Universiti Teknologi MARA

Mobile Entertainment Adoption Among UiTM Shah Alam Students

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SUPERVISOR APPROVAL

MOBILE ENTERTAINMENT ADOPTION AMONG UiTM SHAH ALAM STUDENTS

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Date: 29 NOV 2006

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DECLARATION

I certify that this thesis and the research to which it refers are the product of my own work and that any ideas or quotation from the work of other people, published or otherwise are fully acknowledged in accordance with the standard referring practices of the discipline

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ABSTRACT

Mobile entertainment is defined as any leisure activities which performed through mobile devices whether this activities utilizes the mobile network or not and incurs a cost or does not incurs a cost. Mobile entertainment also can be defined as a subset of mobile commerce application. Advancement in mobile industry provides a lot of mobile commerce application. At the end of year 2005, the penetration rate for ownership of mobile phone almost 70 percent. This rate increase almost 20 percent compare to the last year penetration rate. Some popular mobile applications are mobile banking and mobile entertainment. User can use all those application anytime and anywhere. This study seeks to identify the factors that influence mobile entertainment adoption and to identify the relationship among the factors that influence the adoption of mobile entertainment. This study use Theory of Reasoned Action (TRA) to determine factors influencing the use of mobile entertainment applications. Primary data were collected through questionnaires. 300 students were randomly selected in order to participating in this survey. From 300 sets of questionnaires only 284 set questionnaires were obtain back. Correlation coefficient analyses result shows there is significant relationship between factors that influences the mobile entertainment use. There are seven from nine hypotheses have significant and positive relationships among each of variables. There are some limitations in this research and some recommendations are identified in order to overcome the limitations. This study can be extended to different type of respondents.

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CHAPTER ONE

INTRODUCTION

This chapter will explain about the research background, problem statement, objectives of the research, scope of the research, limitations of the research and significance of the research.

1.1 Research Background

The subscribers of mobile device are increasing rapidly. According to the Malaysia Communication and Multimedia Commission (MCMC) (2005), as at 31 May 2005, there were 16,234,337 hand phone subscriptions on the 5 digital networks operating in the country. According to Wong and Hiew (2005), mobile commerce transaction is defined as any type of transaction of an economic value that is conducted through a mobile device that uses a wireless telecommunications network for communication with the electronic commerce infrastructure. Mobile entertainment is a subset of mobile commerce.

Mobile entertainment refers to entertainment related activities performed by end users over a mobile network and using mobile equipment such as handsets. This can include things like mobile games, media content consumption such as icons, ringtones, music, images or movie clips, chat and information services on relevant entertainment events (Mobile Entertainment Forum, 2003).

The applications of mobile entertainment such as music, game, chat, ringtones, humorous messages, video clip and wallpapers will be downloaded through developments of technologies such as GSM/SMS, WAP, GPRS and 3G. Almost of the

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users not realize that sometime simple SMS from person to person can be included in mobile entertainment services.

There is new service which is very popular among the teenager nowadays. This application is mobile entertainment application which connected to interactive broadcasting like television. This service is very popular and trendy among teenager whom they can play game and chatting through their mobile phone which connected to the interactive broadcasting like television. There are also reality shows through broadcasting which need their audience to vote for their admirer through SMS. This application is become more popular when there are rapidly increase the reality shows like these.

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1.2 Problem Statement

Mobile phone usage at college and university has increased dramatically in recent years. Therefore the majority of the students nowadays owned the mobile phone. Since mobile entertainment is new in Malaysia, there is no guideline for them who involve in mobile entertainment industry in Malaysia.

This research is done to be guideline for those who involve in mobile entertainment since the research is to identify the factors that influence the mobile entertainment adoption among UiTM Shah Alam students which the majority them are mobile subscribers.

1.3 Research Questions

There are 2 research questions for this research. They are:

- What are the factors that influence mobile entertainment adoption?
- Is there a relationship among variable that influences mobile entertainment adoption?

1.4 Research Objectives

There are 2 objectives of this research. They are:

- To identify factors that influence user to use mobile entertainment applications.
- To identify the relationship among variables that influences mobile entertainment adoption.

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1.5 Scope of research

The scope of the research is conducted among UiTM Shah Alam students. This research conduct among UiTM students because almost of the students are teenagers who owned the mobile phone and they are also teenagers whose are very familiar with new technology and also entertainment for their leisure time. Tabachnick and Fidell (1996) suggest that "As a general rule of thumb, it is comforting to have at least 300 cases for factor analysis". The questionnaires are will be distributed to 300 students who owned the mobile device. This research also focuses on the factors that influence the adoption of mobile commerce among UiTM students.

1.6 Limitation of Research

There are numbers of limitations or barriers have occurred when the research was conduct. Below are the limitations for this research:

- **Limited of Time**

  Since the period of completing this research only 5 month which are very short, it was difficult to get accurate and trusted result because this research was only conduct among UiTM Shah Alam students. The result will be more accurate and trusted if the research was done in large area. A lot of time is also needed to get data and also to analyze data in order to get accurate result for the research.

- **Scarcity of Information**

  It was also difficult to find information such as news, journals, and books about the mobile entertainment. The data that collect from questionnaires that distribute among the student has biases and the respondent do not response appropriately to the question given.

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1.7 Significance of the Research

This research focuses on the factors that influence the adoption of mobile entertainment. This research is important to the group of people such as:

- **M- commerce services retailer**

  This research will help the mobile commerce services retailer to identify the mobile commerce application and how to provide more application for their business through mobile

- **Entertainment services provider**

  The information from this research can be used by the entertainment services provider to create more entertainment application which available through mobile

- **Mobile producer**

  This research also will help the mobile producer to create more mobile device which function as entertainment applications

- **Others researcher**

  This research will provide information for other researchers for their future researches.

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CHAPTER TWO
LITERATURE REVIEW

2.1 Definitions of m-commerce and m-entertainment.

The use of mobile technologies is increasingly widespread especially among the Asian countries such as Malaysia. After a decade in which Asia's mobile industry has been one of the largest and fastest-growing markets in the world, in relative terms a slowdown has occurred, especially in many of the leading national markets in the region. By March 2006, the region had accumulated 850 million mobile subscribers (Paul, 2006).

Fifty percent from 25 million peoples in Malaysia owned a mobile phone, and that's growing strongly. The mobile phone subscribers grew from 9.7 percent in 1998 to 74.1 percent in 2005 (Malaysia Communications and Multimedia Commission, 2004)

There are many services which can be observed among the mobile subscribers through the various developments in mobile technology such as GPRS, WAP and the 3G standard. M-commerce is one of the mobile phone services. M-commerce is defined as any direct or indirect transaction conducted and facilitated through a wireless telecommunication network (Yang, 2005).

Mobile commerce, a subset of e-commerce, conducted through mobile devices using wireless telecommunications network is poised to change the market place globally (Kini and Thanarithiporn, 2004 cited by Sun et al, 2005). According to Andreou et al (2002), M-commerce differs to some extent from electronic commerce due to the unique characteristics and limitations mobile devices have. There are many m-commerce applications. According to Upkar and Ron (2002), there are several classes of m-commerce applications. One of the applications is mobile entertainment.

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M-commerce applications	Examples
Mobile financial applications (B2C, B2B)	Banking, brokerage, and payments for mobile users.
Mobile advertising (B2C)	User specific and location sensitive advertisements.
Mobile inventory management (B2C, B2B)/ Product locating and shopping (B2C, B2B)	Location tracking of goods, boxes, troops, and people. Finding the location of a new/used car of certain model, color and features.
Proactive service management (B2C, B2B)	Transmission of information related to aging (automobile) components to vendors.
Wireless re-engineering (B2C, B2B)	Instant claim-payments by insurance companies.
Mobile office (B2C)	Working from traffic jams, airport, and conferences.
Mobile distance education (B2C)	Taking a class using streaming audio and video.
Wireless data center (B2C, B2B)	Detailed information on one or more products can be downloaded by vendors.
Mobile auction or reverse auction (B2C, B2B)	Airlines competing to buy a landing time slot during runway congestion (a proposed solution to air-traffic congestion problem).
Mobile entertainment services and games (B2C)	Video-on-demand, audio-on-demand, and interactive games.
Mobile office (B2C)	Working from traffic jams, airport, and conferences.
Mobile distance education (B2C)	Taking a class using streaming audio and video.
Wireless data center (B2C, B2B)	Detailed information on one or more products can be downloaded by vendors.

Table 2.1: Examples and networking of M-commerce applications (Upkar and Ron, 2002)

According to Mobile Entertainment Forum (MEF), it is difficult to define what mobile entertainment is. It is difficult because mobile entertainment is making up by two different industry; telecommunication and entertainment. Mobile entertainment is created as the convergence of both industries.

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In technology, mobile can be defined as remote, portable, on-the-go. The term "mobile" used by itself is wireless parlance for the client device, such as a cell phone, PDA or laptop. According to Wikipedia, Mobile devices or handheld devices are pocket-sized computing devices, typically utilising a small visual display screen for user output and a miniaturised keyboard for user input. In the case of the Personal digital assistant the input and output are combined into a touch-screen interface. Along with mobile computing devices such as laptops and smartphones, personal digital assistants (PDAs) are becoming increasingly popular amongst those who require the assistance and convenience of a conventional computer, in environments where carrying one would not be practicable.

Entertainment can be defined as the act of receiving as host, or of amusing, admitting, or cherishing; hospitable reception; also, reception or treatment, in general. According to Wikipedia, Entertainment is an event, performance, or activity designed to give pleasure to an audience (although, for example, in the case of a computer game the "audience" may be only one person). The audience may participate in the entertainment passively as in watching opera or actively as in computer games.

Entertaiment has always played a crucial role in Internet applications and is probably the most popular application for the younger generation. Mobile commerce makes it possible to download games, images, music, video files at anytime and anywhere, and it also makes online games and gambling much easier to access. It is projected that by 2005, 80% of all mobile users in the United States and Western Eurupe will play mobile games at least occasionally (Leavittt, 2003 cited by Weng et all, 2004).

According to Wong and Hiew, 2005, Mobile entertainment is a subset of mobile commerce services. However, according to Mobile Entertainment Forum (MEF), Mobile entertainment is not easy to redefine and rethink because it is more complex than other subsets of mobile commerce. Mobile Entertainment Forum (MEF) examine multiple perspectives from various players of the value web as well as researchers of dissimilar

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background to bridge the gaps found in various definitions in order to reach a common understanding.

Wong et all (2005) also defined M-entertainment as any type of leisure activity consumed on mobile devices that utilize the wireless telecommunication network which incurs a cost upon usage and interact with service providers.

According to Moore and Rutter (2003), they have defined mobile entertainment as 'any leisure activity undertaken via a personal technology which is, or has the potential to be, networked and facilities transfer of data (including voice, sound and images) over geographic distance either on the move or at the variety of discrete locations'.

Mobile entertainment refers to entertainment related activities performed by end users over a mobile network and using mobile equipment such as handsets (Wiener, 2003).

Mobile entertainment refers to entertainment products run on wireless networked, portable, personal devices. The term "mobile entertainment" excludes mobile communications like person-to-person SMS, voicemail and mobile commerce applications (Chen et al, 2002).

As a conclusion, mobile entertainment can be any leisure activities which performed through mobile devices whether this activities utilizes the mobile network or not and incurs a cost or does not incurs a cost.

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2.2 Introduction to M-entertainment

Mobile entertainment represent as one of the few mobile services that have mass market potential that will drive the adoption of the next generations of mobile devices. According to the UMTS Forum (2005), the mobile entertainment industry is expected to generate revenues of up to US$47 billion by 2010 in the Asia-Pacific.

There are many application of mobile entertainment such as games, ringtones, chat, and many more. According to Moore et all (2003), mobile entertainment – which include not only gaming but also gambling, adult services, music and location based services. And the numbers of application widely increase when 3G technology was introduced early 2004 to the users. There are applications such as video and movie which can be functioned through 3G technologies. The most popular mobile entertainment applications are SMS, MMS, downloading ringtones and wallpapers, gaming, chatting, and mobile TV.

The mobile communication technologies are very important because it determine how far the users can access their mobile services. The new technologies will come out with more innovative function. It is rapidly changes in mobile communication technologies. In 1991, the Global System for the Mobile Communication was launched which allow us to communicate to other person. The Wireless Application Protocol (WAP) was used in 1999 to enhance usability and availability. Then after 2000, there is General Packet Radio Service (GPRS) to made packet based data transfer possible.

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2.2.1 Mobile Entertainment: Scenario

Mobile entertainment provides a common set of application through the various mobile devices. Table 2.2 shows the various devices which enable the mobile entertainment application.

Type of mobile devices	Example
Cellular handsets	Features phones, smartphones
Portable media players	Audio portable media player (PMPs), video PMPs
Handheld gaming device	Handheld video game devices, handheld gaming devices
Handheld infotainment devices	Portable broadcast players, handheld GPS devices
Handheld Toys	Remote controlled toys, toy robots
Home entertainment devices	Digital TVs, DVRs, Digital jukeboxes
Telematics devices	Automobile DVD players, stereo system, GPS system

Table 2.2 : Mobile entertainment devices (Freescale Semiconductor Inc., 2005)

Mobile entertainment does not exclude 'portfolio technologies' such as Apple's iPod or Palm's Zire which are not wireless but rely on being networked to other devices between periods of mobility (MGAIN, 2004).

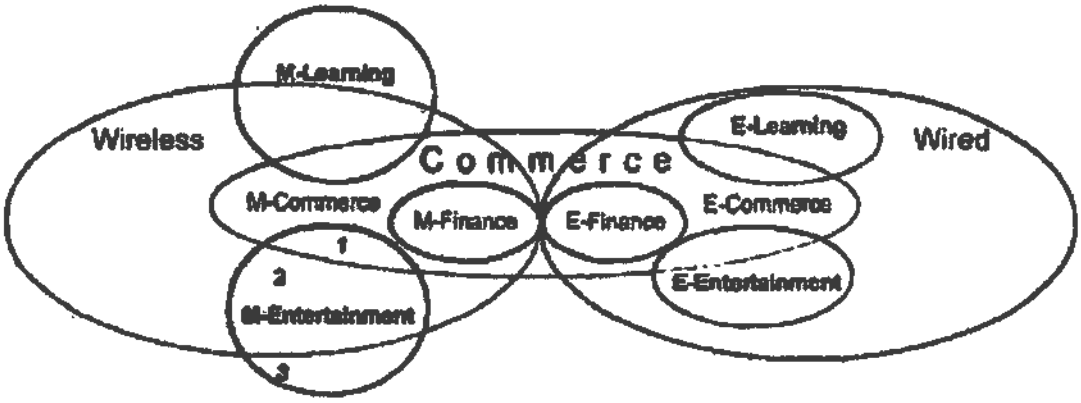

Figure 2.1: mobile services framework (Wong and Hiew (2005))

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Figure 2.1 shows the mobile services framework. Mobile entertainment is one of the mobile services. Figure 2.1 can be referred in order to improve the understandings about the mobile entertainment scenario. From the figure, there are 3 categories of mobile entertainment services. The categories are categories by number 1, 2 and 3 in the figure. Table 2.3 will briefly explained the mobile entertainment services which include in each category.

Category	Explanation	Examples of service
1	This category utilizes wireless telecommunication networks, incurs a cost upon the file download, interacts with service provider and is a form of leisure activity.	• Watch a streaming video on mobile device. • Send MMS to a friend's mobile. • Download music onto mobile device.
2	This category still utilizes wireless network yet but does not incurs a cost upon file transfer or involves any interaction with services providers.	• Share video clip with friends via Bluetooth. • Transfer picture to a friend's mobile device via infrared. • Transfer music file to a friend's mobile device vie infrared.
3	This category does not utilize the wireless network and does not incur a cost upon usage.	• Record video clip on mobile devices equipped with camera. • Snap pictures with mobile devices equipped with camera. • Plays preinstalled games on mobile devices.

Table 2.3: Mobile entertainment scenario.

According to MGAIN (2004), Mobile entertainment does not exclude 'portfolio technologies' such as Apple's iPod or Palm's Zire which are not wireless but rely on being networked to other devices between periods of mobility. However, Wong et all (2005) said that the service falls under category 3 because the device does not incur a cost and does not interact with service providers.

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2.3 M-entertainment Applications

There are many application of mobile entertainment such as games, ringtones, chat, and many more. According to Moore et all (2003), mobile entertainment – which include not only gaming but also gambling, adult services, music and location based services. And the numbers of application widely increase when 3G technology was introduced early 2004 to the users. There are applications such as video and movie which can be functioned through 3G technologies. The most popular mobile entertainment applications are SMS, MMS, downloading ringtones and wallpapers, gaming, chatting, and mobile TV.

2.3.1 Short Message Service (SMS)

The Short Message Service (SMS) has grown rapidly and is popular in Europe. SMS messages are two- way alphanumeric paging messages up to 160 characters that can be sent to and from mobile phones (Lei, Chatwin, Young and Tong, 2004). SMS allows users to send and receive text messages to and from cell phones. Originally offered in 1992, SMS initially experienced a slow adoption rate. However, since reaching the 20% market penetration rate, SMS usage has grown exponentially. The number of SMS messages has nearly doubled every half a year since 1998 (GSM Association, 2001).

2.3.2 Multimedia Message Service (MMS)

Multimedia Message Service is the ability to send and receive messages comprised of a combination of text, sound, images, and video to MMS – capable handsets (MMS architecture, 2002). The trends for the growth in MMS are taking place at all level within GSM, enabling technologies such as GPRS, EDGE, 3G, Bluetooth and wireless access protocol (WAP).

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2.3.3 Downloading Ringtones and Wallpapers.

Downloading ringtones is the most popular of mobile entertainment applications. There are many companies which provide the downloading ringtones services. That can be proved when we see the magazine or newspaper. We can see a lot of advertising that promote the ringtones and wallpapers. The service can be applied through SMS and MMS.

New application which is very popular among teenager today is callertones. The callertones is calling tones which apply when someone calls the user and the caller can hear the tone. The users can choose any tone or music to save as their callertones.

2.3.4 Mobile Gaming

In addition to preinstalled or operating system specific installed games, three different standards are currently used for mobile gaming: SMS- games, WAP- games and Java – based games. (Nysveen, Pedersen and Thorbjorsen, 2005)

The most famous is SMS- games. Java is used as a programming language allowing multi- platform applications to run on Java- enabled mobile devices. Interactive Java- games can be either single or multiple player games.

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