http://www.ejournalofsciences.org

Adaption of M-Learning as a Tool in Blended Learning- A Case Study in AOU Bahrain

Sarmad Mohammad, Minimol Anil Job

ITC-AOU- Kingdom of Bahrain, Faculty of IT

ABSTRACT

This research work is oriented to measure the acceptance of mobile learning as blended learning tool in Arab Open University, Bahrain branch. Mobile learning is a rapidly growing method of learning that utilizes mobile devices to deliver content. A self-administered questionnaire was used to gather the data. The study explains the important factors that influence acceptance of mobile learning among university students. The population of the survey was limited to undergraduate students in Arab Open University (AOU); this population was chosen because AOU is the only university that applied m-learning in Bahrain. Out of 130 students contacted, response rate was high at approximately 95%. The study investigated the impact of a number of factors on students' attitudes towards acceptance of m-learning in AOU, the student's perspective of future of m-learning, and the overall attitudes towards m-learning. The results show that some of the independent m-learning metrics affect students' attitudes towards m-learning, like mobile usage in educational sector and wireless technology. While some other metrics found to have significant effect on student's attitudes, like: university commitments, behavioural intentions and extrinsic influence. Also, the study exposes that students generally have positive attitudes towards m-learning.

Keywords: *m-learning, e-learning, blended learning, flexible learning.*

I.   INTRODUCTION

M-learning is a new stage of e-learning having the ability to learn everywhere at every time through use of mobile and portable devices [1],[5]. The ongoing challenge remains as to how best improve learning and teaching methods for tomorrow's workforce [2],[9]. Mobile learning (m-learning) is rapidly becoming one of the latest trends of e-learning. Today, more people than ever are learning on the move rather than sitting in traditional classrooms. Figure (1) shows a diagram of blended learning system implemented in AOU Bahrain.

This study was designed to focus on the students' perceptions and preferences in connection with the acceptance of mobile learning as a learning tool in AOU Bahrain. Figure (2) shows that the information technology infrastructure in AOU supports the mobile learning.
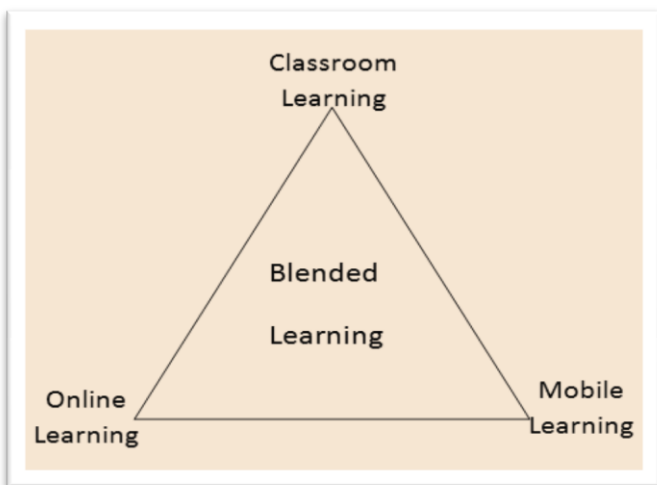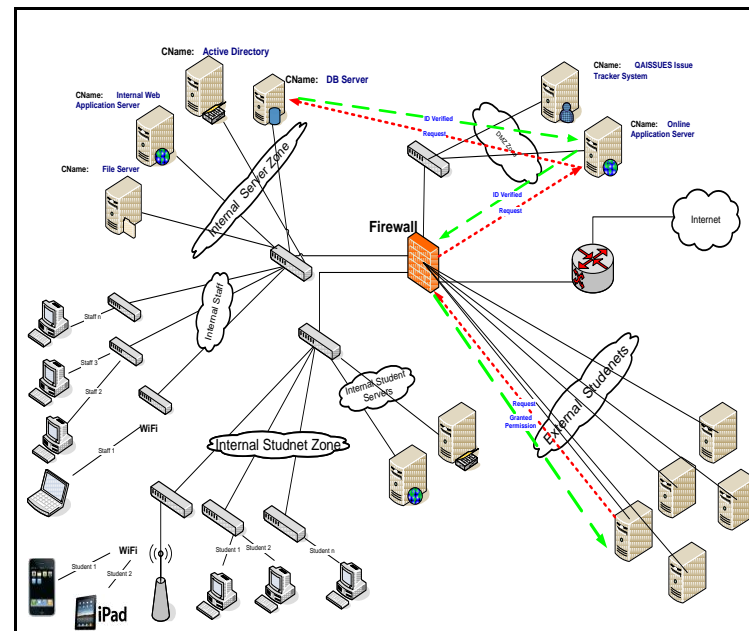

Figure 2: AOU – IT Infrastructure of Blended Learning System

Figure 1: Blended Learning System in AOU

II.   METHODOLOGY

Around the world, there are many universities have been adopted m-learning technology as one of their methods in the learning [3][8]. In Bahrain, it is found that there is little effort applied in this field. AOU is the only university that has applied m-learning as one of learning recourses. In the coming years, many learning organizations will be looking for creative ways to make mobile learning work as a powerful tool to support the classroom. The aim of the research is to measure students' acceptance of m-learning by investigating a number of factors that influence student learning. This research is categorized as descriptive research. It descripts data and characteristics about the population or phenomenon being studied. This research type is the most commonly used and the basic reason for carrying out is to elicit perceptions and attitudes of acceptance the mobile as learning tool in AOU Bahrain [11][7]. Survey research is a method that requires the researcher to derive descriptive, behavioural, and preferential data so that the differential complexities of the population from which a sample has been drawn can be obtained. The research in this study is survey-based, using a measurement instrument developed for collecting the data. Survey was the best method to be employed in this study as it enables us to gather data about people's attitudes, which is the main aim of the current study. In this research an online questionnaire distributed to the undergraduate students in order to answer the research questions. Publishing the questionnaire online through AOU's learning management system (LMS) was the best method to reach all students at the same time. The study suggests some significant metrics to investigate student's attitudes towards m-learning, so the following metrics were used in the survey to measure the acceptance of mobile learning as blended learning tool:

- Types of mobile device(s) you own or plan to purchase such as Cell phone, PDA, Smartphone, iPhone or MP3 player/recorder.

- Average amount of time spent on your mobile device(s) on a daily basis such as less than 1 hour, 1-3 hours, 3-6 hours or more.

- Student's perspective of the future of mobile learning.

- Level of Student's attitude to acceptance of m-learning metrics like: extrinsic influence, behavioral intentions and university commitments.

Table (1) shows the questions used to measure student's perspective of the future of mobile learning, while Table (2) shows the metrics used to measure level of student's attitude to acceptance of m-learning in extrinsic influence, behavioral intention, university commitment and student's attitude toward AOU m-learning.

Table 1: Student's Perspective of the Future of Mobile Learning

| Student's perspective of m-learning metrics	Yes	No
1. Do you access to the internet using your mobile device(s)?		
2. Does wireless cost encourage you to access internet through your mobile?		
3. Have you used your mobile device(s) for learning or educational purposes?		
4. Using m-learning enable me to accomplish learning tasks more quickly.		
5. Using m-learning help me perform my studies anyplace.		
6. M-learning helps me increase access to learning materials and educational resources.		
7. Using m-learning enhance my effectiveness in academic development (Learn things better and smarter).		
8. Using M-Learning increases my productivity.		
9. Mobile device is not effective in learning field.		
10. Mobile technologies support learning experience that is collaborative, accessible and integrated with the world beyond the boundaries of a regular classroom.		
11. M-learning provides enhancement materials to supplement the textbook.		
12. M-learning gives student an opportunity to get or provide information in case of urgent need.		
13. M-learning makes it easier to cheat.		
14. Using wireless would help me to access m-learning.		

http://www.ejournalofsciences.org

Table 2: Level of Student's Attitude to Acceptance of M-Learning

Student's attitude to acceptance of m-learning metrics	Yes	No
Metric1: Extrinsic influence		
My tutor repeatedly refers to the importance of m-learning during my work.		
The majority of my friend are using m-learning		
Metric2: Behavioral intention		
I feel comfortable handling my tasks through m-learning.		
I prefer taking all courses that has been enhanced by the use of m-learning.		
Working through m-learning is an exhausting process.		
I am willing to volunteer in developing m-learning		
I'm still printing my lectures and add my note on it.		
I am willing to learn my subjects through m-learning		
Metric3: University Commitment		
I know who I contact when I need my assistance in m-learning		
I find m-learning training session effective		
The cost of m-learning service that the university imposed increases my willingness		
Metric4: Student's attitude toward AOU m-learning		
I evaluate the current m-learning that the university applied an advanced technology		

III. DATA ANALYSIS

A total of 123 questionnaires were collected out of the 130 questionnaires distributed. The students were asked to provide their attitude regarding m-learning as a tool in blended learning system in Arab Open University. From figure (3) regarding the device ownership statistics reveal some interesting numbers that approximately 61.7% of students own a Smartphone, while PDA ownership is very low at about 4.1% and Cell phone ownership is at a healthy 29.2%. A more revealing statistic is the planned purchase of these devices. The percentage of students who intend to purchase a Smartphone in the future is 45.5%, compared to 4.1% for a PDA and 5.6% for cell phones. Most students who are planning to purchase new mobile device would be shifted to Smartphone due to interesting facilities that these phones offer.
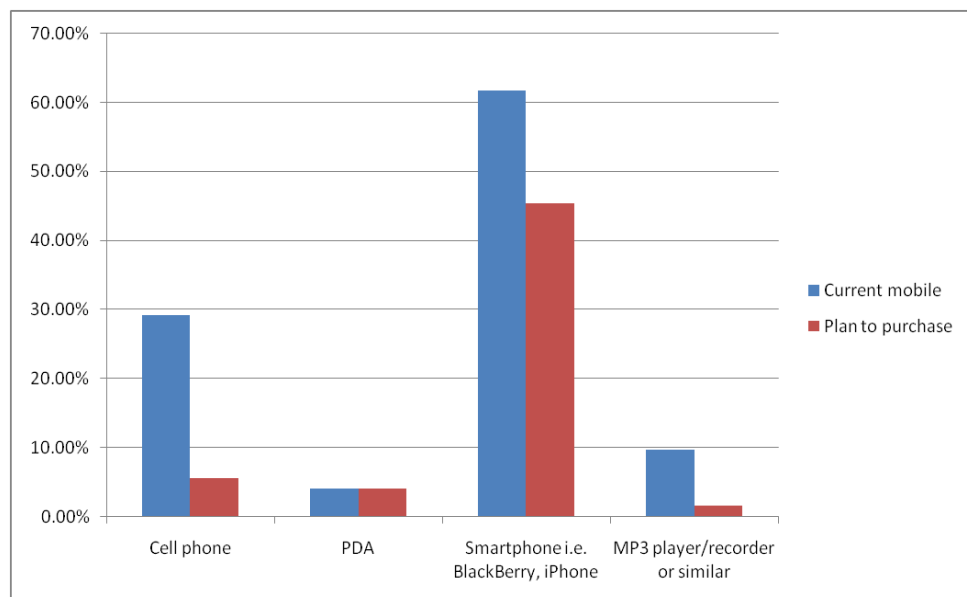
Figure 3: Type of mobile device(s) student own or plan to purchase

Regarding amount of time that student spent on his/her mobile device as notice in Figure (4) thirty seven percent of students do not applicable to use their device for learning or educational purposes, 26% of students spent less than one hour, 10.5% spent 1-3 hours daily on learning activities, and 3.2% spent 3 hours or more, with approximately 62.6% of students spending less than one hour per day sending or receiving text messages and 3 or more hours per day in conversing which have 31.9%, this mean that there is an amount of time spent by students text messaging and conversing are higher than that for other activities. Most students have mobile devices that can support many latest services such as SMS, GPRS, MMS, email, packet switching, WAP, Bluetooth and many more. Also, they spend amount of time in using their mobile in educational purpose. We can summarize that the students have the main ingredient to accept mobile in learning.
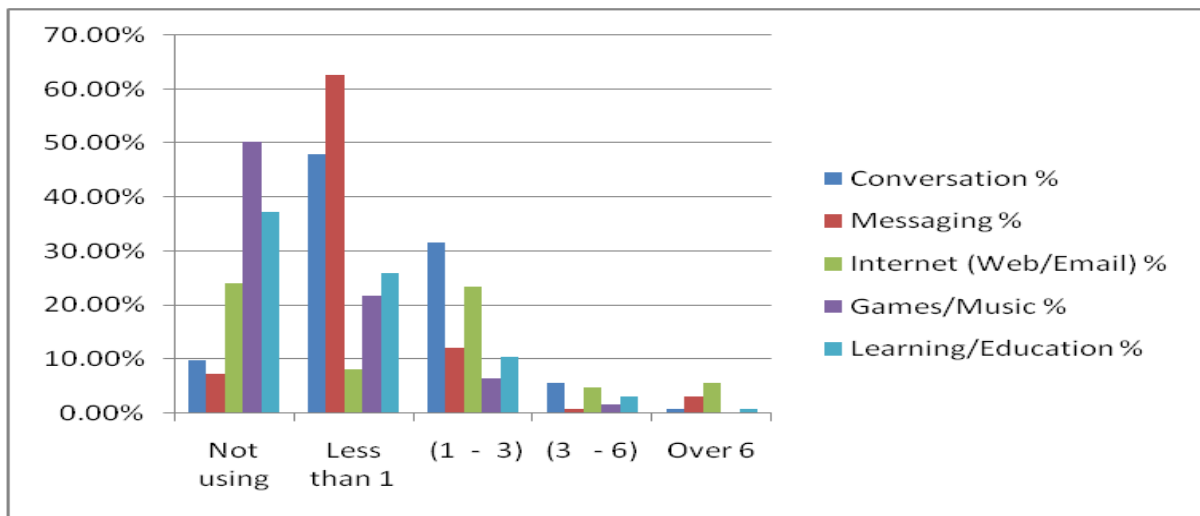

Figure 4: The average amount of time spent on your mobile device(s) on a daily basis

In order to define major ideas that the student has about his/her perspective of the future of mobile learning, some important descriptive statistics were calculated, especially the mean for students' responses on questionnaire items. From the figure (5) it is clear that the highest percentage of respondents have positive attitude towards the future of mobile learning.
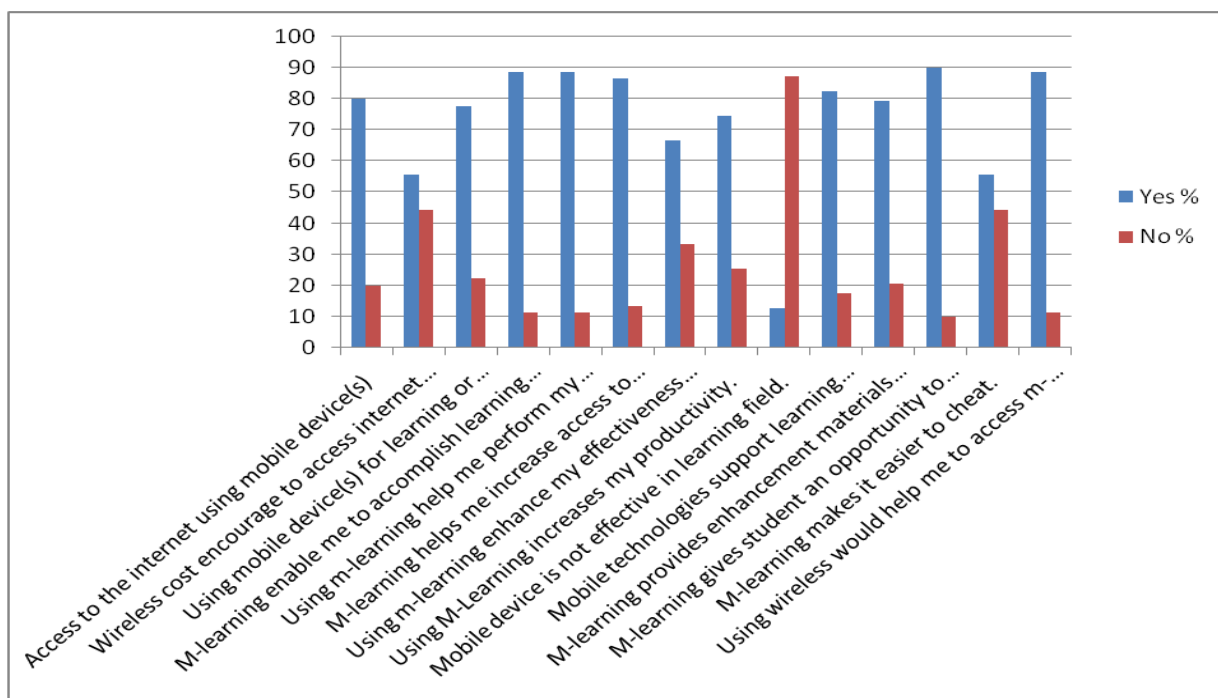

Figure 5: Student's perspective of the future of mobile learning

17

http://www.ejournalofsciences.org

From figure (6) it is clear that 88.2% of students agreed on the tutor's influence in mobile learning. 77.2% of students agreed that their friends are using m-learning in their study. This shows the positive influence of m-learning in participants.
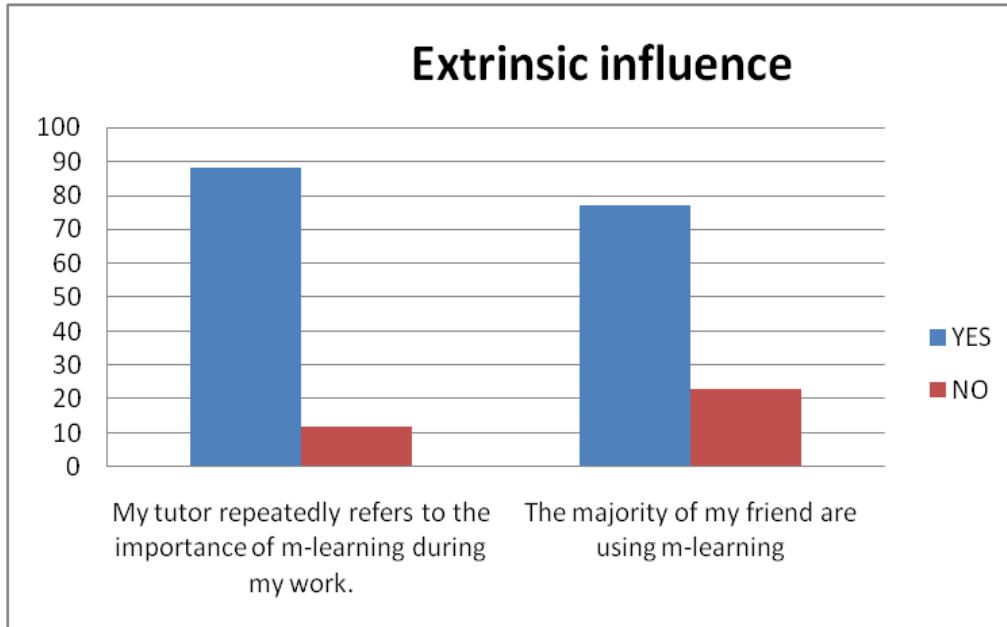

Figure 6: Student's extrinsic influence in mobile learning

Figure (7) shows that 76.3% of students are comfortable in handling their tasks through m-learning, 61.2% of students prefer to take courses using m-learning methodology. 66% of students are willing to volunteer in developing m-learning and 77.7% are willing to learn my subjects through m-learning. But 55.5% said that working through m-learning is an exhausting process and 55% of students are still printing their lectures.
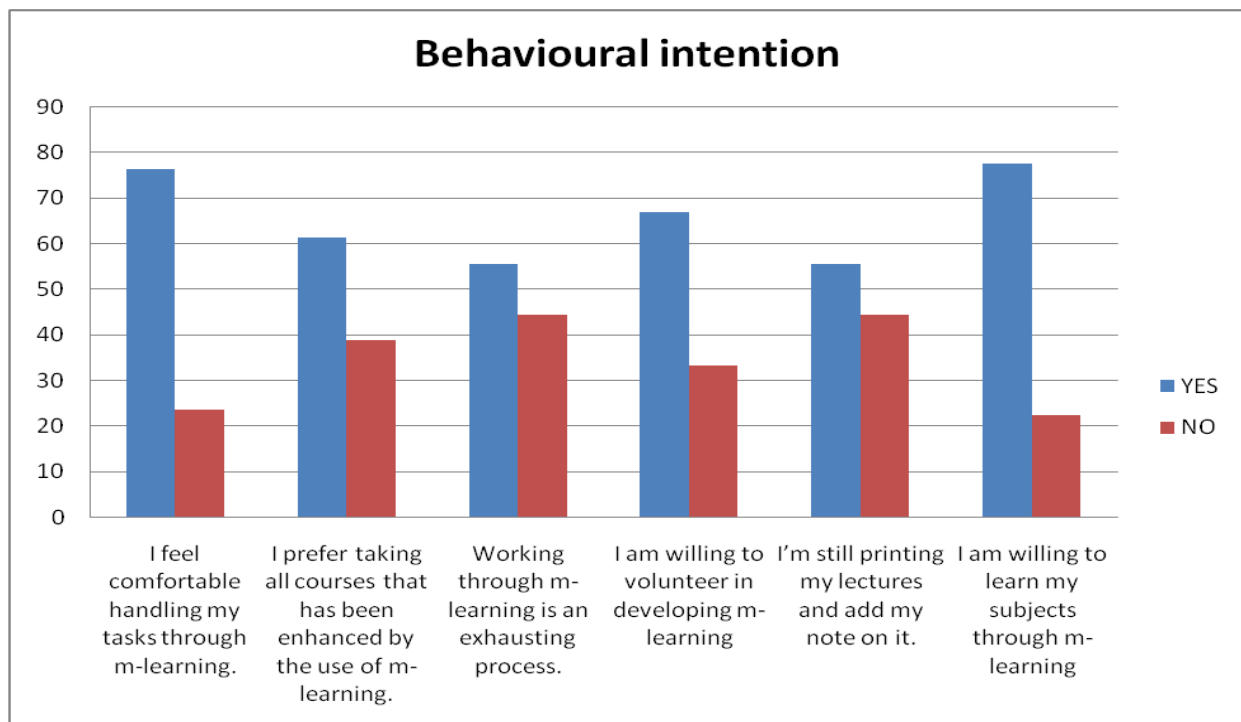

Figure 7: Student's Behavioural Intention in Mobile Learning

http://www.ejournalofsciences.org

Figure (8) shows that 77.4% of students are aware of the contact persons in AOU for assistance in m-learning if necessary and 88.2% students found m-learning training

sessions effective. 77.4% of students agreed that the cost of m-learning service that the university imposed increases their willingness in adopting m-learning.
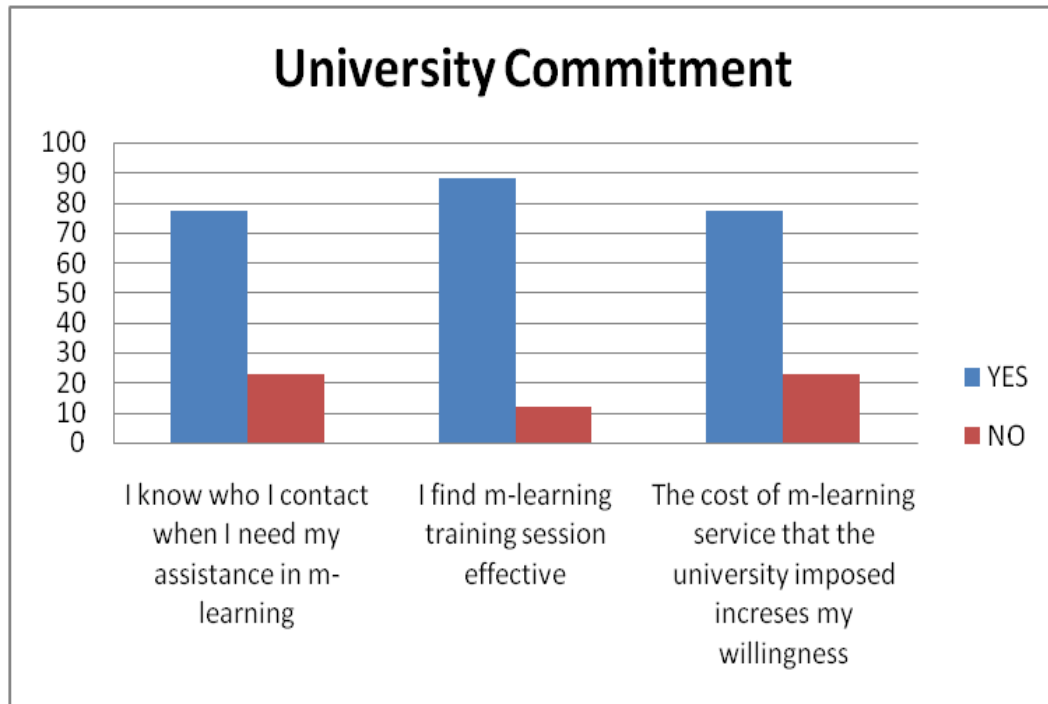

Figure 8: University Commitment in mobile learning

Figure (9) shows 89.9% of students' evaluated adopting m-learning is an advanced technology in university education, this research point out that students generally have positive attitudes towards m-learning.

Figure 9: Student's attitude towards AOU m-learning

IV.   DISCUSSION

The research's primary goal was to measure the acceptance of mobile as learning tool in Arab Open University, Bahrain.

Accordingly, the research is investigating a number of factors that influence student acceptance, as not understanding these dimensions and factors can lead to failure post-implementation because users' unwillingness to accept the new technology can lead to nonuse and thus the technology does not bring the intended benefits for the organization [4][10]. An analysis of the data obtained by the researcher through distributing 130 questionnaires to students online and receiving 123 valid and filled questionnaires.
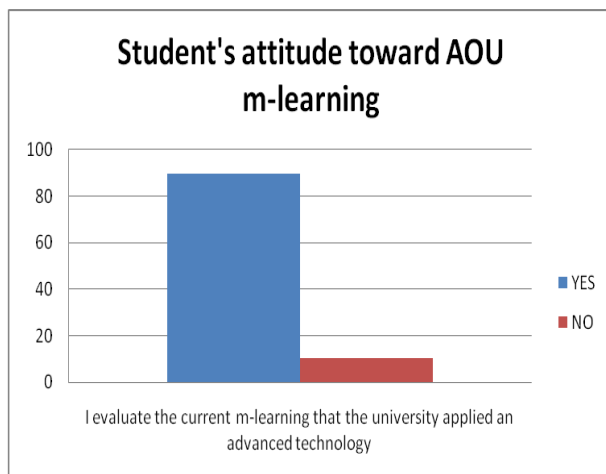
The goal of this study was to fill this research gap by analyzing the attitudes towards acceptance mobile as learning tool in AOU. Basic information about the respondents' descriptive statistics have been defined such type of mobile devices and the amount of time that spend in using mobile. Then, the impact of some variables such as mobile usage in AOU educational sector and wireless technology has also been examined. In addition, the research showed the student's perspective of the future of mobile leaning in general, if it is efficient or not.

Arab Open University applied mobile as one of its learning resources, the level of attitude towards m-learning the university offers has been measured based on some factor that impact student's acceptance such as university commitment, behavioural intention and extrinsic influence. 130 online questionnaires have distributed to students and 123 valid and useable filled questionnaires have collected. The results of

this research showed, mobile usage in education sector affects attitude towards acceptance m-learning that offer by AOU. In contrast, that there is no relationship between wireless technology and acceptance of AOU m-learning and this due to some strategy that university was adopted. While, university commitment, behavioural intention and extrinsic influence have significant effects on attitude towards the current m-learning that university offers. The student's perspective of the future of mobile learning was positively, using wireless would help them to access m-learning and they agree on the following advantages:

- M-learning gives student an opportunity to get or provide information in case of urgent need.
- Mobile technologies support learning experience that is collaborative, accessible and integrated with the world beyond the boundaries of a regular classroom.
- M-learning provides enhancement materials to supplement the textbook.
- M-learning helps me to increase access to learning materials and educational resources.
- Using m-learning helps me to perform my studies anyplace.
- Using M-Learning increases my productivity.
- Using m-learning enables me to accomplish learning tasks more quickly.
- Using m-learning enhances my effectiveness in academic development (Learn things better and smarter).

REFERENCES

[1]. Attewell, J., & Savill-Smith, C. (eds) (2004). Learning with mobile devices: Research and development – A book of papers. *London: Learning and Skills Development Agency.* Retrieved from http://www.mlearning.org/archive/docs/Learning%20with%20Mobile%20Devices%20%20A%20Book%20of%20Papers%20from%20MLEARN%202003.pdf

[2]. Barone, C. (2005). The New Academy. In Educating the Net Generation. In Oblinger, D. & Oblinger J. (eds) *Educating the net generation. Ch 14. EDUCAUSE ebook*. Retrieved from http://www.educause.edu/ir/library/pdf/pub7101.pdf

[3]. Carlson, S. (2005). The net generation goes to college. Tech-savvy "millennials" have lots of gadgets, like to multitask, and expect to control what, when, and how they learn. Should colleges cater to them? *The Chronicle of Higher Education. 52*(7), A34.

[4]. Georgiev, T., Georgieva, E. & Smrikarov, A. (2004). M-learning – A new stage of elearning. *Proceedings International Conference on Computer Systems and Technologies – CompSysTech' 2004*, 1-5. Retrieved from http://ecet.ecs.ru.acad.bg/cst04/Docs/sIV/428.pdf

[5]. Hilton, J. (2006). The future for higher education sunrise or perfect storm?,*EDUCAUSE Review. 41*(2). Retrieved from http://www.educause.edu/ir/library/pdf/erm0623.pdf

[6]. Long, P. D., & Ehrmann S. C. (2005). Future of the learning space breaking out of the box. *EDUCAUSE Review. 40*(4), 42-58. Retrieved from http://www.educause.edu/ir/library/pdf/erm0542.pdf

[7]. Matheos, K., Daniel B. K., & McCalla G. L. (2005). Dimensions for blended learning technology: Learners' perspectives. *Journal of Learning Design, 1*(1), 56-76.

[8]. Mortera-Gutierrez, F. (2006). Faculty best practices using blended learning in e-learning and face-to-face instruction. *International Journal on ELearning, 5*(3), 313-337.

[9]. Motiwalla, L. F. (2007). Mobile learning: A framework and evaluation. *Computers & Education, 49*(3), 581–596.

[10]. Muir, D.J. (2001). Adapting online education to different learning styles. National Educational Computing Conference, "Building on the Future", July 25-27, 2001. Chicago, IL.

[11]. Naismith, L., Lonsdale, P., Vavoula, G. & Sharples, M. (2004). Literature review inmobile technologies and learning. Futurelab Series. University of Birmingham. Retrieved from http://www.futurelab.org.uk/resources/documents/lit_reviews/Mobile_

[12]. Oblinger, D. & Oblinger, J. (Eds) (2005). Educating the net generation. EDUCAUSE ebook. Retrieved from http://www.educause.edu/ir/library/pdf/pub7101.pdf

[13]. Prensky, M. (2001a). Digital natives, digital immigrants. *On the Horizon, 9*(5). Retrieved from http://citeseer.nj.nec.com/pretschner99personalization.html

[14]. Prensky, M. (2004). What can you learn from a cell? – Almost anything. *Innovate, 1*(5). Retrieved from http://www.innovateonline.info/index.php?view=article&id=83