mentioning that five out of altogether eight student groups who participated in the scavenger hunt had problems to finish all tasks and to answer all questions. This is surprising given the fact that they were mostly local students. Nevertheless, it proves that learning via SMS-enabled scavenger hunts can help to impart relevant local knowledge into students.

What the instructor underestimated was the time, endurance, and dexterity required to answer students' short messages quickly. Whether this reply mechanism can be automated in future is currently under investigation. The instructor was also a bit ignorant with regard to alternative, possibly more effective SMS platforms as indicated by the critical comment of another student (see below):

I love this scavenger hunt because it allows us to go out and explore those places we did not think of. Perhaps the drawback is the SMS system as some of the people did not manage to get the idea. A suggestion would be to give a smart phone to every team. Using a free application such as Whatsapp would allow us to monitor the message quickly and cut down costs.

4.3 Example 3: development of course Wiki “Hall of Fame”

Another key pedagogical objective of the course is the further development of an existing collaborative knowledge website (= wiki) on Chinese business whose creation started in AY 08-09 (https://wiki.smu.edu.sg/MGMT304/Main_Page). Wikis are effective tools to collaborate over projects, create knowledge sharing hubs and work towards creating best possible content out of information. Wikipedia is a classical example of a wiki where people from all over the world pool in their knowledge to write articles that benefit the online community. It has almost 2.5 million articles in English, making it the world most comprehensive encyclopedia.

Main pedagogical benefits of wikis (Arreguin 2004; Lymer et al. 2007; Schwartz et al. 2004; Yu et al. 2010) include evolutionary knowledge sharing and creation, progressive problem-solving, and exploration of diverse ideas. Critical reflection, avoidance of premature judgement and engagement in the analysis of the work of their peers are other advantages. Wiki works support collaborative learning, help to lessen students’ PC anxiety and support students in becoming active players in developing learning content. Often there is an element of competition in the case of several learner groups which promotes innovation and learning motivation. In our class, each group created its own wiki page on which they completed their assignment. The students had to provide user id and password to be able to login and edit the wiki content.

In the past, students have collated materials on Chinese business scholars and writers, such as Mayfair Yang Mei Hui, Wang Gungwu, Tan Chin Tiong, Claire Chiang, Tan Chee-Beng, Gary Hamilton, and Michael Backman. Students newly enrolled in the course were tasked to continue to expand this “Hall of Fame of Chinese Business Researchers” featured in the wiki above by doing research on Chinese scholars, such as Ang See, Teresita; Baker, Hugh D.R.; Chan Kwok Bun; Douw, Leo M; Gomez, Edmund Terence; Haley, George T; Hsin-Huang Michael Hsia; Huang Cen; Jacobsen, Michael; Kuah, Khun Eng; Lever-Tracy, Constance; Li, Peter S; Liu Hong; Luo Yadong; Mackie, Jamie; Nonini, Donald; Ong Aihwa; Tong Chee Kiong; Pan, Lynn; Redding, Gordon; Schlevogt, Kai-Alexander; Sinn, Elizabeth; Suryadinata, Leo; Tan Chee-Beng; Tracy, Noel; Tsui-Auch, Lai Si; Tu Weiming; Wertheim, W.F.; Wong Siu-Lun; Yao Souchou and Yeung, Henry Wai-Chung. Students worked in groups. Each group of students had to focus on one (1) scholar.

In line with the deadline, students had to inform the Teaching Assistant about their chosen scholar accordingly who in turn was tasked to finalize all names in the course wiki system in collaboration with the University’s Integrated Information Technology Services (IITS) unit. The IITS expert (Magnus Lars Bengtsson) also conducted a 1-h wiki training course for the class in week 2 to enable students to master the mediawiki markup language.

Students were given the following guidelines so as to submit work of high standards:

4.3.1 Wiki guidelines

The kind of work that needs to be produced on your selected scholar should include the following.

4.3.2 Picture and short biography

Elaborations on why the respective scholar(s) started writing about ‘Things Chinese’. If this can not be established via secondary literature, students are requested to find out, e.g., by

e-mailing/asking the respective scholar which should be most rewarding; several of these scholars live and work in Singapore—so it should be relatively easy to meet them face-to-face.

- Main Publications
- Latest Publication and Abstract
- Key Collaborators (if any)
- Scholarly Legacy in terms of Main Ideas, Key Concepts, Theoretical Advances, etc.

The wiki contributions are expected to have a word count of max. 2,000–2,500. The wiki page is available through this link: https://wiki.smu.edu.sg/MGMT304/Main_Page. You would need to log in with your student accounts before being able to access the page. Some general recommendations for writing good wiki contributions can be found at: http://en.wikipedia.org/w/index.php?title=Wikipedia:Your_first_article&oldid=41631731.

Caution: Please ensure that IP laws are followed when uploading material (e.g., photos). The following link (which is also available on the sidebar on the wiki) provides further infos: Intellectual property—<https://wiki.smu.edu.sg/ip.pdf>.

Open source software mediawiki was used as wiki platform for the student's group projects. The students had to learn mediawiki markup language to be able to format and write their projects on the wiki. Some students found the markup language to be easy to learn while other students were facing problems. To minimize the time spend on figuring out the markup language the following options were made available for the students:

- A voluntary 1 h training session was conducted by IITS on how to master the markup language.
- A comprehensive help guide was made available on a wiki page.
- An instructional video was made available on the wiki page.
- The teaching assistant of the course was trained in the markup language to be able to assist the students with their problems.

Most students enjoyed this learning journey and compiled insightful write-ups about scholars documented on the wiki pages (https://wiki.smu.edu.sg/MGMT304/Main_Page) and the course evaluation. So far, fifteen Chinese business scholars have been featured in the course wiki which helped to accumulate and share meaningful knowledge about the course topic online (see Fig. 1). Results and learning outcomes of the main mobile learning projects were uploaded on another dedicated wiki: https://wiki.smu.edu.sg/MGMT304/Mobile_Learning. The screenshots in Figs. 2 and 3 exemplify two of several project topics students explored in Academic Year 2009–2010 which ranged from empirical studies of successful Chinese family firms such as Eu Yan Sang to the analysis of Chinese coffee shops as socio-culturally embedded places of knowledge transfer and identity formation.

Evaluative comments by students who have taken this module suggest that this type of collaborative, technology-enhanced learning has a positive effect on imparting course-related competencies and learning outcomes as indicated by the following comment:

One good thing was that it forced us to go through the entire process of research, analysis of data and then publication. The wiki forced us to articulate clearly our most relevant findings only - short and sharp. To me, this is an important skill that was honed through the wiki. Bosses in the workplace do not have time to read a lengthy report. What then is the difference between typing on a wiki and typing an academic essay? The wiki has the added element of being public. This forced our group to ensure that our writings were of a minimum standard in terms of relevance and clarity.

A couple of critical suggestions were made by the students to further enhance the wiki-based hall of fame such as adding real visits to Chinese scholars residing in Singapore or interviewing scholars via e-mail or telephone.

The hall of fame allows us to better understand the legacy of Chinese scholars. However, besides learning from books about the facts and history, it would be good if an outing could be arranged as a group tour to visit one of the Chinese scholars in Singapore (if possible) as this would help students to improve the content of the wiki. By conducting this tour, students would have the opportunity to interview and discuss issues with these scholars.

Another interesting observation pertains to the fact that the students used several *combined* social media platforms in individual projects to finalize their main project outcomes such as Facebook, blogs, YouTube, etc.

4.4 Example 4: podcasting

Podcasts (McCarty 2008; Moss et al. 2010) represent another convenient and flexible mobile learning tool which we utilized in the context of the course on Chinese entrepreneurship. A podcast is recorded audio, video or screen capture. Podcasts can be downloaded via RSS to a computer. They can be played on a computer or an MP3 player (e.g., an iPod). To subscribe to a podcast, users need internet access and a computer.

To familiarize students with this technology, one particular group volunteered to summarize and reflect about a particular research paper which had to be read by all students as part of the course outline entitled “Transnational Fujian” (Chong 2009) in form of a podcast rather than a traditional project report. Students were informed prior to the scheduled class that they would not meet physically. Instead they were invited to enjoy the recorded podcast entitled “Moral Economy of Qiaoxiang Ties” put together by the group by downloading it via YouSendit. The recorded (podcast) group result was truly creative as evidenced by the actual recording and certainly exceeded the authors’ expectations. When face-to-face class resumed, students shared their listening experiences with each other, and the instructor contextualized the podcast recording with reference to current migration patterns in Fujian province, People’s Republic of China, directed at the African continent rather than the *Nanyang* as in the past.

The core elements that make up a podcast have been around for a long time such as digital audio, internet distribution, RSS syndication and so forth, but in combination these three bits create an attractive, personalized radio station. According to Steve Sloan (<http://www.edupodder.com>), podcasting is ideal for:

- for distance learning;
- to facilitate self-paced learning;
- for re-mediation of slower learners;
- to allow faculty to offer advanced and or highly motivated learners extra content;
- for helping students with reading and/or other disabilities;
- for multi-lingual education;
- to provide the ability for educators to feature guest speakers from remote locations;
- to allow guest speakers the ability to present once to many sections and classes;
- to allow educators to escape the tedium of lecturing;
- to offer a richer learning environment.

4.4.1 What is a Podcast?

A podcast is recorded audio, video, or screen capture. Podcasts can be downloaded via RSS to a computer. They can be played on a computer or an MP3 player (e.g., an iPod). To subscribe to a podcast, users need internet access and a computer. Podcast is similar to subscribing to a magazine:

RSS = Subscription”

Podcatcher = “Mailbox”

Player = Media player (software) or MP3 player (hardware)

Examples of free software:

Podcatcher: Doppler <http://www.dopplerradio.net/>

Podcatcher and Player: Juice <http://juicereceiver.sourceforge.net> and iTunes (<http://www.apple.com/itunes/download/>)

When recording a podcast, learners need to be reminded that it does not have to be perfect. Conversations are an easy way to make a podcast interesting. Generally speaking, 5–8 min is a good length. To achieve a high quality outcome it is advisable to prepare an outline before the recording starts. Podcasts can be made available on as many sites as possible (e.g., <http://www.podcast.sg/>, iTunes). All what is required is a microphone, a computer, and recording software:

Audio recorder for free

<http://audacity.sourceforge.net/>

Audacity (record and edit, free)

<http://audacity.sourceforge.net>

Mobile learners need an MP3 player if they want to listen to it when they are on the move. To publish their own podcasts, students need the recorded file (format: MP3 audio; M4V video), web server (students’ current website), and IT support to upload and create a simple xml script.

4.4.2 Podcast instructions

The following instructions were given to students to enable them to download/listen to the instructor’s podcast recorded prior to official class time:

- Download and install iTunes from the following link: <http://www.apple.com/itunes/download/>
- Make sure that you are logged in to SMU campus network (if you are outside of SMU then you need to use VPN).
- Go to: <https://intranet.smu.edu.sg/ctlgallery/podcast1.asp?title=Chinese+Entrepreneurship+and+Asian+Business+Networks&school=lkcsb&category=Podcast>
- Click on the “iTunes button” to subscribe to the podcast.
- You will find more detailed information via the following link: <https://intranet.smu.edu.sg/ctlgallery/help3.asp>

Comments by students suggest that they find both listening and podcast analyses interesting and value-added. Our podcast experience confirms the argument that such mobile learning tools are effective tools to impart course-related knowledge into learners, an approach which

can be even more effective if the instructors themselves take the initiative and start recording creative and interesting podcasts.

The process itself is straightforward as the software is available for free on the internet.

The results of this assignment suggest that podcasting is indeed a low-cost learning motivator which can be leveraged upon as a blended learning tool (Cook et al. 2006; Menkhoff et al. 2011). It sparks students' creativity and is a pedagogically meaningful and fun-generating activity.

4.5 Example 5: walking tour

The final example of a mobile learning technology featured in this paper is the walking tour (Ryave and Scheinein 1974; Wynn 2008). Walking tours led by competent guides whether it is a Professor or an academically trained professional tour guide are effective tools to acquire location-specific, thematically relevant knowledge about a particular subject matter through stories about places, hidden urban treasures, and anecdotes. Depending on the knowledge and skills of the guides, 'awakening the stories that sleep in the streets' can help students to appreciate local knowledge on the basis of spatial narratives such as historical events, urban artifacts and other "boundary objects" such as places of religious worship (Attwell et al. 2009; Careri 2002; Curtis 2008; Nye 1997).

In the context of the course featured in this paper, three tours were organized: (i) a walk through Singapore's Chinatown led by the course instructor, (ii) a tour through Singapore's Kampong Glam (a traditional cluster of Malays and Arabs) led by a professional guide and (iii) a tour of the Hokkien Huay Kuan Association (a Chinese clan association) and a nearby temple under the guidance of both the Professor and a competent representative of the clan association. Key objectives included to appreciate how social change has impacted upon the community life of Singaporean Chinese, to compare Chinese and non-Chinese business patterns and to appreciate the challenges faced by traditional Chinese community organizations such as clan associations in remaining relevant in the twenty-first century. Comments by students suggest that they appreciate such efforts as indicated by the following quotes:

It is definitely one of the most interesting courses at SMU. There aren't many modules that allow outings to sites where we can learn so much about our Chinese heritage and how it is closely related to network relationships in businesses.

The walking tours were part of interactive learning where places of interest/heritage were shown. Seeing and learning had a subtle impact ... impressions were made on grounds, actively I was able to capture the meaning places hold, having stepped into the place itself as well as being exposed to various exhibits and artefacts.

Some of the more skeptical students suggested to conduct these walking tours at the beginning of the course and to add a compulsory one page reflective write-up, something to be considered by the instructor during the planning of the next course:

Excellent, the tours helped us to understand Chinese business in the context of Singapore's history, the role of associations such as the Hokkien Huey Kuan and important landmarks in Singapore. I propose to have this form of outing at the beginning of the school term. This will allow students to gain an insight of what the overall course module is all about. In addition students should write a one page self-reflective piece at the end of the tour. This will ensure that students have a takeaway which can be added into the wiki another resource.

5 Conclusion

In this paper, we have summarized how we attempted to integrate mobile learning devices, such as mobile phones, photo-sharing websites, wikis, podcasts, and walking tours as educational tools into an undergraduate course on Chinese entrepreneurship at an institution of higher learning in Singapore. Our experiences suggest that student-centered online learning resources integrated into mobile assignments are instrumental in facilitating information and knowledge sharing amongst peers outside the constraints of class schedules and seminar rooms. While it remains challenging to shed light on the inner dynamics of an asynchronous learning network, our study suggests that a teaching method which puts emphasis on mobile learning technologies in a *blended* learning context which incorporates mini lectures, student presentations, learning goal-oriented walking tours, field visits, exposure and so forth into the pedagogical approach clearly helps to promote learning (Menkhoff et al. 2011). Mobile learning tools supplement blended learning approaches and help students to create meaningful, contextual learning outcomes in relation to pedagogical objectives. They enable students to engage in meaningful, collaborative learning and to tackle existing competency gaps either individually or in a team with the help of their peers. They support assurance of learning as they appeal to Gen Y's technological know how and learning culture.

Mobile learning devices bring excitement into the classroom and help to empower students. They are relatively cheap and easily available, and they appeal to students as they represent everyday life communication devices they are familiar with.

One of the challenges is to ensure that they are aligned with the course objectives and that they make pedagogical sense. Another related challenge is to equip (baby boomer) instructors with the required technical know how so that they can utilize such collaborative tools and that organizational practices (and budgets) support their applications. The increasing popularity of webinars, Facebook discussions, the use of Twitter as a communicative device (both can be accessed via mobile phones or iphone when the students are on the go) point to the bright future of technology-enabled learning at higher educational institutions in Asia despite potential challenges such as cultural sensitivity to correct others publicly and to take part in open debates (Young 2010).

It is interesting to note that the students initially did not choose to comply with the course outline requirement to upload their main learning outcomes on the course wiki. Instead they chose other channels that they are already familiar with such as YouTube, Twitter, or blogs which supports Lundin's et al. (2010, p. 11) hypothesis that it makes a lot of pedagogical sense to integrate "technologies already appropriated by students" into course designs. An important requirement in this context is that it must be easy for students to utilize privately owned mobile devices in educational contexts and that the 'seamless integration' of these tools is painfree (Ebner 2010).

References

- Arnold, N., & Paulus, T. (2010). Using a social networking site for experiential learning: Appropriating, lurking, modelling and community building. *Internet and Higher Education*, 13(4), 188–196.
- Arreguin, C. (2004). Wikis. In Hoffman, B. (Ed.), *Encyclopedia of educational technology*. Retrieved October 15, 2010, from <http://edweb.sdsu.edu/eet/articles/wikis/start.htm>.
- Attwell, G., Cook, J. & Ravenscroft, A. (2009). Appropriating technologies for contextual knowledge: Mobile personal learning environments. In M. D. Lytras, P. Ordóñez de Pablos, E. Damiani, D. Avison, A. Naeve & D. G. Horner (Eds.), *Best practices for the knowledge society. Knowledge, learning, development and technology for all*. Proceedings of the Second World Summit on the

- Knowledge Society, WSKS 2009, Chania, Crete, Greece, September 16–18, 2009. Communications in Computer and Information Science, Vol. 49, Springer. ISBN: 978-3-642-04756-5.
- Bakardjieva, M. (2005). *Internet society. The internet in everyday life*. London: Sage Publications.
- Careri, F. (2002). *Workscapes: Walking as an aesthetic practice*. Barcelona: Gustavo Gili Land and Scape Series.
- Chong, J. (2009). The sea as paddy—the making of Fujian as a transnational place. *Columbia East Asia Review*, 2, 5–19.
- Cook, J. (2007a). *Smells like teen spirit: Generation CX*. Ideas in Cyberspace Education (ICE3), March 21–23, Loch Lomond, Scotland.
- Cook, J. (2007b). *Putting control into the hands of the learner: M-learner generated contexts*. Paper accepted as part of Symposium: Mobile Learning and Creative Disruption in Learning Organisations and Pedagogy (convener John Cook). CAL '07, March 26–28, 2006, Trinity College, Dublin, Ireland.
- Cook, J. (2007c). *Generating new learning contexts: Novel forms of reuse and learning on the move*. Invited talk at ED-MEDIA 2007—World Conference on Educational Multimedia, Hypermedia & Telecommunications, June 25–29, Vancouver, Canada.
- Cook, J., Bradley, C., Holley, D., Smith, C. & Haynes, R. (2006). *Introducing blended mLearning solutions for higher education students*. mLearn, Banff Canada, October 22–25.
- Curtis, E. (2008). Walking out of the classroom—Learning on the streets of Aberdeen. In T. Ingold & J. L. Vergunst (Eds.), *Ways of walking—Ethnography and practice on foot*. Aldershot: Ashgate.
- Ebner, M., Lienhardt, C., Rohs, M., & Meyer, I. (2010). Microblogs in higher education—A chance to facilitate informal and process-oriented learning? *Computers & Education*, 55(1), 92–100.
- Eisenhardt, K. M. (1989). Building theories from case study research. *Academy of Management Review*, 14, 532–550.
- Green, H. & Hannon, C. (2007). *Their space: Education for a digital generation*. Leicester, UK: Demos. Accessed February 1, 2007 from <http://elearning.heacademy.ac.uk/weblogs/pathfinder/?p=46>.
- Klein, H. K., & Myers, M. D. (1999). A set of principles for conducting and evaluating interpretive field studies in information systems. *MIS Quarterly*, 23, 67–94.
- Laurillard, D. (2007). Pedagogical forms for mobile learning. In N. Pachler (Ed.), *Mobile learning: towards a research agenda. Occasional Papers in Work-based Learning 1* (pp. 153–175) London: WLE Centre, Institute of Education (IOE).
- Lymer, G., Lundin, J., Brown, B., Rost, M. & Holmquist, L. E. (2007). *Web based platforms in co-located practice—The use of a wiki as support for learning and instruction, Proceedings of CSCL 2007*. New Jersey: Lawrence Erlbaum Associates.
- Lundin, J., Lymer, G., Holmquist, L. E., Brown, B., & Rost, M. (2010). Integrating students' mobile technology in higher education. *International Journal of Mobile Learning and Organization*, 4(1), 1–14.
- Market, C., Sanchez, I. A., Weber, S., & Tangney, B. (2006). Using short message service to encourage interactivity in the classroom. *Computers & Education*, 46, 280–293.
- McCarty, S. (2008). Podcasting and mobile learning. In Hoffman, B. (Ed.), *Encyclopedia of educational technology*. Retrieved October 15, 2010, from <http://edweb.sdsu.edu/eet/articles/podcast/start.htm>.
- McCarthy, J. (2010). Blended learning environments: Using social networking sites to enhance the first year experience. *Australasian Journal of Educational Technology*, 26(6), 729–740.
- Menkhoff, T. & Gerke, S. (Eds.). (2002). *Chinese entrepreneurship and Asian business networks*. London: Routledge.
- Menkhoff, T., Thang, T. Y., Chay, Y. W. & Wong, Y. K. (2011). Using web-based ICT in learning: A case study of a knowledge management programme. *The Journal of Information and Knowledge Management Systems*, 41(2), 132–151.
- Miles, M. B., & Huberman, M. A. (1994). *Qualitative data analysis* (2nd ed.). Beverly Hills, CA: Sage.
- Moss, N. D., O'Connor, E. L., & White, K. M. (2010). Psychosocial predictors of the use of enhanced podcasting in student learning. *Computers in Human Behavior*, 26, 302–309.
- Nye, D. (1997). *Narratives and spaces*. Exeter, UK: University of Exeter Press.
- Ryave, L., & Scheinein, N. (1974). Notes on the art of walking. In R. Turner (Ed.), *Ethnomethodology*. Harmondsworth: Penguin.
- Saeed, N., Yun, N., & Sinnappan, S. (2009). Emerging web technologies in higher education: A case of incorporating blogs, podcasts and social bookmarks in a web programming course based on students' learning styles and technology preferences. *Journal of Educational Technology & Society*, 12(4), 98–109.
- Schwartz, L., Clark, S., Cossarin, M. & Rudolph, J. (2004). Educational wikis: Features and selection criteria. *The International Review of Research in Open and Distance Learning*, 5(1). Accessed December 21, 2011, from <http://www.irrodl.org/index.php/irrodl/article/view/163/244>.

- Soloway, E. & Norris, C. (2005). *Using handheld computers in the classroom: Concrete visions*. Podcast of Keynote from mLearn 2005, 4th World Conference on mLearning. Accessed February 2006, from <http://libsyn.com/media/digit5th/SolowayNorris.mp3>.
- Stake, R. (1995). *The art of case research*. Newbury Park, CA: Sage.
- Stebbins, R. (2001). *Exploratory research in the social sciences*. Thousand Oaks: Sage Publications.
- Sung, Y.-T., Chang, K.-E., Hou, H.-T., & Chen, P.-F. (2010). Designing an electronic guidebook for learning engagement in a museum of history. *Computers in Human Behavior*, 26, 74–83.
- Walsh, S. P., White, K. M., Cox, S. & Young, R. (2011). Keeping in constant touch: The predictors of young Australians' mobile phone involvement. *Computers in Human Behavior*, 27(1), 333–342.
- Wankel, C. (2009). Management education using social media. *Organization Management Journal*, 6(4), 251–262.
- Wynn, J. (2008). *Spatial narratives and experiential learning: Walking tourism as culture work*. Paper presented at the annual meeting of the American Sociological Association Annual Meeting, Sheraton Boston and the Boston Marriott Copley Place, Boston, MA, July 31.
- Yin, R. (1994). *Case study research: Design and methods*. Beverly Hills, CA: Sage.
- Young, J. R. (2010, Sept 7). In wired Singapore classrooms, cultures clash over Web 2.0. *The Chronicle of Higher Education*.
- Yu, T.-K., Lu, L.-C., & Liu, T.-F. (2010). Exploring factors that influence knowledge sharing behavior via weblogs. *Computers in Human Behavior*, 26, 32–41.