Factors Affecting Consumer Adoption of 3G Mobile Services in People's Republic of China: A Case Study of Mobile Users in Beijing

By

Mr. Peng Zhang

A Thesis Submitted in Partial Fulfillment of the Requirements
for the Degree of Master of Business Administration
Graduate School of Business
Assumption University
Academic Year 2011

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ABSTRACT

In recent days, 3G technology has been brought to Chinese consumers and this market has a big potential for growth. However, about Chinese consumer's adoption of 3G mobile services is not yet clear, as the relevant literatures that proved useful information toward their inside thoughts and explain their behavior are limited .

The purpose of this research is to design and develop a useful study to analyze the Chinese consumer intention in adopting 3G mobile services and the factors that positively or negatively influence their adoption decision. The importance of this research is to analysis the belief, perception and intention about Chinese 3G subscriptions, in order to understand the customer in current filed.

Therefore, this quantitative study was designed and research adopted questionnaire as the instrument with the instrument tool Statistical Package for Social Science program known as SPSS used to measure data that collected from 400 target respondents.

The findings of study concludes that intention to use 3G mobile services in Beijing mobile users are mainly related with variables such as perceived usefulness, perceived ease of use, interpersonal influence, external influence, personal innovativeness, perceived enjoyment and perceived cost.

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Zhang Peng

April ,2011

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ABSTRACT I

ACKNOWLEDGEMENT II

TABLE of CONTENTS III

LIST of TABLES VI

LIST of FIGURES VIII

Chapter 1 Introduction

1.1 Introduction of the study 1

1.1.1 The Third Generation mobile Communication Technology 2

1.1.2 The Importance of 3G Services 3

1.1.3 Global Situation 3

1.1.4 Mobile Subscriptions in China 6

1.1.5 Major 3G operators in China 8

1.2 Statement of the Problem 10

1.3 Research objectives 11

1.4 Scope of research 11

1.5 Limitations of research 11

1.6 Significance of the study 12

1.7 Definition of terms 12

1.8 Abbreviations 15

Chapter 2 Literature Review

2.1 Definition and Features of Variables 17

2.1.1 Behavioral Intention or Adoption Intention 17

2.1.2 Technology Acceptance Model (TAM) and its Relationship with Adoption Intention 18

2.1.3 Social Influence and its relation to adoption intention 19

2.1.4 User Disposition and its relation to adoption intention 20

2.2 Major Models Related to the Research 22

2.2.1 Technology Acceptance Model (TAM) 22

2.2.2 Theory of Reasoned Action (TRA) 25

2.2.3 Adoption of Innovation 26

2.3 Previous Studies 27

2.3.1 Factors Influencing the Adoption of Mobile Services in China 27

2.3.2 Understanding Adoption of Multipurpose Information of Appliances 28

2.3.3 What drives Malaysian m-commerce adoption 28

2.3.4 Factors influencing the usage of 3G mobile services in Taiwan 28

2.3.5 Dynamics of Mobile Services Adoption 29

2.3.6 Exploring individual personality factors as drivers of M-shopping acceptance 29

2.3.7 Conceptual Framework and Propositions for the Acceptance of Mobile Services 29

2.4 The Articles to Support Hypothesis 30

2.5 Pilot study – Interview results about 3G mobile services adoption 33

2.6 Research Hypotheses 34

Chapter3 Research Framework

3.1 Theoretical framework 35

3.2 Conceptual framework 41

3.3 Statistical Hypothesis 43

3.4 Operationalization of the Independent and Dependent Variables 44

Chapter 4 Research Methodology

4.1 Methods of research used 50

4.2 Respondents and Sampling Procedures 51

4.2.1 Target Population 51

4.2.2 Sampling size 51

4.2.3 Sampling Method 52

4.3 Research Instrument 53

4.4 Pre-Test 56

4.5 Data Gathering Procedures 57

4.6 Statistical Treatment of Data 57

4.6.1 Descriptive Analysis 57

4.6.2 Correlation Coefficient 58

Chapter 5 Presentation of Data Analysis

5.1 Descriptive Statistics of Demographics Factors 60

5.2 Analysis of the Hypothesis Testing 62

5.3 Analysis of the Hypothesis Testing 66

5.4 Summary of Results from Hypothesis Testing 72

Chapter 6 Summary of Findings, Conclusion, and Recommendations

6.1 Summary of the Findings 74

6.1.1 Summary of Respondents' Personal Information 74

6.1.2 Summary of Hypothesis Testing 76

6.2 Conclusion and Implications 78

6.3 Recommendations 80

6.4 Future Research 81

Bibliography 83

APPENDIX A.QUESTIONNAIRE IN ENGLISH VERSION 92

APPENDIX B.QUESTIONNAIRE IN CHINESE VERSION 98

APPENDIX C.STATISTICAL RESULTS FOR PRE-TESTING FROM SPSS 103

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List of Tables

Table 1.1 - Operators Overall in China 9

Table 1.2 - Abbreviations Used in the Research 15

Table 2.1 - Studies related to perceive Technology Acceptance Model (TAM) and Intention to use 30

Table 2.2 - Studies related to User Predisposition and Intention to use 31

Table 2.3 - Studies related to Social Influence and Intention to use 32

Table 2.4 - Interview Layout on 13th September 2010 33

Table 3.1 - Operationalization Table 45

Table 4.1 - The number of questionnaires distributed by gender 53

Table 4.2 - Arrangement of the questionnaire 55

Table 4.3 - Reliability of the Questionnaire 56

Table 4.4 - Correlation Coefficient Result Analysis 58

Table 4.5 - Statistics Used for Each Hypothesis 59

Table 5.1 - Gender of the Respondents 60

Table 5.2 - Age of the Respondents 60

Table 5.3 - Income of the Respondents 61

Table 5.4 - Education of Level of the Respondents 61

Table 5.5 - Occupation of the Respondents 62

Table 5.6 - Descriptive of Perceived Usefulness 63

Table 5.7 - Descriptive of Perceived Ease-of–Use 63

Table 5.8 - Descriptive of Interpersonal Influence 63

Table 5.9 – Descriptive of External Influence 64

Table 5.10 – Descriptive of Perceived Innovativeness 64

Table 5.11 – Descriptive of Perceived Enjoyment 65

Table 5.12 – Descriptive of Perceived Experience 65

Table 5.13 – Descriptive of Perceived Cost 66

Table 5.14 – Descriptive of Intention 66

Table 5.15 - Pearson Correlation for Perceived Usefulness and Intention to Use 67

Table 5.16 - Pearson Correlation for Perceived Ease of Use and Intention to Use 67

Table 5.17 - Pearson Correlation for Interpersonal Influence and Intention to Use 68

Table 5.18 - Pearson Correlation for External Influence and Intention to Use 69

Table 5.19 - Pearson Correlation for Personal Innovativeness and Intention to Use 70

Table 5.20 - Pearson Correlation for Perceived Enjoyment and Intention to Use 70

Table 5.21 - Pearson Correlation for Perceived Experience and Intention to Use 71

Table 5.22 - Pearson Correlation for Perceived Cost and Intention to Use 72

Table 5.23 - Summary of Results from Hypothesis Testing 73

Table 6.1 - Summary of Respondents' General Information 75

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มหาวิทยาลัยอัสสัมชัญ

List of Figures

Figure 1.1 - Global Mobile Phone Subscriptions (in million subscribers) 4

Figure 1.2 - Mobile Phone Penetration Rate (in percentage) 5

Figure 1.3 - Chinese Mobile Market 7

Figure 1.4 - The 3G Subscriptions in China 10

Figure 2.1 - Technology Acceptance Model (TAM) 23

Figure 2.2 - Technology Acceptance Model: Past, Present, and Future 24

Figure 2.3 - Theory of Reasoned Action 25

Figure 2.4 – Adopter Categories 26

Figure 3.1 - Factors Influencing the Adoption of Mobile Services in China 35

Figure 3.2 - Understanding Adoption of Multipurpose Information of Appliances 36

Figure 3.3 - What drives Malaysian mobile commerce adoption 37

Figure 3.4 - Dynamics of mobile services adoption 38

Figure3.5-Exploring individual personality factors as drivers of M-shopping acceptance 39

Figure 3.6 - Conceptual Framework and Propositions for the Acceptance of Mobile 40

Figure 3.7 - Conceptual Framework 41

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Chapter 1

INTRODUCTION

The introduction contains eight sections. The first section of this study is the introduction. The second section discusses statement of the problems. The third section describes research objectives. The fourth section is about scope of the research. The fifth is the limitations of the research. The sixth is significance of the research. The seventh section contains definition of terms in the research and the eighth section is abbreviations.

1.1 Introduction of the Study

In the last two decades, the telecommunications industry especially wireless telecommunications has been well-developed in the People's Republic of China. According to the Ministry of Industry and Information Technology (MIIT), in China about the end of 2010, the mobile communication services subscribers will be around 756 million. This number of subscribers accounted for 56.3% of the country's population (MIIT news report, 2010). The telecommunications area has been rapidly changed by the new generations of technology, from satellite transmission, radio and television broadcasting to the mobile telephone now. Wireless communications has revolutionized the way societies function and has played an important role in consumers' daily life in modern societies, such as Beijing.

Beijing is the capital city of China; it is also one of the four big cities in terms of population and economic importance in China. After successfully hosting the Summer Olympics in 2008, Beijing is booming quickly. International Telecommunication Union (ITU), which is the United Nations specialized agency for information and communication technologies, points out that as concentration on communication technologies, Gross Domestic Productivity (GDP) per capita and mobile use are highly correlated. This study focuses on wireless telecommunication subscribers in Beijing. This is because Beijing is amongst the most developed cities in China with the nominal GDP exceeding US$174 billion[1] in 2009 and population exceeding 22 million people both long lived and temporary (BJSTATS report, 2009).

With the development of wireless technology, mobile phones are everywhere and have become a part of everyday lives, both in the business environment and personal life.

[1] Exchange rate, US$ 1 or THB 34.33 average of Year 2009 derived from Bank of Thailand (BOT) or available at website www.bot.or.th accessed on September 25 2010

This study concentrates on the third generation mobile telecommunication technology that enhances mobile telecommunication services (see 1.1.1 p. 2).

1.1.1 The Third Generation Mobile Communication Technology

International Telecommunication Union (ITU) has defined 3G as a new generation of standards for mobile phones and mobile telecommunication services (ITU website, 2011). This study will use the word "3G" replacing the Third generation of mobile telecommunication technology from this page on[2]. With the upgrading of mobile technology, from the first generation (1G) mobile telecommunication technology introduced in the early 1980s for voice services to the second generation (2G) mobile telecommunication technology which was introduced during the first half o the 1990s, increasing the capability to provide voice services and extending the services to basic data. Now comes the 3G era, with enhancements over previous wireless technologies providing high-speed transmission, advanced multimedia access and global roaming. 3G is mostly used with mobile phones and handsets as a means to connect the phone to the Internet in order to make voice and video calls, to download and upload data and to access the Internet. In addition, the services offer more advance features; Firstly, super-fast surfing and downloads, 3G offers speeds in the Megabit range; it is offering a much faster download service than previous mobile services. Secondly, download video, this was the big selling point when 3G was launched , the ability to watch streamed video clips on user's handset - this can be live TV, sports snippets, music, news headlines, weather forecasts, or movie trailers. Thirdly, video call that makes and receives video calls to/from other 3G users in real time. Fourthly, pictures, 3G allows to take digital pictures as well as coping with video, user can send photos to other 3G users and non-3G users, with data speeds faster. Fifthly, Location-based services, it provides map function that positions the location information. Sixthly, games, the download games up to thirty times faster than on a standard GSM phone, and play online games.

Currently, the International Telecommunication Union (ITU) has conducted three global mainstream 3G standards; they are Wideband Code Division Multiple Access (WCDMA), Code-Division Multiple Access (CDMA2000) and Time Division Synchronous Code Division Multiple Access (TD-SCDMA). Until June 2009, there were 335 WCDMA networks worldwide , it was about 73% of business network , and the subscribers under WCDMA network was 379 million compared to the overall 490 million 3G users worldwide.

[2] Available at website of International Telecommunication Union (ITU) at http://www.itu.int/ITU-D/imt-2000/DocumentsIMT2000/What_really_3G.pdf , accessed on March 10 2011.

Moreover, the number of global WCDMA final producers close to 150, this number is obviously more than other standards (ITU website, 2011).

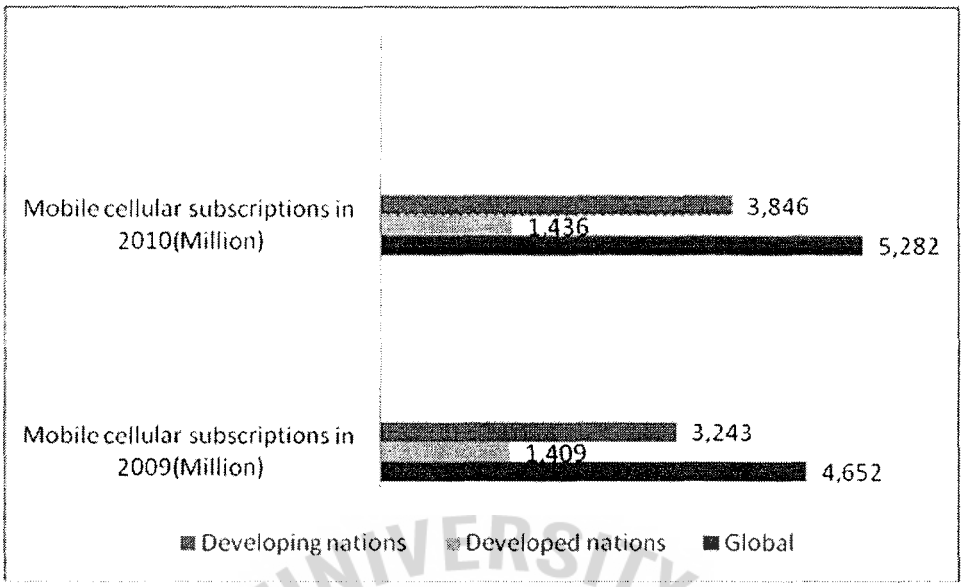
1.1.2 The Importance of 3G Services

3G services are one of the most cost effective ways to transfer mobile data to the public. Especially 3G services can easily reach longer distance than any other mobile internet connection, and it is certainly larger, better and faster. Because of this advanced functions, it is able to deliver many more applications. The 3G services can also help to relieve the serious network traffic that is currently suffered by various operators, especially those in the big cities. In addition, the 3G services have a video talk, which is the newly introduced technology that will change people's lifestyle in the future. Therefore, 3G services are rightly considered the star of mobile communication worldwide. Moreover, it is an extremely relevant and important service and it will lead the mobile communication to the next level.

1.1.3 Global Situation

In the global situation, it took a century for the world to accumulate the first billion fixed telephones, but in only about a decade mobile phones have done the same as the telephones. The projections of ITU suggested that the world would continue to add mobile lines faster than fixed lines and the next billion of new phone users would use primarily mobile phones (ITU, 2003). Mobile phone usage has doubled worldwide since the year 2000; there are about 4.6 billion mobile phone subscribers worldwide by the end of 2009 (ITU, 2010), more than half of the human population. The fast growth in mobile phone usage came from large developing countries, in particular China, India, and Russia. Such countries own a large number of all mobile phone users and show the big growth since 2000. According to ITU, China alone is now reporting 747.4 million users, more than half of its population that is larger than the population of the United States (292.8 million persons). India presently claims 525.2 million mobile phone subscribers, fast increasing from 2007. Russia, meanwhile, jumped from 73 million subscribers in 2004 to 174.3 million in 2009. Figure 1.1 below shows the different number of subscribers in mobile phone in 2009 until 2010.

Figure 1.1 - Global Mobile Phone Subscriptions (in million subscribers)



Source: Created by author based on the data derived from International Telecommunication Union (2010) or available at website www.itu.com, September 25 2010.

Figure 1.1 shows the estimates of global mobile phone subscription in 2010 by ITU. This source presents the global usage of mobile subscription was increased from 4.6 million subscribers (2009) to 5.2 million (2010), which included the fast growth in developing nations from 3.2 million (2009) to 3.8 million (2010) and developed nations from 1,409 million (2009) to 1,436 million (2010). Table 1.2 shows the difference of mobile phone penetration rate in percentage in 2009 until 2010.

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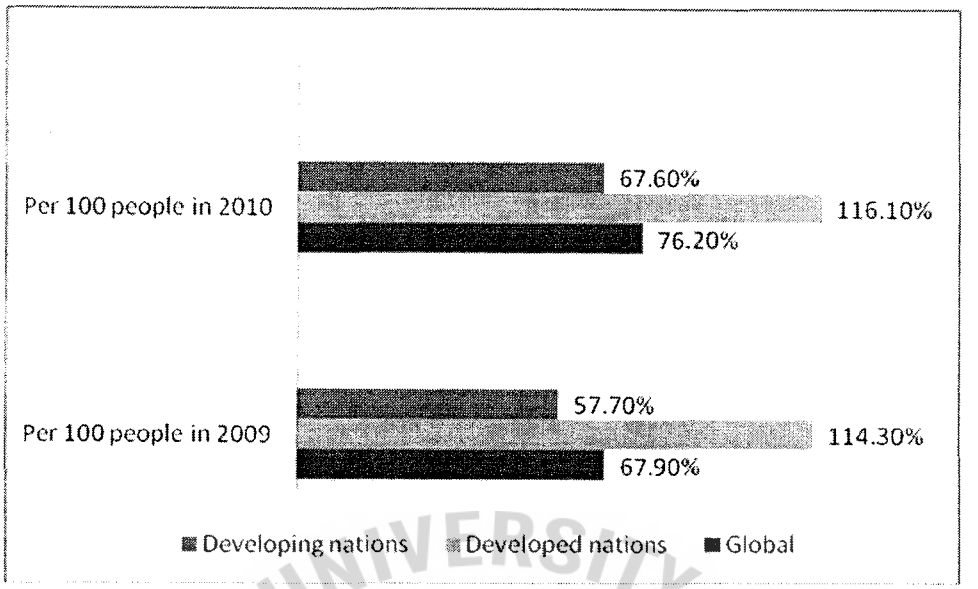
Figure 1.2 - Mobile Phone Penetration Rate (in percentage)



Source: Created by author based on data derived from International Telecommunication Union (2010) or available at website www.itu.com September 25 2010.

Moreover, Figure1.2 shows the mobile phone penetration rate between developing nations (67.6%) and developed nations (116.1%) in global environment (76.2%) in 2010. Based on International Telecommunication Union , 3G networks are available in 143 countries, almost one in five people in the world has access to fast mobile services (3G or better), and by the end of 2010 ,there will have 940 million 3G subscriptions worldwide , that accounts for 18% of total mobile subscriptions.

Worldwide, the currently used major 3G licenses are CDMA2000 and WCDMA. The North America is the beginning area of CDMA, and the only state that CDMA owns the most market shares. According to the ITU, at the end of year 2007, the CDMA2000 users numbered around 134.6 million people, compared to the 5 million WCDMA users. CDMA2000 owns about 96% of 3G market shares in North America. Europe is the beginning area of WCDMA; many countries released WCDMA licenses during year the1999-2000. The development of WCDMA users is behind Japan for a long period, until year 2005 European area WCDMA user market shares have overcame the Asia pacific , and have owned the largest number WCDMA users. In South Korea, CDMA2000 users have reached 39.57 million people about 93.5% of total mobile service users in June 2007. Moreover, Japan is the first country providing 3G service; it released the first WCDMA business network in year 2001. In Japan, the 2G users started declining and they changed to 3G from year 2003. In year 2006, the number of 3G users in Japan was more than 2G users and the number of

subscribers has increased to 83.33 million people, it is about 82.9% of total subscription one year later.

1.1.4 Mobile Subscriptions in China

Recently, 3G has begun its business in the world largest market – the Chinese market. The reason to select China as target market and Chinese consumers as target group is obvious, there will be 756 million subscribers for mobile communication services in China as of the end of January 2010, and the number of subscribers accounted for 56.3% of the country's population (MIIT, 2010). This number is even larger than that of any other country in the world.

In addition, the number of mobile subscribers increases considerably each year. Subscribers' consumption power is potential. According to an Average Revenue per User (ARPU), mobile subscribers can be categorized into three types of market: the high-end market, the middle market, and the low-end market. The business persons, managers, lawyers, editors and people whose charge of mobile are paid by employers build up high-end market. They have strong capability of payment and need to use mobile frequently. Young people, workers and students are the mainstay of the middle market. They have low income or have no income at all. However, they pursue fashionable stuff and use mobile frequently. Usually, they prefer to use short text message. In addition, surfing web through mobile is quite popular amongst them. The low-end market is composed of old people and peasants. This group of consumers often has out of date model mobiles that they use occasionally. Table 1.3 shows the percentage of 3G subscribers based on the total number of mobile cellular subscribers in 2010.

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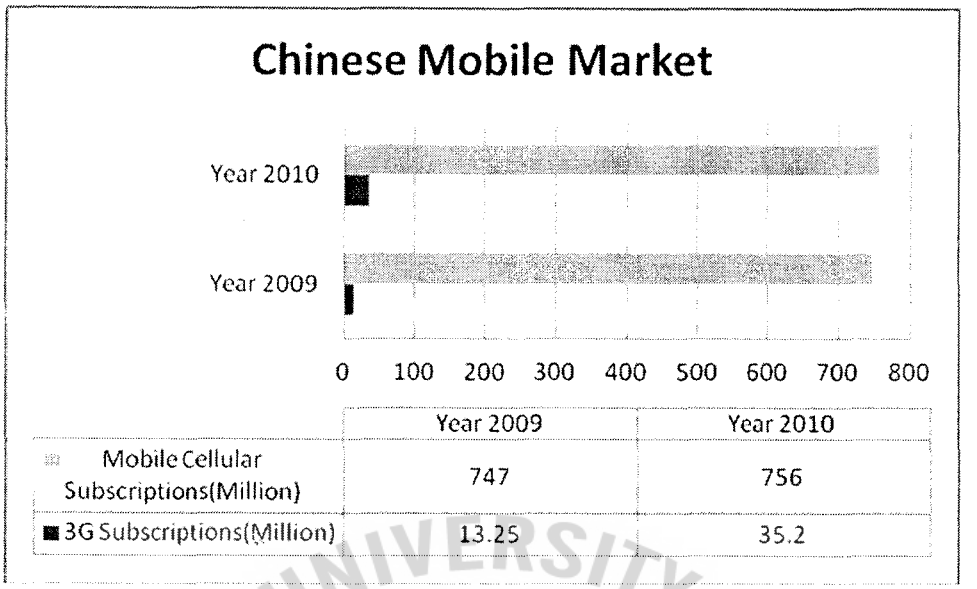
Figure 1.3 - Chinese Mobile Market



Source: Created by author based on Statistics from Ministry of Industry and Information Technology (2010) or available at website www.miit.gov.cn September 25 2010.

Figure 1.3 shows Chinese mobile market situation between year 2009 and 2010. From year 2009 (747 million), the total mobile phone subscription have increased to 756 million in 2010. In addition, the 3G subscriptions increased from 13.25 million (2009) to 35.2 million (2010).

However, Pedersen (2005) concluded that successful consumer adoption rate of an innovation is not easily achieved. That means successful adoption of an innovation has been affected by consumers' belief, perception and intention toward this innovation, and those are difficult to predict without analysis. In this situation, even there were 756 million mobile phone users, the 3G users is around 35.2 million by the end of 2010 (MIIT report, 2010). In order to obtain widespread adoption of technology, an effective instruction of innovation should be undertaken as well as an efficient marketing strategy, both of which require an accurate understanding of the consumers (Marez, 2000). Moreover, about Chinese consumer's adoption of 3G mobile services is not yet clear, as the relevant literatures that proved useful information toward their inside thoughts and explain their behavior are limited . Therefore, this quantitative study was designed to understand Beijing consumers' belief, perception and intention toward using of 3G mobile services, and to investigate the important factors that influence Beijing consumers' adoption intention of 3G services.

1.1.5 Major 3G operators in China

On the First of July 2009, the China's Ministry of Industry and Information Technology released three 3G licenses TD-SCDMA, WCDMA, CDMA-2000 to China Mobile, China Union and China Telecom, representatively. The Year 2009 became a milestone in China's 3G era.

China Union

China Unicom was a mainland China's government-owned corporation, and was established on July 19, 1994. It started as a GSM mobile operator and it currently provides services such as nationwide GSM mobile network, long-distance and local calling, data communication and many other services. In February 2000, China Unicom became incorporated in Hong Kong and was listed on the Hong Kong Stock Exchange on June 22 2000.Compared to other mobile providers; China Unicom is ranked the world's third-biggest mobile provider. On January 7 2009, China Unicom was granted WCDMA license to expand its business to 3G telecommunication (http://www.chianunicom.com accessed on February 2011).

In the October of same year, China Union started the 3G services in 285 cities until the end of year 2009. Its 3G network had covered 335 cities nationwide, with around 107,000 working stations and with a total 2.74 million 3G users (http://www.miit.gov.cn accessed on February 2011).

China Mobile

China Mobile was born from the mobile phone division of China Telecom after its 1999 break-up. It is a state-owned enterprise directly controlled by the government of the mainland China and listed on New Year Stock Exchange and the Hong Kong Stock Exchanges as a public company. China Mobile has dominated Chinese mobile services since its inception. Currently, in terms of its market value, China Mobile Limited is the largest among all the overseas listed Chinese companies and among all the telecom carriers in Asia. The TD-SCDMA license that China Mobile used is the Chinese self-invented telecommunication technology, which is supported by Chinese government, and the service has been used in government and information industry (http://10086.cn/ accessed on February 2011).

In year 2009, China Mobile's 3G constructions had been completed; it has been cumulatively building over 80,000 3G working stations, and the network covers 238 cities nationally with the total subscriptions numbering about 5.51 million people. (http://www.miit.gov.cn accessed on February 2011).

China Telecom

China Telecom Corporation limited is the largest fixed line service and the third largest mobile telecommunication provider in the mainland China. It is the global partner of World Expo 2010 Shanghai, and it is listed as one of the Top 500 Global Corporations for many consecutive years. The company was formerly a state-owned monopoly, but now is divided into largely autonomous provincial branches. China Telecom has been listed on the Hong Kong and New York Stock Exchanges since 2002, but the Chinese government retains majority ownership. On January 7 2009, China Telecom was given CDMA 2000 license to expand its business to 3G telecommunication (http://en.chinatelecom.com.cn/ accessed on February 2011).

Until the end of year 2009, China Telecom had set up networks in about 342 cities nationwide. It still owns the wide 3G coverage rate in mainland China with about 5 million subscribers (http://www.miit.gov.cn accessed on February 2011).

Table 1.1 – Operators Overall in China

Year 2009	**China Union**	**China Mobile**	**China Telecom**
Coverage Cites	335	238	342
3GSubscribers(Million)	2.74	5.51	5
Subscribers Owned(Percentage)	20.68%	41.58%	37.74%

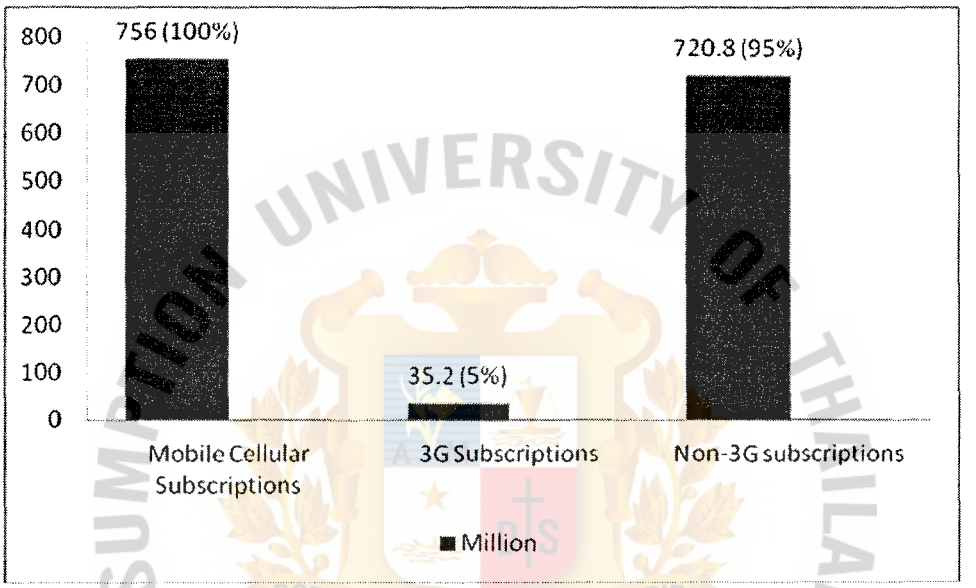
Source: Created by author based on Statistics from Ministry of Industry and Information Technology (2010) or available at website www.miit.gov.cn accessed on February 2011

Table 1.1 shows the major operators in overall China; it indicates that the China telecom pervaded network services in 342 cities in China, and the China Mobile has the highest numbers of 3G subscribers with 5.51 million people. It accounts for 41.58% of the total 3G subscribers in mainland China.

1.2 Statement of the Problem

In recent days, 3G technology is an innovation to Chinese consumers and this market has a big potential for growth (see Figure 1.4). However, MITT reports in 2010 showed that based on 756 million total mobile subscribers, about five percent of mobile users subscribed 3G services. The remaining ninety-five percent of mobile users have yet subscribed 3G services yet. Figure1.4 shows the number of 3G subscriptions and percentage in China.

Figure 1.4 - The 3G Subscriptions in China



Source: Created by author based on Statistics from Ministry of Industry and Information Technology (2010) or available at website www.miit.gov.cn September 25 2010.

In order to better understanding the market and design useful for strategic plan, this study describes important factors that influence the users' intention to use 3G mobile services. The research questions are shown below:

1. What factors affect Chinese consumers' adoption intention toward 3G mobile services in Beijing?
2. What factor is important in Chinese consumer's adoption intention in Beijing?
3. What factors have positively affected the intention to use 3G mobile services in Beijing? In addition, what factors have negative affects?
4. Is there a relationship between perceived technology acceptance model and intention to use 3G mobile services in Beijing?

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5. Is there a significant relationship between social influence and intention to use 3G mobile services in Beijing?
6. Is there a significant relationship between users predisposition and intention to use 3G mobile services in Beijing?

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1.3 Research Objectives

The purpose of this research is to design and develop a useful study to analyze the Chinese consumer intention in adopting 3G mobile services and the factors that positively or negatively influence their adoption decision. The importance of this research is to understand the belief, perception and intention about Chinese 3G subscriptions, in order to discuses and suggest the weaknesses and strengths. Thus , the objectives are:

1. To explore the factors that influences the intention to use 3G mobile services.
2. To investigate the relationship between perceived technology acceptance model and intention to use.
3. To find out the relationship between user predisposition and intention to use.
4. To analysis the relationship between social influence and intention to use.

1.4 Scope of the Research

The target population of this research is people who live in Beijing, people who are trying or intend to use 3G mobile services, and the respondents are at least 18 years old. Moreover, the respondents are both female and male ages over 18 years old. In China, people who are 18 years old are to be considered adults. They have fully responsibility for their behaviors. Without fully responsible or age under 18 years old, their status, income, attitude and intention are not stable and do need advice and support from their guardian. A questionnaire is designed as survey instrument to collect data from respondents. The sample size is 400 and data will be gathered throughout from the internet with the target population.

The Independent variables in this research are from perceived technology acceptance model (perceived usefulness, perceived ease-of -use), user disposition (experience, innovativeness, cost and enjoyment), and social influence (interpersonal influence, external influence). Dependent variable is the intention to use 3G mobile services.

1.5 Limitations of the Research

Every research has its limitations; this study also has its limitations that are shown below:

1. Duration limitation: the consumer' adoption intention may change from time to time therefore this research can only determine the current phenomenon (in this study means during September 2010 to January 2011).
2. Environmental limitation: this research focuses only on the Beijing market in China therefore, in terms of different culture, policy, lifestyle, and believes in other Chinese cities, it cannot be totally represented.
3. Geographic limitation: The findings of this research only determine the market environment in Beijing.
4. Industry limitation: this research only concentrates on mobile services industry it cannot explain the environment in other industries.
5. Variables: the research is unable to include all variables that affect consumer's adoption intention toward 3G mobile services.

1.6 Significance of the Research

This research aims to investigate the difference in terms of perceived technology acceptance (perceived usefulness, perceived ease-of -use), user disposition (knowledge, experience, innovativeness, cost and enjoyment), social influence (interpersonal influence, external influence), and intention to use 3G mobile services.

The targeted population is Chinese people who live in Beijing and users who intend to use 3G mobile services. The findings of this research would be useful in understanding the relationship among perceived technology acceptance model(perceived usefulness, perceived ease-of -use), user disposition (knowledge, experience, innovativeness, cost and enjoyment, social influence (interpersonal influence, external influence) and consumer's intention to use 3G mobile services in Beijing. Moreover, this study would be helpful in better understanding this market and recognizing factors that are most important, least important, with negative effect, positive effect on adoption intention. Therefore, it's possible to design an efficient strategic plan that fits into this market.

1.7 Definition of Terms

Adoption: A decision to make full use of an innovation as the best course of action available (Roger, 1995). This study defines adoption as the use of 3G mobile services.

Beijing: refers to the capital city of People's Republic of China. It is amongst the most developed cities located in the north of China. After successfully hosting Olympics

Game in 2008, Beijing has population (both long lived and temporary) exceeding 22 million. In this study, Beijing is the place to do the research analysis.

Enjoyment: refers to an innovation perceived to be enjoyable in its own right and is considered to be an intrinsic source of motivation (Gahtani and King, 1999). This factor motivates a consumer to apply for mobile services. In the study, enjoyment means the enjoyment of using 3G mobile services that could be one of the major concerns.

Experience: the outcome of direct participated in or witnessed of mobile services. In this study, experience means the prior experience of mobile services that it affects consumer's adoption.

External Influence: External influence includes the mass media reports, expert opinions, and other nonperson influences which adopters may take into account when making their acceptance decisions (Bhattacherjee, 2000). This is regarded as an external persuasion of one's mobile services usage. In this research, external influence means whether the external sources would motivate consumer to use 3G mobile services or not.

GSM: is global system for mobile communications. It is a mobile communication technology standard and its origin is in Europe. In addition, it widely used in Europe and in most countries of the world's digital mobile telephone systems.

Innovation: An idea ,practice , or object that is perceived as new by an individual or other unit of adoption(Roger,1995). This study defines innovation as 3G mobile services.

Innovativeness: is one's willingness to try out and embrace new technologies and their related services for achieving an individual purpose. In this research, innovativeness means whether the personal innovativeness influence the acceptance of 3G mobile services or not.

Intention to adopt 3G Mobile Services: Intention to adopt 3G mobile services means whether the mobile consumer is going to upgrade or adopt 3G mobile services.

Interpersonal Influence: refers to word-of-mouth influence by referent groups (Elliot, 2004). This is regarded as an interpersonal persuasion of one's mobile services usage. In this research, interpersonal influence means is the interpersonal influence would motivate consumer to use 3G mobile services.

International Telecommunication Union: is the leading United Nations specialized agency for information and communication technology issues, and the global focal point for governments and private sectors.

MSN: or the Microsoft Network. Normally, it is defined as MSN Messenger, it is used as a communication tool for online users to chat and transfer data with each other. This study defined MSN as a tool to gather information.

Perceived Cost: Cost factor may consist of initial purchase price (e.g. handset fee), ongoing usage cost (subscription fee, services fee and communication fee), maintenance cost and upgrade cost (Luarn and Lin, 2005). It is the basic requirement of entering mobile services, and in this study, perceived cost presented is the perceived cost involved obstacles in using 3G mobile services.

Perceived Ease-of-Use: That is consumer feels about using mobile services would be minimum of effort. In this study, perceived ease-of-use presents perceived ease-of-use of 3G mobile services.

Perceived Usefulness: That is the results of using mobile services. In this study, perceived usefulness presents perceived usefulness of 3G mobile services.

QQ: Instant Messaging Computer Program in Mainland China, QQ uses as a communication tool for online users to chat and transfer data with each other. This study defined QQ as a tool to gather respondents' information.

Social Influence: social influence constitutes the degree to which individuals perceive that important or significant that others believe they should use an innovation (Venkatesh *et al.*, 2003). This factor shows the others or external influence one's emotion to desire mobile services. In this study, social influence means consumer' intention of using 3G mobile services either affected by social influence or not.

Subscriber: is a person who is agreeing to make a contract with a provider of publicly available telecommunication services for the supply of those services. In this research, subscriber means the user of 3G mobile services.

Technology Acceptance Model: Davis's (1989) Technology Acceptance Model (TAM) has been adapted to analysis the relationship with attitude toward using. This model provides a theoretical foundation to understand how external variables influence the inner beliefs, attitude, and intention of users, and then affect the use of technology. The purpose of TAM is to provide an explanation toward the acceptance of technology that explains users' behavior on accepting new information technology, and analyzes the factors that influence their attitude toward using new information technology.

User disposition: refers to the internal factors of an individual adopter use of mobile services. User disposition means that mobile services adoption is strongly influenced by the personal differences. The evidence shows successful acceptance of new technology depends

as much on individual user differences as on the new technology itself. Recognizing individual differences that impact technology adoption is important because it helps identify segments of adopters who are more likely to adopt technology innovations than others are, which in turn, helps providers address adopter needs more closely (Massey *et al.*, 2005). In this research, we identify user disposition only on four following factors, these are personal innovativeness, perceived enjoyment, prior experience, and perceived cost.

1.8 Abbreviations

Abbreviation is the shortened form of a word or words. In this study, the shortened form of a word appeared is explained by Table 1.2, pp. 15-16.

Table 1.2 - Abbreviations Used in the Research

Abbreviations	Description
3G mobile services	Third Generation of Mobile Communication Technology
ARPU	Average Revenue Per User
BI	Behavior Intention
BOT	Bank of Thailand
CDMA2000	Code-Division Multiple Access
GDP	Gross Domestic Product
GSM	Global System for Mobile Communications
GNI	Gross Nation Income
IT	Information Technology
ITU	International Telecommunication Union
MIIT	China's Ministry of Industry and Information Technology
MSN	Microsoft Network. Normally, it is defined as MSN Messenger
NU	Need for Uniqueness
PENJ	Perceived Enjoyment
PEU or PEOU	Perceived Ease of Use
PMV	Perceived Monetary Value
PSA	Perceived Services Availability

PU	Perceived Usefulness
QQ	Instant Messaging Computer Program in Mainland China
SI	Social Influence
T	Technology
TAM	Technology Acceptance Model
TD-SCDMA	Time Division Synchronous Code Division Multiple Access
TPB	Theory of Planned Behaviour
TRA	Theory of Reasoned Action
WCDMA	Wideband Code Division Multiple Access

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CHAPTER 2

LITERATURE REVIEW

This chapter describes all theories and literatures that support the variables in this study. It consists of five sections; the first section considers the related variables, which affect the adoption of 3G mobile services. The second section discusses about the related model. The third section review previous related studies. The fourth section is the articles to support hypothesis. The fifth is interview of 3G mobile services adoption. The sixth section consists of research hypothesis.

2.1 Definition and Features of Variables

2.1.1 Behavioral Intention or Adoption Intention

Behavioral intention is a proposition connecting self and a future action. Behavioral intention is created through choice or decision processes in which beliefs about two types of consequences that are performing behaviors and social influence have considered and integrated to evaluated alternative behaviors and select among them (Peter and Olson, 2002). Behavioral intention can be divided into two terms that are favorable behavioral intention and unfavorable behavioral intention. Favorable behavioral intention defined as certain behaviors signal that customers are forging bonds with a product or services. When customers praise the product or services, they are more likely to express preference for the product or services over others, increase the volume of the purchase or usage, and agreeably to pay a price premium, they are indicating behaviorally that they are bonding with the product or services (Cronin and Taylor, 1992). On the other hand, unfavorable behavioral intention defined as customer perceiving product or services performance to be inferior are likely to exhibit behaviors signaling they are poised to leave or spend less with the product or services. These behaviors include complaining, which is viewed by many researchers as a combination of negative responses that stem from dissatisfaction and predict or accompany defection (Richins, 1983; Scaglione, 1988).

In the information system area, the Technology Acceptance Model (TAM) posits that actual usage of a specified system will be determined by an individual's behavioral intention, which is jointly determined by an individual's attitude towards using a system (Davis, 1989). Intention is defined as the perception of an individual towards performance of a particular behavior (Fishbein and Ajzen, 1975). In Theory of Reasoned Action (TRA), Fishbein and

Ajzen (1975) intention is defined, "as a person's location on a subjective probability dimension involving a relation between himself and some action". Intention is a measure of the likelihood that a person will adopt the application, whereas the TAM uses actual usage to represent a self-report measure of time or frequency of adopting the application (Davis, 1989).

However, it is not easy or practical to obtain an objective measurement of an individual's intention to engage in a behavior. When behavior is under the individual's control, intention can predict actual behavior with significant accuracy (Ajzen, 1988) but this does not mean that the measure of intention and behavior is in perfect correlation (Fishbein and Ajzen, 1975). There always exists strong bias for individuals to overestimate the likelihood of performing desired behavior and underestimate the likelihood of not performing undesired behavior. In turn, this overestimates and underestimates is believed to cause inconsistencies between intention and the actual action (Ajzen, 2004). Behavior and intention shows high correlation if the interval time between the intention and the behavior is low (Fishbein and Ajzen, 1981). Ajzen (1985) instead point that intention is changing overtime, the greater the interval period between intention and behavior, the greater the likelihood of changes in intention. Therefore, as long as the period lasting, the likelihood in consumer's intention would mostly be changed.

2.1.2 Technology Acceptance Model (TAM) and its Relationship with Adoption Intention

Many studies have been conducted concerning users' intentions for adoption of mobile services, most of which have been based on Davis's (1989) technology acceptance model (TAM). TAM is a reasonable model that is good to determine the consumer 'attitude and intention toward new technology acceptance, while mobile services is considered as a kind of information technology, which focuses on improving human communications. Therefore, TAM has better used in this research in order to examine the consumer's adoption intention to toward 3G mobile services. This model suggests that two factors that are perceived usefulness and perceived ease of use are instrumental in explaining the user's intentions of using a technology or system.

Perceived Usefulness

Perceived usefulness refers to a person's belief that using the new technology will enhance or improve her of his performance (Davis, 1989).In the case of mobile services, perceived usefulness is defined as the degree to which the mobile services provide benefits to individuals in everyday situations (Knutsen *et al* ,2005). Although many mobile services are

leisure related, services such as news, stock alters or banking may also influence how a user performs a task. Furthermore, characteristics that are inherent to mobile services, such as their personalized and ubiquitous nature, their portability, and their context awareness potential are likely to contribute to perceived usefulness of mobile services in ways that have not seen before. According to this definition, consumer uses 3G mobile services would result in increasing their work efficiency or enhance social communications. These perceptions affect consumers' attitude toward using and intention to adopt 3G mobile services.

Perceived Ease-of-Use

Perceived ease of use is the "degree to which a person believes that using a particular system would be free of effort." (Dholakia, 2004). Unlike perceived usefulness, perceived ease-of-use is representing the process a consumer has to go through to achieve the outcome. In the mobile setting, perceived ease of use represents the degree to which individuals associate freedom of difficulty with the use of mobile technology and services in everyday usage (Knutsen *et al.,* 2005). In other word, perceived ease-of-use is how simple that consumer has to learn mobiles devices to use 3G mobile services. Therefore, the mobile services with the less complexity of use would be preferable by consumers. For example, there is evidence in the media that using certain services on a mobile device can be quite tedious, especially when browsing the Internet-like interfaces on mobile devices (Teo and Pok, 2003). In fact, perceived ease of use can be explained by usability characteristics and guidelines that have been empirically validated in (Lederer *et al.,* 2000). Hence, mobile services, which perceived to be easier to use than others, are more likely to be accepted by users (Pikkarainen *et al.,* 2004).

2.1.3 Social Influence and its Relationship with Adoption Intention

Both in the theory of reasoned action and the theory of planned behavior, both posit that social influence can be an important determinant in technology acceptance and usage. Social influence or normative pressure is norms developed through external and interpersonal influence (Fishbein and Ajzen, 1975).

External influence includes newspapers, magazines, academic journals, television, radio, internet, and other applicable mediums. Those mass media could be considered as external information; prior research in the marketing and information system areas has found that customers engage in external information search when considering whether to adopt a new product or services (Hoch and Ha, 1986)

Interpersonal influences are defined as the extent to which members of a social network influence the behavior of one another (Rice, 1990). Interpersonal influence normally comes from social network such as peers, friends, superiors and so on (Rao and Troshani, 2007). Previous studies proposed that family members' opinions, friends' views and an expert referent had a great impact on users. Relevant persons have a great impact on an individual, and their ideas would encourage or discourage an individual from performing a specific behavior (Fishbein and Ajzen, 1975). Interpersonal influence is important, because once a consumer had an interest in a thing; he or she would start to search for the information where they could have. According to research on consumer information searching behavior, potential adopters prefer to ask advice from others to help them judge the level of value (Furse, 1984).

2.1.4 User Predisposition and its Relationship with Adoption Intention

User predisposition refers the internal factors of an individual adopter use of mobile services. User predisposition means that mobile services adoption is strongly influenced by the personal differences. The evidence shows successful acceptance of new technology depends as much on individual user differences as on the new technology itself. Recognizing individual differences that impact technology adoption is important because it helps identify segments of adopters who are more likely to adopt technology innovations than others are, which in turn, helps providers address adopter needs more closely (Massey *et al.*, 2005). In this research, user disposition only focuses on the four following factors; they are personal innovativeness, perceived enjoyment, prior experience, and perceived cost.

Personal innovativeness

Personal innovativeness is the individual willingness to have or use the new technology products and services to fulfill his or her needs. Personal innovativeness segment consumers into different characterizes, such as early adopters-who would like to adopt new technology at the beginning of time; late adopters-who would not adopt new technology at the beginning of time. Therefore, given the same level of beliefs and perceptions about an innovation, individuals with higher personal innovativeness are more likely to develop positive attitudes towards adopting it than less innovative individuals (Agarwal and Prasad, 1997). The recognition of personal innovativeness helps identify various categories of mobile services adopters and understanding how early adopters are likely to shape the opinions of

later ones by becoming engaged in frequent advise-giving capacities (Brancheau and Wetherbe, 1990).

Perceived Enjoyment

Perceived enjoyment needs to be added into the research to explain mobile services adoption behavior. If the user can experience enjoyment through the adoption of new technology, attitude toward adoption will be positive (Sheth, 1991; Sweeney and Soutar, 2001; Venkaetesh and Brown, 2001). A person will be more motivated to do or repeat to do an activity that he or she thinks is enjoyable. In the mobile services sector, the innovative mobile services would be used as an innovation for the pleasure or enjoyment by adaptors, such as playing mobile games, by satisfying pleasure-oriented or hedonic needs, consumer would perceive positive attitude toward adoption. Previous research suggests that perceived enjoyment is one of the most important types of user needs (Anckar and D'Incau, 2002). In fact, mobile services can be accessed anywhere and anytime, many mobile users prefer to use them to "kill time" or for fun and pleasure (Fang and Chan, 2003). The enjoyment that is perceived to be derived by using mobile services is, therefore, expected to affect the attitude and the intention of users to adopt them. Upon adoption, individuals are more likely to use the mobile services that offer enjoyment more extensively than those do which do not (Fang *et al.,* 2005).

Prior Experience

Prior experience refers to the previous outcome of direct participated in or witnessed of something. Adopters' previous positive or negative experiences with a technology or services can have a significant impact on their perceptions and attitudes towards that technology or services (Lee *et al.,* 2003). Prior experience means anyone who has been experiencing relative mobile services would in result of either like or dislike feeling about the services, this feeling have strong impact on their intention to adopt 3G mobile services. Because of their greater clarity and certainty, direct prior experiences are likely to have a stronger impact on perceptions and attitudes towards usage than indirect or incomplete evidence (Lee *et al.,* 2003).

Perceived Cost

As some researchers indicated, the price level has significant influence on behavior intention of consumers, while it may cause a great impact on consumers' initial attitudes

towards the services (Lee, 1999; Liao and Cheung, 2001). Cost factor may consist of initial purchase price (such as. handset fee), ongoing usage cost (subscription fee, services fee and communication fee), maintenance cost and upgrade cost (Luarn and Lin, 2005). Price or cost factor is one of the reasons that could slow down the adoption of mobile services. Jukka (2003) examined mobile consumer behavior and found that the price was the most important motives affecting the consumers' decision to purchase mobile phone model as well as pay corresponding services items. In addition, some Chinese researchers found the increase in services price was likely to be one of the most important factors for consumers to switch between different services as they decided (Xu, 2003). Studies have pointed out the perception of a usage fee is considered as an important factor affect adoption intention to employ a pay-per-use type of mobile data services (Hong, 2006; Kim, 2007).

2.2 Major Models Related to the Research

For a long time, the research about technology acceptance has been continually studied; many theoretical researches have been developed to understand the adoption of technology. There are many studies related to TRA, TAM, which are early and famous theoretical research used to investigate the perceptions and behavior of consumers' adoption intention. (Ajzen and Fishbein, 1980; Davis, 1989). In the recent years , studies aim to find and explore the main factors influencing the user's intention toward acceptance of mobile services have doubt that the current acceptance model did not fully include every factor of consumers' adoption intention.

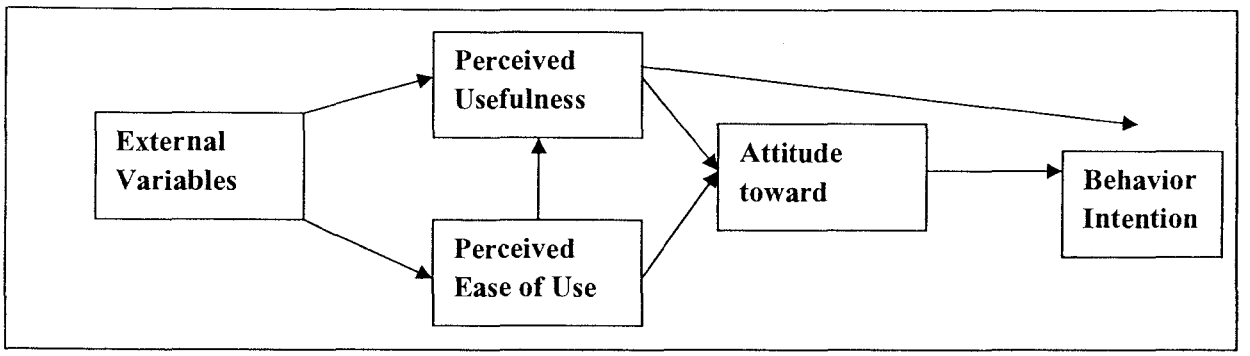
2.2.1 Technology Acceptance Model (TAM)

The Technology Acceptance (TAM) is an information systems theory model that shows how users come to accept and use a technology or innovation. This model suggests that when users are presented with a new software package, a number of factors influence their decision about how and when they will use it. This model includes the following two factors: perceived usefulness, which defined as the degree to which a person believes that using a particular system would enhance his or her job performance (Davis, 1989). In addition, perceived ease of use defined as the degree to which a person believes that using a particular system would be free from effort (Davis, 1989).

In fact, TAM is an adaption of Theory of Reasoned Action (TRA) specially tailored to the modeling of user acceptance of information technology (IT). TRA supposes that belief (a consumer's subjective probability associated with the consequences of a particular behavior)

influences attitude (consumer's positive and negative feelings associated with a particular behavior), which in turn shapes a causal chain to predict user's acceptance of IT.

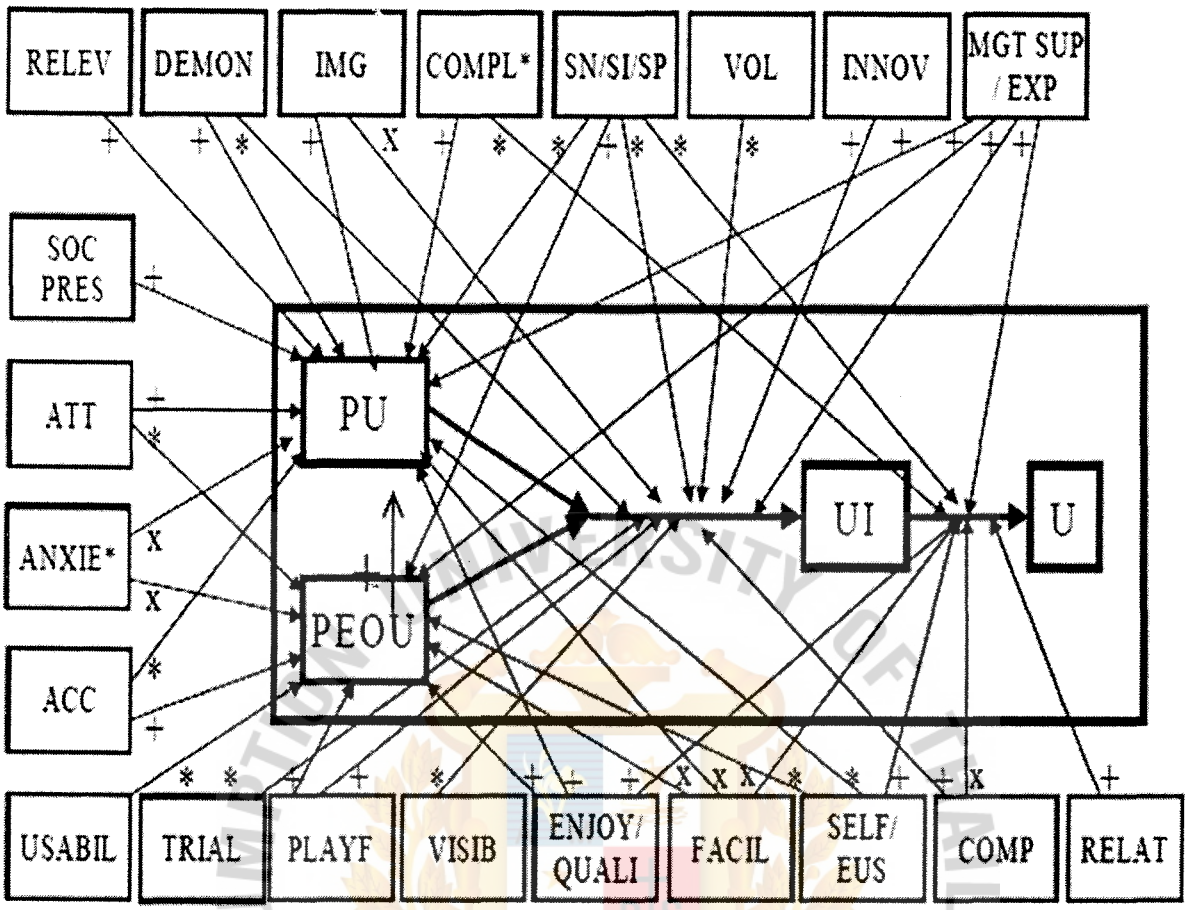
Figure 2.1 - Technology Acceptance Model (TAM)



Source: Davis *et al.* (1989), "User Acceptance of Computer Technology: A Comparison of two Theoretical models," *Management Science,* Vol.35, pp. 982-1003.

In this study, Technology Acceptance Model (TAM) has been adopted to analyze the relationship with attitude toward using. This model provides a theoretical foundation to understand how external variables influence the inner beliefs, attitude, and intention of users, and then affect the use of technology. The purpose of TAM is to provide an explanation toward the acceptance of technology that explains users' behavior on accepting new information technology, and analyzes the factors that influence their attitude toward using new information technology. However, the TAM's fundamental constructs do not fully reflect the specific influences of technological and usage-context factors that may alter user acceptance (Davis, 1989). Thus, prior studies have extended the TAM with constructs such as perceived playfulness, compatibility, perceived user resources, trust, perceived credibility and trustworthiness. Those factors may be important in consumers adopting new technology. The following study has analyzed the extension of the Technology Acceptance Model (TAM):

Figure 2.2 - The Technology Acceptance Model: Past, Present, and Future



Source: Lee *et al.* (2003), "The Technology Acceptance Model: Past, Present, and Future", *Communications of the Association for Information Systems*, Vol. 12 No. 50, pp. 752-780.

Notes: ACC: accessibility, ANXIE: anxiety.ATT: attitude, COMP: compatibility, COMPL: Complexity, DEMON: result Demonstrability, ENJOY: Perceived Enjoyment, EUS: End User Support , EXP: Experience, FACIL: Facilitating Conditions, IMG: Image, RELEV: Job Relevance , MGTSUP: Managerial Support , PLAYF: Playfulness, INNOV: Personal Innovativeness, RELAT: Relative Advantage, SELF: Self-Efficacy, SI or SN or SP: Social Influence, Subjective Norms, and Social Pressure, SOC PRES: Social Presence , TRIAL: Trialability, USABIL: Usability , VISIB: Visibility, VOL: Voluntariness.

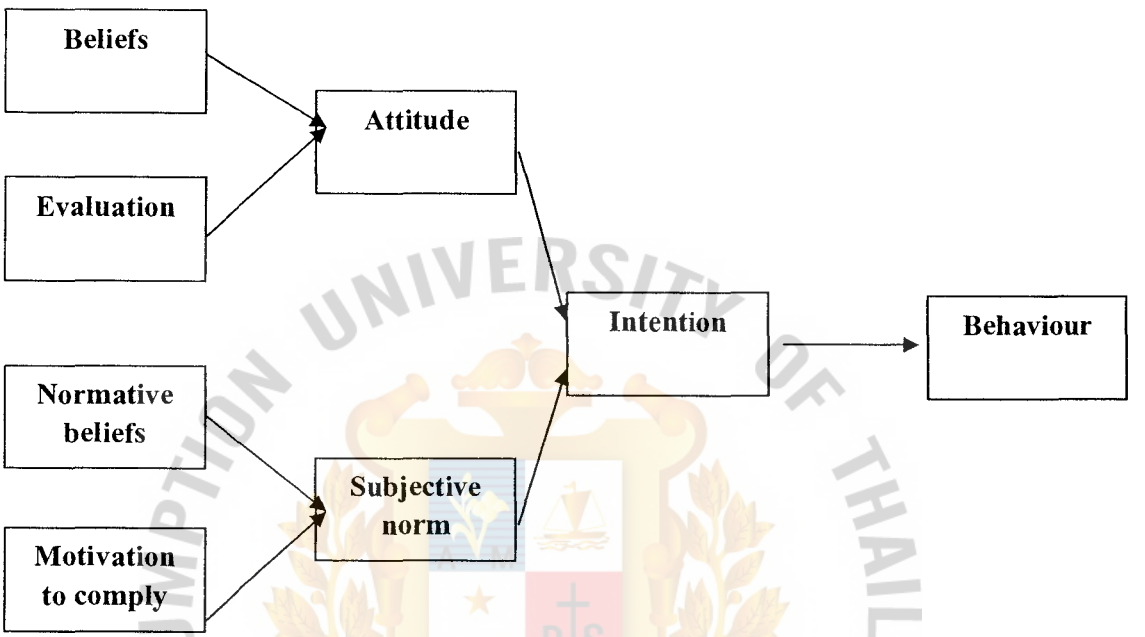
*: mixed, +: significant, x: insignificant relationship.

Figure 2.2 shows Lee *et al.* (2003) have studied the Information system journals and survey results from year 1986-2003 to summarize this table. This study is based on TAM and its history, investigates its findings, and cautiously predicts its future trajectory. This paper has studied one hundred and one articles published by leading IS journals and conferences in the past eighteen years, and this paper had assisted from thirty-two leading IS researchers with open-ended survey in examining TAM and its future direction. The study had found many external variables such as social Influence, personal innovativeness, experience and perceived Enjoyment that have affected PU, PEOU, BI, or B, and their relationships. The

table shows the factors affect each variable in TAM model, with the significant and insignificant relationship.

2.2.2 Theory of Reasoned Action (TRA)

Figure 2.3 - Theory of Reasoned Action (TRA)



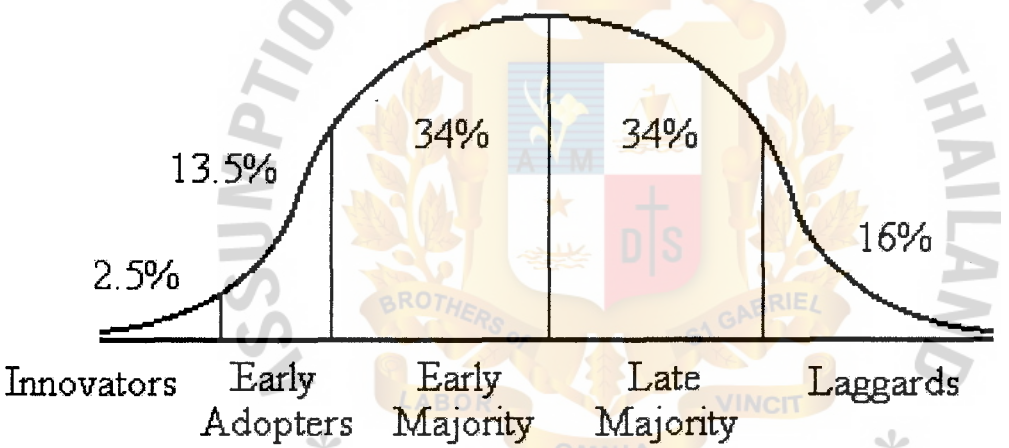
Source: Ajzen, I., and Fishbein, M. (1975), *Belief, Attitude, Intention and Behavior: An introduction to theory and research*. Reading, MA: Addison-Wesley.

. The Theory of Reasoned Action (TRA) was developed in 1967. During the early 1970s the theories were revised and expand by Ajzen and Fishbein. By 1980 the theory was used to study human behavior and develop appropriate interventions. In 1988, the Theory of Planned Behavior (TPB) was added to the existing model of reasoned action to address the inadequacies that Ajzen and Fishbein had identified through their research using the TRA. In TRA, the four general factors which are behavior, behavioral intention, attitude, and subjective norm. TRA suggests that a person's behavioral intention depends on the person's attitude about the behavior and subjective norms .If a consumer intends to do a behavior then it is likely that the one will do it. Furthermore, one's intentions are influenced by two factors: the attitude and the subjective norm. Behavioral intention measures a person's relative strength of intention to perform a behavior. Attitude consists of beliefs about the consequences of performing the behavior multiplied by his or her valuation of these consequences. Subjective norm is seen as a combination of perceived expectations from relevant individuals or groups along with intentions to achieve with these expectations. In

other words, "the person's perception that most people who are important to him or her think he should or should not perform the behavior in question" (Ajzen and Fishbein, 1975).And they pointed out attitudes and norms are not equally in predicting behavior For example, you might be the kind of person who cares little for what others think. If this were the case, the subjective norms would carry little weight in predicting your behavior (Miller, 2005). TRA works most successfully when applied to behaviors that are under a person's volitional control. If behaviors are not fully under volitional control, even though a person may be highly motivated by his or her own attitudes and subjective norm, she may not actually perform the behavior due to intervening environment conditions.

2.2.3 Adoption of Innovation

Figure 2.4 – Adopter Categories



Source: Rogers, E.M. (1995), *Diffusion of innovations*, 4th Ed. New York: Free Press.

Adopter category is considered as one of the most important theories discussed by Rogers (1995) stating that individuals who are predisposed to being innovative will adopt an innovation earlier than those who are less predisposed. Rogers (1962) defines an adopter category as a classification of individuals within a social system on the perception of innovativeness. Figure 2.4 shows the bell shaped distribution of individual adopters and the percentage of potential adopters about to fall into each category. There are five categories of adopters in order to standardize the usage of adopter categories in diffusion research. The adoption of an innovation follows an S curve when plotted over a length of time. The categories of adopters: innovators, early adopters, early majority, late majority, and laggards. The first distribution is the Innovators; innovators are the risk takers and pioneers who adopt

an innovation very early in the adoption process. Early adopters are the second category of individuals who adopt an innovation, they take information from the innovators but they are more reasonable in adoption choices than innovators. In the third stage, adopters make the adoption decision after a long period, which is a significantly longer than the previous stages. Early Majority tend to be slower in the adoption process, have above average social status, contact with early adopters, and seldom hold positions of opinion leadership in a system (Rogers, 1962). Individuals in the fourth stage, which is called Late Majority, will adopt an innovation after the average member in the society. These adopters approach an innovation with the highly suspicion thinking and their adoption would be after the majority of society has adopted the innovation. At the last, the laggards are the slowest to move through the five stages. Individuals in this category are the last to adopt an innovation, unlike the previous categories, they do not trust most outside sources; they typically have an aversion to change the current situation and tend to be advanced in age. The Laggards resist adopting an innovation until rather late in the adoption process.

2.3 Previous Studies

To date, there were number of studies to research on telecommunication market, such as Dynamics of Mobile Services Adoption (Verkasalo, 2008), Factors Influencing the Adoption of Mobile Services in China (Sun *et al.*, 2010), Factors influencing the usage of 3G mobile services in Taiwan (Liao *et al.*,2007). However, the studies that are focusing on 3G mobile services and the adoption behavior toward this technology in China are still limited. Since 3G mobile technology has been introduced into Chinese market not for long a time, Chinese market is still in the introduction stage and Chinese consumer is in learning of its response. The previous researches that are needed follow up quantitative study and investigate in different age group and whether there are regional differences that have to be considered.

2.3.1 Factors Influencing the Adoption of Mobile Services in China

Sun *et al.* (2010) explore the adoption of mobile services in China; this research has been based on Technology Acceptance Model (TAM) and theory of planned behavior (TPB) to form an extension of TAM to analyze the adoption behavior of mobile services. The researcher empirically tested the proposed model and the data was collected from the survey of mobile services consumers. The structural equation modeling technique was used to evaluate the causal model and confirmatory factor analysis was performed to examine the

reliability and validity of the measurement model. The findings indicated that all variables perceived cost, perceived usefulness, perceived credibility, and perceived behavioral control except perceived ease of use significantly affected users' behavioral intention.

2.3.2 Understanding Adoption of Multipurpose Information of Appliances

Hong and Tam (2006) created this framework to study the individual adoption of IT innovation that is used beyond work setting. They defined the new class of IT innovation, which includes the personal, universally accessible and multipurpose. They developed a unique characteristic and usage context of multipurpose information appliances adoption model. The five sets of adoption factors in the model are general technology perceptions (perceived usefulness, perceived ease of use), technology-specific perceptions (perceived services availability, perceived monetary value), psychographics (perceived enjoyment , need for uniqueness),social influence(social influence), demographics(gender, age) were tested by the data collected from the adoption of the mobile data services. The finding shows that the adoption decisions of multipurpose information appliances are not only different from workplace, but also from the nature of specific technology and its usage context.

2.3.3 What drives Malaysian m-commerce adoption?

Wei *et al.* (2008) examined the factors that influence the adoption of mobile commerce in Malaysia. They had tested the relationship between perceived usefulness (PU), perceived ease-of-use (PEOU), social influence (SI), perceived cost and trust in the study. The sample has a response rate of 84.09 per cent and consists 222 respondents were tested. The Data were analyzed by employing correlation and multiple regression analysis. The findings point out that perceived usefulness, social influence, perceived financial cost and trust are positively associated with consumer intention to use mobile commerce in Malaysia. In addition, perceived ease of use and trust were found to have an insignificant effect on consumer intention to use m-commerce in Malaysia.

2.3.4 Factors Influencing the Usage of 3G mobile services in Taiwan

Liao *et al.* (2007) developed this model to analyze factors influencing subscribers' usage of 3G mobile services in Taiwan. Based on a technology acceptance model (TAM) and added perceived enjoyment, the research model was tested by means of a two-stage structure equation modeling approach. In addition, through web questionnaire survey, the Data were collected from 532 respondents. The result find that perceived usefulness, perceived ease of

use and perceived enjoyment are positively related to attitude, and perceived enjoyment has positive influence on behavioral intention and perceived usefulness.

2.3.5 Dynamics of Mobile Services Adoption

Verkasalo (2008) develops this model to study the dynamics of mobile services adoption and collected data from 548 Smartphone users in 2006 in Finland. In addition, for descriptive adoption statistics, and explains mobile services adoption contingent on a set of explanatory variables a path analysis model is developed. This research finds that consequent adoption of the services have been strongly influenced by user intentions. Moreover, find out that perceived hedonic benefits from the services are the strongest factor that driving user intention to use the services. In addition, why early-adopter users intend to use services can be explained by the role of the surrounding social network and the perceived technical capability to use the services.

2.3.6 Exploring individual personality factors as drivers of M-shopping acceptance

Joaquı´n *et al.* (2008) used classical technology acceptance model (TAM) and personality variables related to technology (innovativeness, compatibility and affinity) to analyze the impact on behavioral adoption intention of mobile shopping. The structural equation modeling techniques is conducted to test the impact of innovativeness, compatibility, affinity, TAM beliefs (ease of use and usefulness) and attitude on mobile shopping adoption. Based on basis of convenience, 470 Spanish mobile telephone users were used in the sample selection. The findings show that personality variables (affinity to mobile telephones, compatibility and innovativeness) have a positive and direct influence on the intention to adopt in mobile shopping.

2.3.7 Conceptual Framework and Propositions for the Acceptance of Mobile Services

Rao and Troshani (2007) develop this framework for analysis to better understand the underlying motivations that lead users to adopting mobile services. The study aim to explore, analyze and critically assess the use of existing acceptance theories in the light of the evolving and ubiquitous mobile services and their underlying technologies. In their framework, they used variables from existing acceptance theories that are user predisposition, TAM (perceived usefulness, perceived ease of use), social influence, facilitating condition and attitude to predict the behavioral intention toward mobile services, moderating by Gender and age.

2.4 Articles to Support Hypothesis

Table2.1 - Studies related to perceive Technology Acceptance Model (TAM) and Intention to use

Item	Author (Year)	Objective	Methodology	Result
1	Sun *et al.*(2010)	this research has based on Technology Acceptance Model (TAM) and theory of planned behavior (TPB) to form an extension of TAM to analysis the adoption behavior of mobile services	The researcher empirically tested the proposed model and the data was collected from the survey of mobile services consumers.	The findings indicated that perceived usefulness, significantly affected users' behavioral intention.
2	Liao *et al.*(2007)	to analyze factors influencing subscribers' usage of 3G mobile services	The research model was tested by means of a two-stage structure equation modeling approach	The result finds that perceived usefulness is positively related to behavioral intention.
3	Wei *et al.* (2008)	To examined the factors that influence the adoption of mobile commerce	The Data were analyzed by employing correlation and multiple regression analysis	The findings point out that perceived usefulness, are positively associated with consumer intention to use mobile commerce
4	Hong and Tam (2006)	To understand individual adoption of IT innovations that are used beyond work setting.	The framework and variables were tested using the data collected from mobile data services adoption.	The finding shows the adoption decision significantly affected by perceived ease of use , but it is weak by perceived usefulness.

Table 2.2 - Studies related to User Predisposition and Intention to use

Item	Author (Year)	Objective	Methodology	Result
1	Rao and Troshani (2007)	To analysis, better understand the underlying motivations that lead users to adopting mobile services.	Conceptual	They identified that user predisposition as strong predictors of mobile services adoption.
2	Sun *et al.* (2010)	this research has based on Technology Acceptance Model (TAM) and theory of planned behavior (TPB) to form an extension of TAM to analysis the adoption behavior of mobile services	The researcher empirically tested the proposed model and the data was collected from the survey of mobile services consumers.	The finding shows the negative relationship between cost and intention to use mobile services.
3	Hong and Tam (2006)	To understand individual adoption of IT innovations that are used beyond work setting.	The framework and variables were tested using the data collected from mobile data services adoption.	The finding shows the adoption decision strongly affected by perceived enjoyment.
4	Joaquı´n *et al.*(2008)	To analysis the impact on behavioral adoption intention of mobile shopping.	The structural equation modeling techniques is conducted. Based on convenience sampling, data were collected.	The findings show that personality variables (innovativeness) have a positive and direct influence on the intention to adopt.
5	Liao *et al.*(2007)	To analyze factors influencing subscribers' usage of 3G mobile services	The research model was tested by means of a two-stage structure equation modeling approach	The result finds that perceived enjoyment, is positively related to behavioral intention.

Table 2.3 - Studies related to Social Influence and Intention to use

Item	Author (Year)	Objective	Methodology	Result
1	Wei *et al.*(2008)	To examined the factors that influence the adoption of mobile commerce	The Data were analyzed by employing correlation and multiple regression analysis	The findings point out that social influence, positively associated with consumer intention to use mobile commerce
2	Hong and Tam (2006)	To understand individual adoption of IT innovations that are used beyond work setting.	The framework and variables were tested using the data collected from mobile data services adoption.	The finding shows that social influence has an significant impact on adoption intention.
3	Rao and Troshani (2007)	To analysis, better understand the underlying motivations that lead users to adopting mobile services.	Conceptual	They identified that social influence as strong predictors of mobile services adoption.

2.5 Pilot study – Interviews Results About 3G Mobile Services Adoption

To study the factors that influence adoption toward 3G mobile services, this research selected 10 respondents who intend to use 3G mobile services (not yet use at the current period of time), to investigate the deeper feeling and thinking of the respondents. The interview started on September 13 2010 and the respondents were selected by convenience method through the internet on MSN. The interview results are shown below:

Table 2.4 - Interviews Layout on September 13 2010

Interviewee	Duration	Results
1	18:00-18:30	1. When network is not available, speed, coverage, cost. 2. Utilitarian values are most important, and cost the least.
2	18:30-19:00	1. I will use it, when my friends used it. 2.social influence, good services, cost
3	19:00-19:30	1. utilitarian value, innovative 2. social influence, previous experience 3. Utilitarian values are most important to me, and game is the least.
4	19:30-20:00	Game is most important that I will use 3G mobile services, and cost is the least.
5	20:00-20:30	Anywhere fast and convenient to access internet , and it supports stable video talk
6	20:30-21:00	friends experience , advertising , sales people , brand awareness
7	21:00-21:30	I like the functional services, and it is a new service, new technology. Brand and cost will be the last considered.
8	21:30-22:00	1. standard price and good services 2. word of mouth
9	22:00-22:30	1. It is easy to use. 2. The previous experience with the mobile services will be considered as important sources.
10	22:30-23:00	1. It is fast, and I can use many functional services. 2. My classmates use it, and it can go for internet anywhere.

The results show that respondents consider social influence, entertainment, utilitarian value, and cost to the use of 3G mobile services. In case of people have differenced in terms of requirements and needs of 3G mobile services use, the study is designed to explore the relationship between those factors and the intention to use 3G mobile services.

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2.6 Research Hypotheses

Hypothesis is the statement of problem and the assumption about the research. In the research, a hypothesis is an assumption of the problem, with the statistical analysis, the assumption problem can be provided by the statistical evidence. Research hypothesis is an assumption that presents the current factors or statement. In the simple way, a hypothesis is only a presumption, with the statistical techniques, we can analysis and decide whether the theoretical hypotheses are acceptable or not. This study proposes the eight hypotheses shown below, they are made to test the relationship between independent and dependent variables.

Hypothesis 1: There is a significant relationship between perceived usefulness and intention to use 3G mobile service.

Hypothesis 2: There is a significant relationship between perceived ease of use and intention to use 3G mobile service.

Hypothesis 3: There is a significant relationship between interpersonal influence and intention to use 3G mobile service.

Hypothesis 4: There is a significant relationship between external influence and intention to use 3G mobile service.

Hypothesis 5: There is a significant relationship between personal innovativeness and intention to use 3G mobile service.

Hypothesis 6: There is a significant relationship between perceived enjoyment and intention to use 3G mobile service.

Hypothesis 7: There is a significant relationship between perceived experience and intention to use 3G mobile service.

Hypothesis 8: There is a significant relationship between perceived cost and intention to use 3G mobile service.

CHAPTER 3

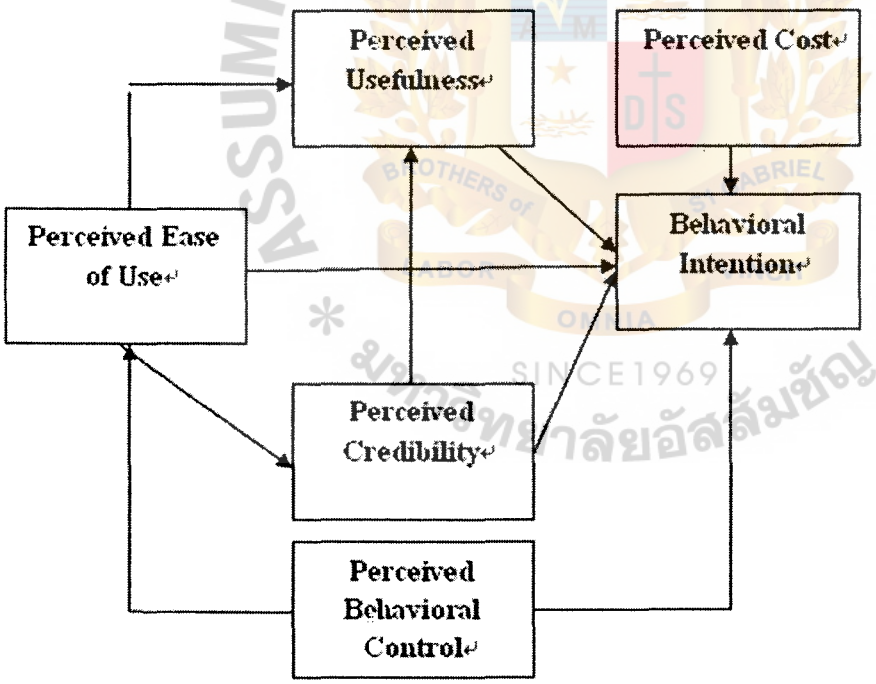
RESEARCH FRAMEWORK

This chapter consisted of four sections. The first section is theoretical framework. The second section is conceptual framework. In the third section research hypotheses are described. In order to define all variables that are tested, the fourth section the operationalization table will be presented at the end.

3.1 Theoretical framework

A theoretical framework presents how the theories construct the relationship among several factors in the reasonable way, and studied the previous theoretical framework would provide clear evidence for researcher to design a modified conceptual framework and investigates all variable for the new studies. In this section, research reviews the theories that are related to current study that is from previous research in the topic of mobile services.

Figure 3.1 - Factors Influencing the Adoption of Mobile Services in China

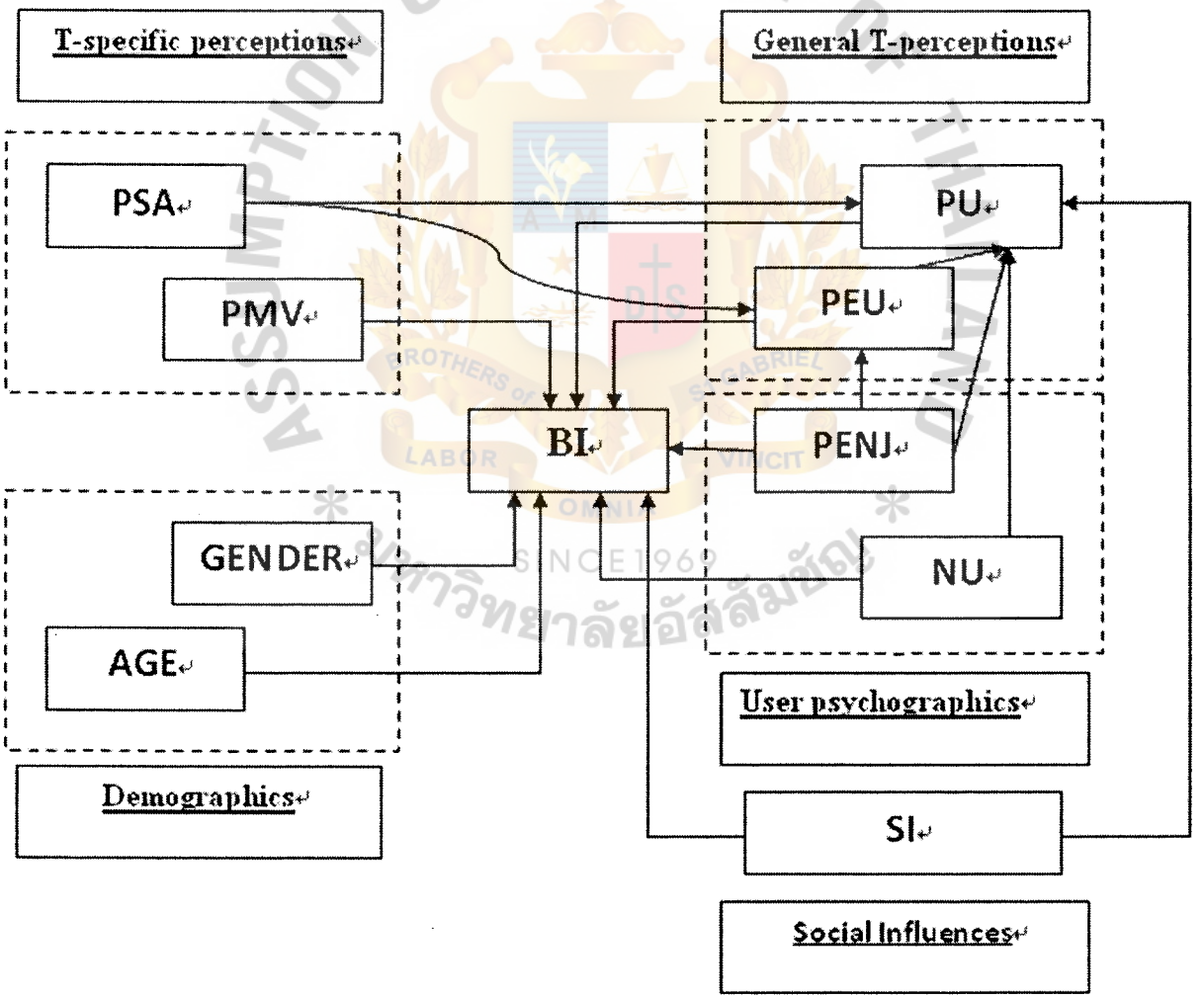


Source: Sun *et al.* (2010), "Factors Influencing the Adoption of Mobile Services in China", *Journal of Computers*, Vol. 5 No.5, pp.799-806.

Figure 3.1 shows the model based on the Technology Acceptance Model (TAM) that perceived cost and perceived credibility have been added to test the adoption of new technologies. This study found out that all variables, which are perceived usefulness,

perceived credibility, perceived behavioral control and perceived cost have significantly affected user's behavioral intention, except perceived ease-of-use does not significant. Researcher believes that the cost is a very important factor influence that the adoption of mobile services; cost often presents the obstacle toward mobile services using, and research has found the negative relationship between cost and intention to use mobile services. Perceived credibility has been defined as people believe that using mobile services is secured and away from privacy threats. Perceived credibility was also found to have a significant positive influence on the behavioral intentions to use mobile services. Both perceived credibility and perceived cost have been used to investigate the relation with behavior intention.

Figure 3.2 - Understanding Adoption of Multipurpose Information of Appliances

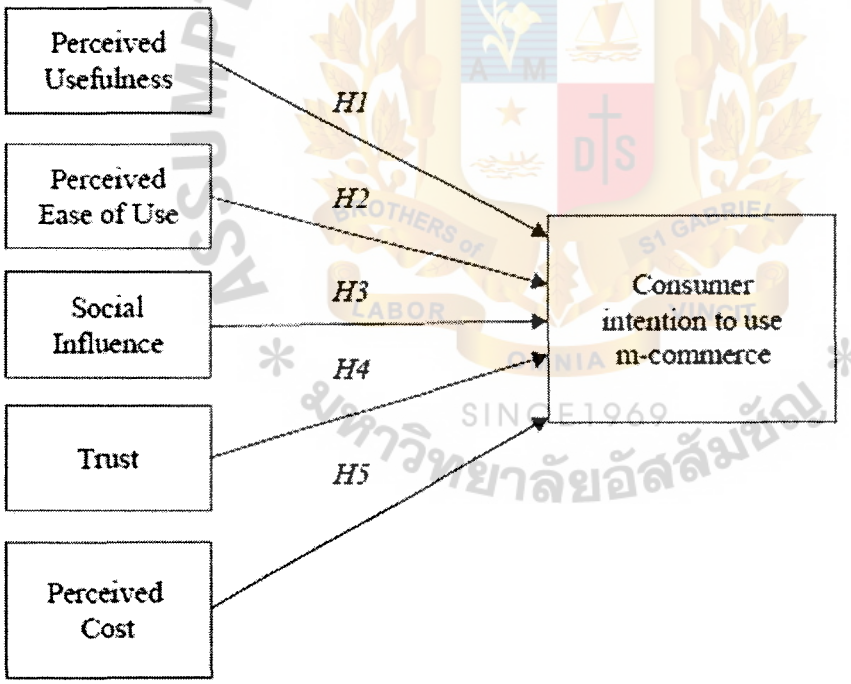


Source: Hong and Tam (2006), "Understanding Adoption of Multipurpose Information of Appliances", *Information System Research*, Vol.17 No.2, pp. 162-179.

Notes. T (technology); PU(perceived usefulness); PEU(perceived ease of use); PSA(perceived services availability); PMV (perceived monetary value); PENJ(perceived enjoyment); NU(need for uniqueness);SI (social influence); BI (behavioral intention).

Figure 3.2 shows how Hong and Tam (2006)'s framework which study the individual adoption of IT innovation that is used beyond work setting. They defined the new class of IT innovation, which includes the personal, universally accessible and multipurpose. They developed a unique characteristic and usage context of multipurpose information appliances adoption model. The five sets of adoption factors, which are general technology perceptions (perceived usefulness, perceived ease of use), technology-specific perceptions (perceived services availability, perceived monetary value), psychographics (perceived enjoyment, need for uniqueness), social influence (social influence), demographics (gender, age) in the model were tested by the data collected from the adoption of the mobile data services. The findings show SI, PMV, PEU, NU and PENJ have strong impact on adoption intention.

Figure 3.3 - What drives Malaysian mobile commerce adoption

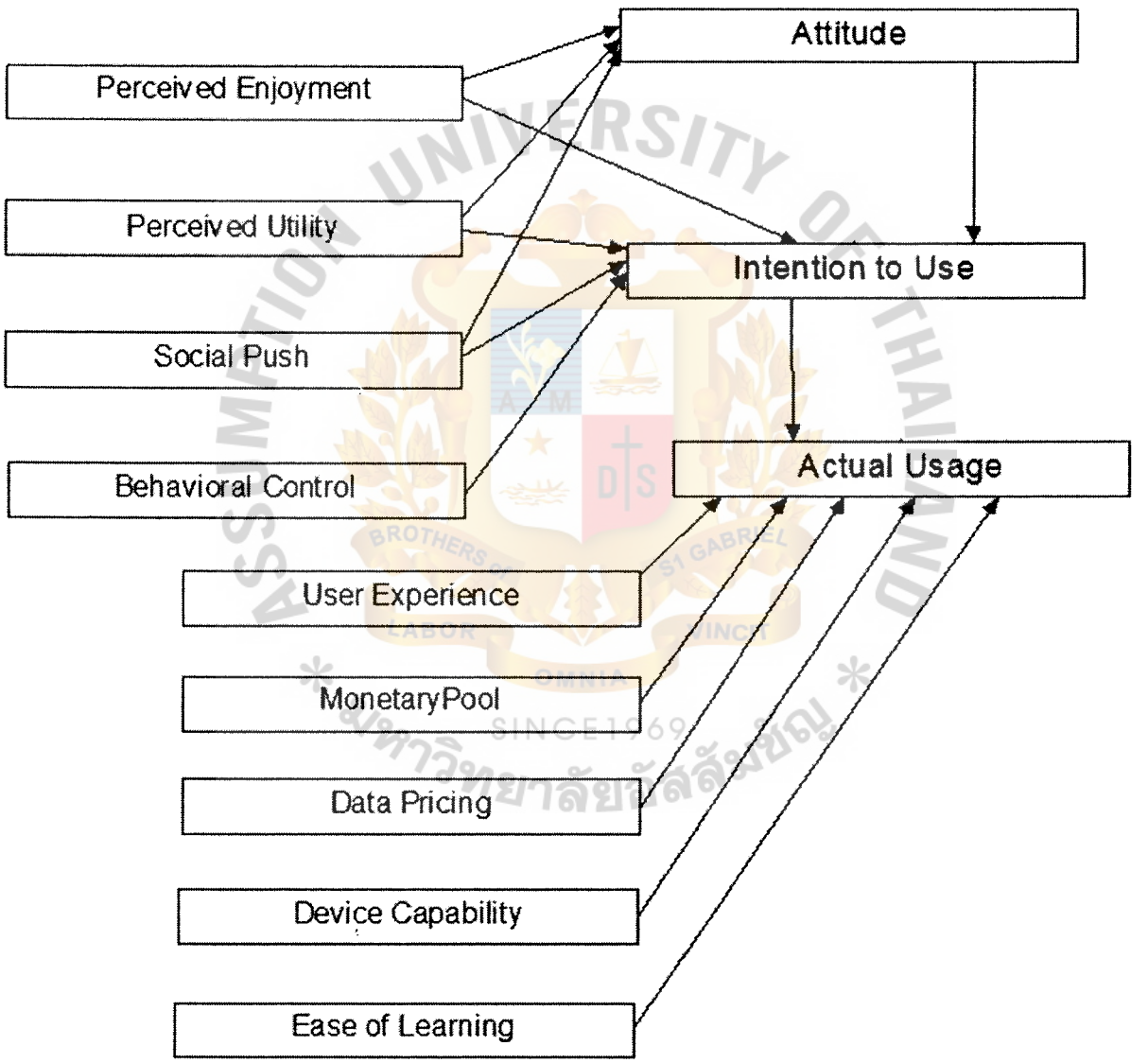


Source: Wei *et al.* (2008), "What drives Malaysian mobile commerce adoption", *Industrial Management & Data Systems*, Vol. 109 No. 3, pp. 370- 388.

Based on Figure 3.3 above, Wei *et al.* (2008) examined the factors that influence the adoption of mobile commerce. There are five independent variables, which are perceived usefulness (PU), perceived ease-of-use (PEOU), social influence (SI), and perceived cost and trust that affect the consumer intention to use the mobile commerce. The findings point out

that perceived usefulness, social influence, perceived financial cost and trust are positively associated with consumer intention to use mobile commerce in Malaysia. In addition, perceived ease of use and trust were found to have an insignificant effect on consumer intention to use m-commerce. More on the findings point out that focus on improving the usefulness of the system, trust (security and privacy right) and reducing the cost of the services would improve the adoption.

Figure 3.4 - Dynamics of mobile services adoption

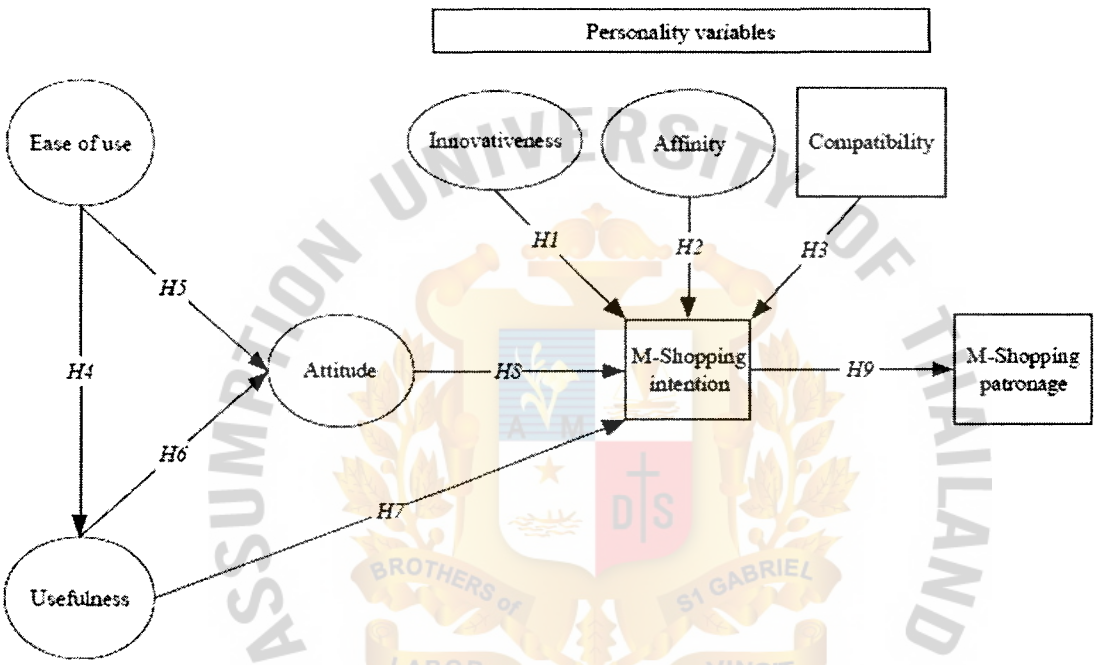


Source: Verkasalo (2008), "Dynamics of mobile services adoption", *International Journal of E-Business Research*, Vol. 4 No.3, pp. 40-63.

Figure 3.4 shows the study of the usage of mobile services, Verkasalo (2008) developed this model to find out variables that are perceived enjoyment, perceived usefulness, social push and behavioral control are included to have either direct or indirect effect on

intention to use and mediated by attitude. In addition, actual use is depend on intention to use, technical capability of the phone, data pricing and user experience (more experienced users should be more likely to be capable of using the services). The important point in this research is that the consequent adoptions of the services have been strongly influenced by user intentions. Moreover, research found out that perceived hedonic benefits from the services are the strongest factor that driving user intention to use the services.

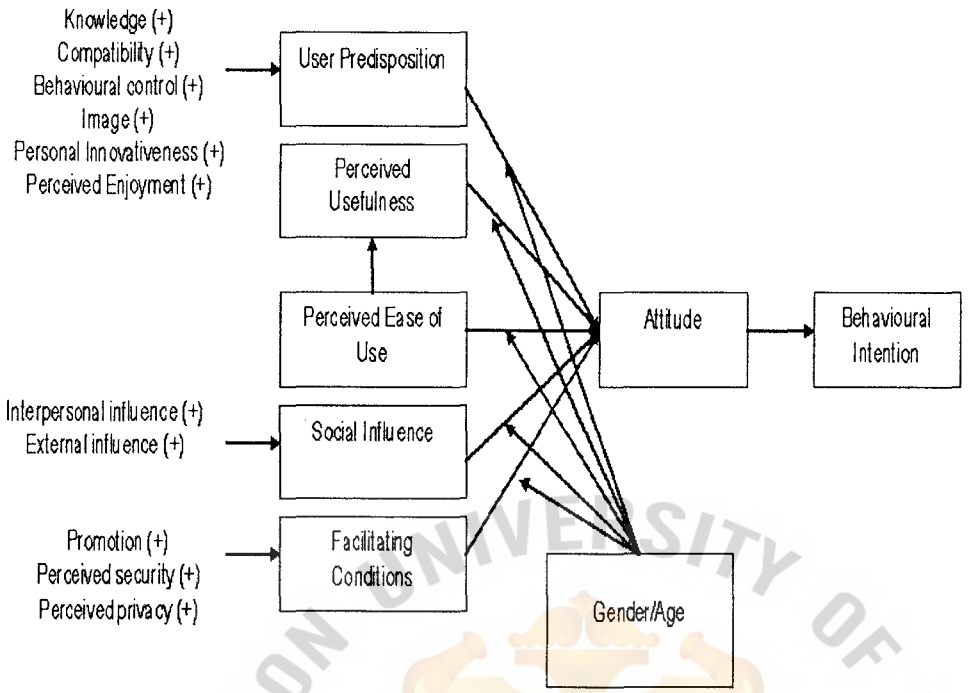
Figure3.5-Exploring individual personality factors as drivers of M-shopping acceptance



Source: Joaquı´n *et al.* (2008), "Exploring individual personality factors as drivers of M-shopping acceptance", *Industrial Management & Data Systems,* Vol. 109 No. 6, pp. 739-757.

Figure 3.5 is based on the study of Joaquı´n *et al.* (2008). They use classical technology acceptance model (TAM) and personality variables related to technology (innovativeness, compatibility and affinity) to analysis the impact on behavioral adoption intention. The findings show that personality variables (affinity to mobile telephones, compatibility and innovativeness) have a positive and direct influence on the intention to adopt in mobile shopping. Moreover, they suggested mobile services should not be simply designed for easy use, but also as an enjoyable experience.

Figure 3.6 - Conceptual Framework and Propositions for the Acceptance of Mobile



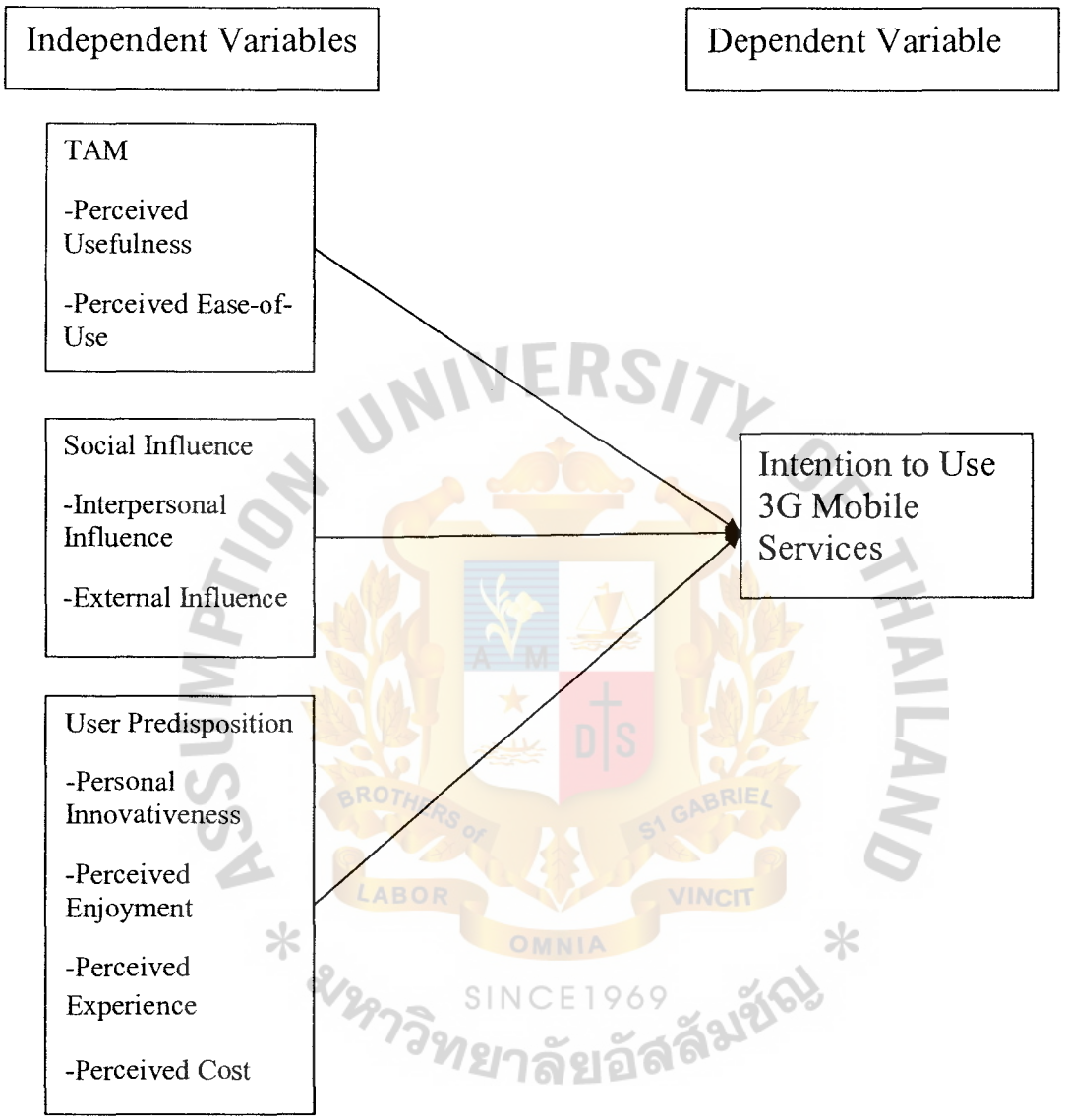
Source: Rao and Troshani (2007), "A Conceptual Framework and Propositions for the Acceptance of Mobile Services", *Journal of Theoretical and Applied Electronic Commerce Research,* Vol. 2 No. 2, pp. 61-73.

Figure 3.6 is based on the study of Rao and Troshani (2007). They propose this framework to have a better understanding of motivation factors that lead mobile users to adopt mobile services. In their framework, they used variables from existing acceptance theories that are user predisposition (knowledge, compatibility, behavioral control, image, personal innovativeness, perceived enjoyment),perceived usefulness, perceived ease of use, social influence (interpersonal influence, external influence),facilitating condition (promotion, perceived security, perceived privacy) and attitude to predict the behavioral intention toward mobile services, moderating by gender and age. Moreover, they identified that user predisposition, perceived usefulness, perceived ease of use, social influence, and facilitating conditions as strong predictors of mobile services adoption. In this study, the perceived behavioral control refers to the individual perception of how easy or difficult it is to get mobile services, which encompasses in individual's ability to afford the costs associated with mobile services.

3.2 Conceptual Framework

The following framework in based on Theoretical Framework

Figure 3.7 - Conceptual Framework



This conceptual framework is based on the previous studies such as Dynamics of Mobile Services Adoption (Verkasalo, 2008), Factors Influencing the Adoption of Mobile Services in China (Sun *et al.*, 2010), Factors influencing the usage of 3G mobile services in Taiwan (Liao *et al.*, 2007). The independent variables are perceived technology acceptance (perceived usefulness, perceived ease-of-use), user disposition (experience, innovativeness, cost and enjoyment), social influence (interpersonal influence, external influence).Dependent variable is intention to use 3G mobile services.

All of the variables will be tested to evaluate the relationship between independent variables and dependent variable. In addition, all variables were selected from previous

literature reviews. Two factors that are perceived usefulness and perceived ease of use are instrumental in explaining the user's intentions of using a technology or system (Davis, 1989). Rao and Troshani, (2007) pointed out user predisposition that included knowledge, compatibility, behavioral control, image, personal innovativeness, perceived enjoyment are strong predictors of mobile services adoption, and the perceived behavioral control encompasses the afford the costs associated with mobile services. The personality variables (affinity to mobile telephones, compatibility and innovativeness) have a positive and direct influence on the intention to adopt (Joaquı´n *et al.,* 2008). Adopters' previous positive or negative experiences with a technology or services can have a significant impact on their perceptions and attitudes towards that technology or services (Taylor and Todd, 1995). Moreover, it is found that perceived hedonic benefits from the services are the strongest factor that driving user intention to use the services (Verkasalo, 2008). The important point in this research is that the consequent adoptions of the services have been strongly influenced by user intentions (Verkasalo, 2008).

With the variables showed above, researcher has developed this conceptual framework.

In this conceptual framework, the definition of each variable is shown as follows:

Perceived usefulness: That is the results of using mobile services. In this study, perceived usefulness presents perceived usefulness of 3G mobile services.

Perceived ease-of –use: That is consumer feels about using mobile services would be minimum of effort. In this study, perceived ease-of –use presents perceived ease-of-use of 3G mobile services.

Experience: the outcome of direct participated in or witnessed of mobile services. In this study, experience means the prior experience of mobile services whether it affects consumer's adoption or not.

Personal innovativeness: is the one's willingness to try out and embrace new technologies and their related services for achieving an individual purpose. In this research, personal innovativeness means whether the personal innovativeness influence the acceptance of 3G mobile services or not.

Perceived Enjoyment: refers to an innovation that is perceived to be enjoyable in its own right and is considered an intrinsic source of motivation (Al-Gahtani and King, 1999). This factor is motivating consumer to apply for mobile services. In the study, perceived

Enjoyment means the enjoyment of using 3G mobile services that could be one of major concerns.

Perceived cost: Perceived cost is the basic requirement of subscripting mobile services, and it can be considered as the obstacle of subscription. In this study, it presents subscription fee, services fee and communication fee toward using of 3G mobile services.

Social influence: This factor shows individual's emotion to desire mobile services either affected by the others or external sources. In this study, social influence means consumers' intention of using 3G mobile services either affected by social influence or not.

Interpersonal influence: refers to word-of-mouth influence by referent groups (Elliot and Elliot, 2004). This is regarded as an interpersonal persuasion of one's mobile services usage. In this research, interpersonal influence means is the interpersonal influence would motivate consumer to use 3G mobile services.

External influence: refers to the extent to which information from TV, newspapers, the Internet, and other secondary sources influences behavior (Venkatesh and Brown, 2001). This is regarded as an external persuasion of one's mobile services usage. In this research, external influence means it means whether the mass media influence would motivate consumer to use 3G mobile services or not.

Intention to adopt 3G mobile services: it means whether the mobile consumer is going to upgrade or adopt 3G mobile services.

3.3 Statistical Hypothesis

Hypothesis is the statement of problem and the assumption about the research. In the research, a hypothesis is an assumption of the problem, with the statistical analysis, the assumption problem can be provided by the statistical evidence. Research hypothesis is an assumption that presents the current factors or statement.

In this section, the research hypothesis is divided into two forms: Null hypothesis and Alternative hypothesis. A null hypothesis defined the negative side of the alternative problem that is always not true. An alternative hypothesis defined the positive side of the assumption problem.

In this study, assume Ho represents the null hypothesis and Ha represents the alternative hypothesis. The hypothesis testing is to provide the true statement and research questions.

Hypothesis 1:

$H1_o$: There is no significant relationship between perceived usefulness and intention to use 3G mobile service.

$H1_a$: There is a significant relationship between perceived usefulness and intention to use 3G mobile service.

Hypothesis 2:

$H2_o$: There is no significant relationship between perceived ease of use and intention to use 3G mobile service.

$H2_a$: There is a significant relationship between perceived ease of use and intention to use 3G mobile service.

Hypothesis 3:

H3: There is a significant relationship between interpersonal influence and intention to use 3G mobile service.

Hypothesis 4: There is a significant relationship between external influence and intention to use 3G mobile service.

Hypothesis 5: There is a significant relationship between personal innovativeness and intention to use 3G mobile service.

Hypothesis 6: There is a significant relationship between perceived enjoyment and intention to use 3G mobile service.

Hypothesis 7: There is a significant relationship between perceived experience and intention to use 3G mobile service.

Hypothesis 8: There is a significant relationship between perceived cost and intention to use 3G mobile service.

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3.4 Operationalization of the Independent and Dependent Variables

An operational definition is a definition stated in terms of specific testing criteria or operations. The type of scale has to be decided, after the variables have been defined and identified conceptually. There are three types of scales in this study: nominal, ordinal, and interval scale. (See Table 3.1 pp 45-49)

Table 3.1 - Operationalization Table

Variable	Conceptual Definition	Operational Components	Level of Measurement	Question Number	Research Objective
Perceived usefulness	The degree to which a person believes that using a particular system would enhance his or her job performance (Dholakia, 2004).	-the functions of 3G mobile services are useful. -3G mobile services can improve my working efficiency.	Interval Scale	1-4	1. To explore the factors influence the intention to use 3G mobile services. 2. To investigate the relationship between perceived technologies acceptance model and intention to use. 3. To suggest the weakness of the services and important factors that needs awareness.
Perceived ease-of-use	Degree to which a person believes that using a particular system would be free of effort (Dholakia, 2004).	-It is easy to learn how to use the services. -3G mobile services are easy to operator.	Interval Scale	5-7	1. To explore the factors influence the intention to use 3G mobile services. 2. To investigate the relationship between perceived technologies acceptance model and intention to use. 3. To suggest the weakness of the services and important factors that needs awareness.

Interpersonal Influence	the extent to which members of a social network influence the behavior of one another (Rice, 1990)	-the ideas and opinions from others in my social group are preferred. -the experiences from other social members are considerable and trusted.	Interval Scale	8-10	1. To explore the factors influence the intention to use 3G mobile services. 2. To investigate the relationship between social influence and intention to use. 3. To suggest the weakness of the services and important factors that needs awareness.
External influence	the extent to which information from TV, newspapers, the Internet, and other secondary sources influences behavior (Venkatesh and Brown, 2001)	-the external sources provide enough information about 3 G mobile services. -the external sources about 3 G mobile services are helpful for my adoption. -the message delivers from external sources are considerable.	Interval Scale	11-13	1. To explore the factors influence the intention to use 3G mobile services. 2. To investigate the relationship between social influence and intention to use. 3. To suggest the weakness of the services and important factors that needs awareness.
Perceived	One's willingness to	-3 G mobile services	Interval	14-16	1. To explore the factors influence the

Innovativeness	try out and embrace new technologies and their related services for achieving an individual purpose.	represent the innovation in mobile services. -I always love to try new technology. -3G mobile services are a new mobile technology that improves my acceptance.	Scale		intention to use 3G mobile services. 2. To investigate the relationship between user disposition and intention to use. 3. To suggest the weakness of the services and important factors that needs awareness.
Perceived Enjoyment	The fun or pleasure derived from using the product or services.	The services can provide pleasant feeling to me. -the pleasant feeling from using 3G mobile services are the reason of my adoption.	Interval Scale	17-19	1. To explore the factors influence the intention to use 3G mobile services. 2. To investigate the relationship between user disposition and intention to use. 3. To suggest the weakness of the services and important factors that needs awareness.
Perceived	The outcome of	-the previous	Interval	20-22	1. To explore the factors influence the

Experience	direct participated in or witnessed of mobile services.	experiences on mobile services are taking into accounts. -the previous experiences on mobile services direct affect my adoption.	Scale		intention to use 3G mobile services. 2. To investigate the relationship between user disposition and intention to use. 3. To suggest the weakness of the services and important factors that needs awareness.
Perceived Cost	Cost factor may consist of initial purchase price (e.g. handset fee), ongoing usage cost (subscription fee, services fee and communication fee), maintenance cost and upgrade cost (Luarn and Lin, 2005)	-the usage fees of 3G mobile services are reasonable or acceptable. -3G mobile services do not charge any extra fees.	Interval Scale	23-25	1. To explore the factors influence the intention to use 3G mobile services. 2. To investigate the relationship between user disposition and intention to use. 3. To suggest the weakness of the services and important factors that needs awareness.
Intention to adopt 3G mobile services	A decision plan to buy a particular	-I will definitely upgrade to 3G mobile	Interval Scale	26-28	1. To explore the factors influence the intention to use 3G mobile services.

	product or services created through choice ordecision process(Shim ,2001)	services as soon. -I am going to use 3G mobile services as soon as possible, this is my only choice.			2. To investigate the relationship between perceived technologies acceptance model, user disposition, social influence, and intention to use. 3. To find out the demographic factors affect the adoption. 4. To suggest the weakness of the services and important factors need awareness.

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CHAPTER 4

RESEARCH METHODOLOGY

This chapter is made up of six sections that describe the methodology used in this research. The first section discusses the descriptive research and survey research technique that is adopted as the research methodology in this study. The second section talks about respondents and sampling procedures. The third section conducts the research instruments, which includes the structure of three parts questionnaire. The fourth section is the pre-test that is to test the reliability of the questionnaire. The fifth section is all about Data Gathering Procedures. In addition, the sixth section discusses the statistical treatment of the data.

4.1 Method of research used

In this study, the descriptive research will be used as research method, where the primary data are transformed into the form that gives clear understanding suitable for interpreting data. Descriptive research is used to describe the characteristics of a certain group of people that perceives a certain way of living. Descriptive studies are based on some previous understanding of the nature of the research problem and attempts to determine the extent of differences in the needs, perceptions, attitudes and characteristics of subgroups (Zikmund, 2003).

In addition, the research technique used in this study is survey method with the information collected from the respondents by questionnaire or interview. According to Zikmund (2003), the method of the data collection is based on the communication with the individual representatives. The research has interviewed 10 respondents in order to investigate the deeper feeling and thinking of the respondents' adoption toward their 3G mobile services. The interview started on September 13 2010, and the respondents were selected by convenience method through internet on MSN, the result is showed on chapter 2, Page 33.

The researcher has developed the questionnaire, and the questions were designed based on the related studies, the previous interview result of respondents' adoption toward 3G mobile services is also considered. Consequently, the questionnaire was distributed to target population to test the reliability of the questions (pre-test). After the questionnaire has been proved to be reliable and acceptable, the questionnaire can be used as the survey research.

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4.2 Respondents and Sampling Procedures

4.2.1 Target Population

The targeted population is the group of components or objects in possession of information the researcher is looking for (Malhotra, 2004). The target population of this research is:

-People who use 3G mobile services

This study focus on the adoption intention toward 3G mobile services, therefore respondents who are trying 3G mobile services currently can provide useful information.

-People who intend to 3G mobile services

If consumers intend to use 3G mobile services, then they are more like to have the survey answered, and the result will be more reliable.

-The respondent is at least 18 years old

The respondents are both female and male age over 18, people who attend 18 years old are considered as adult, and from the age on, they have fully responsibility for his or her behaviors. Without fully responsible or age under 18 years old, their status, income, attitude and intention is not stable and do need guidance and support from their guardian.

-People who live in Beijing

According to the Beijing Statistical Information Net (2000), Beijing has the registered about 13.8 million people who have lived in Beijing for more than half a year.

4.2.2 Sample Size

In this research, the target population is unknown and difficult to estimate, so the research used Proportion technique to measure the sample size (Berenson and Levine, 1999)

Formula: $$n = \frac{z^2pq}{e^2}$$

Where

n = number of items in sample

P= the population proportion for the research calculated by the percentage of the respondent. Assuming that the highest number of sample size is 0.5(50%)

q=1-p, or estimated proportion of failure

e^2 =square of the confidence level in standard error units that the researcher has set at 95%

Then, the number of standard of z associated with the confidence level is equal to 1.96.

e^2 =The maximum allowance for error between the true proportion and the sample proportion or level of confidence is 0.5.

The p*q ratio can never exceed 0.25. For example, if p=0.5, then q=0.5, and their products is 0.25.if either p or q is greater than 0.5, then their product is smaller than 0.25.since the research has no information regarding the probable p value, the research can assume that p=0.5 and solve the sample size (Cooper and Schindler, 2010). This research set a 95% confidence interval level (z=1.96). The level of precision is 0.05 (± 5%).

Therefore, the sample size of this research is equal to:

$$n = \frac{z^2pq}{e^2}$$

$$= \frac{1.96^2(0.5)(1-0.5)}{(0.05)^2}$$

$$=385$$

Where

z=1.95(confidence level in standard error)

p=0.5(the population proportion for the research calculated by the percentage of the respondent)

q=0.5(estimated proportion of failure)

e=0.05(maximum allowance for error between the true proportion and the sample proportion)

Therefore, the sample size is 385.

The sample size in this study was about 384 respondents in the 95% level of certainty. In order to provide accurate results, researcher decided 400 respondents sample size should be appropriated.

4.2.3 Sampling Method

The sample of respondents in this research was selected from male and female who are living in Beijing and intend to use 3G mobile services. In this research, sampling methods used is non-probability. Non-probability techniques are used to select target respondents. Non-probability sampling is a sampling technique in which units of the sample are selected

on the basis of convenience (Zikmund, 2003). The non-probability and the probability population in this research are unknown. Two non-probability samplings were chosen, convenience sampling and quota sampling.

Convenience Sampling Technique

The convenience sampling is selected in this research as the technique of non-probability sampling; the convenience sampling is to choose samples under the convenient condition. Researchers will get convenience sampling to obtain a large number of completed questionnaires quickly and economically (Zikmund, 2003). Researcher gathers 400 questionnaires from the people who are match the requirements. The questionnaires are distributed through internet; the respondents are people who are willing to receive questionnaires and are selected from online commutation tools, where includes MSN, facebook, and QQ.

Quota Sampling Technique

In this research, a non-probability sampling procedure ensures that certain characteristics of a population sample will represent the exact that the investigator desires (Zikmund, 2003). The quota sampling technique is also used to determine the sample size of the sampling units in each gender. The total questionnaires are 400 sets and will be split into two groups for the sampling units male and female, therefore 200 sets for each gender.

Table 4.1 - The number of questionnaires distributed by gender

Gender of respondents	No of questionnaire	Cumulative percentage
Male	200	50%
Female	200	50%
Total	400	100%

4.3 Research Instrument

The researcher adopted questionnaire as the instrument to study the Chinese consumer's intention toward 3G mobile service. The questionnaire consists of three parts, and it is in Chinese version for the understanding and convenience of the respondents. Five Point Likert-Scales were used in all questions:

Part 1: Screening Questions: researcher used screening questions to select respondents that are appropriate to this study. Four questions were asked to respondents before going into the main part of the questionnaire.

Part 2: Variables Analysis: Consumer perception about each variable which are perceived value, information sources , perceived cost ,other concerns , attitude toward adoption and intention to use. To evaluate those variables, the Five Point Likert-Scales is used to determine the degrees of respondents' preference to choose the answer from strongly disagree and strongly agree.

Part 3: Respondent General Information: this part collects respondents' personal data that include gender, age, and income per year, highest education level and occupations.

If the respondents are in target population range, the following questionnaire can be used:

Aspect 1: Perceived Usefulness

This part contains four questions (1-4) to measure consumer's perception of usefulness of the 3G mobile services. The questions were used from the study by Verkasalo (2008).The Five Point Likert-Scales is used for measurement.

Aspect 2: Perceived Ease of Use

This part contains three questions (5-7) to measure consumer' perception of ease of use the 3G mobile services. The questions were used from the study by Verkasalo (2008).The Five Point Likert-Scales is used for measurement.

Aspect 3: Interpersonal Influence

This part contains three questions (8-10) to measure consumer's perception of interpersonal influence of 3G mobile services. The questions were used from the study by Verkasalo (2008).The Five Point Likert-Scales is used for measurement.

Aspect 4: External Influence

This part contains three questions (11-13) to measure consumer's perception of external influence of 3G mobile services. The questions were used from the study by Hong *et al.* (2008). The Five Point Likert-Scales is used for measurement.

Aspect 5: Perceived Innovativeness

This part contains three questions (14-16) to measure consumer's perception of innovativeness of 3G mobile services. The questions were used from the study by Joaquı´n *et al.* (2008). The Five Point Likert-Scales is used for measurement.

Aspect 6: Perceived Enjoyment

This part contains three questions (17-19) to measure consumer's perception of enjoyment of 3G mobile services. The questions were used from the study by Verkasalo (2008).The Five Point Likert-Scales is used for measurement.

Aspect 7: Perceived Experience

This part contains three questions (20-22) to measure consumer's perception of previous experience toward 3G mobile services. The questions were used from the study by Verkasalo (2008). The Five Point Likert-Scales is used for measurement.

Aspect 8: Perceived Cost

This part contains three questions (23-25) to measure consumer's perception of the cost of 3G mobile services. The questions were used from the study by Sun *et al.* (2010).The Five Point Likert-Scales is used for measurement.

Aspect 9: Intention to Use

This part contains three questions (26-28) to measure consumer's intention to use the 3G mobile services. The questions were used from the study by Verkasalo (2008). The Five Point Likert-Scales is used for measurement.

Demographic Factors

Respondent general information presents the personal information of the respondents. In this study, the demographic factors include five items, which are gender, age, income per year, highest education level and occupations. The multiple choices are adopted in this research.

Table 4.2 - Arrangement of the questionnaire:

Aspect	Variables(9) or Sub-variables(1-8)	Question No.	Measurement scale
1	Perceived Usefulness	1-4	Interval Scale
2	Perceived Ease of Use	5-7	Interval Scale
3	Interpersonal Influence	8-10	Interval Scale
4	External Influence	11-13	Interval Scale
5	Personal Innovativeness	14-16	Interval Scale
6	Perceived Enjoyment	17-19	Interval Scale
7	Perceived Experience	20-22	Interval Scale
8	Perceived Cost	23-25	Interval Scale
9	Intention to Use	26-28	Interval Scale
10	Demographic Factors	1-5	Nominal

Table 4.2 shows the arrangement of the questionnaire. This table contains one variable and eight sub-variables that are intention to use and perceived usefulness, perceived

ease of use, interpersonal influence, external influence, personal innovativeness, perceived enjoyment, perceived experience, perceived cost, representatively.

4.4 Pre-Test

Pre-test is used to guarantee the reliability of the questionnaire. Churchill (1999) stated that each question in the questionnaire has to be reviewed to ensure that the question is not confusing or ambiguous, potentially offensive to respondents, leading or bias inducing and easy to be answered. Vanichbuncha (2003) mentioned that to launch pre-test or reliability test, the number of surveys conduct should be more than 25 respondents. Therefore, pre-test studies consisted of 50 respondents who were satisfied with the conditions and questionnaires were given to them as a tool to the survey. The researcher adopted Cronbach's Coefficient Alpha scales to test the reliability of questionnaire.

Sekaran (1992) pointed that If an α-test is less than 0.6 , it means this questionnaire is considered as poor and unacceptable , on another hand , α-test is greater than 0.6 , it treats as reliable and acceptable.

Table 4.3 - Reliability of the Questionnaire

Number	Operational Dimensions	Number of Items	Number of Cases	Reliability
1	Perceived Usefulness	4	50	0.735
2	Perceived Ease of Use	3	50	0.721
3	Interpersonal Influence	3	50	0.751
4	External Influence	3	50	0.654
5	Personal Innovativeness	3	50	0.614
6	Perceived Enjoyment	3	50	0.650
7	Perceived Experience	3	50	0.635
8	Perceived Cost	3	50	0.781
9	Intention to Use	3	50	0.644

Table 4.3 shows the reliability of this questionnaire, all variables in this research are greater than 0.6, it proves this questionnaire is sufficient and reliable. Table of reliability of the questionnaire shows the Cronbach's α of each construct in the questionnaire. With the perceived cost has the highest reliability with 0.781, followed by interpersonal influence 0.751, perceived usefulness 0.735, perceived ease of use 0.721, external influence 0.654,

perceived enjoyment 0.650, intention to use 0.644, perceived experience 0.635, and the lowest is perceived innovativeness 0.614. In conclusion, the questionnaire was developed by the previous studies and interview with the target population, therefore the content is valid.

4.5 Data Gathering Procedures

Primary Data

The primary data were collected through a self-administered questionnaire survey in Beijing in different genders. In addition, the information require collected from respondents were their perception about perceived usefulness, perceived ease of use, social influence , user predisposition, perceived credibility, intention to use 3G mobile services , actual usage and their demographic factors.

Secondary Data

The secondary data were collected from different sources such as were internet journals, textbook, websites and previous researches that are related to this study. Secondary data are the data that have previously been collected for some other project other than the project at hand (Zikmund 2003).

4.6 Statistical Treatment of Data

To measuring data, this research used the statistics applications:

-To describe the characteristics of population or sample

-To generalize from the sample to the population

To measure data, the Statistical Package for Social Science program known as SPSS was used as instrument tool to analysis collected information. Statistics is used to describe or summarize information about a population or sample (Zikmund, 2003).Therefore, the descriptive statistics of percentage, frequency, percent, valid percent and cumulative percent were adapted to analysis demographic factors of the respondents. Pearson Correlation Coefficient was used to evaluate strength and direction of the linear relationship between two or more variables. Then the hypotheses (hypothesis 1-8) were tested through Pearson Correlation Coefficient.

4.6.1 Descriptive Analysis

Descriptive analysis is data that are transformed from primary data into a structure to better understand and interpret. In this study, the researchers analyze the primary data and the demographic section by using percentage and frequency (Zikmund, 2003).

4.6.2 Correlation Coefficient

Pearson's Coefficient is most popular technique that is able to indicate the relationship between two variables that are suggested by Zikmund (2003). Pearson's Coefficient is a statistical technique which can present whether and how strong the relationships of the variables or not.

r =

Where:

X= Independent Variable

Y= Dependent Variable

N= Number of Samples

The correlation coefficient result analysis shown below in Table 4.4:

Table 4.4 - Correlation Coefficient Result Analysis

Correlations Coefficient	Correlation Level
-1.00	Perfect negative correlation
-0.80 to -0.95	Strong negative correlation
-0.50 to -0.79	Moderate negative correlation
-0.10 to -0.49	Weak negative correlation
0.00	No correlation
0.10 to 0.49	Weak positive correlation
0.50 to 0.79	Moderate positive correlation
0.80 to 0.95	Strong positive correlation
1.00	Perfect positive correlation

Source: Hussey (1997), "Business Research", Macmillan Press Ltd., *Basingstoke*, pp. 227.

The correlation coefficient result "r" range from +1.00 to -1.00. If the value of r is -1.0, there is a perfect negative linear relationship. On another side, if the value of r is +1.00, there is a perfect positive linear relationship. If the value of r is zero, the variables do not have relationships.

Based on the interviews and prior studies, the following table was created to test each hypothesis statement.

Table 4.5 - Statistics Used for Each Hypothesis

Hypothesis	Statistical Used
H1o: There is no significant relationship between TAM and intention to use 3G mobile services.	Pearson's Correlation Coefficient
H2o: There is no significant relationship between social influence and intention to use 3G mobile services.	Pearson's Correlation Coefficient
H3o: There is no significant relationship between user predisposition and intention to use 3G mobile services.	Pearson's Correlation Coefficient
$H4_o$: There is no significant relationship between external influence and intention to use 3G mobile service.	Pearson's Correlation Coefficient
$H5_o$: There is no significant relationship between personal innovativeness and intention to use 3G mobile service.	Pearson's Correlation Coefficient
$H6_o$: There is no significant relationship between perceived enjoyment and intention to use 3G mobile service.	Pearson's Correlation Coefficient
$H7_o$: There is no significant relationship between perceived experience and intention to use 3G mobile service.	Pearson's Correlation Coefficient
$H8_o$: There is no significant relationship between perceived cost and intention to use 3G mobile service.	Pearson's Correlation Coefficient

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Chapter 5

Presentation of Data and Critical Discussion of Results

In this Chapter, the data collected from the target respondents would be put into analysis. The first part is about descriptive analysis of demographics factors. The second part is descriptive analysis of variables. The third part is analysis of the hypothesis testing. The fourth is the summary of results from hypothesis testing.

5.1 Descriptive Analysis of Demographics Factors

In this research, the descriptive analysis is used to describe the demographics factors of the target respondents. A Total sample for the users consisted of 400 respondents.

Table 5.1 - Gender of the Respondents

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	male	200	50.0	50.0	50.0
	female	200	50.0	50.0	100.0
	Total	400	100.0	100.0	

Table 5.1 indicates the respondents' gender; there were 400 respondents in total, and is made up of 200 male and 200 female.

Table 5.2 - Age of the Respondents

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-30	232	58.0	58.0	58.0
	31-40	121	30.3	30.3	88.3
	41-50	42	10.5	10.5	98.8
	over 50	5	1.3	1.3	100.0
	Total	400	100.0	100.0	

Table 5.2 exhibits the classification of respondents by their age groups and its frequency distribution; there were totally 400 respondents with four different age groups, the highest percentage of the respondents' age is between 18-30 years, it includes 232 respondents, which account for 58%. The second higher age group is between 31-40, it

consisted 121 respondents, which account for 30.3% of the total respondents. The third group is age between 41-50; there were 42 respondents and they represented 10.5% of the total respondents. In addition, the last group is the fewest that is age over 50. Only 5 respondents included in the total respondents, which represent 1.3% of the total respondents.

Table 5.3 - Income of the Respondents

Income per Year

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	below 50,000￥	96	24.0	24.0	24.0
	50,001-100,000￥	160	40.0	40.0	64.0
	100,001-150,000￥	96	24.0	24.0	88.0
	150,001-200,000￥	40	10.0	10.0	98.0
	Over 200,000￥	8	2.0	2.0	100.0
	Total	400	100.0	100.0	

Table 5.3 shows the income level of the respondents. There are five different income levels in the table, the first income level between￥50,001-100,000[3] consist of the highest percentage with 40%; with about 160 respondents in this group. Next follow the second income level between￥100,001-150,000 and the third below ￥50,000; those two groups have the percentage 24% and respondents 96 equally. A total of 10% respondents are in the fourth income level between￥150,001-200,000, which consists of 40 respondents. Last, come the group of only 8 respondents who have income over ￥200,000 that represented 2% of the total respondents.

Table 5.4 - Education of Level of the Respondents

Education Level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	high school	64	16.0	16.0	16.0
	college	116	29.0	29.0	45.0
	bachelor	204	51.0	51.0	96.0
	Master or higher	16	4.0	4.0	100.0
	Total	400	100.0	100.0	

[3] Exchange rate, US$ 1 or RMB¥ 6.62 average of Year 2010 derived from Bank of China (BOC) or available at website www.boc.cn accessed on March 11 2011.

Table 5.4 exhibits the education level of the respondents; it consists of four different education levels. The highest number of respondents' educational level is bachelor's degree; it include 204 respondents and it is about 51% of total respondents A total of 116 respondents have college diploma which represents 29% of the total respondents. High school certificate holders include 64 respondents that account for 16%, and the respondents with master's degree or higher only consist of 16 respondents which is 4% of total respondents.

Table 5.5 - Occupation of the Respondents

Occupation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	student	117	29.3	29.3	29.3
	management	84	21.0	21.0	50.3
	government officials	36	9.0	9.0	59.3
	employee	102	25.5	25.5	84.8
	business owner	36	9.0	9.0	93.8
	others	25	6.3	6.3	100.0
	Total	400	100.0	100.0	

Table 5.5 indicates the occupation of the respondents. The research includes six different occupation groups. There were 117 students who have filled out the questionnaires; it represents 29.3% of total respondents. 102 respondents are employees representing 25.5%; 84 respondents who are company managers represent 21%; respondents who are business owners and government officials with the equal number and percentage 36 with 9% respectively. In addition, 25 respondents representing 6.3% of total respondents indicate occupations other than the previous categories.

5.2 Descriptive Analysis of Variables

In this study, the descriptive analysis is conducted to investigate the respondents' general information about gender, age levels, income levels, education levels and occupation.

Table 5.6 – Descriptive of Perceived Usefulness

	N	Mean	Std. Deviation
3G mobile services will help me do my work better	400	3.94	.661
3G mobile services will provide useful functions	400	3.80	.679
3G mobile services will improve my efficiency	400	3.78	.627
3G mobile services will enhance my lifestyle	400	3.85	.767
mean useful	400	3.8425000	.419832584
Valid N (listwise)	400		

Table 5.6 indicates descriptive of perceived usefulness that the highest mean is "3G mobile services will help me do my work better" with 3.94. The lowest mean is "3G mobile services will improve my efficiency" with 3.78. In addition, "3G mobile services will provide useful functions" and "3G mobile services will enhance my lifestyle" with 3.80 and 3.85 respectively. The average mean and average standard deviation are 3.8425and 0.419832584, the respondents choice are between neutral (3) and agree (4) for perceived usefulness.

Table 5.7 – Descriptive of Perceived Ease-of–Use

	N	Mean	Std. Deviation
3G mobile services will be ease of use	400	3.87	.644
3G mobile services will be easy to learn how to use it	400	3.94	.563
I would find 3G mobile services easy for me	400	3.78	.658
mean ease	400	3.8633333	.425044431
Valid N (listwise)	400		

Table 5.7 indicates that the highest mean is "3G mobile services will be easy to learn how to use it" with 3.94.The middle one is "3G mobile services will be ease of use" with mean of 3.87. The lowest mean is "I would find 3G mobile services easy for me" with 3.78. The average mean and average standard deviation are 3.863333and 0.425044431, the respondents choice are between neutral (3) and agree (4) for perceived ease of use.

Table 5.8 – Descriptive of Interpersonal Influence

	N	Mean	Std. Deviation
My social group can affect me use 3G mobile services	400	4.14	.664
When I adopt innovation, I will ask advice from my social group	400	4.01	.520
The opinions or information from my social group are accepted and considered	400	3.88	.712
mean interpersonal	400	4.0100000	.404527427
Valid N (listwise)	400		

Table 5.8 indicates that the highest mean is "My social group can affect me use 3G mobile services" with 4.14.The following one is "When I adopt innovation, I will ask advice

from my social group" with mean of 4.01. The lowest mean is "The opinions or information from my social group are accepted and considered" with 3.88. The average mean and average standard deviation are 4.01 and 0.404527427, the respondents choice are agree (4) for perceived interpersonal influence.

Table 5.9 – Descriptive of External Influence

	N	Mean	Std. Deviation
External sources influence my intention to use 3G mobile services	400	3.90	.625
I usually learn about new product or service from external sources	400	3.89	.467
I have got enough information about 3 G mobile services from external sources	400	3.78	.610
mean external	400	3.8566666	.375391747
Valid N (listwise)	400		

Table 5.9 indicates that the highest mean is "External sources influence my intention to use 3G mobile services" with 3.90.The second one is "I usually learn about new product or service from external sources" with mean of 3.89. The lowest mean is "I have got enough information about 3 G mobile services from external sources" with 3.78. The average mean and average standard deviation are 3.8566666and 0.375391747, the respondents choice are between neutral (3) and agree (4) for perceived external influence.

Table 5.10 – Descriptive of Perceived Innovativeness

	N	Mean	Std. Deviation
I would like to be the first one to use 3G mobile services in my social groups	400	3.99	.575
I would like to use 3G mobile services, because it is an innovation	400	3.90	.480
I would like to be in the frontline of technology	400	3.91	.635
mean innovativeness	400	3.9333333	.383450456
Valid N (listwise)	400		

Table 5.10 indicates that the highest mean is "I would like to be the first one to use 3G mobile services in my social groups" with 3.99.The next one is "I would like to be in the frontline of technology" with mean of 3.91. The lowest mean is "I would like to use 3G mobile services, because it is an innovation" with 3.90. The average mean and average standard deviation are 3.9333333 and 0.383450456, the respondents choice are between neutral (3) and agree (4) for perceived innovativeness.

Table 5.11 – Descriptive of Perceived Enjoyment

	N	Mean	Std. Deviation
Enjoyment is important for my adoption decision	400	4.15	.670
The use of 3G mobile services will give me pleasure feeling	400	4.00	.511
I would like to use 3G mobile services for the pleasure or enjoyment	400	3.86	.736
mean enjoyment	400	4.0033333	.418175214
Valid N (listwise)	400		

Table 5.11 indicates that the highest mean is "Enjoyment is important for my adoption decision" with 4.15.The following one is "The use of 3G mobile services will give me pleasure feeling" with mean of 4.00. The lowest mean is "I would like to use 3G mobile services for the pleasure or enjoyment" with 3.86. The average mean and average standard deviation are 4.0033333 and 0.418175214, the respondents choice are agree (4) for perceived enjoyment.

Table 5.12 – Descriptive of Perceived Experience

	N	Mean	Std. Deviation
The previous experience in mobile service will affect me using 3G mobile services	400	3.21	.535
I will think about my previous experience before adopting 3G mobile services	400	2.86	.634
I think prior experience directly affects my decision	400	3.06	.614
mean experience	400	3.0433333	.434273769
Valid N (listwise)	400		

Table 5.12 indicates that the highest mean is "The previous experience in mobile service will affect me using 3G mobile services" with 3.21.The next one is "I think prior experience directly affects my decision" with mean of 3.06. The lowest mean is "I will think about my previous experience before adopting 3G mobile services" with 2.86. The average mean and average standard deviation are 3.0433333 and 0.434273769, the respondents choice are almost neutral (3) for perceived experience.

Table 5.13 – Descriptive of Perceived Cost

	N	Mean	Std. Deviation
I consider cost as an important factor for my adoption	400	4.00	.601
The service does not involve unreasonable expenses	400	3.90	.480
I am satisfied with the spending of the service	400	3.92	.703
mean cost	400	3.9400000	.423166512
Valid N (listwise)	400		

Table 5.13 indicates that the highest mean is "I consider cost as an important factor for my adoption" with 4.00.The following mean is "I am satisfied with the spending of the service" with 3.92. The lowest mean is "The service does not involve unreasonable expenses" with 3.90. The average mean and average standard deviation are 3.94 and 0.423166512, the respondents choice are between neutral (3) and agree (4) for perceived cost.

Table 5.14 – Descriptive of Intention

	N	Mean	Std. Deviation
It is worth to subscribe to 3G mobile services	400	3.88	.589
I will use 3G mobile services in all likelihood	400	3.97	.686
I will adopt 3G mobile services in the near future	400	3.88	.622
mean intention	400	3.9100000	.478685195
Valid N (listwise)	400		

Table 5.14 indicates that the highest mean is "I will use 3G mobile services in all likelihood" with 3.97. "It is worth to subscribe to 3G mobile services" and "I will adopt 3G mobile services in the near future" have the mean equally with 3.88. The average mean and average standard deviation are 3.910 and 0.478685195, the respondents choice are between neutral (3) and agree (4) for intention.

5.3 Analysis of the Hypothesis Testing

Hypothesis 1: Analysis of the relationship between TAM and Intention to Use.

$H1_o$: There is no significant relationship between perceived usefulness and intention to use 3G mobile services.

$H1_a$: There is a significant relationship between perceived usefulness and intention to use 3G mobile services.

Table 5.15 - Pearson Correlation for Perceived Usefulness and Intention to Use

Correlations

		Intention	Usefulness
Intention	Pearson Correlation	1	.806(**)
	Sig. (2-tailed)		.000
	N	400	400
Usefulness	Pearson Correlation	.806(**)	1
	Sig. (2-tailed)	.000	
	N	400	400

** Correlation is significant at the 0.01 level (2-tailed).

The Pearson's Correlation in Table 5.15 indicates that the correlation value of this hypothesis is 0.806, and the correlation appears positive ($r>0$). The result shows the higher perceived usefulness, and the higher intention to use; on one hand, the lower perceived usefulness, the lower intention to use. On the other, the significant value at the 2-tailed test is .000, which is lower than .01. Therefore, the null hypothesis is rejected, so there is a relationship between perceived usefulness and intention to use.

The Pearson Correlation indicated that there is a strong positive relationship between the two variables as the correlation coefficient value is 0.806 which falls between the 0.8 to 0.95 (strong positive correlation).

Hypothesis 2: Analysis of the relationship between TAM and Intention to Use.

$H2_o$: There is no significant relationship between perceived ease of use and intention to use 3G mobile services.

$H2_a$: There is a significant relationship between perceived ease of use and intention to use 3G mobile services.

Table 5.16 - Pearson Correlation for Perceived Ease of Use and Intention to Use

Correlations

		Intention	Ease of use
Intention	Pearson Correlation	1	.547(**)
	Sig. (2-tailed)		.000
	N	400	400
Ease of Use	Pearson Correlation	.547(**)	1
	Sig. (2-tailed)	.000	
	N	400	400

** Correlation is significant at the 0.01 level (2-tailed).

The Pearson's Correlation in Table 5.16 indicates that the correlation value of this

hypothesis is 0.547, and the correlation appears positive (r>0).The significant value at the 2-tailed test is .000, which is lower than .01. Therefore, the null hypothesis is rejected, which means that there is a relationship between perceived ease of use and intention to use.

The Pearson Correlation indicated that there is a moderate positive relationship between the two variables as the correlation coefficient value is 0.547 which falls between the 0.50 to 0.79 (moderate positive correlation).

Hypothesis 3: Analysis of the relationship between Social Influence and Intention to Use.

$H3_o$: There is no significant relationship between interpersonal influence and intention to use 3G mobile services.

$H3_a$: There is a significant relationship between interpersonal influence and intention to use 3G mobile services.

Table 5.17 - Pearson Correlation for Interpersonal Influence and Intention to Use

Correlations

		Intention	Interpersonal Influence
Intention	Pearson Correlation	1	.747(**)
	Sig. (2-tailed)		.000
	N	400	400
Interpersonal Influence	Pearson Correlation	.747(**)	1
	Sig. (2-tailed)	.000	
	N	400	400

** Correlation is significant at the 0.01 level (2-tailed).

The Pearson's Correlation in Table 5.17 indicates that the correlation value of this hypothesis is 0.747, and the correlation appears positive (r>0). The result shows that the value of interpersonal influence falls in higher moderate correlation, thus the higher interpersonal influence, the higher intention to use; on one hand, the lower perceived usefulness, the lower intention to use. On the other, the significant value at the 2-tailed test is .000, which is lower than .01. Therefore, the null hypothesis is rejected, which means that there is a relationship between perceived usefulness and intention to use.

The Pearson Correlation indicated that there is quite a high moderated positive relationship between the two variables as the correlation coefficient value is 0.747 which falls between the 0.50 to 0.79 (moderate positive correlation).

Hypothesis 4: Analysis of the relationship between Social Influence and Intention to Use.

$H4_o$: There is no significant relationship between external influence and intention to use 3G mobile services.

$H4_a$: There is a significant relationship between external influence and intention to use 3G mobile services.

Table 5.18 - Pearson Correlation for External Influence and Intention to Use

Correlations

		Intention	External Influence
Intention	Pearson Correlation	1	.554(**)
	Sig. (2-tailed)		.000
	N	400	400
External Influence	Pearson Correlation	.554(**)	1
	Sig. (2-tailed)	.000	
	N	400	400

** Correlation is significant at the 0.01 level (2-tailed).

The Pearson's Correlation in Table 5.18 indicates that the correlation value of this hypothesis is 0.747, and the correlation appears positive (r>0). The result shows that the value of external influence falls in lower moderate correlation. Moreover, the significant value at the 2-tailed test is .000, which is lower than .01. Therefore, the null hypothesis is rejected, which means that there is a relationship between perceived usefulness and intention to use.

The Pearson Correlation indicated that there is quite a low positive relationship between the two variables as the correlation coefficient value is 0.554 which falls between the 0.50 to 0.79 (moderate positive correlation).

Hypothesis 5: Analysis of the relationship between User Predisposition and Intention to Use.

$H5_o$: There is no significant relationship between personal innovativeness and intention to use 3G mobile services.

$H5_a$: There is a significant relationship between personal innovativeness and intention to use 3G mobile services.

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Table 5.19 - Pearson Correlation for Personal Innovativeness and Intention to Use

Correlations

		Intention	Innovativeness
Intention	Pearson Correlation	1	.629(**)
	Sig. (2-tailed)		.000
	N	400	400
Innovativeness	Pearson Correlation	.629(**)	1
	Sig. (2-tailed)	.000	
	N	400	400

** Correlation is significant at the 0.01 level (2-tailed).

The Pearson's Correlation in Table 5.19 indicates that the correlation value of this hypothesis is 0.629, and the correlation appears positive ($r>0$). The result shows that the value of personal innovativeness falls in moderate correlation. Moreover, the significant value at the 2-tailed test is .000, which is lower than .01. Therefore, the null hypothesis is rejected, which means that there is a relationship between perceived usefulness and intention to use.

The Pearson Correlation indicated that there is positive relationship between the two variables as the correlation coefficient value is 0.629 which falls between the 0.50 to 0.79 (moderate positive correlation).

Hypothesis 6: Analysis of the relationship between User Predisposition and Intention to Use.

$H6_o$: There is no significant relationship between perceived enjoyment and intention to use 3G mobile services.

$H6_a$: There is a significant relationship between perceived enjoyment and intention to use 3G mobile services.

Table 5.20 - Pearson Correlation for Perceived Enjoyment and Intention to Use

Correlations

		Intention	Enjoyment
Intention	Pearson Correlation	1	.781(**)
	Sig. (2-tailed)		.000
	N	400	400
Enjoyment	Pearson Correlation	.781(**)	1
	Sig. (2-tailed)	.000	
	N	400	400

** Correlation is significant at the 0.01 level (2-tailed).

The Pearson's Correlation in Table 5.20 indicates that the correlation value of this hypothesis is 0.781, and the correlation appears positive (r>0). The result shows that the value of perceived enjoyment falls in higher moderate correlation, thus the higher perceived enjoyment, the higher intention to use; on the other hand, the lower perceived enjoyment, the lower intention to use. Moreover, the significant value at the 2-tailed test is .000, which is lower than .01. Therefore, the null hypothesis is rejected, which means that there is a relationship between perceived usefulness and intention to use.

The Pearson Correlation indicated that there is quite a high moderate positive relationship between the two variables as the correlation coefficient value is 0.781 which falls between the 0.50 to 0.79 (moderate positive correlation).

Hypothesis 7: Analysis of the relationship between User Predisposition and Intention to Use.

$H7_o$: There is no significant relationship between perceived experience and intention to use 3G mobile services.

$H7_a$: There is a significant relationship between perceived experience and intention to use 3G mobile services.

Table 5.21 - Pearson Correlation for Perceived Experience and Intention to Use

Correlations

		Intention	Experience
Intention	Pearson Correlation	1	.067
	Sig. (2-tailed)		.181
	N	400	400
Experience	Pearson Correlation	.067	1
	Sig. (2-tailed)	.181	
	N	400	400

The Pearson's Correlation in Table 5.21 indicated that the correlation value of this hypothesis is 0.067, and the correlation appears positive (r>0). The result shows that the value of perceived experience has no correlation; it means perceived experience and intention to use have no relationship. In addition, the significant value at the 2-tailed test is .181, which is greater than .01. Therefore, the null hypothesis is not rejected, which means that there is no relationship between perceived experience and intention to use, so null hypothesis is accepted.

The Pearson Correlation indicates that there is no relationship between the two

variables as the correlation coefficient value is 0.067 which falls in 0.00 (no correlation).

Hypothesis 8: Analysis of the relationship between User Predisposition and Intention to Use.

$H8_o$: There is no significant relationship between perceived cost and intention to use 3G mobile services.

$H8_a$: There is a significant relationship between perceived cost and intention to use 3G mobile services.

Table 5.22 - Pearson Correlation for Perceived Cost and Intention to Use

Correlations

		Intention	Cost
Intention	Pearson Correlation	1	.705(**)
	Sig. (2-tailed)		.000
	N	400	400
Cost	Pearson Correlation	.705(**)	1
	Sig. (2-tailed)	.000	
	N	400	400

** Correlation is significant at the 0.01 level (2-tailed).

The Pearson's Correlation in Table 5.22 indicates that the correlation value of this hypothesis is 0.705, and the correlation appears positive (r>0). The result shows that the value of perceived cost falls into moderate correlation. Moreover, the significant value at the 2-tailed test is .000, which is lower than .01. Therefore, the null hypothesis is rejected, which means that there is a relationship between perceived cost and intention to use.

The Pearson Correlation indicated that there is quite a high moderate positive relationship between the two variables as the correlation coefficient value is 0.705 which falls between the 0.50 to 0.79 (moderate positive correlation).

5.4 Summary of Results from Hypothesis Testing

The results of Hypothesis testing are summarized in Table 5.23. There are eight hypotheses except one (hypothesis 7), the remaining hypotheses have significant differences in correlation with a two tailed significance of .000 which is less than 0.01. Therefore, those seven null hypotheses are rejected, it represents that there is a relationship among the variables at 0.01 significance level.

Table 5.23 - Summary of Results from Hypothesis Testing

Hypothesis	Significance (2-tailed test)	Correlation Coefficient	Results
$H1_o$: There is no significant relationship between perceived usefulness and intention to use 3G mobile service.	.000	.806(**)	Rejected
$H2_o$: There is no significant relationship between perceived ease of use and intention to use 3G mobile service.	.000	.547(**)	Rejected
$H3_o$: There is no significant relationship between interpersonal influence and intention to use 3G mobile service.	.000	.747(**)	Rejected
$H4_o$: There is no significant relationship between external influence and intention to use 3G mobile service.	.000	.554(**)	Rejected
$H5_o$: There is no significant relationship between personal innovativeness and intention to use 3G mobile service.	.000	.629(**)	Rejected
$H6_o$: There is no significant relationship between perceived enjoyment and intention to use 3G mobile service.	.000	.781(**)	Rejected
$H7_o$: There is no significant relationship between perceived experience and intention to use 3G mobile service.	.181	.067	Failed to Reject
$H8_o$: There is no significant relationship between perceived cost and intention to use 3G mobile service.	.000	.705(**)	Rejected

Chapter 6

Summary of Findings, Conclusion, and Recommendations

This chapter presents the summary, conclusion and recommendations of the research. The first section includes the summary of the findings that is focused on the statement of the problem and hypothesis. The second section deals with discussion and implication of the research. The third section represents the conclusion and recommendations, which are based on the discussion and implications. In the fourth section, the suggestions for future research are presented.

6.1 Summary of the Findings

The core objective of this research is to investigate the relationship between factors: perceived technology acceptance model (perceived usefulness and perceived ease of use), social influence (interpersonal influence and external influence), user predispositions (personal innovativeness, perceived enjoyment, perceived experience and perceived cost) and the intention to use 3G mobile services in Beijing. In this study, the research had adopted descriptive statistics for the data analysis to indicate the frequency and percentage of the respondents' general information. As for testing the correlation coefficient in the sets of hypothesis, the Pearson's Correlation was used.

6.1.1 Summary of Respondents' Personal Information

According to the descriptive analysis, the study shows the sample size taken was 400 respondents of which male and female are equal in number, which accounts for 50% of total respondents each side. The majority of the respondents are aged within the range of 18-30 years old, which include 232 respondents or 58% of the total respondents. Most of the target respondents have their yearly income between ￥50,001-100,000 or 40% of the total respondents and the majority of the respondents have bachelor's degree, which account for 51% or 204. A large group of people from total respondents is students that accounts for 117 people or 29.3%. The results showed at Table 6.1 as follow:

Table 6.1 - Summary of Respondents' General Information

Variable	Frequency	Percentage
Gender:		
male	200	50%
female	200	50%
Age:		
18-30	232	58%
31-40	121	30.3%
41-50	42	10.5
over 50	5	1.3
Total	400	100%
Income:		
below ￥50,000	96	24%
￥50,001-100,000	160	40%
￥100,001-150,000	96	24%
￥150,001-200,000	40	10%
over ￥200,000	8	2%
Total	400	100%
Education:		
high school	64	16%
college	116	29%
bachelor	204	51%
master or higher	16	4%
Total	400	100%
Occupation:		
student	117	29.3%
management	84	21%
government officials	36	9%
employee	102	25.5%
business owner	36	9%
others	25	6.3%
Total	400	100%

6.1.2 Summary of Independent and Dependent Variables

In this research , the eight independent variables (perceived usefulness, perceived ease of use , interpersonal influence , external influence , perceived innovativeness, perceived enjoyment , perceived experience and perceived cost) and the one dependent variable (intention to use) were tested .

Perceived usefulness includes four sub-questions, the average mean is 3.8425 and the highest mean of perceived usefulness is 3.94 (3G mobile services will help me do my work better). Perceived ease of use has three sub-questions, the average mean is 3.863333 and the highest mean is 3.94 (3G mobile services will be easy to learn how to use it). Interpersonal influence consists three sub-questions, the average mean is 4.01and the highest mean is 4.14 (My social group can affect me use 3G mobile services). External influence includes three sub-questions, the average mean is 3.8566666 and the highest mean is 3.90 (External sources influence my intention to use 3G mobile services). Perceived innovativeness has three sub-questions, the average mean is 3.9333333 and the highest mean is 3.99 (I would like to be the first one to use 3G mobile services in my social groups). Perceived enjoyment has three sub-questions, the average mean is 4.0033333 and the highest mean is 4.15 (Enjoyment is important for my adoption decision). Perceived experience includes three sub-questions, the average mean is 3.0433333 and the highest mean is 3.21(The previous experience in mobile service will affect me using 3G mobile services). Perceived cost has three sub-questions, the average mean is 3.94 and the highest mean is 4.00 (I consider cost as an important factor for my adoption).

The dependent variable (intention to use) includes three sub-questions, the average mean is 3.910 and the highest mean is 3.97 (I will use 3G mobile services in all likelihood).

6.1.3 Summary of Hypothesis Testing

In this research, Pearson's Correlation was applied to analyze the correlation coefficient in the sets of hypothesis. The findings show that all the null hypotheses were rejected except the seventh null hypothesis that failed to reject. The findings are in Table 5.23 on page 73, and the results are summarized as follows:

Hypothesis 1: There is a significant relationship between perceived usefulness and intention to use 3G mobile services. Hypothesis 1 resulted in correlation value at 0.806 (Table 5.23), it indicated that the perceived usefulness of respondents has a high positive relationship with the intention to use 3G mobile services.

Hypothesis 2: There is a significant relationship between perceived ease of use and intention to use 3G mobile services. Hypothesis 2 resulted in correlation value at 0.547 (Table 5.23), it indicated that the perceived ease of use of respondents has a moderate positive relationship with the intention to use 3G mobile services.

Hypothesis 3: There is a significant relationship between interpersonal influence and intention to use 3G mobile services. Hypothesis 3 resulted in correlation value at 0.747 (Table 5.23), it indicated that the perceived interpersonal influence of respondents has a high moderate positive relationship with the intention to use 3G mobile services.

Hypothesis 4: There is a significant relationship between external influence and intention to use 3G mobile services. Hypothesis 4 resulted in correlation value at 0.554 (Table 5.23), it indicated that the perceived external influence of respondents has a moderate positive relationship with the intention to use 3G mobile services.

Hypothesis 5: There is a significant relationship between personal innovativeness and intention to use 3G mobile service. Hypothesis 5 resulted in correlation value at 0.629 (Table 5.23), it indicated that the perceived personal innovativeness of respondents has quite a high moderate positive relationship with the intention to use 3G mobile services.

Hypothesis 6: There is a significant relationship between perceived enjoyment and intention to use 3G mobile service. Hypothesis 6 resulted in correlation value at 0.781 (Table 5.23), it indicated that the perceived enjoyment of respondents has a very high moderate positive relationship with the intention to use 3G mobile services.

Hypothesis 7: There is No significant relationship between perceived experience and intention to use 3G mobile service. Hypothesis 7 resulted in correlation value at 0.067 (Table 5.23), it indicated that the perceived experience of respondents has no relationship with the intention to use 3G mobile services.

Hypothesis 8: There is a significant relationship between perceived cost and intention to use 3G mobile service. Hypothesis 8 resulted in correlation value at 0.705 (Table 5.23), it

indicated that the perceived cost of respondents has a high moderate positive relationship with the intention to use 3G mobile services.

6.2 Conclusion and Implications

Rely on the respondents' general information; the research indicated the numbers of respondents has decreased while the age level increased; the younger age is the most of respondents. The large amount of respondents with income level not over ￥150,000 yearly owned the most respondents. Moreover, the study identified that the majority respondents received bachelor degree or college certificate. At last, the research found that most respondents are students; employees and managers.

Based on the hypothesis test, all of the variables except one (hypothesis 7) have moderated to strong positive relationship with the intention to use 3G mobile services. The results of hypothesis test can be summarized as follows:

The study identified that usefulness of the 3G mobile service related to a significantly positive relationship (r=0.806) with intention to use 3G mobile services, which means the null hypothesis are rejected or accepted alterative hypothesis. The result shows that respondents with the high level of consideration in perceived usefulness are more likely to subscribe to 3G mobile services. This result is perfectly in consistent with previous research, as Sun *et al.* (2010) indicated that perceived usefulness significantly affected users' behavioral intention. Moreover, the perceived ease of use shows the moderate positive relationship (r=0.547) with intention to use 3G services, which also means the null hypotheses, is rejected. The Hong and Tam's (2006) pointed that perceived ease of use has strong impact on adoption intention of IT innovation. However, in the research topic of 3G mobile services, the perceived ease of use does not show strong correlation to the 3G service adoption intention. This finding showed a moderate relationship between the ease of use in 3G services and intention to use. Research found that respondents do not perceive high relationship between the ease of use in 3G services and intention to use. Two factors that are perceived usefulness and perceived ease of use are instrumental in explaining the user's intentions of using a technology or system (Davis, 1989).

The study indicated the interpersonal influence and external influence has a significant positive relationship (r=0.747 and r=0.554) with intention to use 3G services, which means the null hypothesis is rejected or accepted alterative hypothesis. It implies that customers who have the high-level perception in social influence are more likely to use the

3G services. The result supported the previous study by Rao and Troshani (2007) that identified that social influence as strong predictors of mobile services adoption. Therefore, research found that one of the key factors in terms of 3G services adoption is social influence.

The research found that personal innovativeness, perceived enjoyment and perceived cost have a significant positive relationship (r=0.629, r=0.781 and r=0.705) with the intention to use 3G services, especially the perceived enjoyment has quite a high positive relationship, which means the null hypotheses are rejected or accepted alterative hypothesis. It implies that when customers have the higher degree of perception in enjoyment, it would possibly have the higher effect in using of 3G services. As respondents take hedonic benefits as one of the important reasons to use 3G services, it is found that perceived hedonic benefits from the services are the strongest factor that drives user intention to use the services (Verkasalo, 2008). Rao and Troshani(2007) pointed out user predisposition that included personal innovativeness, perceived enjoyment are strong predictors of mobile services adoption. In addition, the personal innovativeness is significantly related to intention to use 3G mobile service. It implies that the higher the degrees of customers' perceived personal innovativeness have the higher degree of using the 3G mobile service. The personality variable (innovativeness) has a positive and direct influence on the intention to adopt (Joaquı´n *et al.,* 2008). Sun *et al.* (2010) believes that the cost is a very important factor that influences the adoption of mobile services; cost often presents the obstacle toward mobile services using. However, even though cost can be seen as a barrier to adoption intention, in this research, it does not show very high or strong correlation to intention to use 3G services. The research has also found that the respondents who are intending to use or trying 3G services do not perceive cost as high correlated as factors such as usefulness, interpersonal influence and enjoyment to the adoption of 3G services. This can be interpreted as respondents consider the useful purposes as the strong impact of the 3G services adoption.

Moreover, the findings show that the perceived experience has no relationship with the intention to use 3G services, which means the null hypothesis is failed to reject or accepted null hypothesis. It implies that whenever a customer thinks about prior experience in using mobile service, it does not affect the use of 3G services.

Finally, findings of the research can be concluded as follows: (1) Perceived usefulness and intention to use have strong positive relation. (2) Perceived ease of use and intention to use has a positive relationship. (3) Interpersonal influence and intention to use have quite a strong positive relationship. (4) External influence has a positive relationship with intention to use 3G services. (5) Personal innovativeness has a significant positive relationship with

intention to use. (6) Perceived enjoyment and intention to use have quite strongly and positively related. (7) Perceived experience has no correlation with the intention to use. (8) Perceived cost with intention to use has quite a high moderate positive relationship.

The study concludes that the intention to use 3G mobile services has related to variables such as perceived usefulness, perceived ease of use, interpersonal influence, external influence, personal innovativeness, perceived enjoyment and perceived cost.

6.3 Recommendations

The study indicates that there are significant positive relationship between factors that are perceived technology acceptance model (perceived usefulness and perceived ease of use), social influence (interpersonal influence and external influence), user predispositions (personal innovativeness, perceived enjoyment and perceived cost) and the intention to use. In this part, useful and meaningful recommendations are summarized for a better understanding about the mobile users in Beijing.

According to the findings, perceived usefulness has a strong positive relation with the intention to use 3G mobile services. The research showed the perceived usefulness is the one of important reasons that increases the agreement level of intention. In other words, the higher the respondents' perceived usefulness of the service, the more possible they will subscribe to the service. On the other hand, if they perceived low in usefulness; they will not use the service. Therefore, the 3G providers should focus more on the usefulness of the 3G services, provide multiple functions, keep up the speed and coverage, and offer better, more efficient services.

Furthermore, it is found that the perceived interpersonal influence of respondents has a high moderate positive relationship with the intention to use 3G mobile services. The results showed the perceived interpersonal influence is the major reason that increases the agreement level of intention. It signifies that the higher the respondents' perceived interpersonal influence, the more possible they will subscribe to the service. It can be interpreted that respondents who are interested in 3G services are social-oriented; they are more likely to interact with one another. In this case, the pull strategy sounds to be the best one in 3G services adoption. The research suggests that 3G providers should provide more packages or create a customized platform that could let them interact or chat easily. People who intend to use the service can get and consider the advice of other users to help them come up with better decision making in their choice of the service adoption. Moreover, besides reaching the customer through communication among them, push strategy is a good

choose to meet their demand; the perceived external influence has a moderate positive relationship with the intention to use 3G mobile services. However, researcher points out that the results showed external influence have space to improve, although the current external sources that service providers applied such as TV advertising, online advertising, billboard, magazines made impact on respondents' intention to make subscription. Therefore, the service providers should continuously launch good and meaningful external sources to customers in returning to gain more awareness and shares in the market.

In addition, perceived enjoyment shows a moderate positive relationship with the intention to use 3G mobile services. The results showed that perceived enjoyment is another major reason that increases the agreement level of intention. It indicates respondents prefer the hedonic feeling, and people really perceive enjoyment as important factor to their adoption. Therefore, the 3G providers should pay more attentions to hedonic factor, and offer services to customers for pleasure, such as games, online TV, video talk. Moreover, the service providers can create their own software platform that provides those functions to attract new customers and maintain loyal customers in the long-term.

Last but not the least; respondents perceived cost has a moderate positive relationship to the intention to use 3G mobile services. 3G providers who want to be successful in this market must carefully deal with the subscription fee; people using or intending to use 3G services consider cost as an important factor that affects their use of 3G services. It may drive customers' decision to use or stop the service. A customer would naturally prefer a reasonable price. An unreasonable price would deter a customer from subscription. This may cause a customer to stop subscription or a change of heart and switch to another competitor. In this situation, suggestion is call for the service providers to segment the market by different categories of users. For example, students may need smaller amount of data stream and cheaper price. Conversely, company managers may need larger amount of data stream, but price would not be a problem for them. In addition, the service providers should plan "reward system" that is applied to the loyal members or long-term contact customers, who could take advantage of the special discount offered by the provider.

6.4 Future Research

This research limits the scope of the study only in Beijing. All of the data are collected from the target population. Further studies can be done on other market environments in other cities in China.

This research studies only the culture, people, and lifestyle in Beijing. It would be beneficial to replicate studies on different culture, people and lifestyle in other cities in China.

This research does not possibly encompass all variables that affect consumer's adoption intention toward 3G service uses, therefore, the future studies should identify and analyze other possible variables that affect the use of 3G services.

Finally, this research is limited only on a specified period, because the consumers' adoption intention may change from time to time. Therefore, the future studies should be conducted with the massing on time.

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APPENDIX A

QUESTIONNAIRE IN ENGLISH VERSION

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Questionnaire

Dear Sir/Madam

I am a student of MBA from Assumption University of Thailand. This questionnaire was designed as the partial fulfillment of the MBA thesis. This questionnaire is to obtain the information under the topic of "Factors affecting consumer adoption of 3G mobile services in People's Republic of China: a case study of mobile users in Beijing". All information is for academic purpose only. Your kind cooperation in responding to all the items shown in this questionnaire would be highly appreciated.

Please read the following statement and mark√ in the space that most accurately reflects.

Part 1: Screening Questions

Are you trying or intend to use 3G mobile services?

__ Yes __ No (Please do not continue)

Do you live in Beijing?

__ Yes __ No (Please do not continue)

Are you 18 years old or over?

__ Yes __ No (Please do not continue)

Part 2: Questionnaire

This part focuses on the factors that influence consumer adoption of 3G mobile service. Select the answer that best describe your opinion in following situations. Please tick only one answer in each column.

Degree of Agreement: Strongly Disagree=1, Disagree=2, Neutral=3, Agree=4, Strongly Agree=5

1. Perceived usefulness	Strongly Disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly Agree 5
1)3G mobile services will help me do my					

work better.					
2)3G mobile services will provide useful functions.					
3)3G mobile services will improve my efficiency.					
4)3G mobile services will enhance my lifestyle.					
2.Perceived ease-of-use (e.g.: mobile online , video talk, mobile TV)	Strongly Disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly Agree 5
5) 3G mobile services will be easy to use 。					
6) 3G mobile services will be easy to learn how to use those services.					
7) I would find 3G mobile services easy for me.					
3. Interpersonal influence	Strongly Disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly Agree 5
8) My friends, family member or work place colleagues can affect me use 3G mobile services.					
9) When I adopt innovation, I will ask advice from my social group.					
10) The opinions or information from my social group are accepted and considered.					
4.External influence (e.g.: TV, newspaper, magazine , internet)	Strongly Disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly Agree 5

11) External sources influence my intention to use 3G mobile services.					
12) I usually learn about new product or service from external sources.					
13) I have got enough information about 3 G mobile services from external sources.					
5.Perceived innovativeness	Strongly Disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly Agree 5
14) I would like to be the first one to use 3G mobile services in my social groups.					
15) I would like to use 3G mobile services, because it is an innovation.					
16) I would like to be in the frontline of technology.					
6. Perceived enjoyment	Strongly Disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly Agree 5
17) Enjoyment is important for my adoption decision.					
18) The use of 3G mobile services will give me pleasure feeling.					
19) I would like to use 3G mobile services for the pleasure or enjoyment.					
7. Perceived experience	Strongly Disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly Agree 5
20) The previous experience in mobile service will affect me using 3G mobile services.					

21) I will think about my previous experience before adopting 3G mobile services.					
22) I think prior experience directly affects my decision.					
8. Perceived Cost	Strongly Disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly Agree 5
23) I consider cost as an important factor for my adoption.					
24) The services do not involve unreasonable expenses.					
25) I am satisfied with the spending of the service.					
9. Intention to use	Strongly Disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly Agree 5
26) It is worth to subscribe to 3G mobile services.					
27) I will use 3G mobile services in all likelihood.					
28) I will adopt 3G mobile services in the near future.					

……..

Part 3: Respondent General Information

The following are some personal questions that will be used for statistical purpose only. Your answers will be held in the strictest confidence.

Please select one answer only for each question:

1. Gender

__ Male __ Female

2. Age (Year old)

__ 18-30 __31-40 __41-50 __ Over 50

3. Income Per year: (RMB￥)

__ Below ￥50,000 __￥50,001-100,000 __￥100,001-150,000

__ ￥150,001-200,000 __￥200,001-250,000 __Over ￥250,000

4. Highest Education Level:

__High School __College __Bachelor Degree

__Master Degree or Higher

5. Occupations:

__Student __Management __Government

__Employee __Owning Business __Others (Please identify) _____

Thank you for your time and concern

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APPENDIX B

QUESTIONNAIRE IN CHINESE VERSION

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你好：

此问卷时以完成泰国易三仓大学研究生论文为目的而设计的， 本文以调查消费者对 3G 手机服务或 3G 服务的使用因素为根本。本调查不记名， 所有资料仅供学术使用， 敬请放填写。你的帮助将是对本研究成功关键， 感谢你的支持。

3G 服务或第三代手机通信服务是目前我国主打的一种手机服务，它升级了原有的手机业务和网络速度，提供给你更快更大的上网速度和流量。它处具有一般手机服务的功能外，还增加了视屏通话，网络电视等功能。

第二部分 问卷

请选择最能表达你观点的选项， 1= 强烈不同意， 2=不同意， 3=一般， 4= 同意， 5= 强烈同意

1.实用性（Perceived usefulness）	强烈不同意 1	不同意 2	一般 3	同意 4	强烈同意 5
1）3G 服务对你做事情有帮助。					
2）3G 服务提供你很多有用的功能。					
3）3G 服务能增加你的效率。					
4）3G 服务充实你的生活方式。					
2．可操作性（如，手机上网，视屏通话， 手机电视等）（Perceived ease-of-use）	强烈不同意 1	不同意 2	一般 3	同意 4	强烈同意 5
5）3G 服务使用简单。					

6）使用 3G 服务简单易学。					
7）我觉得使用 3G 服务很简单。					
3．人际影响（Interpersonal influence）	强烈不同意 1	不同意 2	一般 3	同意 4	强烈同意 5
8）你的朋友，家人，和同事等，会影响你使用 3G 服务。					
9）当你在选择一个新产品的时候，你会从你的社会圈子里征求意见。					
10）你会考虑和接受你社会圈子的意见和信息。					
4．外部影响（如，电视，报纸，杂志，网络等）(External influence)	强烈不同意 1	不同意 2	一般 3	同意 4	强烈同意 5
11）外部渠道会影响你使用 3G 服务。					
12）你通常从外部渠道了解新产品和服务。					
13）你从外部渠道获得关于 3G 服务的信息。					
5. 创新性 (Perceived innovativeness)	强烈不同意 1	不同意 2	一般 3	同意 4	强烈同意 5
14）我愿意成为第一个在你社会圈子里使用 3G 服务的人。					

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15）我想使用 3G 服务， 因为它是一种创新性的产品。					
16）我总是处在科技的前沿。					
6. 娱乐性 (Perceived enjoyment)	强烈不同意 1	不同意 2	一般 3	同意 4	强烈同意 5
17）娱乐性很重要。					
18）使用 3G 服务能使我很到快乐。					
19）娱乐性使我乐于接受 3G 服务。					
7. 经验 (Perceived experience)	强烈不同意 1	不同意 2	一般 3	同意 4	强烈同意 5
20）对手机服务经历， 会影响我使用 3G 服务。					
21）在使用 3G 服务之前， 我会考虑以前对手机服务经历。					
22）我认为以前的经历直接影响我使用 3G 服务的决定。					
8. 费用 (Perceived Cost)	强烈不同意 1	不同意 2	一般 3	同意 4	强烈同意 5
23）我认为费用是一个很重要的因素。					
24）我认为 3G 服务不会涉及一些乱收费。					

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25）我满意 3G 服务的收费。					
9． 意向 (Intention to use)	强烈不同意 1	不同意 2	一般 3	同意 4	强烈同意 5
26）3G 服务值得使用。					
27）我很可能使用 3G 服务。					
28）我近期会使用 3G 服务。					

第三部分 个人信息

这部分是有关你的一些个人信息， 但次数据只用于本研究， 决不涉及其它用途， 请放心填写。

1．你的性别

___男　　___女

2．你的年龄

___ 18-30　___31-40　___41-50　___ 50 以上

3. 你的收入（元/年）（如果是无收入者在此指你每年的生活费）

___￥50,000 以下　___￥50,001-100,000　___￥100,001-150,000

___￥150,001-200,000　___￥200,001-250,000　___￥250,000 以上

4．你的最高受教育程度

___高中　___大专　___本科　___硕士以上

5．你的职业

___学生　___ 雇员　___经理　___公务员　___个体开拓者　___其他

APPENDIX C

STATISTICAL RESULTS FOR PRE-TESTING FROM SPSS

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1. Perceived Usefulness

Case Processing Summary

		N	%
Cases	Valid	50	100.0
	Excluded[a]	0	.0
	Total	50	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.735	4

2 Perceived Ease of Use

Case Processing Summary

		N	%
Cases	Valid	50	100.0
	Excluded[a]	0	.0
	Total	50	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.721	3

3. Interpersonal Influence

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Case Processing Summary

		N	%
Cases	Valid	50	100.0
	Excluded[a]	0	.0
	Total	50	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.751	3

4. External Influence

Case Processing Summary

		N	%
Cases	Valid	50	100.0
	Excluded[a]	0	.0
	Total	50	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.654	3

5. Personal Innovativeness

Case Processing Summary

		N	%
Cases	Valid	50	100.0
	Excluded[a]	0	.0
	Total	50	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.614	3

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6. Perceived Enjoyment

Case Processing Summary

		N	%
Cases	Valid	50	100.0
	Excluded[a]	0	.0
	Total	50	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.650	3

7 Perceived Experience

Case Processing Summary

		N	%
Cases	Valid	50	100.0
	Excluded[a]	0	.0
	Total	50	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.635	3

8 Perceived Cost

Case Processing Summary

		N	%
Cases	Valid	50	100.0
	Excluded[a]	0	.0
	Total	50	100.0

a. Listwise deletion based on all variables in the procedure.

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Reliability Statistics

Cronbach's Alpha	N of Items
.781	3

9. Intention to Use

Case Processing Summary

		N	%
Cases	Valid	50	100.0
	Excluded[a]	0	.0
	Total	50	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.644	3

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