

# Mobile Learning Adoption among Tertiary Students

Abdullah, M.A.<sup>1,2,\*</sup>, Mohamad Sharif<sup>1,2</sup>, S., Azman, H.<sup>1,2</sup>, Mohd Arshad, M.F.<sup>1</sup>

<sup>1)</sup> Faculty of Technology Management and Technopreneurship, Universiti Teknikal Malaysia Melaka,  
Hang Tuah Jaya, 76100 Durian Tunggal, Melaka, Malaysia

<sup>2)</sup> Centre of Technopreneurship Development (C-TeD), Universiti Teknikal Malaysia Melaka,  
Hang Tuah Jaya, 76100 Durian Tunggal, Melaka, Malaysia

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## Abstract

The purpose of this study is to investigate the adoption of mobiles learning among higher institution students and the impact on their on their academic achievement. Data was collect from students of four higher institutions around Melaka. A questionnaire survey was distribute to selected higher institutions in order to collect the data for the research. The study used convenience-sampling method to select the samples. Two hundred (200) respondents was participated in the study. Regression analysis were conduct to examine the effect of digital mobile learning device elements on the higher institution students' performance. The results of this study indicates that only perceived convenience has a significant positive relationship with student performance. However, there are no significant relationship between perceived information accuracy and perceives mobility and students' academic achievement. The results also provide practitioners with guidelines for implementing digital mobile learning among tertiary students.

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*Keywords:* Digital Mobile Learning; Higher Education Institution; Academic Achievement

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## 1. Introduction

Unlike previous technology, mobile technology has spread at an exceptional pace in the recent years. Mobiles technology has be affected almost every single sectors including banking, education, services, consumers' products and many more. Recently, most population in the world has been expose to mobile technology due to the advancement of the internet technology. The ITU ICT Facts and Figures 2017 show that young people are at the forefront of today's information society: where 830 million young people representing more than 80 per cent of the youth population in 104 countries are online (ITU, 2017). In addition, as of June 2016, 68.1% or 21,090,777 of Malaysian are the internet users (NA, 2017).

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\* Corresponding author. Tel.: +0-000-000-0000 ; fax: +0-000-000-0000 .  
E-mail address: mariammiri@utem.edu.my

Today, mobile devices are reflect as a cultural tool that are altering socio-cultural practices and structures in all scope of life (Pacher et al., 2010). This revolution is crucial from many perspective since it's able to empowers people to involve in communication that are free from the limitation of physical proximity and spatial rigidity as never before (Geser, 2004).

Higher education nature has been changed 360 degree due to the rapid development of mobile computing devices and internet capabilities (Dodd et al., 2009; Liaw et al., 2010). Due to increase growth of the Internet and information and communication technology, Learning Management System (LMS), mobile learning or m-learning have emerged as the new paradigm in modern education (Sharples, 2000). Furthermore, Gikas and Grant (2013) have indicated that mobile technology has become an integral part of the educational process at the higher educational institutions as it brings many opportunities and challenges to both students and academics.

M-learning strengths include portability-mobile devices can be use anywhere, inside and outside the classroom; convenience -their potential as a tool for collaboration, interaction and permanent connectivity (always on); information accuracy -the ability to obtain information suited to the context or situation and the possibility of adapting the content to every user according to their needs and expectations (Klimova & Poulouva, 2016).

El-Hussien and Johannes (2010) suggested that in order to understand and define mobile learning, the key components should be separate and arrange into three different concepts; concept relates to the mobility of the technology, concept hinges on increased learner mobility and concept examines the mobility and dynamism of the learning process and flow of information. This study adopt the most widely accepted definitions of mobile learning by Sharples *et al.* (2007) whom defined mobile learning as 'the processes of coming to know through conversations across multiple contexts among people and personal interactive technologies'.

The new learning platform provide student with accessibility to global communication network and make it possible for them to learn anywhere and anytime. The objective of this new learning platform is to gain competitive advantages (2006). In Malaysia context, mobile learning is widely implemented at tertiary education level. It is widely used to scaffold the teaching and learning ecosystem through Bring Your Own Devices (BYOD) policy to empower the flexibility for the stakeholders, namely teachers and students to engage in meaningful lessons and communication via their mobile devices Razali et al. (2015).

Many theories and model has been formulate to examine individual acceptance and intention to use information technology Ng et al., (2015). The most popular theory recently is the Unified Theory of Acceptance and Use of Technology (UTAUT) proposed by Vankatesh et al. (2003). UTAUT model combined empirical element from several models for behavioral intention to use information technologies. Few models has been compare and analyze to derive UTAUT model. These include i) Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1975), ii) Technology Acceptance Theory or TAM (Davis, 1989), iii) Theory of Planned Behavior or TPB (Ajzen, 1991), iv) Model of PC Utilization or MPCU (Triandis, 1979; Thompson et al., 1991), v) Motivational Model or MM (Davis et al, 1992), vi) Social Cognitive Theory or SCT (Bandura, 1986; Compeau et al., 1999), vii) the Innovation Diffusion Theory or ITD (Moore & Benbasat, 1991; Rogers, 2003), and viii) combination of TAM and TPB or C-TAM-TAM-TPB (Taylor & Todd, 1995; Chen, 2013).

This study aims to analyze the acceptance of digital mobile learning devices among higher education institutions students by partially employed the UTAUT.

## **2. Methodology**

In this research only three variables of UTAUT model are tested; performance expectancy, effort expectancy and facilitating condition. However in this research, performance expectancy operationalized as information accuracy, effort expectancy operationalized as perceived convenience and facilitating condition operationalized

as per perceive portability. Figure 1 shows the proposed research model for this study, following by the hypotheses as follows:

H1. Perceive information accuracy is significantly relate to academic achievement of higher education students.

H2. Perceive portability is significantly relate to academic achievement of higher education students.

H3. Perceived convenience is significantly relate to academic achievement of higher education students.

The sampling frame for this research is higher institutions around Malacca. The convenience sampling method was use to select the sample. Data was collected using questionnaire. The questionnaire were divided into two sections; A and B. Section A consists of questions related to independent variable (perceived information accuracy, perceived portability and perceived convenience) and dependent variable (academic achievement). Section B comprises the questions pertaining to general information of the respondents. All the questionnaire items were measure on a 5-point Likert scale.

Two hundred (200) completed questionnaires were receive from students' of four higher institutions around Malacca. Data were analyze using SPSS for reliability analysis, correlation analysis and Multi Regression Analysis (MRA).

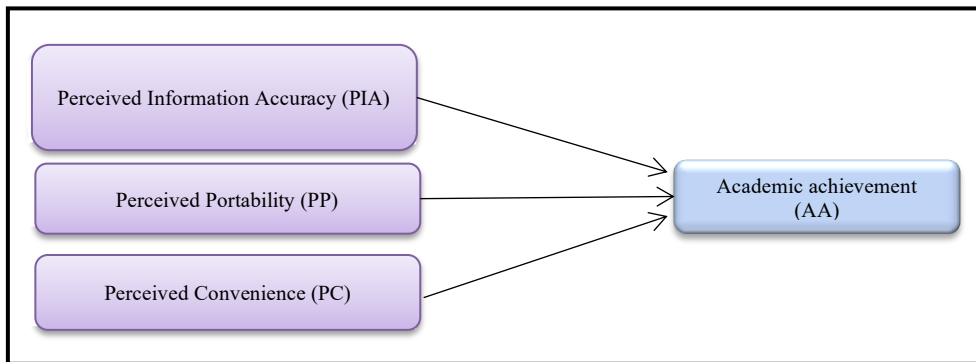


Fig. 1: Research framework

### 3. Results and Discussion

For reliable test, Cronbach’s alpha for all variables are acceptable with .749 (good). In addition results of the correlation analysis, indicates that all the variables have a weak relationship with student’s academic achievement (PIA: 0.212; PP: 0.215 and PC: 0.400 at p-value of 0.01) as shown in Table 1. These results indicates that all the variables are valid for further analysis and free form multi collinearity effect.

Table 1: Correlation of all variables

		PIA	PP	PC	AA
PIA	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	200			
PP	Pearson Correlation	.285**	1		
	Sig. (2-tailed)	.000			

	N	200	200		
PC	Pearson Correlation	.353**	.314**	1	
	Sig. (2-tailed)	.000	.000		
	N	200	200	200	
AA	Pearson Correlation	.212**	.215**	.400**	1
	Sig. (2-tailed)	.003	.002	.000	
	N	200	200	200	200

\*\* Correlation is significant at the 0.01 level (2-tailed).  
 (Source: SPSS Output)

For the Multiple Regression Analysis (MRA), the R-value is 0.415 indicate a weak level of prediction of independent variables for the dependent variable as shown in Table 2. R<sup>2</sup> = 0.173 implies that the independent variables (PIA, PP and PC) explain only 17.3% of the variability of the dependent variable (AA) and the remaining 82.7% are encounter by other factors not being included in this study.

Table 2: Model Summary of Multiple Regression Analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.415 <sup>a</sup>	.173	.160	.75806

Predictors: (Constant), convenient, portability, accuracy  
 (Sources: SPSS Output)

The results of multiple regression analysis revealed the existence of a significant relationship only between perceived convenience (PC) and students’ academic achievement (AA) where Unstandardized Coefficients, B= 0.553 at significant value, p= 0.000. However, there is no significant relationship were found between perceived portability (PP) (B= 0.082; p=.215) and perceived information accuracy (PIA) (B= 0.093; p=.372). This analysis shows that there is a partial significant relationship between independent and dependent variable of this study as shown in Table 3. Therefore, H3 is support whilst H1 and H2 are not support.

Table 3: Regression of Coefficient

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	.894	.508		1.759	.080
	PP	.082	.066	.087	1.243	.215
	PIA	.093	.103	.063	.896	.372
	PC	.553	.113	.351	4.906	.000

a. Dependent Variable: AA  
 (Sources: SPSS Output)

#### 4. Conclusions

This study provides an empirical evidence for a better understanding of students' adoption of mobile learning devices in higher education. Consistent with Insook and Won (2016) this study found that mobile learning adoption in tertiary education institution positively influenced online students' academic achievement. However, perceived portability and perceived information accuracy found to have no significant relationship with students' academic achievement. These results were in contrast with Sedek *et al.* (2017) whom found that performance expectancy is the most salient factors influencing the utilization of ubiquitous technology and follows by technology competency among undergraduate student of four technical universities in Malaysia.

The study proposes that the most dominant elements of mobile learning element to affect the adoption of mobile learning that brings better student performance is perceived convenience. These results supported the notion by previous research, which mentioned that mobile devices are highly personalized and collaborative communication tools. Therefore, they provide the institutions of tertiary education with flexible tools for complementing the existing technologies and extending the learning beyond the classrooms and homes from remote places like train or bus stations where students do not have any access to computers (Wu *et al.*, 2012; Pegrum *et al.*, 2013). Thus, its' may be able to enhance collaboration, social interactivity, in situ learning and sharing, communication among students, educators and experts and customization of learning (Koehler *et al.*, 2011; Mifsud, 2014; Kearney *et al.*, 2015).

The results are partially significant may due to only three variables in the UTAUT model are taken into account in this study to represent the elements of mobile learning. The results may suggested there are many other factor that may contribute to student's academic achievement besides this three factor such as are the student well equipped for mobile learning, do they fully utilized the mobile devices for learning, does the infrastructure fully supported the used of mobile devices for learning and many other factors.

The study also has limited the size of sample; it should be expand by including more users in the survey. A larger sample with more assorted qualities would have profited the study. Another conceivable change in the study could have been interviewing participants directly, and personal interviews could possibly elicit greater information regarding participants' knowledge and attitudes. This method could have include imperative subjective information therefore contribute to a more prominent understanding about the participant idea and assessment.

In conclusion, in the 21<sup>st</sup> Century, mobile learning approach is become part of our life. The lifelong learning, the pervasive experience, which were delivered through practical invisible devices use by almost everyone day and night, and the personal network that deliver information to the eyes, ears and others senses make the learning accessible to everyone.

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