IMPLEMENTATION OF MOBILE LEARNING APPS IN MALAYSIA HIGHER EDUCATION INSTITUTIONS

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ABSTRACT

Over the past decades, methods of distance learning have evolved consecutively with the growth of technology. From basic correspondence through mailing services to simulations and video tutorials, the technology nowadays made the distance learning and education are available at the tip of your fingertips. The present of internet and widespread usage of computers has created a new term for distance learning which is known as the mobile learning. Mobile learning or ‘m-learning’ assists learning process through mobile devices such as tablet computers and smartphones. Albeit the ubiquitousness of mobile learning that had gained many interest educational institutions, the usage it still considered in early stage in most country including Malaysia. Therefore, the main purpose of this paper is to discuss the recent progress and usage of mobile learning in Malaysia and its requirements, benefits and challenges. The study was done through qualitative approach by analyzing the past studies on m-learning. Through the findings, the use and positive implication of ‘m-learning’ application to deliver courses in higher education is needed in Malaysia.

Keywords: Distance learning, Mobile Learning, Mobile Application, Higher Education

1. Introduction

Youth and mobile phone are inseparable nowadays. Rapid growth of technology in mobile devices and increasing demand of the mobile devices, the prices are decreasing (Moura and Carvarlho, 2008). The growth of technology in communication devices and tools has led many industry and sectors to be inter-connected with mobile applications in sense that both influence and are influenced by these mobile applications.

A press release by The World Bank in 2012 entitled ‘Maximizing Mobile’ stated that about three quarter of the world population including much of the developing world, now has access to a mobile phone. The number of mobile subscriptions in use worldwide, both pre-paid and post-paid,
has grown from fewer than 1 billion in 2000 to over 6 billion now, of which nearly 5 billion in
developing countries. An article of mobile report by Ericsson in 2014 reveals that the on-going
growth of the smartphone market is not likely to slow down any time soon. This is due to increasing
numbers of users coming online. According to the study, which looks at data forecasts up to the turn
of the next decade, 90% of the world’s population over the age of six will have a mobile phone. By
2020, Ericsson predicts there will be at least 6.1 billion smartphone subscriptions globally.

Other than that, the development of improved tools and technology has increased the
demand for mobile devices for educational purposes (Little, 2013). Hussin et al. (2012) have stated
that mobile learning has great potential to be an effective learning tool due to the rapid growth of
new generation of mobile devices for example tablets, mobile phones, and also the advancement in
wireless technology. Some researchers suggested that learning activities must be supported by
additional activities out of the classroom (Ozdamli, 2011). Nevertheless, ‘m-learning’ is still in the
early stage in most country. Traxler (2007) believed on the perception of mobile education is still a
new issue and people still cannot get the picture of mobile learning.

2. Mobile Learning

Mobile Learning is obviously not merely a combination of ‘mobile’ and ‘learning’. Mobile Learning or
‘m-learning’ can be simply defined as the subset of ‘e-learning’ while ‘e-learning’ is the subset of
distance learning. It is a type of distance education that focuses on learning across context and
learning with mobile devices. In other word, ‘m-learning’ is the ability to use mobile devices to
support teaching and learning.

Different communities give different meanings of ‘m-learning’ (Mehdipour and Zerehkafi, 2013).
Mobile learning is referred as any sort of learning that happens when learner is not a fixed,
predetermined location and learning that happens when learner takes advantage of learning
opportunities offered by mobile technology (O’Malley et. al, 2005). Low and O’Connel (2006) stated
that ‘m-learning’ increase the flexibility of learning and gives freedom feelings to student. It is also
believe that ‘m-learning’ helps to increase the performances of learners by making learning
accessible. It is when learners can stay connected with their learning environments while going
mobile (Yi et. al, 2009).

Besides that, ‘m-learning’ also eliminates geographic boundaries at the same time provides
collaborating learning environment between foreign groups. The advances in mobile devices have
facilitated the use of multimedia in mobile application and allow learners to have access to variety of
learning resources (Huang et. al, 2010). Crescentee and Lee (2011), and Lan and Sie (2011) stated
that with the use of mobile devices and availability of internet, learners are able to obtain learning
material anytime and anywhere.

3. Mobile Learning Apps in Other Countries

Madeira, Pires, Dias, and Martins (2010) have developed a mobile learning framework for an Analog
Electronics Course for higher education. The purpose of the project is to carry out the analog
electronics course in mobile learning tool but the aim is not to replace the traditional way of
teaching. It is just to give more interest for the students to gain knowledge, get motivation and the
resources accessibility in anytime and anywhere. The content for the mobile learning consists of four
modules which cover Semiconductors theory, PN junction theory, Diodes and applications, and Transistor and applications.

Zainab and Rashina (2014) have created an Android-based application with named Math Tutor for the primary education in Auckland, New Zealand. The targeted is in classroom teaching and learning for both students and teachers. The application is designed to assist students on learning and practicing single digit addition and subtraction by using numbers and images. Graphical User Interface (GUI) and colours have been chosen to ease the learning and making fun also to attract children. When they complete certain level, they will get medals to encouraged them learn. Another part of the application is designed for teacher that includes functionalities lie language section and exercise mode selection.

Susana et al. (2015) have done a research on Mobile Technologies in Engineering Education on the area of Basic Sciences, Basic Technologies, Applied Technologies, and Complementary Training. Meanwhile Kallo and Mohan (2015) have developed a MobileMath application to investigate the value of personalization in a mobile learning application. The target population was high school students. The features of MobileMath consist of Lessons, Examples, Tutorials, Quizzes and Games.

Table 1: Mobile Learning Apps in Other Countries

<table>
<thead>
<tr>
<th>Authors</th>
<th>Year</th>
<th>Course/Apps</th>
<th>Educational Level</th>
<th>Country or Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rui Neves Madeira, V. Fernão Pires, O. P. Dias, J. F. Martins</td>
<td>2010</td>
<td>Analog Electronics Course</td>
<td>Higher Education</td>
<td>Portugal</td>
</tr>
<tr>
<td>Zainab Masood and Rashina Hoda</td>
<td>2014</td>
<td>Math Tutor</td>
<td>Primary Education</td>
<td>New Zealand</td>
</tr>
<tr>
<td>Susana I. Herrera, Marta C. Fennema, María I. Morales, Rosa A. Palavecino, José E. Goldar, and Silvia V. Zuain</td>
<td>2015</td>
<td>1. Basic Sciences</td>
<td>Higher Education</td>
<td>Argentina</td>
</tr>
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<td></td>
<td></td>
<td>2. Basic Technologies</td>
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<td>3. Applied Technologies</td>
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<td>4. Complementary Training</td>
<td></td>
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<tr>
<td>Kalloo V. &amp; Mohan P.</td>
<td>2015</td>
<td>Mathematics (MobileMath)</td>
<td>Secondary Education</td>
<td>West Indies, Trinidad and Tobago</td>
</tr>
</tbody>
</table>
4. Mobile Learning Apps in Malaysia

The study on mobile apps learning in Malaysia started in 2010. Nadia et al. (2010) have conducted a study on Engaging Children to Science Subject: A Heuristic Evaluation of Mobile Learning Prototype. The m-learning prototype was designed for the primary school with the age range of 10-12 years old. The language used for the mobile application was English. It contains notes and exercise of chapter ‘The Basic Needs of Human’ that the contents were extracted from the textbook and workbook. The software used to develop the prototype were JCreator LE and Sun Wireless Toolkit 2.5.2.

Wendesen et al. (2010) have developed Mobile Learning Tool for Windows mobile platform, in order to add values on the existing conventional and electronic learning. The tool included five modules which are lecture materials, assignment, academic information, discussion and quizzes for the structural programming course.

Then, Kamaludin et al. (2012) have developed an m-learning application for Basic Computer Architecture course. The application was built to assist teaching and learning method because the use of mobile devices shown that students were interested in study as well as help them to improve their study achievement. Besides, the content for this mobile application is aiming on some modules which are notes, flash card and quiz that can be used even the students are offline from mobile devices.

The recent mobile learning apps developed is by Aliff Nawi, Mohd Isa Hamzah and Surina Akmal Abd Sattai. According to Aliff Nawi et al. (2014), the objective of the research is to build a mobile application for Islamic Education Course. Then, the application is evaluated by teachers and students. The result from the research shown that teachers and students are very satisfied with the mobile application built for Islamic Education Course. Therefore, there is a positive potential among the teachers and students to use the mobile learning. Besides, mobile application was correctly build to satisfy teachers and students need.

Table 2: Mobile Learning Apps in Malaysia

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<thead>
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<th>Authors</th>
<th>Year</th>
<th>Course/Apps</th>
<th>Educational Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wahab, N. A., Osman, A. and Ismail, M. H.</td>
<td>2010</td>
<td>Science</td>
<td>Primary Education</td>
</tr>
<tr>
<td>Wendeson, S., Ahmad, W. F. W, and Haron, N. S.</td>
<td>2010</td>
<td>Structural Programming</td>
<td>Higher Education</td>
</tr>
<tr>
<td>H. Kamaludin, S. Kasim, N. Selamat and B. C. Hui</td>
<td>2012</td>
<td>Basic Computer Architecture</td>
<td>Higher Education</td>
</tr>
<tr>
<td>Nawi A., Hamzah, M. I, and Sattai, S. A. A.</td>
<td>2014</td>
<td>Islamic Education</td>
<td>Secondary Education</td>
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5. Benefits and Challenges of Mobile Learning

M-learning promotes benefits for both learners and teachers. Most researchers agreed on the same benefits provided by m-learning. First is on the ubiquitous characteristic of m-learning and the portable size of mobile devices makes learning process to happen anywhere and anytime the users are able to access to content (Corbeil and Valdes-Corbeil, 2007; Ozdamli and Cavus, 2011; Barati and Zolhavarieh, 2012). Whenever the mobile devices are connected to networks, the learning process can occur. Learning activity can also be done at anywhere and in leisure time.

Hamdan et al. (2012) stated that, the benefits are first, learning material can be carried anywhere thus m-learning managed to reduce the use of lecture halls and tutorial rooms. Other than that, m-learning has limiting the presence of teachers in classroom to teach, overcome the limited time of teaching and content of teaching and the small number of students can be overcome. This is also supported by Corbeil and Valdes-Corbeil (2007) which mobility allows teaching and learning to extend beyond traditional classroom. The m-learning aided distance learning as users of portable devices can break the tether of home computer. Third, m-learning is promoting lifelong learning in which anyone can use m-learning applications and not only subject to the students and teachers.

As communication by mobile applications is getting familiar within the community nowadays, the ‘m-learning’ will also reduce cultural communication barriers between learners and teachers (Corbeil & Valdes-Corbeil, 2007). Moreover, m-learning provide quick feedback, engagement and motivation improvement, cooperative activity, group working and using mobile as a reference tool. As the benefits for teachers, to see their student motivation, students joining in class activity much better, student’s retention and performance improve and encourage responsibility (Barati & Zolhavarieh, 2012).

An investigation has been done by Adeyemo et al. (2013) to determine the benefits of using mobile phones for learning in University of Ibadan (Nigeria). From their research, the students give responses that mobile phones can reduce their learning stress and really ease their learning activity. Besides, the students agreed that mobile learning has made learning activity much fun and attractive.

Aside from that, Sharples et. al, 2005, also stated that ‘m-learning’ encourage effective learning. The US National Research Council concluded that effective learning should be learner centred, knowledge centred, assessment centred and community centred. M-learning builds on the skills and knowledge of students by enabling them to reasons from their own experiences. Besides, the m-learning is also knowledge centred as the curriculum is built from good foundation of validated knowledge and with inventive use of concepts and methods. Furthermore, the assessment by ‘m-learning’ enable teachers to match the ability of learners, offer diagnosis and format guidance that will build success. In context of communication and community centred, the ‘m-learning’ also promotes sharing knowledge and supporting less able students (Sharples et. al, 2005).

In spite of the benefits, there are challenges in executing ‘m-learning’. Some of the challenges that has been highlighted by Corbeil and Valdes-Corbeil (2007) are the ‘m-learning’ could give tech-savvy students an advantage over non-technical students thus, creating a feeling of isolation for non-techies. This may lead to the requirement of additional learning curve for non-technical students. Next, for the ‘m-learning’ is able to be used in various types of mobile devices, it may require media to be reformatted of offered multiple formats. The point is supported by Little(2013) and Barati (2012). Little (2013) stated that ‘m-learning’ has different parameters to ‘e-
learning’. The teachers or designer cannot simply just take ‘e-learning’ material and attempt to deliver them via ‘m-learning’. If the learning materials are useful, it has to be adapted for delivery from ‘e-learning’ to ‘m-learning’. Apart from that, as a tablet’s screen size is closer to that of a laptop than mobile phone, learning materials via mobile phones will probably have to be modified for learning delivery via tablets.

Among other concern describe by Corbeil and Valdes-Corbeil(2007) is that the assessment made through ‘m-learning’ may foster students to cheat. The ubiquitousness of ‘m-learning’ will permit assessment for students occurs anywhere and anytime thus students might have other sources such as discussion with peers to help them with the assessment. This may result in incorrect diagnosis and guidance provide by teachers. On the other hand, Barati and Zolhavareih (2012) stated that the challenge of implementing m-learning technology depends on several factors such as training, security, support, and the cost of implementation and maintenance.

7. Finding and Discussion

The analysis indicates that there are the needs of mobile learning in education sector. Kamaludin et al. (2012) stated that since mobile learning is truly independent in terms of time and place, it is suitable for learning practice in line with the increased use of the mobile devices and the advancement of learning opportunities and learning resources. Furthermore, the increasing range of access devices will capable ‘m-learning’ to function with the enhancement of learning resources and management system.

Cobb et al. (2010) assert that smartphone can be used in classroom to increase interaction in teaching and learning process. A class with 100 students will tend to lack of communication between the students and the lecturer. Hence, the learning process may be ineffective. Therefore, to increase the interaction in a big classroom, further investigation is required.

Back in 2007, the research conducted by Corbeil and Valdes-Corbeil concluded that the implications of mobile learning are far-reaching and its potential effects on education. It was believed that the next few years we will see a period of rapid growth for mobile learning with evolutionary rather than revolutionary. Mobile learning has continue to expand with the introduction of smaller components, more sophisticated and powerful gadgets that are capable of delivering data in a various formats, anywhere, at any time. The mobile computing devices in present days have more computational power than the largest computers previously. This trend will continue day ahead.

Regard to the readiness of Malaysia’s citizen about the implementation of ‘m-learning’ apps in Malaysia Higher Education, the statistics by Malaysian Communications and Multimedia Commission in 2014 shown that the number of mobile phones used by the citizen exceeds the number of the citizen. The number of mobile phones used by the citizen is 30,379,000 while the population is 28,250,000. This statistics clearly reveals that most of Malaysian own a mobile phone and able to operate it themselves.
8. Conclusion and Future Works

As conclusion, mobile learning apps should be implemented in Malaysia to assist the educational process and to improve the learning process itself. Mobile learning is the process of learning that can be done anywhere at any time by using mobile technologies and internet in order to make an innovation in the educational process. The challenges in implementing the apps must be taken seriously in order to design optimum apps for learning purposes. Future works will be on development of the framework of m-learning, the designing of apps, and evaluation on the acceptance of students about the m-learning.

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References


