User Acceptance of Entertainment Services via Mobile Phone System in Hong Kong

BY

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Abstract

The main contribution of this project is offering theoretical and empirical insights related to the acceptance of entertainment services via the use of mobile phone system in customer's perspective. In particular, the objectives of this project are explaining user acceptance of entertainment services via mobile phone system in Hong Kong and to provide evidence that perceived ease of use and perceived enjoyment dominant perceived usefulness as the greatest predictors of intention to use entertainment services via mobile phone system. A model was developed based on van der Heijden's extended TAM model (2004). In this project, analysis is based on 217 respondents (mainly youth) to examine the relative effects of perceived usefulness, perceived ease of use and perceived enjoyment on usage intention.

The result of the path analysis indicated that perceived usefulness, perceived ease of use and perceived enjoyment are significant in explaining user intention to use entertainment services through mobile phone system. Perceived ease of use is significant to both perceived enjoyment and perceived usefulness. The analysis also showed that, perceived ease of use and perceived enjoyment have greater predictive power than perceived usefulness.

These findings are important and useful for mobile phone entertainment service providers. It is recommend that they can improve performance of their businesses by making their services easier to use and more enjoyable.

Acknowledgement

I would like to express my gratitude to my project supervisor, Dr. Vincent Chow W.S., for his continuous guidance and support throughout the course of this research project.

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1. Introduction

1.1) Background

The evolution of technology has changed the way we communicate from a fixed point to mobile sites (Clarke III, 2001). Transactions that can only be carried out at physical stores in the old days can be now completed via e-commerce application. Taking the fact of an increasing number of mobile phone users (Teo, T.S.H. and Pok, S.H, Aug 2003; epaynews.com, 2005), e-commerce is further extended through the use of the potable device—mobile phone. Featured to its mobility, transactions can take place at anytime at anywhere. (Clarke III, 2001). Transactions of goods and services through the use of mobile phones are so call: m-commerce or wireless commerce. (Balasubramanian, S., Peterson, P.A., and Jarvenpaa, S. L. Fall 2002)

M-commerce is regarded as "a new service frontier of the millennium" (Kleijnen. M., Wetzels. M. and Ruyter K.D.. Mar 2004). It allows transactions to be carried out more effectively (Balasubramanian et al., Fall 2002) The transactions involve with intangible goods like information and applications deliver to mobile phone directly, or tangible goods, which is ordered by using mobile device and pick up separately in physical stores (Nokia.com, Jan 2005).

These transactions usually take place between an individual user and an m-commerce business entity. Data in text, image or voice format (Frolick M.N. and Chen. L.D., 2004) can be transmitted between mobile and mobile (or other computing devices) using wireless network.

Telecom Trends 2003 statistics show that among all m-commerce users in the world, 48% are in Asia-Pacific region; it predicts that Asia will continue to form the largest proportion of the total m-commerce user (Fitchard. K., 2004).

Dholakia and Dholakia (Dholakia.R.R. and Dholakia.N, 2004) suggested that entertainment is the only thing that a person will do with their mobile phone no matter his/her present occasion. In Sept 2004: there are more than 65 million mobile games players over the world, the number still increase at a rate of thousands users each day (Wheii.com.). Mobile entertainment (services) is the fastest growing industry that generates huge revenue (Schone. S., Oct 2004).

Entertainment service via mobile phone system (m-entertainment) is one of the genres of m-commerce. These services include: ring-tone, MP3, cartoon, games, live sport and report, celebrity gossip, fortune, movie trailers, electronic journal, serialized books and newsletters, wallpapers; comedy, sensation. Besides, one can shop, trade stocks, bet, horse-ride and purchase mark six (Accenture, Jan 2005; 3.com.hk, 2005)

Hong Kong--the Asia's entertainment capital (Chiang. L., 2000), enabling with technology like 3G smart phones, Wireless Application Protocol (WAP), General Packet Radio Services (GPRS) etc, and its 2nd highest mobile phone penetration rate in Asia-Pacific (726 out of 1000 in 2004) (OFTA, Mar 2004), could have more potential for adopting m-entertainment than Japan (Dholakia.R.R. and Dholakia.N, 2004).

1.2) Objectives of This Study

M-commerce is a hot research topic at the moment, however, many of those researches were either conducted in technological perspective (Lehrer, 2004; Varshney and Vetter, 2002, Coursaris, Hassanein and Head, 2003, Mannings and Cosier, 2001) or business and value chain perspective (Buellingen and Woerter, 2002; Balasubramanian, Peterson and Jarvenpaa, Fall 2002), only a few showing customer perspective (Kleijnen, Wetzels and Ruyter, 2004; Chan. S. C. and Lu. M. T., 2004; Haque. A., 2004). There is yet a systematic research to provide insight particularly on user acceptance of mobile phone entertainment services.

This project is to give directions to mobile entertainment service providers on how to design their product to increase customers' acceptance of their services by explaining the most important factors that affecting user intention to use their services. Also, the relative prediction power of each factor will be examined.

2. Literature Review

In this chapter, relevant literature about user acceptance of m-entertainment and TAM are reviewed and presented as follow: 2.1) Definitions of M-commerce and M-entertainment 2.2) Technology Acceptance Model 2.3) Hedonic System and Entertainment Services via Mobile Phone System

2.1) Definitions of M-commerce and M-entertainment

Even though no formal conceptualization for its definition, m-commerce is

generally defined as "the mobile usage for transactions". (Balasubramanian, S., Peterson, P.A., and Jarvenpaa, S. L. Fall 2002) One characteristic of m-commerce is the ability to make transactions anytime at anywhere via wireless devices, such as palm, wireless laptop and mobile phone etc (Clarke III. I. Fall 2001). Among these devices, mobile phone is the one that has a very high penetration rate in both Asia-Pacific and Europe areas. Decrease in price of mobile phone raise further increase the demand of mobile phone and thus facilitating m-commerce. Nowadays, the number of mobile phones shipped outweighs that of automobiles and PCs combined. (Clarke III, Fall 2001)

M-entertainment is an example of m-commerce focus on trading of services on "entertainment" aspect via the use of wireless devices.

2.2) Technology Acceptance Model

2.2.1 Original Technology Acceptance Model (TAM)

In this project, the Technology Acceptance Model (TAM) is used. Even though there are many theoretical frameworks for researches about IT acceptance, for instance: Theory of reasoned action (TRA) and Theory of planned behavior (TPB) by Ajzen in 1985 and1991, Motivational Model (MM) by Vallerand in 1997, Combined TAM and TPB (C-TAM-TPB) by Taylor and Todd in 1995 and Innovation Diffusion Theory (IDT) by Moore and Benbasat in 1991 etc, still, among them, TAM is believed to be "most robust, parsimonious and influential in explaining IT adoption behavior" (Yu .J.L.C.S., Liu. C. Tao.J.E. , 2003). According to Gentry and Calantone (2002), TAM is recommended not only because this model is applicable in general situation but also because it can be applied to all attitudes in different contexts.

TAM, developed by Davis in 1989, was evolved from Theory of Reasoned Action (TRA)--a theory used to predict conscious human behavior. TRA proposed that Anchors (believes) and Adjustment (experience and enjoyment) affect attitude (an individual's positive or negative feelings about performing the target behavior, attitude affects intention (The strength of one's intention to perform a specific behavior) and intension affects behavior. Davis therefore proposed the TAM's belief-attitude-intention-behavior approach to explain and predict user acceptance of Information technology.

The purpose of TAM is to explain and predict Information Technology (IT) acceptance and to facilitate design changes before users have experience on a particular system. It formed the foundation of many researches in the early days that used to predict users adoption of IT in the organizational workplace. For example, TAM was used to explaining usage of e-mail system, word processing and graphics software, and it later extent usage to cover system applications like Window-based working environment (Karahanna, E., Stuab, D.W., and Chervany, N. L., 1999. Venkatesh, V. and Davis, F.D., 2000), data and information retrieval (Venkastesh. V. and Morris M.G., 2000) and Telemedicine software (Hu et. al, 1999) These results show that TAM has a significant explanatory power in predicting user acceptance of information system.

The basic operation of TAM is to find out the impact of external variables on attitudes and intentions. Based on the Self-efficacy theory, which suggested that "behavior is best predict by considering self-efficacy (a believes about one ability to master a task) (Bandura, A., 1982) and outcome beliefs", Davis originally proposed that "perceived ease of use (self-efficacy) and perceived usefulness (outcome believe)

functions as the key determinants of user behavior" mediated by attitude, and intension.

Perceived usefulness (PU) is defined as the extend to which a person believes that the system would enhance his/her job performance, **perceived ease of use (PEOU)** is defined as the extend to which a person believes that using a system would be free of mental effort and behavioral intention or **intention to use (INT)** refers to the likelihood that a person will use the application (Davis, F.D., 1989)

Figure 1 shows the original TAM model.

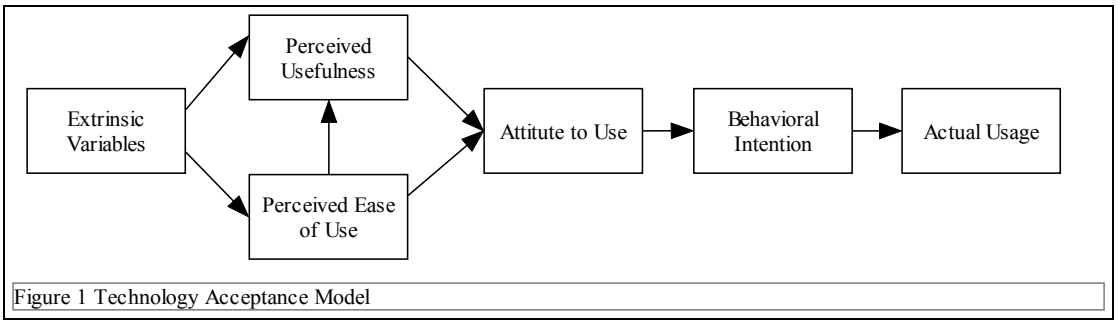

Figure 1 Technology Acceptance Model

Although the original TAM has received extensive support, validations and applications (Davis, F.D. 1989 and 1993, Venkatesh, V. and Davis, F.D. 1996, Venkatesh, V. 1999, Venkatesh and Morris 2000), the original TAM is too general (Mathieson. K., 1991) and fails to provide information on the users perspective with only "regarding technology but no human and social characteristics for prediction" (V. Venkatesh, Dec 2000; Legris, P. Ingham, J., Collerette, P., Jun 2001; Yu.J.L.C.S., Liu. C. Tao.J.E. 2003). Furthermore, the original TAM was proven successful in predicting about only 40% of a system use (Legris, P. Ingham, J., Collerette, P., Jun 2001). Conclusion is that, TAM is useful, but is required to incorporate additional factors to improve its utility. (Hu, P.J., Chau, P.Y.K. Sheng, O.R.L., and Tam, K.Y., Fall 1999;

Legris, P. Ingham, J., Collerette, P., Jun 2001; Yu.J.L.C.S., Liu. C., and Tao.J.E., 2003).

2.2.2 Modifying Technology Acceptance Model

The original TAM has empirically verified, replicated and extended by researchers (Lederer, A.L. Maupin, D.J., Sena, M.P. and Zhuang, Y. 2000; Davis F.D. 1989) for which almost all of them theorized that all other external variables, such as subject norm and system-specify characteristics are fully mediated by the two constructs: perceived usefulness and perceived ease of use. Later, Davis et al. (Davis, F.D., Bagozzi, R.P. and Warshaw, P.R., Aug 1989) verified the original TAM on the usage of word processing program by some MBA students. They found out that the original TAM could be more validate without the "Attitude" construct since it was found to be a weak mediator (Davis F.D., Bagozzi, R.P., and Warshaw, P.R., 1992; Venkatesh, V and Davis, F.D., 2000).

Adams et al. (Adams, D.A., Nelson, R.R., Todd, P.A., 1992) even developed a simplified version of TAM without both attitude and behavioral intention constructs, however, when they tested the model using two studies, they found inconsistent relationship between perceived ease of use and behavioral intention. Not later, many TAM researches posit that behavioral intention is the construct that fully mediated the effects on actual usage by all other factors; the intention construct is now generally admitted as necessary in TAM.

Ventakesh (1999) proposed that perceived usefulness mediated the effect of perceived ease of use to intention. It means easier a system is perceived to use, more

useful a person could perceive the system to be. Holding other things constant, a user-friendly interface makes it easier for a user to explore the functions of m-commerce and thus more useful to the user.

Another important construct representing the intrinsic value of using a particular system mistakenly omitted by the searchers in the early days, was not added to the TAM by Davis et al until 1992 (Davis, F.D., Bagozzi, R.P., and Warshaw, P.R., 1992) It is perceived enjoyment, defined as "using a specific system is perceived to be enjoyable in its own right, aside from any performance consequences resulting from system use"(Davis, F.D., Bagozzi, R.P., and Warshaw, P.R., 1992), focuses on the fun aspect derived directly from user-system interaction. Consistent to Davis's research in 1992, Heijden's as well as Moon and Kim's findings (Van der Heijden, H. 2003; Moon, J.W. and Kim,Y.G., 2001) support that perceived enjoyment and perceived usefulness are the two major constructs fully mediating the effects of perceived ease of use on intention to use. In Van der Heijden's research (Van der Heijden, H., Dec 2004), these 2 constructs together with perceived ease of use explain a direct effect of 75% on intention to use.

One more thing, the construct "actual usage" is usually not included in TAM based m-commerce researches (Chan, S.C. and Lu, M.T., Sep 2004; Kleijnen, M., Wetzels, M. and Ruyter, K.D. Mar 2004) for two reasons: First, m-commerce is still in introductory stage (Yu.J.L.C.S., Liu. C. Tao.J.E. 2003), large probability that no critical mass is formed in the total population and therefore it's hard to measure actual usage; Second, as stated before, many TAM based researches have validate the unique importance of usage intention to actual usage in different contexts (e.g. Davis, F.D., 1993), therefore a positive effect of usage intention to actual usage is expected.

After all, perceived usefulness, perceived ease of use and perceived enjoyment formed the basic constructs in a modified TAM to predict user acceptance of information technology concerning both its "utility" and "hedonic" aspects. Some researchers based their researches on this extended TAM to explain m-commerce (E.g. Yu.J.L.C.S., Liu. C. Tao.J.E. 2003).

2.3) Hedonic System and Entertainment Services via Mobile Phone System

According to Van der Heijden (2004), hedonic system defined as the system aim at providing self-fulfilling value to the user. As contra, instrumentality/ utilitarian is defined as the system usage and interaction attached with external benefits like task performance. The previous is usefulness dominated while the latter is ease of use dominated.

However, the nature of system could sometime hard to distinguish; for example, the Web serves both utilitarian and hedonic purpose (Atkinson, M.A., Kydd, C., 1997) and even a single session on the Internet can fulfill multiple information, entertainment and communication goals (Kraut.R., Mukhopadhyay,T., Szczypula, J.,Kiesler, S and Scherlis, B.. Dec 1999.)

Entertainment services retrieved through mobile phone system serve hedonic purpose; there is no way for people to conduct entertainment activities via mobile phone system because it improves their job performance.

3. Research Model

The main objective of this project is to examine the significant and relative importance of perceived ease of use, perceived enjoyment and perceived usefulness to intention to use. Van der Heijden (2004) proposed an extended TAM model consists of perceived ease of use, perceived enjoyment, perceived usefulness and in intention to use to examine their relative importance on user usage intention of hedonic systems in general. The model is adopted for this project as outline in **Figure 2**. In this model, we further evaluate the relationship between the three constructs as claimed by Van der Heijden (2004).

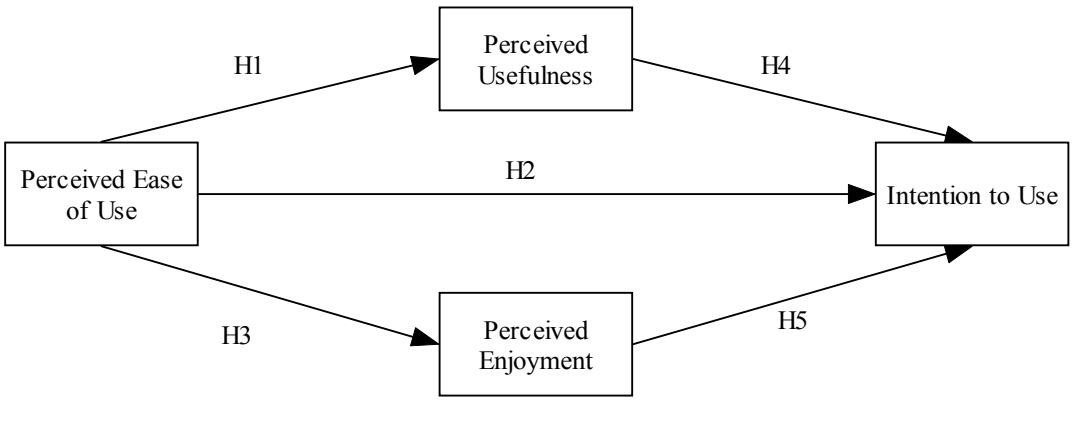

Figure2 Research Model

In below section, each relationship in the proposed model will be discussed and the hypotheses will then be described.

3.1) Statement of Hypotheses

3.1.1 Perceived Usefulness

Perceived usefulness focus on how a system can improve ones job performance.

The current context has a broader perspective. Because mobile can be used to access entertaining services at any time anywhere, it is defined as "how well consumers believe mobile entertaining services/products can be integrated into their daily lives". So hypothesis as follow:

H4: *Perceived usefulness has positive effect on intention to use entertainment services via mobile phone system.*

3.1.2. Perceived Ease of Use

Perceived ease of use concerns if a system is easy to understand and use for the user. Several factors may affect perceived ease of use for mobile entertainment service, for instant, complexity of navigation and personal setting before using the services etc. In TAM, perceived ease of use is the determinant for both perceived usefulness and behavioral intention. Easy to understand if the mobile users find the services are difficult to use, their intention to use will be lower; Also, because difficulties in using will cost them hours to deal with the "operation", the user will encounter more problems to achieve the task they want and therefore find it less productive by devoting one unit of time of using such services. Thus they have low usage intention.

H1: *Perceived ease of use has positive effect on perceived usefulness to use entertainment services via mobile phone system.*

H2: *Perceived ease of use has positive effect on behavioral intention to use entertainment services via mobile phone system.*

As mentioned before, some researchers recognized the need to adjust the model for different context. The proposed model incorporate perceived enjoyment.

3.1.3 Perceived Enjoyment

Perceived enjoyment is proposed as a significant determinant of behavior intension by Davis et.al; they pointed out that perceived usefulness and perceived enjoyment fully mediated all other variables effects on usage intention. (Davis F.D., Bagozzi, R.P., and Warshaw, P.R., 1992). This result has been later proven by Venkatesh (Venkatesh, V., 1999) and Van der Heijden (Van der Heijden. H., 2003.; Van der Heijden. H., 2004). Building upon these findings, we hypothesize that:

H5: *Perceived enjoyment has positive effect on intention to using entertainment services or product via mobile phone system.*

According to Davis et.al (Davis F.D., Bagozzi, R.P., and Warshaw, P.R., 1992), perceived ease of use has significant effect on perceived enjoyment.

H3: *Perceived ease of use has positive effect on perceived enjoyment to using entertainment services or product via mobile phone system*

3.1.4 Relative Importance of PU, PEOU and PE

Accurately explain user acceptance of a particular information system is what researchers concern about (DeLone, W. H., and McLean, ER, 1992) Built on TAM, varies researches indicated that perceived usefulness is a major determinant for which it has 3 to 4 times predictive values of intention to use than its second major predictor—perceived ease of use (Davis, F.D., 1989; Davis, F.D., Bagozzi, R.P., and Warshaw, P.R., Aug 1989; Adams, D.A., Nelson, R.R., and Todd, P.A,1992; Taylor, S., and Todd, P.A., 1995; Venkatesh, V. and Davis, F.D., 2000; Mahmood, M.A., Hall, L., and Swanberg, D.L., 2001) Some other TAM based findings (Davis F.D., Bagozzi, R.P., and Warshaw, P.R. 1992) suggest that perceived usefulness always dominant other variables like perceived enjoyment. Davis et al., (Davis, F.D., 1989; Davis, F.D.,

Bagozzi, R.P., and Warshaw, P.R.,1992) even suggested that the previous is four to five times more powerful than the latter. Perceived usefulness had been long accepted as the strongest determinant of intention to use in the model.

Yet, some recent findings base on TAM indicate both perceived ease of use and perceived enjoyment have approximately twice predictive value to explain behavioral intention than perceived usefulness (Van der Heijden, H. , 2004; Moon, J. W., Kin, Y. G., 2001) Atkinson and Kydd's (1997) illustration of the game-based web usage pattern of students revealing that perceived enjoyment plays an important role in influencing intention to use.

The conflicting results reveal some factors determine the difference. Van der Heijden (Van der Heijden, H., 2003,Van der Heijden, H., 2004) conduct two consecutive researches about the "perceived enjoyment" construct within the model and summarized that the differences derived from different natures of the system, that is, systems used in the traditional TAM based researches are work (utilitarian) related, like WORD-processing and EXCEL, look for how the system is perceived to improve one's job performance. Venkatesh (1999) and Moon and Kim (2001) use systems that are entertainment (hedonic) focused, emphasized on the "fun" factor derived from direct interaction with the system. Actually, Atkinson and Kydd's (1997) found that perceived usefulness dominated the effect on usage intention when the students' web usage is for course-related purpose. Conclusion is that systems nature determines the relative importance of constructs in TAM.

It is rational to predict that: for utilitarian systems, perceived usefulness, which subject to extrinsic benefits/awards (e.g. efficiency and performance), is the major

predictor while perceived ease of use and perceived enjoyment, that look for intrinsic values create directly from interacting with the system, also explain significant variance but the effect is much smaller than perceived usefulness. For hedonic system, in contra, perceived ease of use and perceived enjoyment are the major predictors to behavioral intention while perceived usefulness also explains significant variance but the effect is much smaller than perceived ease of use and perceived enjoyment.

H6: *For entertainment services via mobile phone system, perceived enjoyment is a stronger predictor of behavioral intention then perceived usefulness.*

H7**:** *For entertainment services via mobile phone system, perceived ease of use is a stronger predictor of behavioral intention to use than perceived usefulness.*

4. Methodology

The research methodology is presented in this chapter. The questionnaire is in Appendix A. This section is divided into 4 parts: 4.1) Sample and procedures, 4.2) Questionnaire design, 4.3) Reliability and 4.4) Data analysis method.

4.1) Questionnaire Design

In this project, all variables are in multiple items and used a seven-point Likert-type ranging from "strongly disagree" to "strongly agree". Items used in the questionnaire were all adapted from literature of Van der Heijden's modified TAM model (Van der Heijden, H., 2004) to ensure the content validity. The questionnaire attached in Appendix A consists of 3 parts.

In part one, 5 items were demographic: Gender, Age, Education Level,

Occupation and Monthly Income. In part two, ten items (Q1-10) were the experience of m-commerce: 1) Mobile Network Operator Subscribed, 2) Mobile Phone Type, 3) Frequency of using entertainment services via mobile phones system, 4) spending on entertainment services via mobile phones system, 5) extend to which size and resolution of mobile phone screen affect user choice, 6) the quality of entertainment services, 7) frequency of time lag, 8) acceptance of connection and disconnection speed, 9) frequency of downloading additional software and 10) an open question asking about the pros and cons of using the services. In part 3, there are totally 15 questions for which: 5 items for the perceived usefulness (PU) element (Q11-15), 4 items each for the perceived ease of use (PEOU)(Q16-19) and perceived enjoyment (PE) (Q20-23), 2 items for the intention to use (Q23-25).

4.2) Sample and Data Collection Procedures

The unit of analysis in this project is local youth who have experience on using entertainment service via mobile phone system, and the analysis is based on the user's perspective. They were sampled because they were believed to have a mobile phone and therefore have a greater chance to receive the services and thus can provide a more objective view of intention to use. As implied in the instruction part of the questionnaire, respondents should have at least one time experience on using entertainment services; all questions are based on their experience to answer.

The sample is cross section. Local youth with different social status are invited to complete the questionnaire. Paper-based questionnaires are distributed to these 400 people manually via community network. Questionnaire is shown in Appendix A.

A total of 400 people were sampled, 242 responses were received and 217

questionnaires were useable for analysis.

4.3) Data Analysis Method

This section describes statistical analysis techniques used in this study to test the research model and associated hypothesis. SPSS v 13.0 was used to perform all the statistical calculation. Internal consistency reliability test and path analysis will be applied in statistical calculation.

Internal consistency reliability provides hints on the degree to which the items within a dimension are measuring the same construct. The test was based on the Chronbach's alpha coefficients (Cronbach, L.J. and Snow, R.E. 1977), Deshpande and Zaltman (1982) stated that the sufficient level of Cornbach's alpha in the basic research should be greater than 0.5; higher alpha values mean higher reliability.

Path analysis is used to test underlying causal relationships among a set of variables and their linkages in a model. It is an application of multiple regression analysis to distinguish different direct effects and indirect effects of independent variables on dependent variable. Dependent variable is affected by other variables in the model, independent variables are those affect dependent variables and not affected by other variables (Cohen, J. and Cohen, P. 1983).

5. Analysis and Result

The statistical results and analysis are presented in this chapter. SPSS data is presented in Appendix C and Appendix D. This section is divided into 2 parts: 5.1) Internal Consistency Reliability, 5.2) Path Analysis

5.1) Internal Consistency Reliability

The Cronbach's Alpha of each variable is shown in Table 1 and SPSS results in **Appendix C**. The Cronbach's Alpha values ranged from 0.9004 to 0.9441. The results show that all scales for all variables are satisfactory than the acceptance level of 0.5 (Deshpande, R. and Zaltman, G. 1982), Cronbach's Alphas of this project is compared with that of Van der Heijden's research and shown in Table 1. These results confirm that the scales used in this study are reliable in internal consistency.

Table1 The result of Cronbach's Alpha Test

Construct	Cronbach alphas (in this project)	Cronbach alphas (Van der Heijden's Research)
Perceived Usefulness	0.930	0.900
Perceived Ease of Use	0.900	0.870
Perceived Enjoyment	0.908	0.860
Intention to Use	0.944	0.870

5.2) Path Analysis

To test the relationship of constructs in the proposed model in section 4, path analysis is used. **Figure 3** shows the result of regression analysis. The direct effect, indirect effect and total effect among dependent variable and independent variables

are shown in **Table 2, Table 3 and Table 4** respectively. **Table 5** concludes these results. The SPSS output was enclosed in **Appendix D**.

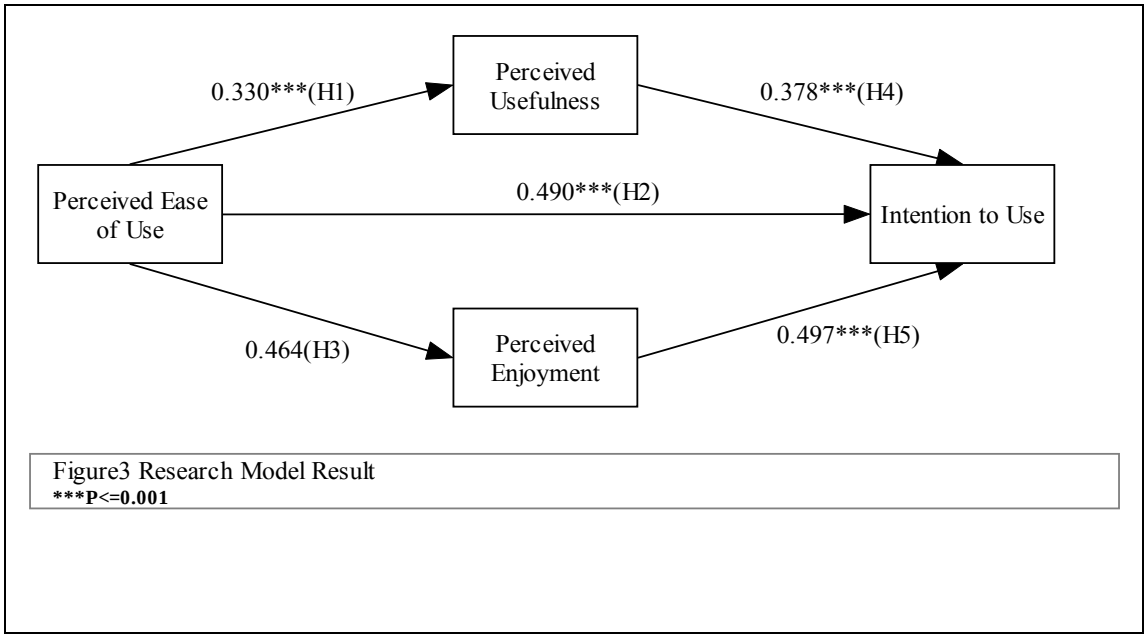

Figure3 Research Model Result
***P<=0.001

5.2.1 Direct Effects

The direct effect result was obtained by using the regression analysis and **Table 2** reveals its findings. The results of hypothesized relationship are discussed below.

5.2.1.1 Direct Effect on Intention to use

Hypothesis 4, 2 and 5 examine the direct effects of perceived usefulness, perceived ease of use and perceived enjoyment on intention to use respectively. **Table 2** shows that perceived usefulness has a significant direct effect on intention to use at (β=0.378 $p<0.001$) (H4). Perceived ease of use has a significant direct effect on intention to use at (β=0.490,$p<0.001$)(H2). In addition, perceived enjoyment has a significant direct effect on intention to use at (β=0.497, $p<0.001$) To conclude, hypothesis 4, 2 and 5 are accepted. Perceived usefulness, perceived ease of use and

perceived enjoyment explain a significant percentage of variance in intention to use at (R-Square=61.2%, p<=0.001)

Table 2 Direct Effects

Dependent* / Independent*	Direct Effect (β)		
	PU	**PE**	**INT**
PU	---	---	0.378*** (H4)
PEOU	0.575***(H1)	0.681***(H3)	0.490***(H2)
PE	---	---	0.497***(H5)

* PU: Perceived Usefulness; PEOU: Perceived Ease of Use; PE: Perceived Enjoyment; INT: Intention

*****P<=0.001**

Remark: Standardize β is used in this table

5.2.1.2 Direct Effect on perceived usefulness

Hypothesis 1 examines the relationship of perceived ease of use and perceived usefulness. Perceived ease of use has a significant direct effect on perceived usefulness at (β=0.330, p<0.001). Therefore, hypothesis 1 is accepted.

5.2.1.3 Direct Effect on Perceived Enjoyment

Hypothesis 3 examines the links between perceived ease of use and perceived enjoyment. From the result, perceived ease of use has a significant direct effect on perceived enjoyment at (β=0.464, p<=0.001). Therefore hypothesis 3 is accepted.

Refer to **Table 2**, the direct effect of perceived usefulness, perceived ease of use and perceived enjoyment on intention to use is 0.378, 0.490 and 0.497 respectively. Therefore hypothesis 6 and 7 are accepted.

5.2.2 Indirect Effects

Table 3 indicates the result of indirect effect on dependent variable (intention to

use) from independent variables (perceived usefulness, perceived ease of use, perceived enjoyment).

Table 3 Indirect Effects	
Dependent* / Path	Indirect Effect (β)
	INT
1) PEOU-PU-INT	(0.330*0.378)=0.125
2) PEOU-PE-INT	(0.464*0.497)=0.231
* PU: Perceived Usefulness; PEOU: Perceived Ease of Use; PE: Perceived Enjoyment; INT: Intention *****P<=0.001**	

From **Table 3**, perceived ease of use has an indirect effect on intention to use via perceived usefulness at (β=0. 0.125) and has another indirect effect on intention to use via perceived enjoyment at (β=0. 231), the total indirect effect of perceived ease of use to intention to use is therefore at β=0.356(i.e. 0. 125+0. 231).

5.2.3 Total Effects

Table 4 shows the result of total effect on dependent variable from independent variable.

Table 4 The Result of Path Analysis—Indirect Effect			
Dependent* / Independent*	Direct	Indirect	Total (β)
	INT	**INT**	**INT**
PU	0.378***	---	0.378
PEOU	0.490***	0.355	0.845
PE	0.497***	---	0.497
* PU: Perceived Usefulness; PEOU: Perceived Ease of Use; PE: Perceived Enjoyment; INT: Intention *****P<=0.001**			

The results from hypothesis testing are summarized in **Table 5**.

Table5 The result of Hypothesis Testing		
Hypothesis		**Result**
H1:	*Perceived ease of use has positive effect on perceived usefulness to using entertainment services or product via mobile phone system.*	Accepted
H2:	*Perceived ease of use has positive effect on behavioral intention to using entertainment services or product via mobile phone system*	Accepted
H3:	*Perceived ease of use has positive effect on perceived enjoyment to using entertainment services or product via mobile phone system*	Accepted
H4:	*Perceived usefulness has positive effect on intention to using entertainment services or product via mobile phone system.*	Accepted
H5:	*Perceived enjoyment has positive effect on intention to using entertainment services or product via mobile phone system.*	Accepted
H6:	*For entertainment services via mobile phone system, perceived enjoyment is a stronger predictor of behavioral intention then perceived usefulness.*	Accepted
H7:	*For entertainment services via mobile phone system, perceived ease of use is a stronger predictor of behavioral intention to use than perceived usefulness.*	Accepted

6. Discussion and Implications

The purpose of this research is to examine the relationship between perceived usefulness, perceived ease of use, perceived enjoyment and intention to use of entertainment services via mobile phone system in Hong Kong. It also studies the relative importance of perceived usefulness, perceived ease of use and perceived enjoyment to intention to use. This section will discuss how perceived ease of use, perceived usefulness and perceived enjoyment affect intention to use and how perceived ease of use affects perceived usefulness and perceived enjoyment based on

path analysis result. We also discuss how perceived ease of use and perceived enjoyment dominate the effect of perceived usefulness on intention to use. In addition, we will have some implications for each part. In **Table 6**, all direct, indirect, and total effect on dependent variables is summarized. This section is divided into 4 parts: 6.1) Influence on intention to use, 6.2) Influence on Perceived Usefulness, 6.3) Influence on Perceived Enjoyment, 6.4) Domination over perceived usefulness.

Table 6 The Summary of Path Analysis

Dependent* / Independent*	Direct				Indirect	Total
	PU	**PEOU**	**PE**	**INT**	**INT**	**INT**
PU	---	---	---	0.378***(H4)	---	0.378
PEOU	0.575***(H1)	---	0.681***(H3)	0.490***(H2)	0.355	0.845
PE	---	---	---	0.497***(H5)	---	0.497

* PU: Perceived Usefulness; PEOU: Perceived Ease of Use; PE: Perceived Enjoyment; INT: Intention

***P<=0.001**

6.1) Influence on Intention to Use

The project results strongly support Van der Heijden's and other TAM based researches' claim (Davis, F.D., 1989, Davis F.D., Bagozzi, R.P., and Warshaw, P.R. 1992; Venkatesh, V., 1999; Van der Heijden, H., 2003; Van der Heijden, H.,2004); perceived ease of use has significant direct effect to intention to use (H2). If the users find it easy to use the entertainment services via mobile phone system, they would 1) have higher self-efficacy (the belief of one's ability to master a behavior) (Bandura, 1986) on accomplishing the tasks they desire and 2) Save scare and limited resources (mental effort and time) from solving unproductive problems. Thus usage intention increases.

For those who had answered to the open question in my questionnaire about the benefits (that drive their intention) of using entertainment services via mobile phone system, over 70% said: "Convenient" (according to Chou, Y., Lee, C., Chung, J., 2004. convenience means "ease") and over 60% said "Easy to use and access"; when these groups are compare with the other 10% who said the one of the shortcomings of using such services is "complicated", they reported more benefit of "spent idle time" or "kill time" and they usually have higher usage intention as revealed in the "intention to use" scale. The result indicated that, more "ease" a user perceived about using the services, higher intention for the person to use the services.

This result implies that some aspects can be done by the mobile entertainment service providers to enhance user usage intention by improving the ease of use factor. 55% of the respondents, who reported the usage is "complicated", thought the mobile phone buttons were either not "comfort" or "easy enough" to carry out entertainment activities. However, this is refer to the hardware aspect and could be hardly controlled by mobile entertainment service providers. Another half thought the usage itself was complicated. Some added that they did not understand what to do because the position of links and processing procedures are chaos and the service providers try to stress too many "banners" on one page make it very difficult to find the correct link. Therefore, improvement should be made pinpointing this aspect, for example, providing logical flow and clear presentation of the services.

Consistent with Van der Heijden's and other related researches (Davis F.D., Bagozzi, R.P., and Warshaw, P.R. 1992; Venkatesh, V., 1999; Van der Heijden, H., 2003; Van der Heijden, H.,2004), perceived enjoyment has a significant direct effect to intention to use (H5). If the entertainment services via mobile phone system is

found to be more enjoyable, more likely the user has derived an intrinsic motivation (joy) from direct interaction with the services and reinforce to use the services.

Surprisingly, over 90% of the respondents who answered the open question in my questionnaire reported the main benefit (that drive their intention) of using entertainment services via mobile phone system as "fun, interesting and entertaining", the usage intention for these respondents score very high in the "intention to use" scale. Actually, entertainment services provide via mobile phone system is hedonic in nature, users demand for it because they want to get "entertained and fun", that's why the entertainment factor greatly affect usage intention of these services.

Some possible factors that may affect users' perception of enjoyment are somehow related to the hardware: slow connection and download speed, lag time, small and low resolution mobile phone screen, unstable networking, this is because users who score higher in "perceived enjoyment" scale usually have reported less of these reasons in the open question. Mobile entertainment service providers could hardly manage these factors; The low score in perceived enjoyment also followed by a small percentage (about 20%-30%) on the deficiency of the services like "little choices", "low quality of games and ring tones", "games too simple" and "services not updated", implies that service provider could improve user perceived enjoyment by providing differentiate and periodic-update services and enhance quality of their services.

Direct significant relationship between perceived usefulness and intention to use exists that is consistent with Van der Heijden's and other TAM based researches' claim (Davis, F.D., 1989, Davis F.D., Bagozzi, R.P., and Warshaw, P.R. 1992;

Venkatesh, V., 1999; Van der Heijden, H., 2003; Van der Heijden, H.,2004). People are generally reinforce for good behavior (intention) by external benefits like rewards etc (extrinsic motivation), a system with high perceived usefulness by the user would also be perceived to have a positive use-performance relationship. As the entertainment services via mobile phone is perceived more useful and effective to facilitate decision-making (external benefits), there will be extrinsic motivation to reinforce their intention to use the entertainment services via mobile phone system.

About 48%, 43%, 35% of the respondents who had answered the open question concerning the benefits of using mobile entertainment services gave positive answers of "useful information", "plenty content", "update information" respectively. Majority of these respondents have high intention to use as reflect in the high scores of "intention to use" scale. It implies that, timely, update and informative services could help users to make better decision and thus have higher incentive to use the services.

6.2) Influence on Perceived Usefulness

Consistent with Van der Heijden's and other TAM based researches (Davis, F.D., 1989, Davis F.D., Bagozzi, R.P., and Warshaw, P.R. 1992; Venkatesh, V., 1999; Van der Heijden, H., 2003; Van der Heijden, H.,2004), perceived ease of use has significant direct effect to perceived usefulness (H1). When the users find the services easier to use, they could make faster and better decision since less time and effort are "wasted" on dealing with the complicated usage.

For majority of respondents who reported the services are "easy to use" and that they could "spend idle time more efficiently" in the open question of my

questionnaire would also report more answers referring to “usefulness” in the open question(Like ”Useful information”, “Plenty of information” etc).

It implies that enhancing ease of use factors for mobile entertainment services could benefit from its indirect effect to intention to use via perceived usefulness. Service providers should put more effort on perceived ease of use to capture additional gain.

6.3) Influence on Perceived Enjoyment

The results strongly support Van der Heijden’s and other related researches claims (Davis, F.D., 1989, Davis F.D., Bagozzi, R.P., and Warshaw, P.R. 1992; Venkatesh, V., 1999; Van der Heijden, H., 2003; Van der Heijden, H., 2004) for which perceived ease of use has a significant direct effect on perceived enjoyment. When the services are perceived to be easy to use, the person could perceive more joyful derived from the interaction with the services.

Some possible factors discouraging “enjoyment” are related to “complicated”. Respondents who score low in the “perceived ease of use” scale usually write about “complicated usage” in the open question in my questionnaire. It implies that services providers should make their services easier to use to capture its addition effect on perceived enjoyment.

6.4) Domination over perceived usefulness

The results are consistent with Van der Heijden’s and other related findings (Van der Heijden, H., 2004; Moon, J. W., Kin, Y. G., 2001; Atkinson and Kydd’s 1997.) that

the effect of perceived ease of use dominates that of perceived usefulness for intention to use. This is because entertainment services via mobile phone is hedonic nature, it focus on the intrinsic values (fun, sense of accomplished) derived from the system-user interaction rather than getting external benefits derived from the interaction. As a intrinsic motivation, perceived ease of use has greater effect than perceived usefulness on usage intention.

As report in the open question in the questionnaire of this project, over 80% of the respondents reported the benefits of using such services as: "easy to use and access" or "convenience", largely outweigh the 20% saying: "seek for information". These findings are consistent with Albert's finding (Albert .B., 2000) that users are unwilling to spent long hours surfing on non user-friendly mobile phones. It implies that service providers should provide services in an easy-to-use and fast-accomplish manner. Easy access and control are the keys.

Perceived enjoyment also dominates perceived usefulness that supports Van der Heijden's and other related findings (2004) (Van der Heijden, H. , 2004; Moon, J. W., Kin, Y. G., 2001; Atkinson and Kydd, 1997). This is because entertainment services via mobile phone are hedonic nature; people use mobile phone to entertain rather than making decision.

The percentage of the respondents for my questionnaire reports the benefit as interesting/ fun and enjoyable largely outweighed those reported "useful and informative information".) It implies that services provider should provide services in an enjoyable manner.

Hong Kong is an international city that its people, have some characteristics that are common in most metropolitans: Fast-pace of living, facing rapid changes and challenges, emphasized on efficiency and effectiveness (ergonomics), together with their long working hours and limited leisure time (when compare to Europe, where most of the previous mentioned TAM based researches were conducted) it is not difficult to understand why providing latest and plenty information is important to facilitate fast and effective entertaining decision.

Besides, Hong Kong people are hedonism. Revealed in the survey of this project, even though over 98% of respondents said the services are expensive, they still have a very high intention to spent and use the services, under the circumstances that they perceived the services are enjoyable. Perceived enjoyment is important to them also because they usually complained about their boring life. They want something that could make them happy, at any time anywhere when they desire.

As said before, if a user required less mental effort to learn and understand on the usage of the services, he can spent less resources to deal with its applications and focus more on enjoying or accomplishing the task he/she wants. It is almost the most important factor in the model because Hong Kong people are fast-pace, have limited leisure time, and output-oriented so they are not willing to spent time on understanding the operation procedure for which it is not "productive" enough to bring them fun or other utilities.

The above situations are especially true for our major sample group—local youth, this is because they have daily contact with the society.

Perceived ease of use dominates perceived usefulness is a reasonable phenomenon in Hong Kong: Hong Kong's Internet penetration rate is very high; Internet can provide more information to facilitate user's decision. Mobile entertainment is just an alternative of entertainment-when the users are not with Internet, like on transport, or waiting for someone etc (to spent idle time reflect in my questionnaire). Ease of use thus becomes very important for users to spend that short period efficiently.

Since the questionnaire also report a high percentage of people who think the services are convenient and easy to use, it can be imagine that their main intention of using the services is not to "surf for information and decide"(usefulness), but because it's easy to kill time when they are having short breaks.

7. Conclusion

The proposed research model was based on Van der Heijden's modified TAM (2004), the main objective is to study the relationship among perceived usefulness, perceived ease of use, perceived enjoyment and intention of use of entertainment services via mobile phone in Hong Kong. It also studies the relative weighting of perceived ease of use, perceived usefulness and perceived enjoyment to intention to use in the model.

The result found out that perceived usefulness, perceived ease of use and perceived enjoyment are important factors influencing intention to use. Moreover, perceived usefulness and perceived enjoyment is significantly affected by perceived ease of use.

The finding of this study can be regarded as important and useful for mobile phone entertainment service providers. They should put effort to enhance the ease of use of services by customers for instant like presenting the services in a logical flow and clear interface design. Perceived usefulness is also an important indicator to intention to use, therefore timely, update and informative services to the customers are essential. Besides, greater perceived enjoyment factors could help to increase user intention to use the services, periodic-update services and enhance quality of services can help to enhance the joyful factor. Further more, as perceived ease of use is the greatest predictor and perceived enjoyment as the second largest predictor of intention to use, more efforts should be put on these two factors.

8. Limitations

Although this study provides meaningful implications for examining the relationship among the three most critical factors (perceived usefulness, perceived ease of use, perceived enjoyment) in TAM for the mobile phone entertainment services in Hong Kong, there are several limitations inherent in it.

First, TAM used in this research is intentionally simplified. The 3 constructs explain only about 60% variance of intention to use, so further research should explore additional factors affecting the remaining portion that affect intention to use to give a whole picture (e.g. perceived cost, about 98% of our respondents think that using such services is "expensive", but whether it's significantly discourage intention is still unknown.). Second, the samples are mainly university students representing the low-income group that may create bias for the results. Therefore, diverse potential users like older people with higher social status users should be examined in the future research. Third, some prior researches indicated that there is negative relationship between perceived usefulness and perceived enjoyment (Deci, E.L. 1971, Deci, E.L.1972), and perceived enjoyment sharps the effect of perceived ease of use on usage intention. (Venkatesh, V., 1999). However in this study we have not considered these interactions between perceived usefulness, perceived ease of use and perceived enjoyment. Finally, this research does not consider the user limit choices of the services subject to the specific network operator they subscribed. As the type and quality of entertainment services varies according to different providers, users may conclude things based on his/her experience on using the services of one operator only.

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Appendices

Appendix A: Questionnaire

Questionnaire no. : _____ Official Use Only

Survey on people's perception of using Entertainment Services via Mobile Phone system

Hello! My name's Amanda. I am a final year student of Hong Kong Baptist University. I am conducting a research on people's perception on using entertainment services via mobile phone system. Please spend a few minutes to fill in the attached questions. All information collected will be used for academic purpose only. Thanks a lot for your help!

This questionnaire focuses on Accessing Entertainment Services via the use of the Mobile Phone System (mobile phone plus mobile phone network);** These services mainly falls onto the following categories: Ring-tone; MP3; Cartoon; Game; Live sport and report; Celebrity gossip; Fortune; Movie trailer; Electronic journal; Newsletter; Wallpaper; Sensation.

Part I

Gender:

□Male □Female

Age:

□18 or below □19-25 □26-35 □36-45 □46 or above

Education Level:

□Primary □Secondary (Form1-Form5) □Secondary (Form6-Form7)
□Tertiary/University □Postgraduate (Master's Degree, PhD)

Occupation:

□Student □Clerical □Service □Professional □Management
□Self-employed □Retired □Others

Average monthly income (personal):

□Below $4000 □$4000-$7499 □$7500-$9999 □$10000-$14999
□$15000-$19999 □$20000-$25000 □Above $25000

Part II

1 Which mobile **network operator** have you currently subscribed?

☐China Resources Peoples Telephone Company Limited
☐New World PCs Limited
☐Hutchison Telephone Company Limited
☐SmarTone Mobile Communications Limited
☐Hong Kong CSL Limited
☐Mandarin Communications Limited
☐Other (please specify)_____

2 Which **type of mobile phone system** are you using now?

☐2.5G ☐3G

3 **How often** have you used the entertainment services via mobile phone system **each month**?

☐1-4 ☐5-8 ☐9-12 ☐13-16 ☐17-20 ☐21 or above

4 On average, **how much** have you spent on entertainment services via mobile phone system each month?

☐$0 ☐$20 or below ☐$21-$50 ☐$51-$80 ☐$81-$110
☐$111-$140 ☐$141 or above

5 To what extend do you think the **SIZE** and **RESOLUTION** of the **mobile phone screen** affecting your choice to use entertainment services?

☐100% ☐75% ☐50% ☐25% ☐0%

6 In general, how would you judge the **quality of the entertainment services** via mobile phone system that you using now?

☐Sophisticated ☐Fair ☐Average ☐Poor ☐Dump

7 Does the problem of "time lag" happen when you retrieving/participating your entertainment services via mobile phone system?

☐Yes, always ☐Yes, Often ☐Yes, sometimes ☐Yes, but seldom
☐No, never or at least I don't notice

8 What do you think of the speed of connection and disconnection when retrieving/participating your entertainment services via mobile phone system?

☐Faster than I expect ☐Acceptable ☐Unacceptable ☐Too slow

9 Do you require downloading additional software(s) via the mobile phone system before you could activate/execute the entertainment services?

□Yes, always □Yes, Often □Yes, sometimes □Yes, but seldom □Never

10 Please list five benefits and five shortcomings when using the entertainment services via the mobile phone system. (You may not list all of them)

Benefit	**Shortcoming**
●	●
●	●
●	●
●	●
●	●

Part III

Please indicate your agreement or disagreement with the following statements.

Key: SD=Strongly Disagree; MD=Moderately Disagree; SD=Somewhat Disagree; N=Neutral; SA=Somewhat Agree; MA=Moderately Agree; SA=Strongly Agree

	SD	MD	SD	**N**	SA	MA	**SA**
11 By using the entertainment services via mobile phone system, I can decide more quickly and more easily **WHICH entertainment**(s) I want **to retrieve**/ participate **than in the past**	□	□	□	□	□	□	□
12 By using the entertainment services via mobile phone system, I can **better decide WHICH** entertainment(s) I want to retrieve/ participate than in the past	□	□	□	□	□	□	□
13 By using the entertainment services via mobile phone system, I am **better informed about new entertainment**	□	□	□	□	□	□	□
14 By using the entertainment services via mobile phone system, I can **decide more quickly and more easily** whether I want to retrieve/ participate a particular entertainment	□	□	□	□	□	□	□
15 By using the entertainment services via mobile phone system, I can better decide **whether I want to retrieve**/ participate a particular entertainment	□	□	□	□	□	□	□

	SD	MD	SD	**N**	SA	MA	**SA**
16 My **interaction** with the entertainment services via mobile phone system is **clear and understandable**	□	□	□	□	□	□	□
17 I find the entertainment services via mobile phone system to be **easy to use**	□	□	□	□	□	□	□
18 **Interacting** with the entertainment services via mobile phone system **does not require a lot of my mental effort**	□	□	□	□	□	□	□
19 I find it easy to get entertainment services via mobile phone system **to do what I want it to do**	□	□	□	□	□	□	□
20 I find that using the entertainment services via mobile phone system is **exciting**	□	□	□	□	□	□	□
21 I find that using the entertainment services via mobile phone system is **enjoyable**	□	□	□	□	□	□	□
22 I find that using the entertainment services via mobile phone system is **pleasant**	□	□	□	□	□	□	□
23 I find that using the entertainment services via mobile phone system is **interesting**	□	□	□	□	□	□	□
24 I intend to revisit the entertainment services via mobile phone system shortly.	□	□	□	□	□	□	□
25 I predict that I will revisit the entertainment services via mobile phone system in the short term.	□	□	□	□	□	□	□

This is the end of the questionnaire.
Please kindly return it to the distributor.
Thank you very much!

Appendix B: Descriptive Data

Frequencies

Statistics

N	Valid	217
	Missing	0

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	88	40.6	40.6	40.6
	Female	129	59.4	59.4	100.0
	Total	217	100.0	100.0	

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18 or Below	13	6.0	6.0	6.0
	19-25	146	67.3	67.3	73.3
	26-35	40	18.4	18.4	91.7
	36-45	14	6.5	6.5	98.2
	46 or Above	4	1.8	1.8	100.0
	Total	217	100.0	100.0	

Edu_lv

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Primary	3	1.4	1.4	1.4
	Secondary(form1-form5)	19	8.8	8.8	10.1
	Secondary(form6-form7)	18	8.3	8.3	18.4
	Tertiary/University	165	76.0	76.0	94.5
	Postgraduate (Master's Degree, PhD)	12	5.5	5.5	100.0
	Total	217	100.0	100.0	

Job

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Student	137	63.1	63.1	63.1
	Clerical	19	8.8	8.8	71.9
	Service	13	6.0	6.0	77.9
	Professional	13	6.0	6.0	83.9
	Management	21	9.7	9.7	93.5
	Self-employed	5	2.3	2.3	95.9
	Retired	2	.9	.9	96.8
	Others	7	3.2	3.2	100.0
	Total	217	100.0	100.0	

Income

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Below $4000	123	56.7	56.7	56.7
	$4000-$7499	19	8.8	8.8	65.4
	$7500-$9999	18	8.3	8.3	73.7
	$10000-$14999	26	12.0	12.0	85.7
	$15000-$19999	20	9.2	9.2	94.9
	$20000-$25000	6	2.8	2.8	97.7
	Above $25000	5	2.3	2.3	100.0
	Total	217	100.0	100.0	

Operator

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	China Resources Peopls Telephone Company Limited	20	9.2	9.2	9.2
	New World PCs Limited	39	18.0	18.0	27.2
	Hutchison Telephone Company Limited	46	21.2	21.2	48.4
	SmarTone Mobile Communications Limited	57	26.3	26.3	74.7
	Hong Kong CSL Limited	36	16.6	16.6	91.2
	Mandarin Communications Limited	3	1.4	1.4	92.6
	Sunday	16	7.4	7.4	100.0
	Total	217	100.0	100.0	

System

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2.X G	177	81.6	81.6	81.6
	3G	40	18.4	18.4	100.0
	Total	217	100.0	100.0	

Often

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-4	124	57.1	57.1	57.1
	5-8	39	18.0	18.0	75.1
	9-12	14	6.5	6.5	81.6
	13-16	15	6.9	6.9	88.5
	17-20	15	6.9	6.9	95.4
	21 or Above	10	4.6	4.6	100.0
	Total	217	100.0	100.0	

Much

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	$0	75	34.6	34.6	34.6
	$20 or Above	69	31.8	31.8	66.4
	$21-$50	31	14.3	14.3	80.6
	$51-$80	24	11.1	11.1	91.7
	$81-$110	10	4.6	4.6	96.3
	$111-$140	5	2.3	2.3	98.6
	$141 or Above	3	1.4	1.4	100.0
	Total	217	100.0	100.0	

Size

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	100%	30	13.8	13.8	13.8
	75%	74	34.1	34.1	47.9
	50%	66	30.4	30.4	78.3
	25%	34	15.7	15.7	94.0
	0%	13	6.0	6.0	100.0
	Total	217	100.0	100.0	

Quality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Sophisticated	6	2.8	2.8	2.8
	Good	91	41.9	41.9	44.7
	Fair	100	46.1	46.1	90.8
	Poor	16	7.4	7.4	98.2
	Dump	4	1.8	1.8	100.0
	Total	217	100.0	100.0	

Lag

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes, always	2	.9	.9	.9
	Yes, often	30	13.8	13.8	14.7
	Yes, sometimes	72	33.2	33.2	47.9
	Yes, but seldom	56	25.8	25.8	73.7
	No, never or at least I don't notice	57	26.3	26.3	100.0
	Total	217	100.0	100.0	

Speed

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Faster than I expect	7	3.2	3.2	3.2
	Acceptable	168	77.4	77.4	80.6
	Unacceptable	24	11.1	11.1	91.7
	Too slow	18	8.3	8.3	100.0
	Total	217	100.0	100.0	

Download_add

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes, always	2	.9	.9	.9
	Yes, often	14	6.5	6.5	7.4
	Yes, sometimes	38	17.5	17.5	24.9
	Yes, but seldom	57	26.3	26.3	51.2
	Never	106	48.8	48.8	100.0
	Total	217	100.0	100.0	

Appendix C: Internal Consistency Reliability Test Result

Reliability Analysis –Perceived Usefulness

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
PU_01	17.45	26.952	.802	.916
PU_02	17.51	26.890	.845	.908
PU_03	17.21	27.174	.778	.920
PU_04	17.50	27.066	.807	.915
PU_05	17.53	26.621	.839	.909

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.930	.930	5

Item Statistics

	Mean	Std. Deviation	N
PU_01	4.35	1.471	217
PU_02	4.29	1.422	217
PU_03	4.59	1.479	217
PU_04	4.29	1.452	217
PU_05	4.27	1.458	217

Reliability Analysis –Perceived Ease of Use

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
PEOU_01	13.66	15.485	.757	.879
PEOU_02	13.69	15.437	.772	.873
PEOU_03	13.38	14.793	.834	.850
PEOU_04	13.76	16.042	.747	.882

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.900	.900	4

Item Statistics

	Mean	Std. Deviation	N
PEOU_01	4.51	1.488	217
PEOU_02	4.47	1.475	217
PEOU_03	4.78	1.489	217
PEOU_04	4.40	1.421	217

Reliability Analysis –Perceived Enjoyment

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
PE_01	13.79	15.313	.725	.907
PE_02	13.48	14.908	.848	.862
PE_03	13.41	15.669	.791	.882
PE_04	13.47	15.046	.814	.874

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.908	.909	4

Item Statistics

	Mean	Std. Deviation	N
PE_01	4.26	1.524	217
PE_02	4.57	1.426	217
PE_03	4.64	1.388	217
PE_04	4.59	1.448	217

Reliability Analysis –Intention to Use

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
INT_01	4.33	2.584	.894	.(a)
INT_02	4.27	2.495	.894	.(a)

a The value is negative due to a negative average covariance among items. This violates reliability model assumptions. You may want to check item codings.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.944	.944	2

Item Statistics

	Mean	Std. Deviation	N
INT_01	4.27	1.580	217
INT_02	4.33	1.607	217

Appendix D: Path Analysis

Regression-INT=bPU+bPEOU+bPE+b0
Direct effect on Intention to use

Variables Entered/Removed(b)

Model	Variables Entered	Variables Removed	Method
1	pe_mean, pu_mean, peou_mean (a)	.	Enter

a All requested variables entered.

b Dependent Variable: int_mean

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.782(a)	.612	.606	.97312

a Predictors: (Constant), pe_mean, pu_mean, peou_mean

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	317.774	3	105.925	111.856	.000(a)
	Residual	201.705	213	.947		
	Total	519.479	216			

a Predictors: (Constant), pe_mean, pu_mean, peou_mean

b Dependent Variable: int_mean

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.551	.274		-2.010	.046
	pu_mean	.247	.068	.205	3.652	.000
	peou_mean	.422	.073	.350	5.783	.000
	pe_mean	.412	.076	.341	5.427	.000

a Dependent Variable: int_mean

Regression-PU=bPEOU+b0

Direct effect on Perceived Usefulness

Variables Entered/Removed(b)

Model	Variables Entered	Variables Removed	Method
1	peou_mean (a)	.	Enter

a All requested variables entered.

b Dependent Variable: pu_mean

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.575(a)	.330	.327	1.05522

a Predictors: (Constant), peou_mean

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	118.002	1	118.002	105.974	.000(a)
	Residual	239.401	215	1.113		
	Total	357.403	216			

a Predictors: (Constant), peou_mean

b Dependent Variable: pu_mean

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.754	.263		6.671	.000
	peou_mean	.574	.056	.575	10.294	.000

a Dependent Variable: pu_mean

Regression-PE=bPEOU+b0

Drect effect on Perceived Enjoyment

Variables Entered/Removed(b)

Model	Variables Entered	Variables Removed	Method
1	peou_mean (a)	.	Enter

a All requested variables entered.

b Dependent Variable: pe_mean

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.681(a)	.464	.462	.94034

a Predictors: (Constant), peou_mean

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	164.668	1	164.668	186.227	.000(a)
	Residual	190.110	215	.884		
	Total	354.778	216			

a Predictors: (Constant), peou_mean

b Dependent Variable: pe_mean

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.435	.234		6.124	.000
	peou_mean	.678	.050	.681	13.647	.000

a Dependent Variable: pe_mean