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Assessing Use and Attitude towards Mobile Learning App for Research Methodology Course among Graduate Students

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Abstract
Mobile learning or 'm-learning' supported by wireless mobile technologies is a learning model that allows learners to obtain learning materials anywhere and anytime using mobile technologies and the internet. It could increase the learners' performance by making learning accessible since mobile learning builds on the learners' needs, experiences and interest. Some educators claim that as the mobile learning concept implies, the pedagogical approach place the student at the center of the learning process. The study aimed at assessing the use of mobile learning app, and the attitude of graduate students towards mobile learning. The study employed a cross-sectional descriptive study among graduate students. The findings of the study showed that the graduate students had positive attitudes toward m-learning and m-learning also was increasingly popular among graduate students.

Keywords: mobile learning app, use, learning style, attitude, research methodology, graduate students

INTRODUCTION

According to Quinn (2000) mobile learning is the intersection of mobile computing (the application of small, portable, and wireless computing and communication devices) and e-learning (learning facilitated and supported through the use of information and communications technology). The development of mobile learning or 'm-learning' as a new strategy for education has implications for the way that students learn, for the role of teacher and for educational institutions (Moura & Carvalho, 2008). It involves the use of portable electronic devices to access and share information. M-learning could be seen as being e-learning using mobile devices and wireless transmission, and allowing learners to move away from the stand-alone computer in order to interact with other devices. Mobile Learning Network (MoLeNET) program (2009) defines m-learning as the exploitation of ubiquitous handheld technologies, together with wireless and mobile phone networks, to facilitate, support, enhance and extend the reach of teaching and learning.

The term 'm-learning' refers to the use of handheld devices such as mobile phones, laptops and other handheld information technology devices that may be used in teaching and learning (Harriman, 2007; M. Khwaileh & Ali AlJarrah, 2010). Meanwhile, according to Madeira, Pires, Dias and Martins (2010), m-learning is more innovative and student centered teaching and learning methodology, concerning in the use of mobile devices such as cell phones, Personal Digital Assistants (PDAs) and smart phones.

M-learning has been motivating students and teachers or lecturers in teaching and learning process, and representing an effective pedagogical method. The study of Research Methodology course is required in a graduate program. Generally in this course, classical teaching uses textbooks as the main element. However, the use of textbooks is very limited. Therefore, it is important to develop the m-learning app (application) for the Research Methodology course. The initial course material has been adapted to the m-learning environment. We propose the use of this m-learning system to reach a wider blended learning methodology.

The structure of this paper is organized as follows. In Section 2, we review the related work of mobile learning. Section 3 presents the methods, while the results are presented in Section 4. Section 5 presents the discussions and conclusion of the study

RELATED WORK

M-learning is about learning across contexts. It is often blended with other types of learning, and broke the limit of time and space as learning can go anytime and anywhere by use of various devices including laptops, mobile phones, tablet computers and audio players (Savill-Smith, Attewell, & Tribal, 2006).

Mobile Learning Approach

Mobile learning is not merely a combination of 'mobile' and 'learning'. Mobile learning or 'm-learning' can be 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 (Masrom, Nadzari & Zakaria, 2016). Mobile learning is revolutionizing learning and instruction (Geist, 2011 & Kolowich, 2012). The mobile technologies connected to wireless networks enable mobility and facilitate mobile learning. In this regard, mobility allows teaching and learning to extend beyond the traditional classroom. M-learning offers versatility in content delivery ranging from text, videos, audio, graphics, animation, pictures and games to interactive platforms (Moses et al. 2015). This m-learning's feature makes learning more interesting and effective.

According to Amin et al. (2006) and Sung (2005) m-learning is expected to offer possible solutions that address the shortcomings of the traditional classroom-based education, and can provide important opportunities for learning and collaborative education. Meanwhile Faisal and Abdelmuhdi (2010) stated that with the advancement of mobile technology, the traditional classroom-based learning that has been supplemented by other forms of education will be capable of reaching out to a larger audience. In general, mobile technology assists students in raising their technological awareness, make conversations, join social media, find answers to their questions, facilitate team collaboration, allow knowledge sharing, and leverage their learning outcomes (Al-Emran, M. Elsherif & Shaalan, 2016).

Advantages and Disadvantages of Mobile Learning

Mobile learning can be online or offline whereby it offers several advantages including portability and lower cost as compared to books and desktop computers as well as augmented learning through case simulation (Moses, Gregory, Dennis, Ephraim, Kefa, and Isaac, 2015). Other advantages of mobile learning are: (i) great for people on go; (ii) anytime, anywhere access to content; (iii) can enhance interaction between and among students and instructors; (iv) great for just-in-time training or review of content; (v) can enhance student-centered learning; (vi) can appeal to tech-savvy students because of the media-rich environment; (vii) support differentiation of student learning needs and personalized learning; (viii) reduce cultural and communication barriers between faculty and students by using communication channels that students like; and (ix) facilitate collaboration through synchronous and asynchronous communication (Corbeil & Valdes-Corbeil, 2007).

According to Corbeil and Valdes-Corbeil (2017), the disadvantages of mobile learning among others are: (i) m-learning cannot augment practical hands-on lessons, (ii) m-learning may require an additional learning curve for non-technical faculty and students which might introduce a burden in adoption, and (iii) m-learning can create an isolation or a feeling of being out-of-the-loop for both instructors and students who may not always have mobile connectivity.

In this context, attitudes towards m-learning could be used to measure into which extent the users of m-learning (i.e students and educators) have the ambition to use the m-learning and whether or not this m-learning has positive or negative impacts on the teaching and learning environment (Ardies, De Maeyer, Gijbels, and van Keulen (2014). Attitudes can provide a context for understanding the learner or user intention of use and acceptance m-learning technology (Al-Emran, M. Elsherif & Shaalan, 2016).

METHODOLOGY

The study employed a cross-sectional descriptive study among postgraduate students. The survey is conducted by distributing the questionnaire via online. First, the hardcopy of questionnaire is converted to electronic version by using Google Docs. The conversion is necessary in order to expedite the process of collecting data. Once created, the URL link (https://goo.gl/forms/RKr7pXr47NKkcKxu1) of the online questionnaire is disseminated at Doctorate Support Group (DSG) which designed as a closed group dedicated for post graduate students, who undertaking their master and PhD. This closed group is available via Facebook flat form (https://www.facebook.com/groups/doctsupp/). New member who request to join this group will be vetted before approval. The membership must adhere with the DSG requirements. Any post written or suggested or recommended by the members will be filtered by the admin before posting.

Currently a total of 52,594 DSG members joined this particular group. The membership mainly consists of Malaysians and some from foreign countries. The purposes of this group is to perform as a flat form for graduate students, research officers or assistants and those who work related with education industry to build their network, share knowledge or success stories or challenges, best practices, tips or humors, and also functions for members to discuss their ideas about their studies. The group's website can be visited at www.dsgportal.org (as shown below) and also available on twitter: https://twitter.com/dsgportal.

A time frame of three weeks is given to conduct the survey for data collection. The survey is started on January 7, 2017 and ended on January 27, 2017. The total of 30 respondents is responded to the online questionnaire. The questionnaire is divided into four parts; Part I: Demographic, Part II: Mobile Phone Usage by Respondent, Part III: Learning Style and Part IV: Attitude towards Mobile Learning.

RESULTS AND DISCUSSION

The response rate is divided into three categories, namely respondents who currently pursuing their study at public universities, private universities and public, colleges. About 93.33% of the respondents is students from various universities. Majority of the respondents is Malaysian (see Figure 1). While, 10% (n=3) of the respondents are from other countries, such as Saudi Arabia, Singapore and Japan.

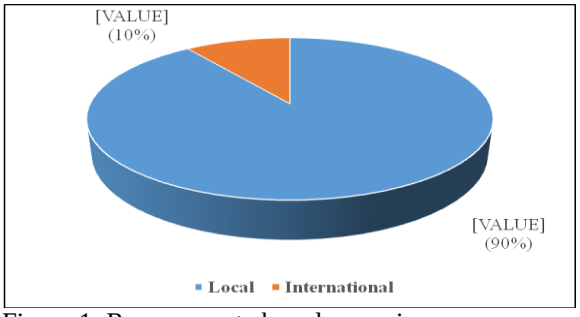

Figure 1: Response rate based on region

The age group of the respondents is divided into four categories; i) 20 to 30 years; ii) 30 to 40 years; iii) 40 to 50 years; and iv) respondent with age more than 50 years. 43.33% (n=13) of the respondents is coming from 30 to 40 years group. Followed by 10 respondents from 20 to 30 years of group. Respondents with age between 40 to 50 years contributed the lowest number, which is only 7 respondents. Group four (>50 years) received no feedback. 66.67% (20) of the respondents is female (Group 1 = 8 respondents, Group 2 = 9 respondents and Group 3 = 3 respondents). While 10 of the respondents is male (Group 1 = 2 respondents, Group 2 = 4 respondents and Group 3 = 4 respondents). 21 out of 30 respondents is married. Most of the married respondents pursuing their study between the ages of 30 to 40 years. 15 of the respondents pursue master program and another 15 respondents pursue PhD. But 16.67% of the students who pursuing PhD is from the age of 40 to 50 years.

Device ownership

All of the respondents owned mobile device (100%, n = 30) as shown in Figure 2.. 63.33% or nineteen of the respondents own more than one mobile device (see Figure 3). Surprisingly, eleven respondents (36.67%) only owned one mobile device (see Figure 3).

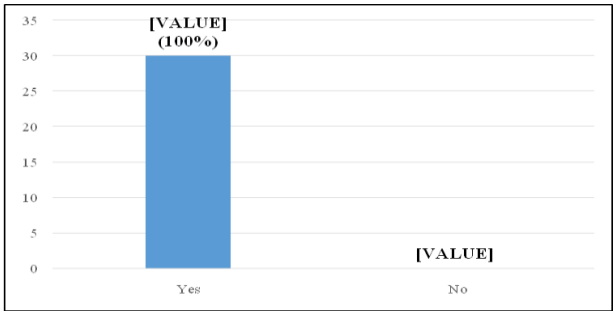

Figure 2: Percentage of mobile device owned

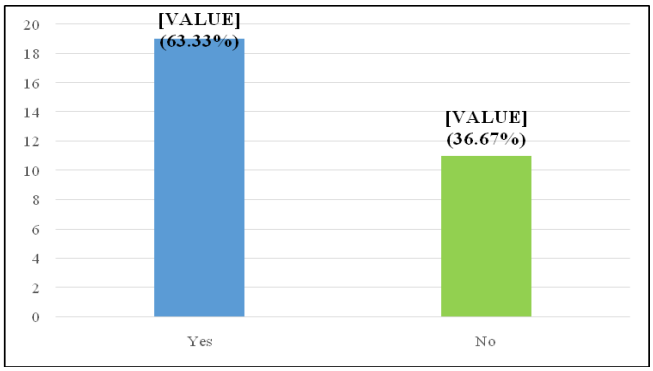

Figure 3: Numbers mobile device owned

How often do you have your mobile phone with you?

Figure 4 shows that 56.67% (n=17) of the respondents claimed that mobile devices is always with them. Another 33.33% agreed that the mobile devices are almost always with them. It is can be concluded that majority of the respondents is attached with their mobile devices.

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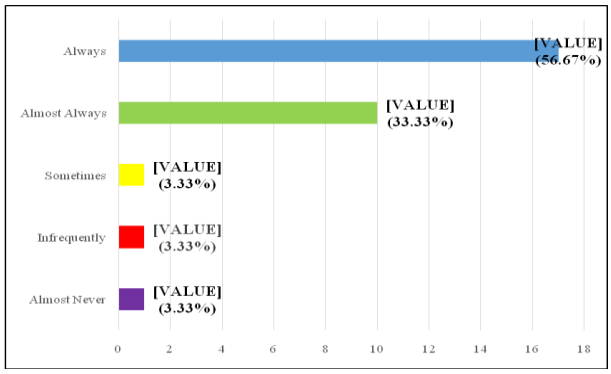

It is obvious that sixteen of the respondents (see Figure 5) do not carry their mobile devices during night time. While twelve of the respondents (see Figure 6) often used their mobiles devices at home.

Is there any specific time that you do not carry your mobile devices?

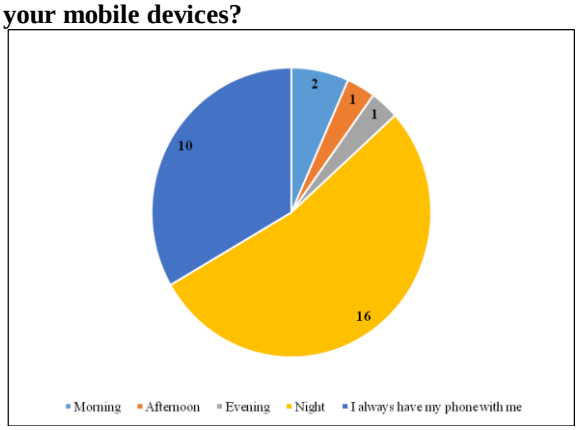

Figure 5: Frequencies of specific time that respondents do not carry their mobile devices

Where do you most often use your mobile devices?

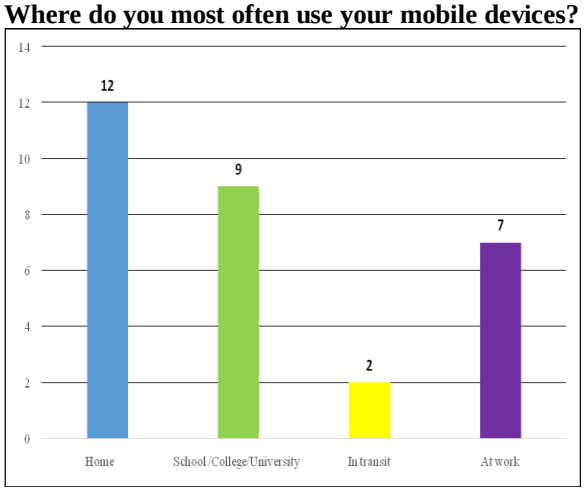

Figure 6: Frequencies of most often respondents used their mobile devices

What features are you mostly use in your mobile devices?

As shown in Figure 7, majority of the respondents used their mobile devices for short messaging (SMS), follows by entertainment, e-mail, phone calls and others.

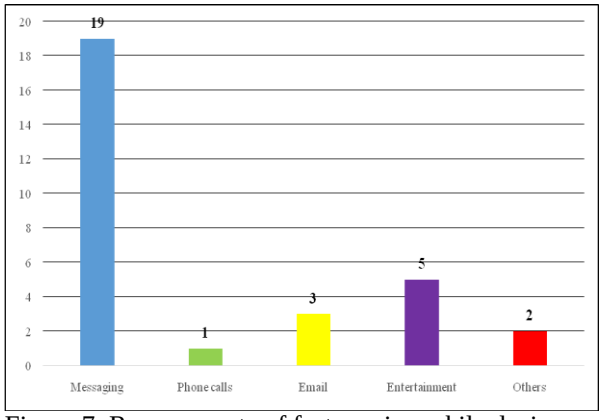

Figure 7: Response rate of features in mobile devices mostly used

Do you have internet access through a Wi-Fi connection on your mobile devices?

Figure 8 shows that 96.67% (n=29) of the respondents have internet access through a wi-fi connection on their mobile devices.

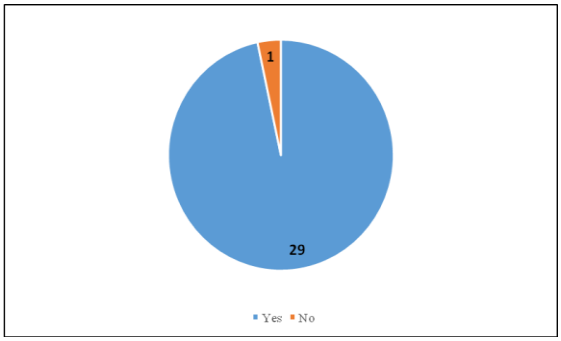

Figure 8: Response rate of having internet access through a wi-fi connection

Do you have internet access through a cellular network on your mobile devices?

Figure 9 shows that twenty-eight of the respondents have internet access through a cellular network on their mobile devices.

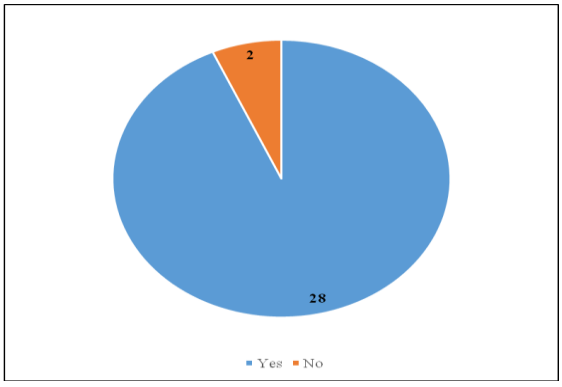

Figure 9: Response rate of having internet access through a cellular network

Attitude towards Mobile Learning

An attitude survey was conducted as part of the questionnaire. The questions were designed to assess the students' attitudes to using the m-learning as a tool for learning. Students were asked to rate statements on a four-point Likert scale. Table 1 shows the number and percentage of the response to each item, in the range from 1 (Strongly Disagree) to 4 (Strongly Agree). The results show that the highest percentage for items from 1 to 7 that measure the students' willing to use m-learning app for Research Methodology course.

Table 1: Descriptive statistics of respondents' attitude towards mobile learning

Questionnaire Items	Strongly Disagree N (%)	Disagree N (%)	Agree N (%)	Strongly Agree N (%)
(1) I believe a mobile phone could be used to teach or learn Research Methodology Course.	1 (3.33)	4 (13.33)	5 (16.67)	20 (66.67)
(2) I am willing to purchase a mobile phone with advanced features if it will help me to improve my Research Methodology Course learning.	1 (3.33)	3 (10.00)	6 (20.00)	20 (66.67)
(3) I would like to install Research Methodology application (app) to improve my learning.	2 (6.67)	1 (3.33)	9 (30.00)	18 (60.00)
(4) I do not mind paying the internet connection for my mobile phone if I can learn Research Methodology Course through the mobile.	1 (3.33)	4 (13.33)	8 (26.67)	17 (56.67)
(5) Learning through mobile phone will help me to utilize my time productively.	1 (3.33)	4 (13.33)	9 (30.00)	16 (53.33)
(6) A person could learn properly through mobile phone if it is designed properly.	1 (3.33)	3 (10.00)	7 (23.33)	19 (63.33)
(7) I think I can improve my understanding of Research Methodology through mobile phone.	1 (3.33)	2 (6.67)	10 (33.33)	17 (56.67)
(8) I think learning with mobile phone will not build teamwork and collaboration.	15 (50.00)	5 (16.67)	4 (13.33)	6 (20.00)
(9) I believe learning with mobile phone will increase the cost of learning.	8 (26.67)	8 (26.67)	8 (26.67)	6 (20.00)

This results indicate that graduate students are willing to use m-learning (Research Methodology app) if it is implemented on and off the university campus. This positive attitude towards m-learning might be based on the facts that almost graduate students know how to use such devices. The results agree with the findings of other researchers (Faisal & Abdelmuhdi, 2010; Amin et al., 2006; Sung, 2005; Keefe, 2003). In addition, the results (see item 8 in Table 1) also show that the graduate students agree with the advantages of m-learning in building teamwork and collaboration, and minimizing the cost of learning.

Additional thoughts about mobile learning use

Questionnaire item: How mobile learning methods have enhanced your Research Methodology course experience?

a) Time constraint and mobile phone will help us to work more efficiently/ effectively.
b) Provide guide and able to record result immediately.
c) It is convenient, that is, can access information anywhere and anytime.
d) Experience of the graphic.
e) Required no permanent class.
f) Notes for learning.
g) It is efficient as it is very easy to carry compared to books.
h) It provides many answers from different sources in a very short time.
i) I can seek information about Research Methodology whenever I'm not certain about some issues.
j) Easy and faster.
k) By providing notes for future reference, and various type of media can be used for better understanding.
l) It makes life easier rather than spending time reading books plus these days when you need to do self-learning to write your research paper.
m) Application that provide information on methodology, sampling and other information on Research Methodology.
n) It gives tools to learn.
o) Notes sharing and exchange.
p) I can get latest update on the information I need easily.
q) More explore and interesting.

Suggestions or improvements for the use of mobile learning in the Research Methodology course

a) The mobile learning should be dynamics and related intelligence system.

b) To be able to send queries to tutor/lecturer.
c) To ensure system is tested proven prior of usage.
d) Please provide more applications.
e) Quick feedback.
f) Easy menu and navigation.
g) Interactive, friendly user.
h) Provide apps that can be easily to study and understand.
i) Friendly interface.
j) Mobile learning has make us away from our real life.
k) Stable medium so that can be accessed simultaneously by many people.
l) Make it less costly.
m) It can be used if the students and lecturers have same interests.
n) An online forum would be great.
o) Interaction with lecturer.
p) Make it user friendly, easy to operate and have hands on dictionary/multiple meaning.
q) Provide a lot of example and focus more on interactive learning.
r) Provide interactive way to learn materials.
s) A forum in the mobile learning so that we can have a support group for postgraduate students.
t) Making the application more user friendly.
u) It is expected that mobile phone can be addictive if the user misused it. It give illusions that they know something just because they have the access to it. So, applications are still good for managing the course, since managers are costly. Once it has been refined to really give benefits such as ways to learn 'how to learn' Research Methodology using good learning tool, the purpose is well-served.
v) Promote interaction and collaboration, add on-demand content.
w) Develop a better apps which combine the reference manager with pdf annotation capability, and research progress checklist with notification.
x) Allow online instructor or facilitator to guide throughout the course.
y) Add video.

CONLUSION

The study was designed to assess the use of mobile learning app, and the attitude of graduate students towards mobile learning. The results indicate that mobile learning is viewed positively among graduate students, and should be leveraged in promoting quality of teaching and learning. As mobile technology becomes a more intrinsic part of everyday life, it is important that the use patterns and attitude towards m-learning are known and understood. This study contributes to a better understanding of graduate students' perceptions towards m-learning use and attitudes at the universities.

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REFERENCES

Al-Emran, M., M. Elsherif, H., & Shaalan, K. (2016). Investigating attitudes towards the use of mobile learning in higher education. *Computers in Human Behavior*, 56, 93-102.

Amin, A., Mahmood, A., Abidin, A. & Rahman, M. (2006). M-learning management tool development in campus-wide environment. *Issues in Informing Science and Information Technology*, 3, 423-434.

Ardies, J., De Maeyer, S., Gijbels, D., & van Keulen, H. (2014). Students attitudes towards technology. *International Journal of Technology and Design Education*, 1-23.

Corbeil, J. R. & Valdes-Corbeil, M. E.(2007). Are you ready for mobile learning?, Educause Quarterly, 2, 51-58.

Faisal, M.K., & Abdelmuhdi, A.A. (2010). Graduate students' perceptions towards mobile-learning (m-learning) at the University of Jordan. International Journal of Instructional Technology & Distance Learning, 7(10).

Geist, E. (2011). The game changer using iPads in college teacher education classes. College Student Journal, 45(4), 758-768.

Harriman, G. (2007). M-learning (m-learning). Retrieved February 20, 2010 from: http://www.grayharriman.com/mlearning.htm

Keefe T. (2003). Mobile learning: a tool for inclusion. *The Learning Citizen*, 6, 4-6.

Kolowich, S. (2012, January 20). Should college start giving apple's iPad to students?. USA Today. Retrieved from http://usatoday30.usatoday.com/news/education/2010-04-05-ihe-colleges-give-ipads-to-students05_n.htm

Madeira, R.N., Pires, V. F., Dias, O. P., and Martins, J. F. (2010). Developing of a mobile learning framework for an analog electronics course. IEEE EDUCON Education Engineering 2010-

The Future of Global Learning Engineering Education, April 14-16, 2010, Madrid, SPAIN.

Masrom, M., Nadzari, A. S., & Zakaria, S. A. (2016). Implementation of mobile learning apps in Malaysia higher education institutions, *e-Proceeding of the 4th Global Summit on Education GSE 2016*, 14-15 March 2016, Kuala Lumpur, Malaysia, 268-276.

M. Khwaileh, F. & Ali AlJarrah, A. (October, 2010). Graduate students' perceptions toward mobile-learning (M-learning) at the University of Jordan, International Journal of Instructional Technology and Distance Learning. 7(10),

Mobile Learning Network (MoLeNET), What is Mobile Learning?, http://www.molenet.org.uk/,2009.

Moses, M. M., Gregory, B. O., Dennis, S. N., Ephraim, M. M., Kefa, O. B., & Isaac, O. K. (2015). Use of mobile learning technology among final year medical students in Kenya. *The Pan African Medical Journal*, 21: 127.

Moura, A. & Carvalho, A. A. (2008). Mobile learning: teaching and learning with mobile phones and Podcasts. Eight IEEE International Conference on Advanced Learning Technologies, 631-633.

Quinn, C. (2000). mLearning: Mobile, Wireless, In-Your-Pocket Learning, LineZine, Fall 2000, http://www.linezine.com/2.1/features/cqmmwiyp.htm(retrieved January 26, 2007).

Savill-Smith, C., Attewell, J., & Tribal, G. S. (2006). Mobile learning in practice. London, UK: Learning & Skills Network.

Sung, M., Gips, J., Eagle, N., Madan, A., Caneel, R., DeVaul, R., Bonsen, J. and Pentland, A. (2005). Mobile-IT Education (MIT. EDU): m-learning applications for classroom settings. *Journal of Computer Assisted Learning*, 21:229–237.