Australian Journal of Basic and Applied Sciences, 7(3): 18-23, 2013
ISSN 1991-8178

Assessing the Use of Mobile Technology for Technical English

[1]Zanariah Jano, [1]Razilah Abdul Rahim, [1]Noridah Abdullah,[1]Khoo Linda Mei Sui, [2]Yeo Mun Yee, [3]Rabiah Ahmad, [1]Mariana Yusoff, [4]Kamaruzaman Jusoff and [1]Noorli Khamis

[1]Centre for Languages and Human Development, Universiti Teknikal Malaysia Melaka, Hang Tuah Jaya, 76100 Durian Tunggal, Melaka, Malaysia
[2] Open University Malaysia, 75150 Bandar Bukit Baru, Melaka, Malaysia
[3]Centre for Advanced Computing Technology, Faculty of Information and Communication Technology, Universiti Teknikal Malaysia Melaka, Hang Tuah Jaya, 76100 Durian Tunggal, Melaka, Malaysia
[4]Department of Forest Production, Faculty of Forestry, Universiti Putra Malaysia, 43400 UPM Serdang, Selangor, Malaysia.

Abstract: Mobile technology in a new learning paradigm indicates the use of mobile and wireless technologies which scaffold the teaching and learning dimension in most tertiary institutions. The objective of this paper is to assess the level of students' readiness in using a mobile technology for Technical English in one of the technical universities in Malaysia. A quantitative analysis was used through a survey method in which 200 survey questionnaires were sent out to randomly selected students in engineering faculties at the Universiti Teknikal Malaysia Melaka. The findings showed that the majority of students were ready to embark for a mobile-based learning as they had mobile phones equipped with a 3G service for class notes retrieval, multimedia messaging services, video call services for easy interaction among peers and with tutors. The results provide useful guidelines for curriculum designers and educators. Future work should integrate the perspectives of administrative units and educators to gain an overall assessment of the mobile technology readiness from various dimensions.

Key words: Mobile technology, Technical English, Readiness, Mobile Learning

INTRODUCTION

With the rapid progress of science and technology especially with the invention of computer and the birth of internet as well as the progressive evolution of hand phone technology since early 1980's, the landscape of learning has been changing. Learning is both mobile and connected. The development of mLearning (henceforth, mLearning) is driven by educationalists and technologists for the necessity of educational structure, technological innovation, funding availability and the perceived inadequacy of conventional learning (Guy, R., 2009).The mobile technology in the learning paradigm focuses specifically in mLearning.

Various definition of mLearning is found in the extant literature. Early definition of mLearning focused on technology. mLearning is defined as any sort of learning that happens when the learner is not at a fixed, predetermined location, or learning that happens when the learner take advantage of the learning opportunities offered by mobile technologies (Vavoula, G. N., 2005). mLearning signifies learning mediated by mobile devices, mobility of the learners, and the content or information which can be tapped from anywhere (Taylor, J., 2006). Meanwhile, mLearning is also described as 'disruptive' and 'paradigm-shifting', integrating learning with life and work is constructed around learners' interest and needs in diverse situation and contents (Hulme, A.K., 2010).

The benefits of mLearning include portability, connectivity, flexibility and timely access to e-learning resources, empowering and engaging the learner with experience of active learning. Besides, mLearning increases computer literacy, improves communication skills and promotes collaborative learning and mentoring. Since the transfer of information is instantaneous, efficiency is ensured and it saves time and money.

Mobile devices for learning include a wide variety of devices connected to different kinds of networks which can be cable-free such as mobile broadband. Broad band is the short form of 'broad band width'. This refers to the fast and high capacity internet access as compared to conventional dial-up access. Examples of mobile devices are mobile phone, lightweight portable computers such as personal digital assistants, notebook and tablets, portable media players such as iPods, MP3 or MP4 player. Others include games consoles, digital voice recorder, and aids for disabled learners. Devices are increasingly multifunctional to support speaking, writing, listening and searching for information.

The Malaysian Government established the Multimedia Super Corridor in 1996 with the vision to transform the nation into knowledge based economy powered by knowledgeable and literate society. One of the four

Corresponding Author: Zanariah Jano Centre for Languages and Human Development, Universiti Teknikal Malaysia Melaka (UTeM), Hang Tuah Jaya, 76100 Durian Tunggal, Melaka, Malaysia.
Tel: +6017-6416822, E-mail: zanariahjano@utem.edu.my

flagship applications spearheaded is to implement smart school application to ensure the future generations of workers are more technical savvy and in tune with the rapidly progressing digital age. It is the government's vision to achieve the status of developed nation by the year 2020. One of the measures is to have knowledgeable people by promoting life-long learning. Centres of Higher Education establish distance learning approach to enable working adults to continue their education while being employed. To augment learning, the proliferation of digital technology in the form of mobile devices has been taken advantage of to facilitate the ease of learning.

Malaysia is undergoing a rapid increase in the usage of mobile devices. According to the Malaysian Communications and Multimedia Commission (MCMC) statistics (Malaysian Communications and Multimedia Commission Annual Report, 2009), in 2012, a 137.7% penetration rate equals to over 39 million mobile phone subscribers in the country. These figures show an increase from the 2011 statistics in which there were 36 million hand phone subscribers with a penetration rate of 127%. In 2009, Internet access through hand-phone was 16.3%. 58% has cameras in hand phone. As for percentage of the generational groups who use hand phone, pre-teens and teens (up to 19 years) 14.7%, adults (20-49 years) 73.4% and seniors (more than 50 years) 11.8%. Hand phone is the cheapest of all mobile technologies, and most people are familiar with the use of short message service (SMS) and it is relatively cheap. Revenue generated by service market segment has accelerated from RM 10 billion in 1999 to RM 41 billion in 2009. The percentage of subscribers sending more than 5 SMS per day over the period 2004 to 2008 had increased from 31.7% to 50.7%. As for the global competitiveness ranking, Malaysia is ranked 26 for infrastructure, 37 and 41 for technological readiness and higher education and training respectively. All these have indicated the readiness in infrastructure and should be a good indicator for the students' readiness for mLearning.

The higher learning institutions have played an essential role in integrating mLearning. Several studies reveal the mLearning scenario in universities. For example, Open University of Malaysia (OUM) is one of the main academic institutions to introduce e-learning and the current main focus is mLearning through short messaging services (henceforth, sms). OUM's mLearning through SMS has increased from one course in 2009 to six courses in 2010. The mLearning approach through the sms was initiated in 2009 after a study showed 98% of learners had at least one hand phone and 82% perceived that they were ready for mLearning. Five dimensional supports were identified for the success of mLearning which include administration support, academic support, learner motivation, learner self-management and collaboration of learning activities (Lim, T., *et al*., 2011).

A similar study on 45 distance education learners from Universiti Sains Malaysia showed that the entire respondents owned mobile phones which were used mainly for managing learning activities (Andaleeb, A.A., *et al*., 2010). When media was used to augment classroom learning, it reduced socio-emotional pressure on people as they could express better without inhibition (Ismail, I., *et al*., 2010). A study reported that 85% of the respondents liked to use technology learning, 75% was interested to learn more about mLearning and 90% agrees that mLearning should be implemented in distance education (Zaini, M., and K. Faradilla, 2007). The advantages of mLearning include lighter and less bulky mobile devices, easy of sharing assignment or work collaboratively, and increase in motivation. The disadvantages are attributed to the physical properties of mobile devices such as small screens and limited storage capacities. Other disadvantages include lack of common platform and lack of training sessions for the practitioner to use the device effectively.

A study was conducted on the mobile phone usage for mLearning (Suki, N.M., 2007). The purpose of the study was to examine the difference in usage of mobile phone for mLearning between heavy and light users. Data were collected from 436 mobile phone users in the Klang Valley, the most densely populated region in Kuala Lumpur. The study showed that the majority of the respondents were students with a Bachelor's degree (94.3%), age between 19 to 30 years. This age group preferred to buy new mobile phones which offer a wide range of interesting features. 98% of respondents owned a mobile phone and the rest owned a PDA, pocket PC or smart phone. Heavy mobile phone users accessed or subscribed to more mobile content than light users and they were willing to spend more on mLearning. The heavy users also spent one to four hours per day on mobile devices doing mLearning or playing games. Heavy mobile phone users are actively seeking for knowledge. They had a greater exposure to mass communication media and interpersonal communication channel and constantly stayed current through this network. Mobile content needs to be developed for mobile devices with clear images and quality sound thus enabling user to enjoy quality learning. By the same token, a study was conducted on the perceptions of the Malaysian university students towards mLearning and found that the mobile device usage made the course interesting and allowed an effective learning supplement (Jacob, S.M. and B. Issac, 2008). Furthermore, a study was conducted at two different universities pertain to mLearning readiness of students (Supyan Hussin, *et al*., 2012). The findings stated that the students were highly computer-savvy and they projected positive feedback with regards to the integration of mLearning in education. Another study (Norazah Nordin, *et al*., 2010) also found that students at Universiti Kebangsaan Malaysia, agreed that mobile phones could enhance the teaching and learning process, students' motivation and interaction.

On the other hand, some studies around the world have revealed some problems regarding mLearning (Corbeil, J.R and M.E.Vaides-Corbeil, 2007; Muyinda, P.B., *et al*., 2008). A few issues have been highlighted

that require further study which include the quality of communication and interaction, the change of roles of the instructor and increase of a gap between the haves and the have-nots (Corbeil, J.R and M.E.Vaides-Corbeil, 2007). Another study found that students had little interest in using mobile devices except for MP3 players (45%). 52 respondents owned mobile phones but mostly for the purpose of casual communication while 7 used them for educational purposes and this may be due to technological reasons (Parsons, G., 2010). This change will depend on students' better exploration of the facilities offered by the mobile devices. This research shows that students are keen to use more electronic resources but it appears that mobile devices have not made an impact on their educational activities. One study found that a significant disruption of communication was due to a lack of connectivity or insufficient airtime which affected mLearning (Muyinda, P.B., *et al*., 2008). It implies that the university needs to provide a financial support for phone airtime credit or work out a mechanism for a toll free communication to augment mLearning. The study also suggests that mLearning policies and pedagogy for learners need to be developed and extended to the use of mobile phone beyond sms communication.

The current study assesses the level of mLearning readiness among students of a technical university in Malaysia. The findings should provide insights into the students' readiness in embracing mLearning for Technical English course. Instructors, then, should gain knowledge on preparing syllabus and infrastructure which cater to the students' needs.

Methods:

Sample and Data Collection:

A quantitative analysis was used to test the research model through a survey method. 200 survey questionnaires were sent out to randomly selected students in engineering faculties at the Universiti Teknikal Malaysia Melaka. 200 completed questionnaires were returned. The questionnaire is divided into five sections. The first section consists of questions regarding the demographic characteristics of the respondents. The second section consists of information on handphone facilities. The third section consists of questions measuring the facilities on Internet Access. The five point Likert scale ranging from 1 (Never) to 5 (Always) is used to indicate the degree of facilities subscribed for internet access. The fourth section illustrates the degree of agreement pertaining to mLearning endeavour. The five point Likert scale ranging from 1 (strongly disagree) to 5 (not applicable) is used for the questions to indicate a degree of agreement or disagreement with each of a series of statements related to the stimulus objects. The measurement items have been adapted from a previous study (Supyan Hussin, *et al*., 2012). An addition of one section to explore students' suggestions on mLearning interfaces is added based on the researchers' discussion during the designing of questionnaire. The questionnaires have been administered to respondents along with a cover letter, explaining the purpose of the research. The data were analysed by examining the distribution of responses. The data were analysed using percentage analysis and one way ANOVA. The rest of the data are analysed manually. Participants of the study were students in two engineering faculties at Universiti Teknikal Malaysia Melaka.

Content Validity:

Content validity of the questionnaire was established by reviewing existing literature. Most of the items intended to measure the variables in this study were adopted from previously validated instruments except for an additional section suggested by the team. Hence, the major aspects of the topic were adequately covered by the items included in the questionnaire.

Reliability:

Cronbach α's was used to measure the reliability (Cronbach L.J., 1951). Overall alpha coefficient for all the variables is 0.844. As the values for all of the variables involved are above 0.7, they are accepted as reliable. Hence, the internal reliability of the measures used is good.

RESULTS AND DISCUSSION

Demographic information:

Demographic profile consists of faculty, age, ethnicity, gender and nationality. From a total of 117 completed questionnaires received, the number of students from the Faculty of Electrical Engineering is 73 (62.4%) while the Faculty of Electronic Engineering and Communication is 44 (37.6%). Male respondents (63.2%) are more than female (36.8%). Most of the respondents are Malays (67.5%), Malaysian (96.6%) and aged within 20-24 years old (96.6%). This shows that respondents in this study are relatively young. Table 1 illustrates the respondents' demographic profile.

Table 1: Respondents' demographic profile

Variable	Frequency	Percent

Faculty		
Electrical Engineering Faculty	73	62.4
Electronic Engineering and Communication	44	37.6
Age		
20-24	113	96.6
25-29	3	2.5
30-34	1	0.9
Ethnic		
Malay	79	67.5
Chinese	30	25.6
Indian	5	4.3
Other (please specify)	3	2.6
Gender		
Male	74	63.2
Female	43	36.8
Nationality		
Malaysian	113	96.6
Others	4	3.4

Basic Readiness:

The survey explores respondents' readiness to mLearning by analysing their mobile facilities. All respondents own a mobile phone. While 76.1% has a 3G service for class notes retrieval through a 3G format, only 11 % has 4G services. 80% possess MMS services for reading multimedia files, 69.2 % has video call services for easy interaction among peers and with tutors. Internet access is subscribed by 78.6% which is a pre-requisite for mLearning process. In addition, most respondents (82.9%) have a memory card that can store digital files which indicate the large capacity to store large information. In addition, most respondents are capable of reading video (82.1%), audio (87.2%), and graphic files (89.7%). For phones that have the functions for displaying learning resources the percentage is quite low, 41.9% for word documents, PDF 46.2% and power point document 35%. Smart phones with these advanced features are still not widely used probably due to the cost. The majority of the students have already had the basic requirements to participate in mLearning. In general, the findings indicate some positive environment for the university to offer mLearning to their students. Table 2 illustrates the students' mobile facilities.

Table 2: Students' mobile facilities

Instruction: Please respond to the following statements by ticking (/) an option (1) Yes or (2) No, in the box below.			
No	Statements	(1) Yes (%)	Positive
1.	Do you have a handphone (mobile phone)?	100	/
2.	Does your handphone have 3G service?	76.1	/
3.	Does your handphone have 4G service?	11.1	
4.	Does your handphone have MMS service?	80.3	/
5.	Does your handphone have a video call service?	69.2	/
6.	Have you ever used a video call?	47.9	
7.	Does your handphone have Internet access?	78.6	/
8.	Does your handphone have a memory card that can store digital files?	82.9	/
9.	Can your handphone read/open up the following files?		
	a. Word document	41.9	
	b. PDF document	46.2	
	c. Excel document	33.3	
	d. Power Point document	35	
	e. Video files	82.1	/
	f. Audio files	87.2	/
	g. Photos / graphics	89.7	/

Skills Readiness:

One sample t-test is conducted to gauge the skills readiness among students. Most students use Wi-Fi facility (M=3.27) rather than subscribe to internet line (M=2.54). Another high score is featured by the use of phone to access Facebook and/or other social networking sites. Other potential areas include subscription of internet line through phone because it is an emerging trend nowadays, file downloading, MMS and Bluetooth usage.

Psychological Readiness:

An investigation on the students' perceptions of a basic understanding of mLearning is essential to know their readiness in embracing mLearning**.** The high score for positive responses include the fact that students are familiar with mLearning, want to know more about mLearning, think mLearning learning is good for the working adults who are pursuing their higher education, want lecturer to integrate mLearning in the class in addition face-to-face meetings in the class and online forum, will save the learning time, think it is an alternative to web based learning, need to learn how to use handphone for mLearning, look forward to engage in mLearning, will upgrade handphone if mLearning is going to be implemented in the course and think that mLearning is an alternative to conventional learning. These are positive responses to mLearning as the mean score is rated high (M= 2.75 - 3.44). However, some fears were noted as most students state that they prefer conventional learning than mLearning, are afraid that they will spend more money on phone bill because of mLearning and are not familiar with the usage of 3G facilities. This phenomena show that besides having the enthusiasm of undergoing mLearning, the students are still hesitated on some areas. These results might have been affected by uncertainties of the unknown as they have never had any experience in mLearning (Supyan Hussin, *et al*., 2012).

Additional Analyses:

When asked about the future of mLearning activities, 74.6 % disagrees with the statement that "mLearning will make my life difficult". A question asked about the elements which should be put in the mLearning interface. Most students agree that announcement, messages and reading articles should be important items. An additional analysis asks for students' suggestions on interfaces to be put in the mLearning realms. Some suggestions include "forum for recent news or announcements", "video call teaching", "send/ receive e-mail", "check flight schedules", "check my account", "Learning Management System application", "an application like "tango", "an application that can detect friends that are nearby such as 'boy oh boy', "lecture notes/time table", "social network" as to communicate with course mate, "live streaming", "whatsapp", "BBM", "yahoo messenger", "facebook", "skype", "twitter", "video call discussion", "pdf", "microsoft word", "email / wifi services", "online book", "multi-media services", "tele-conference", "video conference / video converter", "android application", "GPS", access lecture notes from "Learning Management Services". These suggestions are beneficial in designing a syllabus for mLearning education for students' or users' perceptions are worth considering.

The findings show that students are receptive on the integration of mLearning in the learning realms. In terms of their basic readiness, the majority is ready as they have mobile phones equipped with a 3G service for class notes retrieval, MMS service for reading multimedia files, video call service for easy interaction among peers and with tutors. Besides, internet access is subscribed by which is a pre-requisite for mLearning process. In addition, most respondents have a memory card that can store digital files which indicate the large capacity to store large information. In addition, most respondents are capable of reading video, audio and graphic files. For phone with functions for displaying learning resources, the percentage is quite low. This phenomenon could be attributed to the high cost of smart phones. This phenomenon is contrary to the finding by (Suki, N.M., 2007). This may be due to the more affluent society in Klang Valley. Phone with audio-visual features is more favoured because they entertain the users (Suki, N.M., 2007; Huang, J.H., 2007).

In general, the students have already had the basic requirements to participate in mLearning. Hence, the university is ready to implement mLearning as the environment is conducive to do so. In terms of skill readiness, most students prefer wifi facility rather than internet subscription. This could be due to the wide accessibility of wifi services offered by public agencies and hospitality premises. Besides, the cost to subscribe the internet line is still expensive compared to the free Wifi services. However, the students may have subscribed to the Internet on hourly or daily basis to save cost. Students also like the Web 2.0 application as they can interact with peers globally. This scenario amplifies the fact that facebook and other Web 2.0 features are catalysts for mLearning education. Other emerging, popular applications are subscription of internet line through phones, file downloading, MMS and Bluetooth usage because it is an emerging trend nowadays. These findings are in line with previous studies done which show positive responses from students on mLearning implementation (Suki, N.M., 2007; Jacob, S.M. and B. Issac, 2008; Supyan Hussin, *et al*., 2012; Norazah Nordin, *et al*., 2010). In terms of psychological readiness, the mixed emotion between enthusiasm and fear is expected as respondents are uncertain as how best to engage in mLearning. This is in line with (Supyan Hussin, *et al*., 2012) who assert that the students might have been affected by uncertainties of the unknown as they have never had any experience in mLearning. Moreover, the suggestions of the interfaces needed for mLearning realms by students should be the basis for guiding instructors on preparing syllabus and infrastructure which cater to the students' needs.

Conclusion:

In conclusion, students provide positive feedback on the prospects of implementing mLearning in Technical English course as the elements of mobile technology in terms of basic facilities, skills and psychological readiness have been fulfilled. However, the blend of enthusiasm and fear are detected as they are embracing the new technology in teaching and learning realms. This study is beneficial for educators and curriculum designers in order to design syllabus which cater to students' needs in the era of information and communication technology. A larger sample from similar or different institutions of higher learning will provide a better and clearer insight into the issue of utilising mLearning approach through assessing mobile technology. Furthermore, the perspectives of the administrative units and educators should be explored to gain an overall assessment of the use of mobile technology in learning readiness from a variety of dimensions.

REFERENCES

Andaleeb, A.A., R.M. Idrus, I. Ismail and A.K. Mokaram, 2010. Technology readiness index among USM distance education students according to age. International Journal of Human and Social Science, 5(3): 189-192.

Corbeil, J.R and M.E.Vaides-Corbeil, 2007. Are you ready for mLearning? Educause Quarterly, 30(2):51-58.

Cronbach L.J., 1951. Coefficient alpha and the internal structure of tests. Psychometrika, 16(3): 297-334.

Guy, R., 2009. The evolution of mobile teaching and learnings. (1st ed.). California: Informing Science Press.

Huang, J.H., 2007. Elucidating user behavior of mLearning.The Electronic Library, 25(5): 585-598.

Hulme, A.K., 2010. mLearning for quality education and social inclusion. Retrieved 2011, from: http://iite.unesco.org/files/policy_briefs/pdf/mobile_learning.pdf.

Ismail, I., T.Gunasegaran, P.P. Koh and R. Idrus, 2010. Satisfaction of distance learners towards mLearning in the Universiti Sains Malaysia. Malaysia Journal of Educational Technology, 10(2): 47-54.

Jacob, S.M. and B. Issac, 2008. The Mobile Devices and its mLearning Usage Analysis. International Journal of Interactive Mobile Technology, 2(1): 10-18.

Lim, T., M. Fadzil and N. Mansor, 2011. mLearning via SMS at Open University Malaysia: Equitable, effective, and sustainable. Retrieved 2011, from: www:slideshare.net…/mobile-learning-at-open-university-malaysia-United States.

Malaysian Communications and Multimedia Commission Annual Report, 2009. Retrieved 2011, from: www.skmm.gov.my/...web%20Update%20%Annual.

Muyinda, P.B., J.T. Lubege and K. Lunch, 2008. Mobile research supervision initiative (MRSI) at Makerere University: Lessons to learn. International Journals of Computing and ICT Research. Special Issue, 1(1): 46-59.

Norazah Nordin, Mohamed Amin Embi, Ruhizan M Yasin, Saemah Rahman and Melor Md. Yunus, 2010. The mLearning Readiness of the Post-Graduate Students, EABR & ETLC Conference Proceedings. Dublin, Ireland.

Parsons, G., 2010. Information provision for higher education learners using mobile devices. The Electronic Library, 28(2): 231-244.

Suki, N.M., 2007. Mobile phone usage for mLearning: comparing heavy and light mobile phone users. Campus-Wide Information Systems, 25(5): 355-365.

Supyan Hussin, Mohd Radzi Manap, Zaini Amir and Pramela Krish, 2012. mLearning Readiness among Malaysian Students at Higher Learning Institutes, Asian Social Science, 8(12): 276-283.

Taylor, J., 2006. What are appropriate methods for evaluating learning in mobile environments? Evaluating mLearning. In M. Sharples, (Ed) Big Issues in mLearning . Nottingham: Kaleidoscope Network of Excellence, mLearning Initiative.

Vavoula, G. N., 2005. D4.4: A Study of mLearning Practices: Internal report of MOBIlearn project.

Zaini, M., and K. Faradilla, 2007. The readiness of FTMSK students towards the implementation of mLearning in learning C++ programming language.Retrieved 2011, from: http://eprints.ptar.uitm.edu.my/1513/.