DETERMINANTS THAT INFLUENCE ADOPTION OF MOBILE TECHNOLOGY IN LEARNING ENVIRONMENT

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ABSTRACT

This research aims to investigate the salient factors that influence the behavioural intention on adoption of mobile technology in the learning environment. Rapid growth of Third Generation (3G) mobile technology has changed our student's life style radically. It incorporates voice data and internet access, which turns the smart phone equal to a computer system. This ubiquities feature extends opportunities into learning environment. This study is to find out the determinants that influence the adoption of mobile technology among the undergraduate students and to increase learning activities using mobile technologies in the universities in future. The modified Unified Theory of Acceptance and Use of Technology (UTAUT) model adopted to determine the factors that influence the behavioural intention to use mobile technology in the learning environment. Structural Equation Modeling technique (SEM) employed for analysing the data collected from 351 students. The result indicates that Performance Expectancy, Affordability and Podcast are the salient factors that influence the behavioural intention on adopting mobile technology in learning environment and age and gender do not have a significant effect on adopting mobile technology. The study contributes to the body of knowledge in the area of adoption of mobile technology and provides a foundation for future implementation of mobile learning in educational institutions.

APPROVAL PAGE

I certify that I have supervised/read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in quality and scope, as a thesis for the fulfillment of the requirements for the degree of Doctor of Philosophy.

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DECLARATION

I hereby declare that the thesis is submitted in fulfillment of the PhD degree is my ownwork and that all contributions from any other persons or sources are properly and duly cited. I further declare that the material has not been submitted either in whole or in part,for a degree at this or any other university. In making this declaration, I understand and acknowledge any breaches in this declaration constitute academic misconduct, which may result in my expulsion from the programme and/or exclusion from the award of the degree.

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LIST OF SYMBOLS AND ABBREVATIONS

3G	Third Generation
C-TAM -TPB	Combined TAM and TPB
e-mail	Electronic mail
ICT	Information and Communications Technology
IDT	Innovation Diffusion Theory
IT	Information Technology
MMS	Multi Media Services
MPCU	Model of PC Utilization
SCT	The Social Cognitive Theory
SMS	Short Message Services
TAM	Technology Adoption Model
TPB	Theory of Planned Behaviour
TRA	Theory of Reasoned Action
UTAUT	Unified Theory of Acceptance Technology

Chapter 1

1.1. Introduction

The advent of third generation (3G) mobile technology, which includes Internet access and voice data, has changed the lifestyles of people dramatically. Mobile technology to date is now on par with computer systems. Cellular networks allow instant short message services (SMS), e-mails, multimedia message services (MMS), and video clips through broadband (Peter, 2010). Access to wireless Internet raises the chances of accessing video and audio lectures, thus, engaging participants in an informal learning environment at any given location (Chabra & Figueiredo, 2002; Liu, 2011; Corbeil & Valdes-Corbeil, 2007). Amin, Mahmud, Abidin, and Rahman (2006) reported that mobile-learning services are provided better to students and instructors through mobility. Thus, e-learning is extended to mobile learning beyond the physical classroom with higher flexibility (Valentine, 2005). More consumers are buying smart phones because these devices provide instant wireless-Internet access. Presently, a college student without a mobile phone is very uncommon. According to Prensky (2005), the present younger generation is known as the "mobile generation" because of their acceptance of mobile technology (p.35). Mobile technology has dramatically changed the method of communication and information access of students through mobile blogging, e-books, Face book, MySpace, YouTube and other digital tools (Hassan, 2009; Looney & Sheehan, 2001; Kimber et al., 2002). The mobile generation increasingly uses SMS, chat

rooms, and e-mail messages to remain connected with their peers and expect their schools to be connected in the same way (Alexander, 2004a). Bonk and Zhang (2006) stressed the need for educators to acknowledge the effects of mobile technology for virtual-classroom learning experiences. In summary, smart phones have become an important communication tool and an integral part of our society.

1.2 Background of the Study

Students today are more literate than previous generations regarding modern technology, and are more inclined to express themselves using SMS, images, and sounds, which indicate their fondness for visual and kinesthetic means of communication (Prensky, 2001). In the present digital era, students are averse to reading lengthy materials, assignments, or instructions (Manuel, 2002). Students are attracted to multimedia lecture materials, immediate delivery of messages (e.g., MMS, SMS, e-mail), and interactive communication (Lam et al., 2009; Carlson, 2005; Turker et al., 2006). A number of researchers have reported that the current system of education needs to be redesigned (Alexander, 2004b; Kimber et al., 2002; Oblinger & Oblinger, 2005).

People have varying views concerning changes in the learning environment. These changes may help narrow the gap between students and teachers, thus, enhancing communication and improving student performance. Siraj and Nair (2008) reported that students from the digital generation prefer

self-accessed information, which allows self-paced learning and discovery of interesting topics. The use of mobile technology in a learning environment enables students to learn anywhere and at any time (Attewell, 2005; Wentzel et al., 2005; Watson & White, 2006). Oblinger (2003) and Prensky (2004) noted that student development is correlated with developments in digital media and multipurpose cell phones are now considered assets of the students. Prensky (2005) argued about the need for the educational system to change and embrace new pedagogical practices, for example, flexible communication and lecture delivery. To meet the demands of the digital generation, universities should consider incorporating mobile technology in teaching strategies while focusing on the needs of students.

Peter (2010) reported that 3G mobile technology was introduced in Malaysia in 2005 and tremendous improvements were noted regarding mobile phone usage during this time. Smartphone sales to young adults (i.e., 20 years to 29 years old) increased by 20%, indicating that most young adults own a smart phone in Malaysia (Budde, 2010).These young adults can be found in higher institutions of learning and stay connected with their peers via SMS, chart rooms, computer games, and emails. The Malaysian Commission and Multimedia Communication reported (2009) that mobile phone users in Malaysia increased by 100.8%, with iPhone buyers mostly in the 19 to 25 age group.

Malaysians have been noted as immense users of SMS, with 73 billion SMS sent during 2008 (Bharat Book Bureau, 2009). In addition, the Malaysian government is encouraging mobile learning among its 20 to 23 million mobile

users in the nation (Abas et al., 2009). Open University is the first to introduce mobile learning in Malaysia and students have generally viewed mobile learning as beneficial (Ariffin, 2011). This shows clearly the probability of incorporating mobile technology in Malaysian educational institutions in the near future. Hence, factors that influence favorable responses to mobile technology based on learning must be identified to ensure easier implementation in educational institutes.

1.3 Problem Statement

The advanced features of 3G mobile phones allow students access to emails, videos, audio files, and e-books. Although 3Gmobile technology provides a variety of features that are useful for learning, most students do not use these features for educational purposes (Hassan, 2009). Students mainly use mobile phones to send SMS/MMS messages, watch videos, listen to music, play computer games, and chat with peers (Zulkefly & Baharudin, 2009; Desmond, 2008). Students generally view the Smartphone as an entertainment tool (Carlsson et al., 2006) Moreover, educational institutions currently do not apply mobile technology to enhance learning (Prensky, 2004; Hassan, 2009; Carlsson et al., 2006). The perception of students regarding mobile technology is far different from that of universities and faculty members (The Horizon Report, 2011).

Wheeler (2006) stated that useful innovations often are not adopted because of fear from stakeholders. Universities and faculty members face challenges regarding the demands of the mobile community (Oblinger & Oblinger, 2005). Learners also expect their teachers to use various electronic devices (Bright 2008; Anderson & Braiterman, 2001). The advanced features of mobile technologies (e.g., access toe-books and e-learning materials, audio and video files) support the expectations of students in improving their performance and communication. Educating students is the primary goal of universities, and understanding the factors related to mobile-technology-based learning can enhance student performance and communication between faculty members (Hill & Alexander, 2006; Keiningham, Perkins-Munn,&Evans,2003;Hassan, 2009).

Trial studies have been conducted at universities concerning mobile technology use; however, this concept is still in the rudimentary stage (Facer et al., 2005; Özdemir, 2010). Many challenges prevent users from integrating mobile technology into the learning environment (Hassan, 2009; Carlsson ,Carlsson, Hyvonen, Puhakainen, & Walden, 2006; Mackin, 2010). Investigating the factors that influence the adoption of mobile technology by students prior to implementation can help overcome these challenges.

Every year, large amounts of money are committed to technology to meet the changing needs of students (Oblinger, & Oblinger 2005). Universities often invest large sums of money on technology without knowledge of the behavioral intention of students about technological adoption. Ismail, Johari, and Idrus