



Faculty of Economics and Business

**USING PARTIAL LEAST SQUARE APPROACH TO
INVESTIGATE THE ATTITUDE AND BEHAVIOURAL
INTENTION OF MALAYSIAN COLLEGE STUDENTS TO
ADOPT M-LEARNING**

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Bachelor of Business Administration with Honours
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COLLEGE STUDENTS TO ADOPT M-LEARNING**

JONG NG PHEN

This project is submitted in partial fulfillment of
the requirements for the degree of Bachelor of Business Administration with
Honours
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Faculty of Economics and Business
UNIVERSITI MALAYSIA SARAWAK
2015

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Final Year Project Report

Masters

PhD

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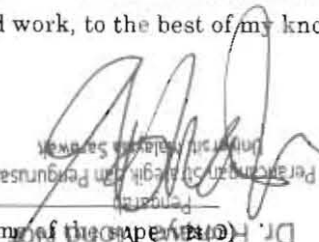
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ABSTRACT

**USING PARTIAL LEAST SQUARE APPROACH TO INVESTIGATE THE
ATTITUDE AND BEHAVIOURAL INTENTION OF MALAYSIAN
COLLEGE STUDENTS TO ADOPT M-LEARNING**

By

Jong Ng Phen

Mobile learning or m-learning now has gaining its popularity in the education sector, particularly in the teaching and learning practices conducted in distance learning and electronic learning (e-learning) environment. In the literature, two prominent trends that are consistently cited as reasons for the growing popularity of m-learning to facilitate teaching and learning of college students are: (1) the increasing trend of college students as consumers of mobile devices who can own more than two of these technologies including mobile phones; and (2) their heavy usage of smartphone to stay connected with the Internet. At present, empirical research related to the impact of m-learning to Malaysian college students, and whether they are ready to participate in m-learning environment is rather limited. This study aims to address this gap in the literature, by investigating the Malaysian college students' attitude and their behavioural intention to participate in m-learning using partial least square (PLS) approach. The quantitative research is guided under Theory of Planned Behaviour and Activity Theory. Ten (10) hypotheses are being formulated and tested. The independent variables for this study are perceived ease of use, perceived usefulness, instructor readiness, student readiness,

perceived self-efficacy, learning autonomy, facilitating condition, attitude, subjective norm and perceived behavioural control; the dependent variable is student's intention to use mobile learning. 355 usable sets of questionnaires were collected and analysed further by using SmartPLS. The outcomes from the research revealed that most of the respondents possess more than one mobile device included smartphones, tablets and so forth. Besides, 93.5% of them access to the Internet as part of their daily activity. On the other hand, the ten hypotheses are supported in this study. This indicated the college students have high intention to use the mobile learning in their study life and they are ready for it. The findings of this study have both theoretical and practical contributions in the context of engaging m-learning to promote effective teaching and learning for college students in Malaysia.

ABSTRAK

**PENGGUNAAN PARTIAL LEAST SQUARE UNTUK MENYIASAT
KESIKAPAN DAN KEINGINAN PELAJAR KOLEJ MALAYSIA UNTUK
MENGGUNAKAN M-PEMBELAJARAN**

Oleh

Jong Ng Phen

Pembelajaran mudah alih atau m-pembelajaran kini semakin popular dalam sector pendidikan, khususnya dalam amalan pengajaran dan pembelajaran yang dijalankan dalam pembelajaran jarak jauh dan pembelajaran secara elektronik. Dalam kesusteraan, dua trend utama telah menyatakan populariti m-pembelejaran untuk memudahkan pengajaran dan pembelajaran pelajar kolej, iaitu: (1) peningkatan daripada pelajar kolej sebagai pengguna telefon mudah alih yang memiliki lebih daripada satu telefon mudah alih; dan (2) penggunaan telefon pintar untuk meneruskan pengaksesan Internet. Setakat ini, kajian yang mengenai kesan m-pembelajaran terhadap pelajar kolej Malaysia, dan sama ada mereka sudah bersedia dalam menggunakan m-pembelajaran agak terhad. Matlamat kajian ini adalah menyatakan jurang yang didapati dalam kesusteraan, menggunakan *partial least square* (PLS) untuk menyiasat kesikapan dan keinginan pelajar kolej Malaysia dalam penggunaan m-pembelajaran. Kajian ini menggunakan Teori Tingkah Laku Terancang dan Teori Aktiviti. Sebanyak sepuluh hipotesis telah digubal dan diuji. Terdapat sepuluh pembolehubah bebas dalam kajian ini, iaitu anggapan tentang kemudahan penggunaan, anggapan tentang kegunaan,

kesediaan pengajar, kesediaan pelajar, anggapan tentang keberkesanan diri, autonomi pembelajaran, syarat kemudahan, sikap, norma subjektif, kawalan tingkah laku, manakala pembolehubah bersandar adalah keinginan pelajar untuk menggunakan pembelajaran mudah alih. 355 set soal selidik yang boleh digunakan telah dikumpulkan dan membuat analisis yang lanjut dengan menggunakan SmartPLS. Hasil daripada kajian menunjukkan bahawa kebanyakan responden mempunyai lebih daripada satu telefon mudah alih, termasuk telefon pintar, tablet, dan sebagainya. Selain itu, 93.5% daripada mereka mengakses Internet sebagai sebahagian daripada aktiviti harian mereka. Di sebaliknya, sepuluh hipotesis telah disokong dalam kajian ini. Ini menunjukkan pelajar-pelajar kolej mempunyai keinginan tinggi untuk menggunakan pembelajaran mudah alih dalam pembelajaran mereka dan mereka sudah bersiap sedia menggunakannya. Hasil kajian ini mempunyai penyumbangan dari segi teori dan praktikal yang menggalakkan pengajaran dan pembelajaran berkesan untuk pelajar-pelajar kolej di Malaysia.

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CHAPTER ONE

INTRODUCTION

1.1 Introduction

Mobile learning (m-learning) as defined by Ozdamli and Cavus (2011) is a type of learning supported and facilitated through the use of mobile technology and Internet to obtain learning materials anytime and anywhere. M-learning now has gaining its popularity in the education sector, particularly in the teaching and learning practices conducted in the form of distance learning and electronic learning (e-learning). M-learning is argued to still be at the infancy phase (Keegan, 2005); one of the reasons that was being acknowledged in the literature as a hindrance to the rapid adoption of m-learning include the difficulties to incorporate course structures that can fully support mobile learning (Filho, Klein, & Neto, 2010). Yet, to date, there are a number of universities that have already experimented and implemented m-learning system for teaching and learning activities targeted for learners (Gikas & Grant, 2013; Park, Nam, & Cha, 2012).

In the Malaysian context, there has been an increasing interest to explore the impact of implementing m-learning to facilitate teaching and learning activities, and whether the Malaysian learners are readied for this learning environment. Such interests are being triggered by a changing consumer trend, where most Malaysians including college students, are not just capable to own different mobile devices, but can also own more than two mobile phones including smartphones. See for example Suki and Suki (2007). According to Malaysian Communications and Multimedia Commission [MCMC], the number

of mobile phone subscription increased from 16.2 million (2005) to 36.1 million (2011). The report indicated that, the mobile phone users, aged between 20 years old to 24 years old, were the largest group of users (about 17.3%), then followed by the mobile phone users, aged between 25 years old to 29 years old (about 15.8%) (MCMC, 2012). Table 1.1 below showed the activities that students normally do with their smartphones. Generally, users utilize their phones for communication by texting and calling, taking pictures, listening to music or radio and so forth. With smartphone application, most users utilize it for social networking purpose such as participating in Facebook application (Norris et al. as cited in Taleb & Sohrabi, 2012). Table 1.1 depicted clearly that most users use smartphone to engage in doing social networking.

Table 1.1
The Activities on Smartphone on Year 2011

The Activities on Smartphone	Year 2011 (%)
Social networking	74.4
Listening to music	48.0
Go for downloading	45.7
Chatting	41.8
Games	39.8
Mobile Applications	36.1
Videos	35.2
Blogging	19.0
Others	13.4

*These results are based on the multiple response questions.

Source: MCMC, 2011, p. 18-19.

Other activities associated with smartphone usage that were reported by MCMC (2011) include activities such as: listening to music (48% of users); downloading novels, videos or others (45.7% of users); chatting with their friends by Whatapps, Line or other chatting application (41.8% of users). Because of the easy access to the internet, Mothar, Hassan, Hassan and Osman's study (2013) argued that most youth generation spent a lot of time participating in such activities. Mobile phone now is integral to students' life

style (Smura et al. (2009) as cited in Suki, 2013). Due to this heavy usage of mobile phone especially smart phone, it's not surprising to observe the increasing interests in the literature to attempt to investigate and discover the beneficial aspects of m-learning to facilitate today's learners in teaching and learning activities. For example, Mohd-Nor and Lin (2012) investigated mobile technologies and applications in the context of medical and nursing students in one university in Malaysia. The study reported that a majority of the survey respondents demonstrated a favorable attitude with regard to the use of the technologies, particularly smartphone to facilitate their learning activities, and to prepare them as healthcare professionals for future workplace (i.e., hospital or clinic) that is increasingly integrated with ICT features and installation that are ubiquitous and mobile in nature.

Despite the increasing interest in this area of research, yet empirical studies related to the impact of m-learning to Malaysian college students, and whether they are readied to participate in m-learning environment are rather limited. This study aims to address this gap in the literature, by investigating the Malaysian college students' readiness to participate in m-learning using partial least square (PLS) approach. Specifically, this study is interested to determine what factors that these students perceive as important to participate in m-learning activity, what are their usage pattern with regard to utilizing mobile devices particularly mobile phones.

1.2 Problem Statement

In the literature, two prominent trends that are consistently cited as reasons for the growing popularity of m-learning to facilitate teaching and learning of college students are: (1) the increasing trend of college students as consumers of mobile devices who can own more than two of these technologies particularly mobile phones; and (2) their heavy usage of smartphone to stay connected with the Internet. In the Malaysian context, with the recent launching of the Malaysian Higher Education Blueprint 2015 – 2025, inarguably, the importance of m-learning should not be overlooked as Malaysia now aspires to extensively integrate online learning in the education sector (Ministry of Education Malaysia, 2015). M-learning from this standpoint will accommodate and can further accelerate the realization of this vision for the education sector. For instance, in year 2009, Open University Malaysia (OUM) initiated to integrate m-learning into their learning system via short message service (SMS) (Lim, Abas, & Fadzil, 2011). After that, the learners' satisfaction results that they obtained shown about 92.8% of learners agreed m-learning via SMS helped them to manage their learning better (Lim et al., 2011). Besides, about 91.4% of learners also indicated their interests in their courses had been sustained through m-learning system. Moreover, they worked further harder in their learning (about 92.9%) (Lim et al., 2011).

From the research standpoint, it was highlighted in the literature that Malaysian higher institutions are still slow in adopting m-learning as compared to developed nations such as United States to facilitate teaching and learning activities (Wei, Marthandan, Chong, Ooi, & Arumugam, 2009). In the developed nations such as United States and South Korea, several studies have shown

that college students have high intention to use m-learning (Gikas & Grant, 2013; Lu, Yao, & Yu, 2005; Park et al., 2012). In Taiwan, the research area is also gaining popularity, and several higher institutions also have started to integrate m-learning in teaching and learning activities and practices (Hwang as cited in Taiwan Tech, 2014; Liu, Wang, Liang, Chan, Ko, & Yang, 2003; Shih, Chuang, & Hwang, 2010). For Malaysia, at present, empirical research related to m-learning is lacking. Only a handful of empirical studies were carried out in the Peninsular Malaysia region to explore the benefits of engaging with m-learning for teaching and learning practices (Nordin, Embi, & Yunus, 2010), and determined potential factors that can influence the adoption of m-learning (Chong, Chong, Ooi, & Lin, 2011; Tan, Ooi, Sim, & Phusavat, 2012).

Further from the context of learners, substantial research studies have engaged Technology Acceptance Model [TAM] and Unified Theory of Acceptance and Use of Technology model [UTAUT] to investigate students' intentions to use m-learning. See for example studies conducted by Wang, Wu, & Wang (2009) and Park et al. (2012). A study conducted by Cheon, Lee, Crooks, & Song (2012) deployed Theory of Planned Behaviour (TPB) to understand college students' attitude and their behavioral intention to adopt mobile devices. Their study however did not consider facilitating condition that can influence students' attitude.

Building from past research, and addressing the identified literature gaps, this study focuses on investigating Malaysian college students' attitude and their behavioral intention to adopt m-learning, and aims to understand whether they are readied for m-learning environment for teaching and learning activities in the university context. Student is one of the main user apart from lecturers

who will use the m-learning system. Whether students will perform a positive or negative attitude towards the adoption of m-learning or not, their intentions to adopt m-learning will be affected significantly by those attitudes as well. And those attitudes performed are significantly influenced by the level of importance they perceived regarding the factors (attitude, subjective norm, perceived behavioural control, perceived ease of use, perceived usefulness, instructor readiness, student readiness, perceived self-efficacy, learning autonomy, and facilitating condition). If students perceived highly about themselves and thus, they will perform positive attitude towards adoption of m-learning. It also indicated they have high intention to adopt the m-learning and they are ready for adopting and engaging themselves into m-learning environment. The subsequent sections explain further regarding the research.

1.3 Research Objective

The purpose of this study is to investigate the readiness of students in adoption of m-learning and thus, to determine the factors that students consider important in participating m-learning activity. To address these aims, the specific objectives have been stated as below:

- I. To investigate the students' usage patterns in utilizing mobile devices.
- II. To identify factors that can influence the students' attitude, and further influence their behavioral intention to adopt m-learning.
- III. To determine the relationship between these factors and the intention of students in adopt m-learning.

1.4 Research Questions

The research objectives above help to answer the research questions as follow:

- I. What are the factors that students perceive as important in participating in m-learning?
 - a. Is attitude perceived as important?
 - b. Is subjective norm perceived as important?
 - c. Is behavioural control perceived as important?
 - d. Is Ease of Use perceived as important?
 - e. Is Usefulness perceived as important?
 - f. Is Instructor Readiness perceived as important?
 - g. Is Student Readiness perceived as important?
 - h. Is Self-Efficacy perceived as important?
 - i. Is Learning Autonomy perceived as important?
 - j. Is Facilitating Condition perceived as important?

- II. What are the relationships between these factors and the intention of students to adopt m-learning?
 - a. Is there a relationship between students' attitude and their behavioural intention to adopt m-learning?
 - b. Is there a relationship between subjective norm and students' behavioural intention to adopt m-learning?
 - c. Is there a relationship between students' perceived behavioural control and their behavioural intention to adopt m-learning?