

# Factors Influencing Students' Intention to Adopt Mobile Blackboard

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**Abstract:** *M-learning is a newly emerging academic field. The studies in M-learning are still in its infancy. M-blackboard is derived from M-learning. The purpose of this study is to find the factors that influence the intention to adopt mobile blackboard. An intensive literature review of eleven selected model that have investigated the adoption of M-learning is conducted. The articles are reviewed and the most extracted factors are identified. Further, frequency analysis is conducted. The findings shows that the most frequent factors in the studies of M-blackboard or M-learning adoption is performance expectancy followed by effort expectancy, self-management, facilitating conditions, perceived playfulness, cost and previous experiences respectively*

**Keywords:** M-learning adoption, UTAUT, M-blackboard, Blackboard, Factors

## 1. Introduction

The emerging of smartphone has developed the introduction of mobile learning. The use of mobile learning has grown dramatically. According to Martinez [1] mobile device internet browsing has increased of about 300 percent from 2007 to 2012 and it projects a surpassing quantity of browsing in comparison to desktop usage for the year 2015. Out of the world's 4 billion mobile phones, 1.08 billion are Smartphones. This means that there are more than a billion devices that on average are constantly handling Geographical Positioning System (GPS) location, text messages, call logs and even banking information [1]. Therefore, these phones also can be used as tools to access online courses.

Blackboard application is a new phenomenon has emerged during the last decade of the second millennium. It is been used widely by educational institutions to promote distance learning and to keep study materials accessible by students from anywhere and at any time. Blackboard is used by more than 70 percent of the U.S. colleges and universities [2]. As of May 2013, the Blackboard Empire includes over 12 million users in over 60 countries. Products are offered in 12 languages to over 37,000 learning institutions and contain more than 2,500 supplements from educational publishers [3].

Today's student lives, works, learns, and communicates in a technology-driven environment. To stay competitive and connected, universities must communicate with them in a relevant manner. Blackboard can help universities reach more students on their terms and devices with its multi-modal service platform. This includes inbound calls, outbound calls, and a host of technology-enabled channels like short message service (SMS) text, social media, mobile applications, self-service portals, and scheduled help sessions. Blackboard helps universities engage with students in the right medium, with the right message, at key academic and administrative times [4]

Factor that influencing the intention to adopt M-blackboard which derived from M-learning are still unclear. While some research found it related to the technology and the phone

itself, other found it related to the users. In this study, we aim to review eleven models that have investigated the adoption of M-learning. The models are developed in developing country.

This study includes four sections. First section presents the introduction and the purpose of the study. Second section presents the review of the literature. Third section presents the methodology of this research. Fourth section presents the findings and last section presents the conclusion.

## 2. Literature Review

There are few studies in the field of blackboard, therefore, based on the fact that m-blackboard is a type of m-learning, the article pertaining to M-learning reviewed.

Alam [5] reviewed the literature and come up with proposed factors that affect the M-commerce adoption in higher education institution, a conceptual model to investigate the factors that affect the adoption of m-learning. He incorporated Perceived usefulness, Perceived trust Perceived cost, Intention to use M-commerce in higher education, M-commerce usage.

Chang and Pan [6] investigate the adoption of mobile users of MMS. They incorporated, Ease of use, Relative advantage, Facilitating conditions, and previous experience. They have used a questionnaire to find the factors that influence the users' intentions. The research findings show that relative advantage and ease of use are important factors significantly influencing mobile users' adoption of MMS but the other two antecedents, facilitating conditions and previous experience, do not have significant and direct impacts on mobile users' intention to use MMS.

Cochrane [7] conducted an exploratory study to find the factors that affect m-learning. There was no assumption or factors to be study. After the observations, the researchers came up with the results. Critical success factors identified include the importance of the pedagogical integration of the technology into the course assessment, lecturer modeling of the pedagogical use of the tools, the need for regular

formative feedback from lecturers to students, and the appropriate choice of mobile devices and software to support the pedagogical model underlying the course.

Gilham and Van Belle [8] used diffusion of innovation theory to examine the adoption of mobile content services. He empirically found that relative advantage; compatibility, complexity, trailability, observability, image, voluntariness, and cost are significant and affect the adoption of mobile content services.

Huang, et al. [9] investigated mobile English learning outcome (MELO). They incorporated factors such as Playfulness, Self-management, and Users' resistance. They used case study based on questionnaire. The study results indicated that perceived playfulness and self-management of learning had positive influences on MELO and that users' resistance to change was negatively associated with MELO.

Iqbal and Qureshi [10] conducted a study to find the factors influence the adoption of m-learning. Perceived usefulness, facilitating conditions, perceived playfulness, and Social influence were incorporated. Using a questionnaire, the findings indicate that perceived usefulness, ease of use, and facilitating conditions, significantly affect the students' intentions to adopt m-learning, whereas perceived playfulness is found to have less influence. Social influence is found to have a negative impact on adoption of m-learning.

In a literature review study conducted by Liu, Han, and Li [11] on the factors that affect the m-learning adoption. The results are derived from many theories and models. The authors investigated the factors that affect the adoption of m-learning by reviewing the related literature. They found that perceived mobility, perceived ease of use and perceived usefulness, allainment value, intrinsic value, utility value, cost Self-management of learning, comfort with m-learning are all found to affect the m-learning.

Park, Nam, and Cha [12] investigated students' acceptance of m-learning. Factors were incorporated such as self-efficacy, relevance for students' major (MR), system accessibility, subjective norm(SN), perceived usefulness, perceived ease of use, attitude (AT), behavioral intention to use m-learning. Using a questionnaire, the study results confirmed the acceptability of the model to explain students'

Seliaman and Al-Turki [13] have conducted empirical study to find the factors that affect the intention to suer m-learning. They incorporated constructs such as Perceived innovativeness, Perceived usefulness, Perceived ease use, Perceived ICT anxiety. Using a questionnaire, all the factors were found to affect the attitude toward using and intention to use.

Wang, Wu, and Wang [14] conducted empirical study to find the factors that influence the adoption of m-learning, he incorporated Performance Expectancy, Effort Expectancy, Social Influence, Perceived Playfulness, and Self-management of learning. Using a questionnaire, the results indicate that performance expectancy, effort expectancy, social influence, perceived playfulness, and self-management of learning were all significant determinants of behavioral

intention to use m-learning.

Yu [15] incorporated Performance expectancy, Effort expectancy, Social influence, Perceived credibility, Perceived financial cost, Facilitating conditions, Perceived self-efficacy. The study adopts UTAUT framework and examines it on individual who are using mobile for m-banking. The study empirically concluded that individual intention to adopt mobile banking was significantly influenced by social influence, perceived financial cost, performance expectancy, and perceived credibility, in their order of influencing strength. The behavior was considerably affected by individual intention and facilitating conditions.

### 3. Research Methodology

This research is following quantitative approach. The data is secondary. Eleven models that have investigated the M-learning and M-blackboard adoption are reviewed. The articles are chosen from journal interested in electronic learning. Words such as M-learning, M-blackboard, technology adoption, and intention to adopt m-learning are the key words that have been used to find the articles. Extraction of the most frequent factors is conducted by frequency analysis.

### 4. Findings

By extracting, the most effect factors that influence m-learning in the eleven selected articles. It has been found that there are thirty three (33) factors that have been incorporated by researchers to find the acceptance of M-learning by students. Table 4.1 shows the most extracted factors.

**Table 4.1: Most Extracted Factors**

No	Factor	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11
1	Perceived mobility,	X										
2	Perceived ease of use	X			X	X				X		
3	perceived usefulness	X	X			X			X	X		
4	Allainment value	X										
5	intrinsic value	X										
6	utility value	X										
7	Self-management of learning	X		X		X	X					
8	comfort with m-learning	X										
9	Perceived trust		X									
10	Performance Expectancy			X								X
11	Effort Expectancy			X								X
12	Social Influence			X								X
13	Perceived Playfulness			X								
14	Relative advantage				X							
15	Facilitating conditions				X	X			X			X
16	Previous experience				X	X						
17	Resistance						X					
18	Importance of the course											
19	Integration of the technology into the							X				

	course assessment,																				
20	lecturer modelling of the course								X												
21	Available tools								X												
22	Lecturers' feedback								X												
23	mobile device and software								X												
24	Perceived innovativeness																	X			
25	Perceived ICT anxiety																	X			
26	Perceived self-efficacy																		X		
27	Compatibility																				X
28	Complexity																				X
29	Trailability																				X
30	Observability																				X
31	Image																				X
32	Voluntariness																				X
33	Cost	x	x																		X
34	Perceived credibility																			x	

Many factors are similar to each other. Performance expectancy is similar to relative advantage and perceived usefulness, and effort expectancy is similar to perceived ease of use. Therefore, by adopting frequency analysis, the most frequent factors are presented in table 4.2.

**Table 4.2:** Most Frequent Factors

No.	Factors	Frequency
1	Performance expectancy (Perceived usefulness, relative advantages)	9
2	effort expectancy (Perceived ease of use)	6
3	Self-management of learning	4
4	Facilitating conditions	4
5	Social influence	3
6	Perceived playfulness	3
7	Cost	3
8	Previous experience	2

The table shows that elements of UTAUT are the most widely used constructs by researchers to explain the acceptance of M-learning by students.

### 5. Conclusion

This study reviewed eleven models of mobile learning adoption to identify the factors that influence m-blackboard adoption. The findings show that the most influential factor is performance expectancy with frequency of nine (9) followed by effort expectancy with frequency of six (6). Self-management learning and facilitating condition are frequent by four (4) for each. Social influence, perceived playfulness, cost are frequent by three (3) for each and finally, previous experience is the least frequent variables. Clearly, there is intensive use of the model UTAUT by the researchers. The construct of UTAUT are being incorporated by researchers to explain the adoption or acceptance of mobile learning.

### References

[1] H. J. Martinez, H. J. “Mobile Device Security: Current Challenges and Existing Solutions” (2012).

[2] E., Allen, & J. Seaman, Changing Course: Ten Years of Tracking Online Education in the United States: ERIC. (2013)

[3] Gazette. S. (2013). Mideast adapts to e-learning technologies. Available at <http://www.saudigazette.com.sa/index.cfm?method=home.e.regcon&contentid=20130429163468>. Accessed January 24, 2014.

[4] Blackboard Website (2014). Helping you drive administrative efficiency and student success. Available at:<http://www.blackboard.com/Services/Student-Services/Overview/Why-Blackboard-Student-Services.aspx>. Accessed on January 23, 2014.

[5] Alam, S. (2011). Critical Success Factors of Mobile Commerce Usage in Higher Learning Institution in Malaysia. Australian Journal of Basic and Applied Sciences, 5(12), 2416-2423.

[6] Chang, S. E., & Pan, Y.-H. V. (2011). Exploring factors influencing mobile users' intention to adopt multimedia messaging service. Behaviour & Information Technology, 30(5), 659-672.

[7] Cochrane, T. D. (2010). Exploring mobile learning success factors. Research in Learning Technology, 18(2).

[8] Gilham, C., & Van Belle, J.-P. (2005). Factors affecting the adoption of mobile content services amongst youth in the Western Cape, South Africa. Paper presented at the Proceedings of the 4th International Business Information Management Conference,(IBIMA), 5-7th July 2005, Lisbon; Portugal.

[9] Huang, R. T., Jang, S. J., Machtmes, K., & Deggs, D. (2012). Investigating the roles of perceived playfulness, resistance to change and self-management of learning in mobile English learning outcome. British Journal of Educational Technology, 43(6), 1004-1015.

[10] Iqbal, S., & Qureshi, I. A. (2012). M-learning adoption: A perspective from a developing country. The International Review of Research in Open and Distance Learning, 13(3), 147-164.

[11] Liu, Y., Han, S., & Li, H. (2010). Understanding the factors driving m-learning adoption: a literature review. Campus-Wide Information Systems, 27(4), 210-226.

[12] Park, S. Y., Nam, M. W., & Cha, S. B. (2012). University students' behavioral intention to use mobile learning: Evaluating the technology acceptance model. British Journal of Educational Technology, 43(4), 592-605.

[13] Seliaman, M. E., & Al-Turki, M. (2012). Mobile Learning Adoption in Saudi Arabia. Paper presented at the Proceedings of World Academy of Science, Engineering and Technology.

[14] Wang, Y. S., Wu, M. C., & Wang, H. Y. (2009). Investigating the determinants and age and gender differences in the acceptance of mobile learning. British Journal of Educational Technology, 40(1), 92-118.

[15] Yu, C.-S. (2012). Factors Affecting Individuals to Adopt Mobile Banking: Empirical Evidence from the UTAUT Model. Journal of Electronic Commerce Research, 13(2), 104-121.

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