Factors affecting a Mobile Application’s Acceptance

An empirical study of user acceptance of WeChat in China

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Abstract

Along with the development of smart phones and smart phones operating systems, users of smart phones are able to install software, games and other programs provided by third-party providers. WeChat as a third party software that exists in the current market, is an instant messaging application that enables users to send voice, video, pictures and text to their contacts through mobile network. Being a new application, the user acceptance of WeChat has not been studied. Therefore, the result of this study will be valuable to fill the knowledge gap about user acceptance study of this mobile application, and future development of other similar instant messaging mobile application could also benefit from this study. This study focuses on WeChat users and answers to the following research questions:

1. What are the factors that affect the users’ acceptance of WeChat?

2. How could other competing instant messaging applications improve their user acceptance?

The purpose of this study is to explain factors that affect the users’ acceptance of WeChat among WeChat users who are studying in one specific school and working in one specific company.

This study adopts a deductive, theory testing approach. The research model was proposed through literature review and expert interview, and six hypotheses were developed based on the research model. A survey was conducted subsequently to collect quantitative data. Hypotheses were tested through analyzing the quantitative data by using SPSS.

Through testing the hypotheses, this study concluded that “effort expectancy”, “social influence”, “facilitating conditions”, “cost” and “privacy” are the factors that could affect user acceptance of WeChat. Other similar IM mobile applications could take those identified factors as reference in further user acceptance study, and the proposed research model in this study could also help in improving understanding of user acceptance in similar IM mobile application study.
Acknowledgement

We would like to gratefully acknowledge the supervision of Christina Keller in this study. We would not complete this study without her precious feedback and suggestions. Also we want to express our gratitude to Boqiang Chen who has responded our expert interview. Special thanks to students and employees who have participated the survey in this study. We also appreciate the valuable suggestions and feedback from our friends and classmates. They really helped in improving the thesis.

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1 Introduction

This chapter introduces the reader to the background of mobile applications in general, and also contains a basic description of WeChat. Subsequently, the problem description, purpose and research questions will be presented. Finally, the delimitation and definitions of the study will be discussed.

1.1 Background

Over the last few years, mobile phones have brought a large impact on human life, as the number of mobile phones has reached 4.6 billion over the world and the number is still growing (CBSNEWS, 2010). It seems that mobile phone has become the one device that replaces other devices (such as wristwatches, calendars, alarms, GPS, cameras or even laptop) as its functions develops gradually (Businesssteacher, 2011). Mobile phones can be divided into two categories, smart phones and feature phones. Feature phones perform more stable than smart phones, but smart phones generally have better functionality than feature phones (Baike, 2013).

Smart phone is a general term for the kind of the phone that has an independent operating system like a PC, and could achieve wireless network access through mobile communication networks (Baike, 2013). Users of smart phones are able to install software, games and other programs provided by third-party providers, and through installation of those programs, the features of the phone can be expanded. Smart phones generally have five main characteristics; 1. Wireless access to the Internet, if it supports GPRS under GSM network, or CDMA1X under CDMA network, or 3G network, or even 4G network. 2. Personal Digital Assistant (PDA) functionality, including PIM, calendar, task manager, multimedia application and web browser. 3. Operating system, with independent CPU and RAM, with more applications potentially being able to install, the features of the smart phone could be expanded infinitely. 4. Customization, functions of the mobile can be extended according to personal requirements, with extendable functions such as: built-in features real time extension, software upgrades and intelligent recognition of software compatibility. 5. Scalability, which can support a lot of third-party software (Baike, 2013).

The third party software that most smart phones have installed are often known as mobile applications (or mobile app). The apps were initially applied in different domains, such as media, games, news and books. Nowadays they are even applied in business activities. Existing mobile applications are mainly running on mobile operating systems, also known as mobile OS. There are different kinds of mobile OS in the current market, such as Android, IOS and WP (Windows Phone). Certain mobile apps only apply to certain mobile OS, as the apps a programmed according to their own Software Development Kit (SDK) (Koyande, 2013). As a result, different mobile application distribution platforms that apply to different mobile OS have emerged, such as Google Play, Windows Phone Store, iPhone App Store, Ovi Store, etc. (Rowinski, 2012). Through those platforms, different types of mobile apps are able to be published or distributed; meanwhile some of these apps may be reprogrammed into various versions that can be launched on different mobile OS.
Among different mobile apps that exist in the current market, instant messaging applications is a kind of mobile communication system that, when running on mobile devices and other portable terminals, adapts the mode of “working anytime, anywhere, anything”, which enable users to improve their working efficiency without space and geographical restrictions (Baike, 2013). Typical instant messaging mobile applications are WhatsApp, Skype, Viber and ChatON (Griffin, 2012). In January of 2011, WeChat was published as a mobile instant messaging application. By using this app, users can send voice, video, pictures and text to their contacts through mobile network. It supports chatting and group chatting by only consuming a limited amount of network traffic. It also provides Location Based Service (LBS) that help users to identify their locations or find people who are also using WeChat nearby (within a range of 1000 meters) (WeChat, 2013). The application has published 5 different versions that are applied for different mobile OS (iOS, Android, WP, Symbian and Blackberry OS) through different distribution platforms. By providing the over the top service (OTT), WeChat is able to provide instant messaging service without being charged by the mobile network provider. Users of WeChat can text each other for free if their mobile devices are connected to the Internet. Comparing with SMS or MMS services provided by mobile network provider, WeChat's instant messaging service costs less and provides more comprehensive functionalities.

As a mobile application equipped with international communication context, WeChat has about 300 million users around the world. This application has also taken the lead among other similar mobile communication applications in terms of accumulated downloads (WeChat, 2013). It is interesting to explain which factors are leading users to accept WeChat, and which factors are hindering users from using it. Being a new application, the user acceptance of WeChat has not been studied. Therefore, the result of this study will be valuable to fill the knowledge gap about user acceptance study of this mobile application, and future development of other similar instant messaging mobile application could also benefit from this study.

1.2 Problem description

As a mobile application that is used for communications among people across different channels, WeChat has explored a new way of mobile instant messaging. With the increasing number of users, WeChat has become more and more popular in China. There is a huge market for this application and it is still developing (WeChat, 2013).

However, being a successful mobile application with numerous users, there still is some potential risk that would hinder user from accepting it. According to a news report from the Internet (xinhuanet, 2012), the Ministry of Information Technology Industry in China claimed that they are working on a plan to charge for the use of WeChat, although the application is not developed or operated by them. The website thus held a survey about “Will you continue using WeChat if it starts to charge?”, and 90% of the respondents of the survey answered “No” (xinhuanet, 2012). Based on this survey, we believe that a future cost of WeChat use might be a factor that has impact on user acceptance. Besides, as WeChat provides the LBS service, users can search other WeChat users nearby through the
service, owners of stores and restaurants have taken advantage of this service to have one-to-one free advertising activity through registering a WeChat user account and advertising on it. Therefore, some users claim that advertising in WeChat is accurate and convenient, as they could quickly find the nearest restaurant, hotel or stores. But there are also some users feeling annoying by this kind of advertising, as sometimes the advertising contains illegal information such as: “selling mobile phone bugs, offering unlicensed cab service”. A Chinese lawyer stated that the behavior of repeatedly sending advertising messages to others through WeChat can be regarded as an act of harassment (Yan, 2012). Hence, the privacy issue might also be a potential risk that has influence on the user acceptance of WeChat. Based on the issues discussed above, the user acceptance of WeChat is related to many factors. Therefore, it is necessary for WeChat to know what other factors will support or hinder users from accepting it, except for those that discussed above, so that the company will be able to prepare for the future.

As a software application with a high business value, its user acceptance is worth to study for maintaining its current market. Furthermore, the factors that will be identified might provide useful reference for other competing instant messaging mobile applications user acceptance improvement.

1.3 Purpose
The purpose of this study is to explain factors that affect the users’ acceptance of WeChat.

1.4 Research questions
1. What are the factors that affect the users’ acceptance of WeChat?
2. How could other competing instant messaging applications improve their user acceptances?

1.5 Delimitations
This study will not go deep into the technical perspective that may affect user acceptance of WeChat. Factors such as interface development, program algorithm, database and web service will not be covered in this study. As a research that contains interview and survey, two months’ time is comparatively tight for the authors to collect all the data with complete features. The survey will be conduct in China only, the questionnaires will be published on the Internet, and respondents can fill them out online. The respondents who are answering the questions will be the mobile users that have Android, IOS, Windows phone OS and Symbian OS installed on their phone. Users that installed BlackBerry OS on their phones will be not included in the survey, as BlackBerry mobile phones are not available in Chinese market.
### 1.6 Definitions and abbreviations

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
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<tbody>
<tr>
<td>Mobile application</td>
<td>It is a software application that can be installed on handheld devices (mobile phone, tablet, e-reader or other portable device). It supported by operating systems and able to connect to wireless networks (Gahran, 2011).</td>
</tr>
<tr>
<td>WeChat</td>
<td>It is a mobile application that used as a communication tool. It supports sending voice, video, photo and text messages. It also supports group chats, and you can find new friends nearby to talk to. WeChat works on IOS, Android, Windows Phone, Symbian and Blackberry devices (WeChat, 2013).</td>
</tr>
<tr>
<td>4G network</td>
<td>Stands for the fourth generation of mobile communication technology standards, includes HSPA+, FDD-LTE, TDD-LTE (Baike, 2013).</td>
</tr>
<tr>
<td>3G network</td>
<td>Stands for third generation of mobile communication technology standards, includes wcdma, cdma-evdo and TD-scdma (Baike, 2013).</td>
</tr>
<tr>
<td>LBS</td>
<td>Stands for Location Based Service, through mobile network, using Global Position System(GPS), base station and other location technologies, combined with Geographic Information System (GIS) to determine the actual locations of mobile users via mobile terminals. It provide location based service for users through SMS, MMS, voice message, web pages and mobile application (CNW, 2013).</td>
</tr>
<tr>
<td>OTT</td>
<td>Stands for “over-the-top” service. It usually refers to the architecture of the content or service built on top of the telecommunications services and does not require additional supports from network provider, typical examples are Skype and Google Voice (Greene &amp; Lancaster, 2007).</td>
</tr>
<tr>
<td>IM</td>
<td>Stands for instant messaging service. It is a terminal service that allows two or more users communicate with each other by sending or receiving text messages, files, voice or videos in real-time through the Internet (Rouse, 2008).</td>
</tr>
<tr>
<td>GPS</td>
<td>Stands for Global Positioning System. It is a circular orbit radio navigation system that allows land, sea, and airborne users to determine their exact location, velocity, and time 24 hours a day, in all weather conditions, anywhere in the world (GIS2GPS, 2013).</td>
</tr>
</tbody>
</table>
| GPRS                  | Stands for General Packet Radio Service. It is a technology which processes the High-speed packet data transmission for mobile Inter-
<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
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<tbody>
<tr>
<td>GSM</td>
<td>Stands for Global System for Mobile Communications. It is a worldwide standard for mobile telephone. It was created by the Europeans, and now widespread implementation in Europe, Asia, and increasingly America (GSMFavorites, 2013).</td>
</tr>
<tr>
<td>CDMA/CDMA 1X</td>
<td>Stands for Code Division Multiple Access. It is a multiple access wire-less communication technology, and it is a competing mobile phone service technology to GSM (About, 2013).</td>
</tr>
<tr>
<td>RAM</td>
<td>Stands for Random Access Memory. It is important for temporary data storage, it is used to store the instruction of computer and dynamic data from hard disk, and is much faster to read from and write to than the other kinds of storage in the computer (Tech-Target, 2005)</td>
</tr>
<tr>
<td>SDK</td>
<td>Stands for Software Development Kit. It is a package of pre-written code that developers can reuse these codes in their development, and minimize the period of development (Authorize, 2011).</td>
</tr>
<tr>
<td>SMS</td>
<td>Stands for Short Message Service. It is a technology which is an approach to wirelessly send messages of up to 160 characters among mobile devices (WiseGEEK, 2013).</td>
</tr>
<tr>
<td>MMS</td>
<td>Stands for Multimedia Messaging Service. It is almost like SMS, but MMS can send messages which contain text, pictures, audio and video, to other mobile devices (Mobileburn, 2013).</td>
</tr>
<tr>
<td>UTAUT</td>
<td>Unified theory of acceptance and use of technology (UTAUT) is a model that integrates the six previously presented views and theories about user acceptance or user behavior (Venkatesh et al. 2003)</td>
</tr>
<tr>
<td>PDA</td>
<td>Stands for Personal Digital Assistant. It is a handheld device which integrates with computing, telephone, networking features (Jokela, 1999).</td>
</tr>
<tr>
<td>PIM</td>
<td>Stands for Personal Information Manager. It is a type of software application which is used to help users managing random bits of information, and track or record personal in-formation (WiseGEEK, 2013).</td>
</tr>
</tbody>
</table>


1.7 Disposition

Chapter 2 first introduces the background information of mobile applications, instant messaging applications and WeChat in detail. Also privacy and cost issues in mobile applications will be discussed afterwards. Subsequently, different technology acceptance models will be introduced. The Unified Theory of Acceptance and Use of Technology (UTAUT) model will be explained as the combination or evolution of those previous models. Afterwards, related previous user acceptance studies of different mobile applications will be discussed. The research model and related hypotheses will be proposed at last.

Chapter 3 mainly discusses the method adopted in the study. The research philosophy and research objective will be addressed first. Then research design and data collection will be explained. Moreover, different data analysis methods will be presented briefly. Finally, the credibility of the research findings will be discussed.

Chapter 4 analyses the qualitative data from interview and quantitative data from the survey. For the qualitative analysis, the authors are mainly focused on interpreting the interview into factors by applying certain steps. Regarding the quantitative analysis, the authors concentrated on testing the reliability and correlation coefficient of proposed research model and related hypotheses.

Chapter 5 concludes the result from the empirical data analysis in the previous chapter, through presenting the identified factors and further discussion, research questions that proposed in chapter 1 will be answered.

Chapter 6 discusses the results of this study first. Proposed research model will be discussed by comparing to the original UTAUT model. Furthermore, limitations and suggestion for the method in this study will be discussed. Lastly, research implications and suggestion for further research will be presented.
2 Frame of reference

This chapter is divided into three parts: 1) Mobile applications. 2) Technology acceptance models. 3) Previous user acceptance studies of mobile applications. In the first part, background information of mobile applications, instant messaging applications and WeChat will be explained in detail. Also privacy and cost issues in mobile applications will be discussed afterwards. In the second part, different user acceptance models will be introduced, the Unified Theory of Acceptance and Use of Technology model will be explained as the combination or evolution of those previous models. In the third part, related previous user acceptance studies of different mobile applications will be discussed and subsequently the research model and related hypotheses will be proposed.

2.1 Mobile applications

Mobile applications, also known as mobile apps, are software applications that can be installed on handheld devices (mobile phone, tablet, e-reader or other portable device). It supported by operating systems and able to connect to wireless networks (Gahran, 2011). Similar to computer software, the system environment (operating system) of the mobile phone should be considered before installing the mobile application. Currently there are mainly five kinds of mobile operating systems: Android, IOS, Windows phone, Symbian and BlackBerry OS. Corresponding to various mobile operating systems, different types of application distribution platforms have emerged, such as Google play, Windows phone store, App Store, etc. (Pogue, 2009). Those distribution platforms are able to provide the specific version of applications that run in specific system environment for a specific device.

From the beginning, apps were distributed on the Internet as third-party applications. However, with the remarkable rising of Internet openness, the profit mode of application distribution platforms begun to be valued by Internet business magnates (Baike, 2013). Taking the App Store from APPLE as an example, APPLE initially launched App Store in 2008. Back then, the platform offered less than 500 apps. But in the next three years, the number grew to 500,000, and the download accumulation reached 15,000,000,000 times. This figure is still growing in a geometric form. For the revenue of the non-free apps, generally 20-30% of them go to the distribution platform (such as App Store). The reminder goes to the producer of the app (Sieguler, 2008).

Apps were initially focused on media, news, games, and books. Besides, they also applied in the field of business, as many websites have successfully transplanted their content and functionality onto mobile platform in the form of mobile applications, such as Amazon. As a complementary role, app’s mode of profit is commonly adopted by many big companies and changed the way of gaining profit (Baike, 2013). For instance, many newspapers and magazines companies in United States can’t gain any profit from the website end due to lack of traditional reading experience that readers got used to. Nevertheless, the similar apps on mobile platform has the characteristics of portable, touchable and convenience, thus more welcomed by the readers, and bring more profit at the same time (Baike, 2013).
Among different categories of mobile applications that exist in the current market, instant messaging mobile applications are regarded as the most popular type of application in the young generation. It is also commonly adapted by office workers and requiring a quick way to communicate with each other (Wisegeek, 2013). The next section will discuss the instant messaging service in detail and the specific example of WeChat.

2.2 Instant messaging applications

Instant messaging (IM) is a terminal service that allows two or more users to communicate with each other by sending or receiving text messages, files, voice or videos in real-time through the Internet (Rouse, 2008). Instant messaging applications can be divided into PC instant messaging applications and mobile instant messaging applications according to the loaded object, typical mobile instant messaging applications are Whatsapp, Skype, Viber, ChatON, BlackBerry Messenger, Lmo, Meebo, Google Talk, iMessage and WeChat (Griff-fin, 2012).

The difference between instant messaging services and email services is that the communication in IM service is real-time. Most instant messaging services have the characteristic of “Presence Awareness” that can display the contact list and whether the contacts are online so that the users know whether they can have a conversation with their contacts or not. In the early use of instant messaging programs, each character entered by the user would be immediately displayed on the screen of both users, and each character’s delete or modify will also reflected on the screen immediately, this mode of conversation is more like a telephone conversation compared to the use of email. In the current use of instant messaging applications, the content typed will not show to the receiver until you press the “send” key (Ling, 2013). Back in the 1970s, an earlier form of instant messaging named PLATO system was developed. Then in the 1980s, the instant messaging in UNIX/Linux was widely used by engineers and academia. Instant messaging in 1990s could be performed across the Internet. In November, 1996, ICQ became the first instant messaging software for Internet that has been widely used by non-UNIX/Linux users. After the appearance of ICQ, a number of other instant messaging applications were developed. Different IM applications had different protocols, so they couldn’t communicate with each other. This led users to use two or more instant messaging applications simultaneously or use the terminal software that supported multi-protocol, such as Gaim, Trillian or Jabber (Ling, 2013). In recent years, many instant messaging applications provide functions like video conference, video over Internet protocol (VoIP) and web conference service (that integrate both video conferencing and instant messaging features). Thus, the boundary between traditional media and new emerging instant messaging media becomes increasingly vague.

Instant messaging applications nowadays are mostly based on Internet. Users communicate with each other through sending text, voice, video and files, and those applications efficiently save the time and cost for both sender and receiver. Moreover, instant messaging applications are not only tools for communication among mobile users. They have also become platforms for communications in the field of e-commerce, work, or even study (Ling, 2013).
2.3 WeChat

WeChat is an instant messaging mobile application that can send voice message, video, pictures or text in real-time through Internet. It also supports multiple group chat. The application was first published by the company Tencent in China on January 21, 2011 (WeChat, 2013). WeChat users can communicate with their friends on WeChat in a form that is similar to sending SMS, MMS, etc. The application itself is completely free of charge. Usage of any contained features will be charged by the application, the cost of Internet traffic will only be charged by the Mobile Network Operator. By the end of March, 2012, the number of users on WeChat broke 100 million. It took 433 days after the application was published. On September 17th, 2012, WeChat has achieved 200 million users. It took less than 6 months from last achievement. Until January, 24th of 2013, the users of WeChat have reached 300 million. The time it took was less than 5 months from last accomplishment, and the number of users is still increasing (Baike, 2013).

WeChat support different kinds of platform on mobiles. It is compatible with iOS, Window Phone, Blackberry, Android and Symbian operating system. It has the following specific features: 1) voice messages, video, pictures (including facial expressions) and text; 2) Multi-Group chat (up to 20 people. 100 and 200 of the group chat is in closed beta); 3) view of other WeChat users nearby (LBS function); 4) voice Notepad and other assistant plug-in functionality; 5) video chat; 6) stock checking in real-time; 7) real-time intercom function (WeChat, 2013). And communication on this application is not restricted by the platform variance. Sending and receiving messaging between different mobile platforms is possible for WeChat users. The application is also equipped with an International language package It has interface in Simplified Chinese, Traditional Chinese, English, Thai, Indonesian, Vietnamese, Portuguese and Arabic (WeChat, 2013). Furthermore the application cost less on Internet traffic than competing instant messaging mobile applications. Pictures, voice and videos will be sent after optimization is complete, by consuming 1 MB Internet traffic, you can send nearly 1,000 text messages or 1,000 seconds of voice information or nearly 1 minute video. Also, if you run WeChat in the background of mobile system, it only costs about 2.4KB/hour (WeChat, 2013).

2.4 Privacy concern in mobile applications with Location Based Service (LBS)

A considerable number of mobile applications nowadays equipped with LBS, and this technology has been accepted by mobile users gradually. Though according to a recent research conducted by Microsoft, it may take some time for LBS to be widely accepted among users, just like it took a long time for automatic teller machine (ATM) to gain its popularity after public doubts about its security being dispelled (Eloise, 2011). The basic logic of LBS is to provide related services according to your location. In fact, if those location data can be organized and analysed through, they could be quality samples for consumer behaviour and consumer requirement studies. However, the privacy concern from user has become the stumbling block for the use of LBS applications (CNW, 2013). The study conducted by Microsoft had 1500 respondents spread around the world, and 51% of them had used LBS, half of which were users from United States. 94% of the
respondents who had used LBS thought this service to be very helpful. The survey also showed that 70% of the main user group use a LBS for GPS navigation, 46% for weather-related service, 38% for up-to-date traffic information, 38% for hotel information and evaluation, and 36% for finding facilitate services nearby. The findings from the study showed that LBS has been developed gradually especially in the fields of providing service and solving practical problems for users, but privacy concern is still the main reason that LBS cannot gain popularity. The main issue is that users are afraid of revealing their locations to unknown organizations or others without their permissions. Respondents of the research also expressed their concerns about the leakage of personal information or privacy (Eloise, 2011). Although Microsoft’s study concluded that privacy is the main issue that hinder users from using LBS related applications, no solutions or suggestions have been discussed to solve this.

Besides Microsofts’ research, a number of articles have also discussed the privacy issues in LBS from different perspectives. Sharad & Animesh (2010) propose a method to solve the privacy issue of the LBS, as they observed that users are sensitive about their location coordinates and worried about their interests or social contacts may be accessed by others. Specifically, their study proposed a matching service that exchange encoded information from different entities, so that the amount of information that each part can access become limited, making sensitive user information impossible (Sharad & Animesh, 2010). Xu, Teo, Tan and Agarwal (2012) conducted a study about LBS that aimed to explore the nature of information privacy control. In the study discussed the effects of three different privacy assurance approaches (Individual self-protection, Industry self-regulation and Government Regulation). It was they concluded that perceived control on personal information is the core factor that influence user information privacy. As a result, this study provides more approaches to deal with privacy issues when using LBS application, and raises a valuable point that perceived control over the context of personal information is the core factor dealing with privacy issues in LBS product. Liu, Chen, Li, Li and Wong (2012) proposed an additional approach to protect privacy from location queries in LBS. A framework that enables queries form location based service without indicating user location information.

Lohan, Rusu, Cramariuc, Marghescu and Cramariuc (2011) studied the end user’s attitudes towards LBS from students’ perspectives. The main purpose of the study was to understand users’ opinions on LBS, their requirement on LBS through mobile terminal and their concerns on privacy issues. In their conclusion, they proposed that mobile user could be more interactive in LBS related settings (including privacy) to achieve a better adoption of the LBS application. Their study adopted a survey as method, and a limitation of the survey is that the respondents do not fully addressed the characteristics of the whole country’ population, and they also thought a longitude study would offer more insights to user’s behavior study. Ni, Zheng & Chong (2012) proposed a privacy protection solution for LBS users so that users can have their own privacy preferences through defining minimum inferred region. Chow & Mokbel (2012) carried out a study about trajectory privacy in LBS and data publication. In this study, LBS was classified into two categories, snapshots and continuous LBS. The difference between those two services is that

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continuous LBS users have to report their location information to the service in a periodical way to have continuous LBS while snapshot does not require this. So conclusively to protect user privacy from continuous LBS is more challenging. Jorns and Quirchmayr (2010) emphasise the importance of trust and privacy protection in LBS, and propose service architecture for preserving privacy.

As the previous studies presented above have all proved the concern of privacy in LBS related application, and as our research object—WeChat is also an application that provides LBS, the privacy issues of WeChat will be discussed in the expert interview and the survey of our study.

2.5 Cost in mobile applications

In the era of Internet, a wide range of services have been created for users. However, with the remarkable increase of the user’s amount, the difference between user requirements is growing rapidly, more and more mobile applications and services started to charge (Depthsky, 2012). This paragraph will mainly discuss three traditional modes of charging for mobile applications. The first and most common mode of charging is “Built-in Advertising”. This is done through implanting different kinds of code into the program so that advertisements will show up. The program itself is free and gains profit from advertisement. The advantage of this kind of business model is that it can achieve a large number of users within a short period if the quality of the program is guaranteed, since everyone wants to try free stuff. On the other hand, the user experience of such applications will be affected by the advertisements (Depthsky, 2012). The second mode of charging is called direct charges (free trial + purchase). As App Store established a mature purchase and payment system for applications, more and more applications adopted the one-purchase-for-permanent-use mode when they add to the catalogue of App Store. Users need to pay when they download these applications. The mode of direct charging sometimes create difficult situation for developers, as users won’t determine to buy anything before they understand the application better. Therefore many applications offer a trial version so that users can understand the product better and then decide whether to purchase it or not (Depthsky, 2012). The third mode of charging is known as In-App Purchase (IAP). IAP provides flexibility for different kinds of business models. Developers can provide additional services and content to customers within the program and benefit from this. Nowadays a large proportion of application income is obtained through IAP. IAP has become an important channel for application developers. It has been adopted by many iPhone and Android applications, and it is seen as the alternative solution for built-in ads (Depthsky, 2012).

According to the “user behavior report in mobile application store in China, 2012”, conducted by iiMedia Research (2012), only a small proportion of users have paid for the application they downloaded in China, the number is 33.8%. Most of the users never have had the experience of downloading non-free applications. Besides, about 64.6% of the users expressed that they will never download non-free applications. The data from iiMedia Research (2012) also showed that except for games, users in the Chinese mobile application store would most possibly pay for musical applications, eBooks and learning software. 20.1%
of the users were willing to pay for musical applications. iiMedia Research (2012) showed that the amount of payment for a single application is low among users who were willing to pay in the application store. 66.6% of users expressed that they would like to pay for the application if the cost was less than $5. Not being willing to pay or to pay just a low amount have become habits that are hard to change for users. The survey also investigated the risk awareness of users. It showed that users of the mobile application store not only cared about the quality of the application, they were also concerned about their personal privacy. Virus and Malicious software were potential factors that led user to leave the application store. 46.0% of the users said that they would leave the application store because of this. In addition, poor user experiences were also regarded as an important factor that led users to leave the application store.

Dai & Palvia (2009) conducted a study about mobile commerce adoption in China and the U.S. The study first identified nine factors influencing mobile commerce application acceptance based on published articles in management information system (MIS). Those factors were then investigated. Among the nine factors, one factor labeled perceived cost was tested to have the possibility to affect intention to use the mobile commerce applications.

WeChat currently is a free mobile application. Its only costs are Internet traffic in 3G or 4G, and the government are now thinking about imposing the software to charge fees from its users, as WeChat’s OTT service has affect the balance between mobile network service provider and users. This issue will be discussed in the interview and survey of this study.

### 2.6 Technology acceptance models

Information technology (IT) first appeared in the 1950s, the conventional point of view regarded IT as industries of computer hardware and software. However, with the continuous emergence of new computer software and hardware, and new technologies for communication that integrated with Internet, IT has deeply affected human being’s everyday life (Haigh, 2003). However, no matter how important the technology is, it will not achieve the effect of diffusion until users accept it and are willing to use it. Instant messaging mobile application as a form of information technology has changed the traditional one-way communication into two-way interaction. Therefore many studies started to discuss the users’ accept behavior by applying technology acceptance models.

This study will use the Unified Theory of Acceptance and Use of Technology (UTAUT) model to explain the factors that affect the user acceptance of WeChat, as UTAUT was developed from eight previous technology acceptance models, they are Theory of Reasoned Action (TRA), Technology Acceptance Model/Technology Acceptance Model2 (TAM/TAM2), Theory of Planned Behavior/Decomposed Theory of Planned Behavior (TPB/DTPB), Social Cognitive Theory (SCT), Innovation Diffusion Theory (IDT), Motivation Model (MM), Combined-TAM-TPB and Model of PC Utilization (MPCU) (Venkatesh et al. 2003). Thus, this chapter will briefly introduce these eight models of technology acceptance. However, every model has its strength or weakness in explaining user be-
behavior. Explaining the values and defects of those models will help in understanding the historical evolution of UTAUT better, as well as the theoretical foundation and the implications of the dimensions of UTAUT.

2.6.1 Theory of Reasoned Action (TRA)

Fishbein and Ajzen (1975) have proposed the behavioral intentions model—Theory of Reasoned Action (TRA) which intends to detect individual’s intentions and behavior. According to Fishbein and Ajzen (1975), emotions or attitudes towards specific actions and subjective norm are two antecedents of the behavioral intention and subsequent behavior. Subjective norm means that an individual should perceive the important actions that others think he should or should not perform.

According to TRA, whether an individual performs a specific behavior or not is determined by the individual’s behavioral intention and behavior intention is determined by attitude towards individual’s behavior and subjective norm (Fishbien & Ajzen, 1975). The TRA model is shown in Figure 2-1

![Figure 2-1 Theory of Reasoned Model (Fishbein & Ajzen, 1975)](image)

2.6.2 Theory of Planned Behavior (TPB)

Ajzen (1985) proposed a model called Theory of Planned Behavior (TPB). Compared to TRA, TPB has been enlarged with a new variable called “perceived behavioral control”. The model states that the correctness of perceived behavioral control is determined by an individual’s usage behavior. A higher degree of behavioral control leads to higher intention to use, and together they lead to a higher degree of usage behavior (Ajzen, 1985). The TPB model is shown in Figure 2-2. This theory presents a somewhat deeper explanation on the usage behavior than TRA.
Technology acceptance model (TAM)

Technology acceptance model was first proposed by Davis (1989). It aims to generally explain the decisive factors for acceptance of Information Technology, and the theory has verified and explained most usage behavior of technology (Davis, 1989). The theoretical foundation of the theory is that external factors have influence on internal factors: belief, attitude, intention, and those internal factors will further affect the use of certain technology (Davis, Bagozzi & Warsaw, 1989). Technology acceptance model was revised from the Theory of Reasoned Action (TRA); Figure 2-3 shows the model of TAM.

Social Cognitive Theory (SCT)

Social Cognitive Theory was proposed by Bandura (1977). This is a theory that has been widely accepted and empirically verified. Social cognitive theory factors comprise the impact of the environment (e.g. the overall social environment, social pressure), individual cognitive and personal factors (e.g. personal, attitudes personal motivation) and mutual influence among three different behaviors above, as shown in Figure 2-4 (Bandura, 1977). Nonetheless, whether an individual performs an action or not is affected by the personal goals and self-efficacy of the individual to perform the behavior. If an individual performs a behavior is consistent with his goals and with a strong self-efficacy at the same time, then the individual will perform the behavior (Bandura, 1977).
2.6.5 Innovation Diffusion Theory (IDT)

Innovation Diffusion Theory (IDT) was first proposed by Rogers (1995). An innovation is something that is perceived as new by an individual or a social system. In a general sense, innovation means all the new discoveries and new inventions, and they are mainly in technology field or production field (Lin, 1999). IDT contains the compatibility, observability, complexity, comparable advantage and testability as shown in Figure 2-5 (Roger, 1995). Based on Roger’s theory, we can conclude whether customers or users accept the innovation depending on whether the products have these characteristic.

2.6.6 Motivation Model (MM)

Drucker (1954) believes that motivation itself is not just a static psychological construct, but rather a dynamic process. Hence, motivation means when individuals have perceived stimulation from external environmental factors, result in a psychological process before the actual behavior, when the psychological process has accumulate to a certain degree, actual behavior or elimination of actual behavior will be triggered (Drucker, 1954). If the stimuli sourced from individuals or work itself, e.g.: personal interests, adventure tendency or work challenging, referred to as “intrinsic motivation”. On the contrary, if the stimulus is mainly from individual or work external, e.g.: money, jobs or source of power, the behavioral motivation this stimulus lead to is called ‘extrinsic motivation’ (Amabile et al, 1994).

2.6.7 Combined-TAM-TPB (C-TAM-TPB)

Taylor & Todd (1995) integrated the TAM and TPB and proposed a combined-TAM-TPB (C-TAM-TPB). In their study, they add a manipulate variable-‘using experience’, the result of the study showed that experienced users’ actual behavior are more easily to be affected.
by behavioral intention than those without experience. Their study also indicates the impact of ‘perceived usefulness’ and ‘perceived behavioral control’ is different between experienced users and non-experience users. Experienced user think, compared to ‘perceived usefulness’, ‘perceived behavioral control’ has higher impact ‘behavioral intention’. On the other hand, non-experienced users think ‘behavioral intention’ is affected by ‘perceived usefulness’ rather than ‘perceived behavioral control’, but they think ‘perceived behavioral control’ will affect ‘actual behavioral’ (Taylor & Todd, 1995).

2.6.8 **Unified Theory of Acceptance and Use of Technology**

Unified theory of acceptance and use of technology (UTAUT) is a model that integrates the eight previously presented views and theories about user acceptance or user behavior. It proposes four dimensions that affect behavioral intentions: performance expectancy, effort expectancy, social influence and facilitating conditions. Those dimensions are affected by the moderator variables of gender, age, experience and voluntariness of use (Venkatesh et al. 2003). The UTAUT model is presented in Figure 2-6

![Unified Theory of Acceptance and Use of Technology](image)

**Figure 2-6** Unified Theory of Acceptance and Use of Technology (Venkatesh et al. 2003)

The four main dimensions of UTAUT are related to the dimensions in those previous models or theories.

1. “Performance expectancy” is defined as the extent to which an individual believes that this system will help to improve working performance. The term is equivalent to “perceived usefulness” in Technology Acceptance Model (TAM), “extrinsic motivation” in the theory of motivation, “relative advantage” in diffusion of innovation theory (Venkatesh et al. 2003).
2. “Effort expectancy” refers to the ease of use of the system. It is equivalent to “perceived ease of use” in Technology Acceptance Model (TAM), “complexity” in Innovation Diffusion Theory (IDT) (Venkatesh et al. 2003).

3. “Social influence” dimension in UTAUT is defined as the extent to which an individual perceived that people who are important to him or her think he or she should use the system. The term is equivalent to “subjective norm” in Theory of Reasoned Action (TRA) and Theory of Planned Behavior (TPB) (Venkatesh et al. 2003).

4. “Facilitating conditions” is defined as the extent to which an individual believes existing organization or technical infrastructure will support the use of the system in the UTAUT. It is equivalent to “perceived behavioral control” in Theory of Planned Behavior (TPB), “self-efficacy” in Social Cognitive Theory (SCT), and “compatibility” in Innovation Diffusion Theory (IDT) (Venkatesh et al. 2003).

In recent years, the importance of UTAUT has risen gradually in the field of information systems, being applied in research by many scholars. The model has been used in a wide range of fields, such as health (Heerink, Krose, Wielinga & Evers 2006; Lubrin, Lawrence, Felix-Navarro & Zmijewska, 2006) and marketing acceptance of enterprise new technology (Carlsson, Carlsson, Hyvonen, Puhakainen & Walden, 2006; Anderson & Schwager, 2004). Professor Peter Rosen from University of California mentioned that UTAUT provides the standard for future technology acceptance behavior studies just as the TAM has proven its own importance in this field of study in the past 15 years.

Researchers from different fields with different research purposes have tried to add new dimensions in the original UTAUT model in recent studies in order to improve the explanatory value of the model. As mentioned before, many acceptance studies that related to Internet will consider adding “Perceived Playfulness” as a factor. Because Internet has the characteristics of interactivity, unbounded, hyperlinks, decentralization, and it brought its users a lot of fun, the influence that “Perceived Playfulness” has on “behavior intention” and “user behavior” in their opinion cannot be ignored. For instance, Zhang (2003) added “playfulness” dimension into UTAUT model in a study that focused on Enterprise Intranet acceptance among employees.

The original UTAUT model also has four control variables (gender, age, experience and voluntariness) that adjust the relations between different dimensions and “behavior intention” (or “user behavior”). Thus the model can improve its ability to explain variance in acceptance (Venkatesh et al. 2003). However, except those control variables, researchers have also discussed different external variables or antecedents according to their preferences or research requirements. For instance, Knutsen (2005) studied “age” as an antecedent that influence “performance expectancy” and “effort expectancy” instead of a control variable. The result showed that age can negatively affect “performance expectancy” and “effort expectancy”.

Furthermore, several studies also aimed to explain the influence that variables had on the entire model. For instance, Kishore and Li (2006) intended to test if the influence of differ-
ent dimensions in the UTAUT model is constant under different conditions. The research chose an online blog community as the research object, aiming to test the influence of different dimensions under variance gender, knowledge of computer, knowledge of the blog, and experience of using the blog and user frequency. The findings showed that the influence of different dimension on the model will not remain the same under different conditions.

In summary, different researchers added different kinds of variables in the UTAUT model that served for their own discussions. The role of the variables depends on the purpose of the research. Different research design will result in different conclusions. Regarding this study, we aim to find factors that affect the user acceptance of a mobile application. Since UTAUT is a more complete and comprehensive model that developed from previous technology acceptance models, by including more complete antecedents and control variables than other previous models, the UTAUT model has a better interpretation capability that would help in understanding the influence relationships that certain factors had on the acceptance of the mobile application in this study. Meanwhile, we also aim to explain new external variables (or factors) added to the UTAUT model serves our research design.

2.7 User acceptance studies of different mobile applications

Since mobile applications have been rapidly developed and widely adopted, the acceptance of certain mobile applications has been studied by a high number of researchers. Shin (2009) studied the customer acceptance of a mobile wallet application. The model being used was developed based on unified theory of acceptance and use of technology model (UTAUT). After the proposed model was tested empirically, the results confirmed the traditional factors affecting user acceptance (ease of use, perceived usefulness). Meanwhile a new factor--perceived security was also confirmed to have influence on user acceptance of mobile wallet application (Shin, 2009). Although this study arrived at a solid conclusion, the result only reflects on the limited perspectives of user experiences of a mobile wallet application. Hence, the conclusion is difficult to generalize to other types of mobile applications outside the U.S. Mobile market where the study was performed (Shin, 2009).

Kim, Mirusmonov and Lee (2010) carried out a study on factors that affect the intention to use mobile payment system. In order to have the complete idea of user adoption of mobile payment systems, the article proposed a research model based on Technology Acceptance Model (TAM). After the authors evaluated the proposed model with collected empirical data, they reached a conclusion confirming the classical relationships in the TAM model. The authors also confirmed a new factor that can influence the user’s perceived ease of use, labeled “personal innovativeness” (Kim, Mirusmonov & Lee, 2010). The study successfully explains the factors that affect the user acceptance of this specific mobile application, but as a study that applied TAM model, it did not include the variable “actual usage behavior” into their research model. Also, the authors of the article thought that there may also exist individual differences and system characteristics that could influence the purpose to use this specific mobile application (Kim, Mirusmonov & Lee, 2010).
Tsai, Wang and Lu (2011) studied the ease of use of a mobile communication system by applying the TAM model. As a result, their study concluded that the user attitudes towards the mobile communication system can affect the user acceptance of the system, and also the attitudes are influenced by whether or not the mobile application was perceived simple and easy to use in users’ daily life (Tsai, Wang & Lu, 2011). The study also provides a direction for further influence factor study for this mobile communication system, such as lifestyle of users and working needs.

Lee, Park, Chung and Blakeney (2012) explained the factors that affected the intention of to use mobile financial services. Based on the TAM model, the result showed that ease of use was the most important factor compared to other factors. Also the perceived ease of use of this service was affected by the connectivity of this service. Eventually, personal innovativeness also had a remarkable influence on perceived ease of use (Lee, Park, Chung & Blakeney, 2012). Choi and Totten (2012) published an article that aimed to study the influence of culture variance in mobile TV application acceptance. Their research model was also developed based on TAM, and the additional factors they proposed were “individual-level culture orientation”, “interdependence” and “independence”. The results demonstrated that self-construal can significantly affect TAM. Also the interdependent self has higher influence on the user acceptance of mobile TV application than the independent self. (Choi & Totten, 2012)

To sum up, all the studies concerning user acceptance of mobile applications above were mainly based on TAM model. The comparison table of different studies was shown in Table 2-1. Most of them have developed the TAM model with additional factors in order to explain the phenomenon more specifically and completely that certain factors are affecting user acceptance, those studies have both strength in explaining the mobile application users behavior and weakness in reaching a world-wide generalizability as we have discussed above. All presented studies showed that a more sophisticated and complete technology acceptance model is required for mobile application acceptance study, so in our study, UTAUT model has been chosen and used for developing our research model. Also most of them adopted survey as the method to test their hypotheses, and the most frequently used analysis tool was SPSS.
Table 2-1 User acceptance studies of different mobile applications

<table>
<thead>
<tr>
<th>Previous mobile application acceptance studies:</th>
<th>Research model was based on:</th>
<th>Data collection:</th>
<th>Empirical analysis tools:</th>
</tr>
</thead>
</table>
| Towards an understanding of the consumer acceptance of mobile wallet (Shin, 2009) | UTAUT | 1. Individual in-depth interviews  
2. Focus group interview  
3. Survey | SPSS15 |
| An empirical examination of factors influencing the intention to use mobile payment (Kim, Mirusmonov & Lee, 2010) | TAM | 1. Survey | AMOS 5.0 software package |
| Using the technology acceptance model to analyse ease of use of a mobile communication system (Tsai, Wang & Lu, 2011) | TAM  
TPB | 1. Experiment | N/A |
| A unified perspective on the factors influencing usage intention toward mobile financial services (Lee, Park, Chung & Blakeney, 2012) | TAM | 1. Survey | SPSS |
| Self-construal’s role in mobile TV acceptance: Extension of TAM across cultures (Choi & Totten, 2012) | TAM | 1. Survey | SmartPLS |

2.8 Research model and hypotheses

This study is based on the UTAUT model proposed by Venkatesh et al (2003), which mainly aims to study if performance expectancy, effort expectancy, social influence and facilitating conditions will affect the user’s intention to use WeChat. The voluntariness of use variable in the UTAUT model will not be discussed in this study, as the use of WeChat is voluntary. The interference variables that this study is going to address are: age, gender and experience. Age has been divided into four phases, gender includes male and female. Experience concerns different lengths of the time period being a WeChat user. Two additional
direct variables, cost and privacy, were added to the model related to the behavioral intention dimension. The proposed research model for this study is presented in figure 2-7.

Based on the proposed research model, this study has developed the following hypotheses:

**H1:** User’s performance expectancy positively affects the behavioral intention to use WeChat.

**H2:** WeChat’s effort expectancy positively affects the behavioral intention to use WeChat.

**H3:** User’s social influence positively affects the behavioral intention to use WeChat.

**H4:** WeChat’s facilitating conditions positively affects the use behavior of WeChat.

**H5:** The cost of WeChat negatively affects the behavioral intention to use WeChat.

**H6:** The privacy conditions of WeChat affect the behavioral intention to use WeChat.
3 Method

This chapter mainly discusses the method adopted in the study. The research philosophy and research objective will be addressed first. Then research design and data collection will be explained. Moreover, different data analysis methods will be presented briefly. Finally, the credibility of the research findings will be discussed.

3.1 Research philosophy

Research philosophy relates to the development of knowledge and the nature of that knowledge. The research philosophy you adopt contains important assumptions about the way in which you view the world and these assumptions will decide your research strategy and the methods you choose. In this study, a positivist research philosophy is adopted. It is associated with philosophical stance of natural scientist generating a research strategy collect data which you are likely to use existing theory to develop hypotheses. These hypotheses will be tested and confirmed (Saunders, Lewis & Thornhill, 2007).

In this study, what factors affect users’ acceptance of WeChat was set as our starting point. Our research strategy and our methods are determined by this. Therefore, the authors generate those factors and test those factors though the existing study.

3.2 Research objective

According to Saunders et al. (2007), a research purpose can be classified into three types: exploratory, descriptive and explanatory. Exploratory studies aim to find what is happening; to seek new insights; to ask questions and to assess phenomena in a new light (Robson 2002). The goal of a descriptive study is to provide a picture of a phenomenon as it naturally occurs (Hedrick, Bickman & Rog, 1993). Explanatory studies are built on exploratory research and endeavor to demonstrate the factors why something occurs (Neuman, 2003). The purpose of this study is to find out factors that influence users’ acceptance of WeChat. This is the characteristic of an explanatory study.

3.3 Deduction

According to Ghauri and Gronhaug (2010), deductive research means that conclusions are draw through logical reasoning, beginning with the general and ending with the more specific. Referring to this study which tests what factors affect user’s acceptance of WeChat. The foundation of this study is the UTAUT model. By literature studies and one expert interview, we will evaluate the model to investigate if additional factors will be added. Finally, the hypotheses created from the research model will be tested. Hence, a deductive, theory-testing approach is used in this study. This type of research is associated with the quantitative type of research. This process will be followed like this:
3.4 Research design

In order to answer our research questions, we carry through our research in both way—quantitative and qualitative—to investigate the factors which influence the end-users’ acceptance on Mobile Application – WeChat. Qualitative data will be collected by the expert interview to develop additional factors of research model. To test our hypotheses, we need to collect empirical quantitative data.

3.4.1 Qualitative research

To explain factors which can affect user’s acceptance of WeChat, a literature review and an expert interview has been chosen in our study. Qualitative research is to understand some aspect of a phenomenon, and generate words, rather than numbers, as data for analysis (Patton & Cochran, 2002). On the other hand, the qualitative research aims to gain holistic, comprehensive and affluent data (Walker et al. 2008). In order to find some factors affecting users’ acceptance from other studies, we started our study by performing a literature review.

3.4.2 Quantitative research

In our study, quantitative methods have been chosen to test our hypotheses. We need to use quantitative research to acquire the data which can clarify the relationships between factors which can affect users’ acceptance of WeChat. We used an Internet survey to a sample of respondents from one university and one company. The result from the survey will be quantitative data. Subsequently, statistical analysis will be applied to test our hypoth-
eses. As a result, the relationship between the factors of the UTAUT model and users’ acceptance will be clarified.

3.5 Data collection

Data sources are generally classified into primary and secondary data (Gulnazahumad, 2013). Primary data are always unknown before the research being undertaken and obtained directly for a specific research project (Currie 2005). Secondary data are collected from a source that has already been published in any form such as books, journals and periodicals (Gulnazahumad, 2013). With a combination of primary and secondary data, researchers can be given a more comprehensive and valid investigation by conducting secondary data research first, and then using primary data research to fill any gaps in the research (Neel, 2013).

3.5.1 Primary data collection

According to Currie (2005), there are three main methods to collect primary data: survey, interview and the observational method. In terms of the observation, it is unlike questionnaires or interviews; the observational method collects data about behavior rather than putting questions to respondents. In a sense, interview method is also a questionnaire; both of them are most common strategies to collect primary data (Currie 2005). Arnold et al (1991) indicate that interviews are, often used as a ‘talking questionnaire’, but these two methods use different techniques for collecting primary data. In this study, expert interviews and a survey questionnaire were used to collect primary data.

3.5.1.1 Sampling

WeChat has 300 million users in China, 200 respondents from one company in the mobile application field and one university were the target sample of this survey. The chosen company for the survey is Baidu Online Network Technology (Beijing) Co., Ltd. It is an Internet technology-based company that provides search engine service. The chosen university is Wuhan University of Technology, it is located in south of China. The respondents from those two organizations are general WeChat users. Those two organizations have been selected for the survey because different people who are work or study in different fields can provide a more comprehensive perspective and give more reliable data to reflect what factors can influence the user acceptance of WeChat.

The sample frame was provided by database of student registration in university and roster of staff from the HR department of company.

After the sampling, the authors decided to use cluster sampling as our sampling techniques. According to Saunders et al. (2007), cluster sampling is similar to stratified sampling on surface; this sampling technique was used to divide the entire population into discrete groups prior to sampling. As dividing the population into some clusters which can be based on any naturally occurring grouping, the sample is most likely to be representative, as researchers can ensure that each cluster is represented proportionally within this sample. In this research, the population is divided into 2 different clusters which include student and company staff.
More than 10,000 people are working or studying in these two organizations, but according to the data from both of two organizations, there are approximate 1200 people who are using the WeChat in their study or work. According to the organizations’ information, the university has 700 users of WeChat and company has 500 users of WeChat. Therefore the target population of this study is 1200 people. According to the each organization proportion of the total, the author has decided to set the sample of each cluster proportion as 58% people from students and 42% people from company staff. Therefore based on this proportion, the sample of each cluster was calculated as 116 students from university and 84 staff from company.

### 3.5.1.2 Interview

An interview is a purposeful discussion between two or more people (Kahn & Cannell, 1957). It can help researchers to gather valid and reliable data that are relevant to the research questions and objectives (Saunders et al., 2007). Interviews could be classified as one of structured, semi-structured, or unstructured interview. For the structured interview, researchers always conduct questionnaires based on an identical set of questions. Unstructured interviews are informal conversation between respondent and researcher (interviewer). It gives respondents opportunities to present their opinions freely. In semi-structured interviews, it is based on a list of themes and questions. The orders of the questions or themes being brought up in the interview may vary between interviews (Saunders et al., 2007).

In order to design a comprehensive questionnaire, the authors decided to perform interview with experts in the field in order to see if the original UTAUT factors should be complemented with additional factors. Therefore, the semi-structured interview was chosen as the interview strategy. It is suitable for a qualitative analysis, as semi-structured interviews could provide sufficient flexibility to approach different respondents differently while still covering the same areas of data collection (Noor, 2008).

According to Flick (2009), the expert interview is a specific form of conducting semi-structured interviews. This type of interview can give the interviewer credible result and perspective. For this reason, expert interviews were chosen as primary approach of interview.

Initially, we decided to conduct two interviews with two experts in the field of mobile application development. However, only one expert, working for Baidu Company, responded to the interview request. As this expert is working for the department of mobile cloud storage service in Baidu Company, he is equipped with good experience and knowledge in the aspect of mobile application development, the collected data and perspective were highly appropriate to this research. All interview questions were open-ended questions and the interview was performed by email. The interview questions are presented in Appendix 1.

### 3.5.1.3 Questionnaire

A questionnaire was designed to explain the factors influencing the users’ acceptance of WeChat. With the factors which were generated from the literature review and the expert interview, the questionnaires provided us with quantitative data from users of WeChat.
Questionnaires are categorized into five types: internet-mediated questionnaire, postal questionnaire, delivery and collection questionnaire, telephone questionnaire, and structured interview (Saunders et al., 2007). In order to avoid the language barrier, so that users would not refuse to answer the question, the questionnaire was translated into Chinese. Because the users of WeChat are in China, an Internet-mediated self-administered questionnaire was used in our survey. From the respondent’s view, Internet-mediated questionnaires is easy to respond to and more convenient to fill in. From the researcher’s perspective, data could be easily collected and analyzed (Saunders et al., 2007).

The question in questionnaires, are divided into two parts: background questions and questions about the factors. Six background questions involving gender, age, occupation, duration of using WeChat and frequency of using WeChat were included. Since the aim of the study was to seek factors could influence users’ acceptance of WeChat, the questions were designed in accordance with the Unified Theory of Acceptance and Use of Technology (UTAUT), combined into four factors. 1. Performance expectancy. 2. Effort expectancy. 3. Social influence. 4. Facilitating conditions. So each factor in the model is operationalized by several questions (see Appendix 3). Rating questions most frequently use the Likert-style rating scale in which the respondent is asked how strongly he or she agrees or disagrees with a statement or series of statements, normally on a four-, five-, six- or seven-point rating scale (Saunders et al., 2007). The authors chose to use seven-point rating scales. All the questions were formulated for good understanding to make it easy to respond. After the pilot test, the questionnaires were distributed to the users of WeChat in schools and companies.

Till the online survey closed, 189 responses of questionnaire were collected. The authors found that a few of respondent refused to answer this questionnaire without any reason. Saunders et al. (2007) regarding non-respondents are who have refused to be involved in the research for some kinds of reasons. When this situation occurred, the respondents could not represent the total of population, and the data which were collected from questionnaire may be biased. Therefore a high response rate is that as well as possible to be obtained, in order to ensure that the sample is representative. According to Neuman (2003), the response rate must to be included in the research, and all eligible respondents should be included in response rate calculating. In this research, total number in sample is 200, only 11 respondents (5.5%) did not respond, and all of rest responses are valid, therefore the total response rate was 94.5%.

3.5.2 Secondary data

In this study, the outcome of literature review will be regarded as the secondary data. The authors have used the Google Scholar and Jönköping University Library database as the primary search engines to gather literature. The main purpose of collecting secondary data is to find out which factors have already been pointed out by other authors and how other researchers have investigated user acceptance of different mobile applications. The key words used to search for literature, article and journals information: user acceptance, LBS, UTAUT model, mobile application, privacy and cost.
3.6 Qualitative data analysis

Through literature review and interview, external factors that affect the acceptance of WeChat will be identified. Based on this study then will analyze the user acceptance of WeChat based on the Unified Theory of Acceptance and Use of Technology model (UTAUT). Regarding the analysis of the interview, which is in a form of qualitative data analysis, Yin (2003) suggests that the qualitative data analysis is an inductive process, in which you need to combine some elements of a deductive approach as you seek to develop a theoretical position and then test its applicability through subsequent data collection and analysis. Therefore, the authors will conduct our qualitative analysis through 5 steps which is proposed by Mills (2006):

1. transcribe the interview
2. preliminary exploratory analysis
3. referring to research questions
4. inter-rater reliability
5. interpret findings

In this study, the purpose of the expert interview was help to gather valid and reliable data that were relevant to the research questions. The authors began with an exploratory analysis. As the interview was performed by e-mail, the interview data was already transcribed in a form of “Questions & Answers”. For the exploratory analysis, the authors reviewed the transcript of interview several times to create a summary of the key points and identified themes. After that, we further reviewed the transcript and identified themes that could answer our research questions. For inter-rate reliability, we reviewed the interview data and refined the themes individually. Every result was discussed, and a series of themes finally emerged. As the last step, we sorted and integrated different themes into multiple categories, and then named those categories (like Performance expectancy, Cost influence, Privacy influence etc). In this way, the qualitative content of the factors in the research model was established.

3.7 Quantitative data analysis

Through analysing the survey data collected from WeChat users, different external factors that have been identified before will be tested according to their relationship with the UTAUT model to see if they really affect user acceptance of this product. The relationships that exist inside the UTAUT model will also be tested. Following the data analysis, the study will provide further suggestions for improving the user’s acceptance of other competing instant mobile applications based on the result.

In order to analyze the data collected from the survey, we used quantitative data analysis techniques. The quantitative data analysis was conducted by SPSS (statistical product and service solutions) which is predictive analytics software, used to perform data entry and analysis and to create tables and graphs (IBM, 2013). Four analyses were performed in this study; descriptive analysis, reliability analysis, bivariate analysis and regression analysis, all of these analysis was used by SPSS.
1. **Descriptive analysis**

The descriptive analysis described the distribution or range of respondent to each variable and analyzes the data of each question, calculating percentage, frequency or ratio.

2. **Reliability analysis**

Cronbach’s alpha is a measure of internal consistency, that is, how closely related a set of items are as a group (UCLA, 2012). In this study, Cronbach’s Alpha was used to examine the reliability. Nunnally (1967, p. 206) defines reliability as the “extent to which measurements are repeatable and that any random influence which tends to make measurements different from occasion to occasion is a source of measurement error”. In the reliability analysis, high coefficient reliability means high consistency. When Cronbach’s Alpha is less than 0.35 means low reliability, and Cronbach’s Alpha is more than 0.7 means high reliability (Cuieford, 1965). Acceptable reliability is no less than 0.5 (Nunnally, 1967).

3. **Bivariate correlation analysis**

Bivariate analysis is used to determine whether there exists a statistical relationship between two variables (Barrett, 2006). Correlation is the measure that indicates the strength of a relationship between two variables. A strong correlation means that two or more than two variables have a strong relationship between each other; a weak correlation means that these variables are hardly related (Crossman 2013). In this study, bivariate correlation analysis was used to analyze the relationship between these variables.

4. **Regression analysis**

Regression analysis usually helps the investigator to find out the causal effect of one variable depended another variable (Sykes, 2013). That means this analysis can prove the relationship between dependent variable and independent variable. In this study, the hypotheses were tested by means of regression analysis.

3.8 **Credibility of research findings**

3.8.1 **Reliability**

According to Easterby-Smith et al. (2008), reliability stands for the degree to which a certain data collection techniques will produce consistent finding. Two issues need to be addressed. First, would this study generate the same result on different occasions? More specifically, two threats to reliability proposed by Robson (2002) need to be regarded; “subject or participant error” and “subject or participant bias”. Regarding those two threats, the participants in our survey and interview were basically students and employees in companies. Student respondents of the survey would probably not generate different answer during different days of the week, as every day in the week is “neutral time” for them. The employees in companies could answer the survey at any time they wanted. So it could be any day of the week and outside of work hours. As WeChat is an IM application that mainly
used for communication, it’s unlikely that different days of the week or authoritarian influence on the job would have affected those employee’s answer to the survey.

We carried out the inter-rater reliability analysis for the qualitative data we collected from the interview, before we interpret the findings, interview data was reviewed and refined into themes by each of us. Every result was discussed and series of themes finally emerged. Cronbach’s Alpha test was also carried out to evaluate the level of internal consistency among the factors of the UTAUT model through analyzing the questionnaire data.

3.8.2 Validity

According to Saunders et al. (2007), validity is concerned to whether the research findings are really about what they appear to be about. In this study we will mainly discuss the content validity of the questionnaire in our survey as content validity concerns the degree to which the measurement questions in the questionnaire delivers sufficient coverage of the investigative question (Saunders et al., 2007). In order to provide “sufficient coverage” in our questionnaire, we conducted an extensive literature review and prior discussions before we defined our research purpose. Furthermore, the questions in the survey in our study are based on the standard scale of the UTAUT model which has been proposed and tested by other researchers before. The questionnaire items for the factors “privacy” and “cost” were created from the literature review and the expert interview to ensure the content validity.
4 Empirical findings and analysis

This chapter contains two parts: qualitative analysis and quantitative analysis. For the qualitative analysis, the authors are mainly focused on interpreting the interview into factors by applying certain steps. Regarding the quantitative analysis, the authors concentrated on testing the reliability and correlation coefficient of proposed research model and related hypotheses.

4.1 Qualitative analysis

This chapter presents how the interview data was analyzed. It has three parts: analytic disposition, analytic discussion and factor identification.

4.1.1 Analytic disposition

The main purpose of the qualitative study was to support the design of the questionnaire. The interview was conducted with a mobile-app expert in Baidu Company. The expert had his own opinion about the user acceptance of WeChat. With the help of UTAUT model the authors developed interview questions about usage of WeChat and user acceptance of WeChat. The analysis is based upon the empirical findings and relate to our theoretical framework.

4.1.2 Analytic discussion

In this part the finding from interviews has been categorized into two aspects: usage of WeChat and user acceptance of WeChat.

Usage of WeChat

Regarding to the result from the interview, the usage of WeChat can be delivered into two parts: work and entertainment. In the work area, the expert thinks that WeChat indeed helps to reduce the cost of communication and improve the efficiency. For example, if someone needs to send the image of a design chart revised outside the office, WeChat would help to solve his problem and it will not cost more than sending an MMS. Also, voice sending and receiving will save costs compared to making a call, and more than two people can get involved, so conference discussions will also be realized in practice through using WeChat. In the entertainment area, the expert thinks that using WeChat can ease the burden from work. Users can use it to chat with friends or get to know new friends.

User acceptance of WeChat

In this context the user acceptance of WeChat means the experts’ opinion about user acceptance of WeChat. The previous literature reviews the acceptance as user’s behaviors and attitudes (Venkatesh & Davis, 2000). The main purpose of the interview was to find out the factors which could affect users’ acceptance of WeChat. In another words, the factors are affecting the users’ behaviors and the attitudes. The interview data was examined from an inductive approach, as main factors can be generated by using this method. Three main factors related to user acceptance of WeChat were generated from the expert interview. 1. The application is easy to use. It belongs to effort expectancy in UTAUT model. 2.
cost of WeChat can affect the user acceptance. 3. Privacy is an issue that could affect the user acceptance of WeChat.

### 4.1.3 Summarizing factors identification from Interview

According to results from the interview, we have identified those factors that may affect the user acceptance of WeChat:

1. Entertainment
2. Cost
3. WeChat Functionality
4. Celebrity platform attractiveness
5. Interactivity
6. Privacy protection
7. User experience
8. Technological innovation

Thus the factors identified from the interview have confirmed what we have proposed in our research model. “Cost” and “privacy” could possibly be the factors that affect the user acceptance of WeChat, and this interview has strengthened the credibility of our research model regarding those two factors.

### 4.2 Quantitative analysis

#### 4.2.1 Reliability analysis

According to Im, Hong and Kang (2011), if a model contains multi-item constructs, it is important to test the reliability of the constructs. In order to analyze the acceptance of WeChat among its users, the UTAUT model has been used. The first step of analysis was to examine the reliability of data which were collected from questionnaire via assessing the level of internal consistency among the factors of the UTAUT model. Consequently, Cronbach’s Alpha has been used to examine the reliability among the factors of UTAUT.

#### Table 4-1 Reliability Analysis (Number of items=189)

<table>
<thead>
<tr>
<th>Indicators in UTAUT</th>
<th>Cronbach’s Alpha</th>
<th>Number of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance Expectancy</td>
<td>.943</td>
<td>4</td>
</tr>
<tr>
<td>Effort Expectancy</td>
<td>.924</td>
<td>4</td>
</tr>
<tr>
<td>Social Influence</td>
<td>.839</td>
<td>3</td>
</tr>
<tr>
<td>Facilitating Conditions</td>
<td>.584</td>
<td>4</td>
</tr>
<tr>
<td>Behavior Intention</td>
<td>.419</td>
<td>2</td>
</tr>
<tr>
<td>Cost</td>
<td>.552</td>
<td>2</td>
</tr>
<tr>
<td>Privacy</td>
<td>.682</td>
<td>2</td>
</tr>
</tbody>
</table>
Out of 200, 189 individuals responded to the questionnaire. Table 4-1 showed the results of reliability analysis. The value of Cronbach’s Alpha is to assess the level of reliability. A Cronbach’s Alpha is more than 0.7 means high reliability, and Cronbach’s Alpha between 0.35 to 0.7 means acceptable reliability. When Cronbach’s Alpha is less than 0.35, it indicates a low reliability. Consequently, according to this rule, the reliability of the data from questionnaire was easy to understand. From Table 4-1, it can be indicated that most factors in the UTAUT are reliable and suitable for our research, such as Performance Expectancy, Effort Expectancy and Social Influence, the Cronbach’s Alpha of these three factors are more than 0.7. There are not less than 0.35 among the Cronbach’s Alpha of these factors, although four of the factors – Facilitating Conditions, Behavior Intention, Cost and Privacy are less than 0.7. However, this is still more than 0.35 that means these two factors are still acceptable.

As a result, there are high reliability and internal consistency among these different factors in the UTAUT model. Hence, the UTAUT model which is built for this research is suitable for the purpose of this study.

4.2.2 Descriptive analysis

In order to get a richer understanding of the users’ acceptance of WeChat among students and employees, a descriptive analysis was applied for the demographic information collected in the survey. Frequencies statistics for the general questions in the survey were calculated. As shown in Figure 4-1, from the occupation perspective, we can find out that 59.2% of the respondents are students, the rest of the respondents are employees.

![Pie chart statistic for different occupation](image)

**Figure 4-1** Pie chart statistic for different occupation

Regarding the gender issues, from the number of respondents the survey has achieved so far, male users are more than female users in this survey. 60.8% of the WeChat users are male, as it is shown Figure 4-2.
A majority of the WeChat users responding to the questionnaire were between 20 and 29 years old (78.8%). Some of them between 30 and 39 years old (10.5%) and some of them were under 20 (7.4%), few of them is above 40. As shown in Figure 4-3, young people constituted the main part of WeChat users.

Besides, the study also got a frequency statistic about the duration of using WeChat; Figure 4-4 presents a line chart for different durations of using WeChat. In the figure, 43.39% of all users have used WeChat for 7-12 months, 31.22% of them have use it for 1-2 years, 10% of them use it more than 2 years, the rest of the users have only used WeChat for a few months.
The last background question is about “How many times do you use WeChat in one day?” The result is shown in Figure 4-5. 34.92% among all users use WeChat occasionally, 28.57% of them use it often, 23.28% of them use WeChat frequently, and the rest of the users only use WeChat 1-2 times.

![Figure 4-5 Histogram for frequency of using WeChat](image)

### 4.2.3 Bivariate correlation analysis

The authors conducted a correlation analysis as this study intended to test linear relationship among each two factors. The authors choose Spearman correlation analysis to test correlation among these factors, according to Changing Minds (2013) organization, the Spearman coefficient can be used to measure ordinal data, but not consequent data or integral data.

Before we started the correlation analysis, we tested the correlation between behavioral intention and use behavior. If the correlation between those two variables are positively high, we will integrate those two variables into one variable .“behavioral intention to use the application”. Table 4-2 presents the correlation coefficients analysis of those two variables.

**Table 4-2 Correlation coefficients analysis of the Behavior Intention and Use Behavior (Number of items=189)**

<table>
<thead>
<tr>
<th></th>
<th>Behavioral Intention</th>
<th>Use Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavior Intention</td>
<td>CC=1</td>
<td></td>
</tr>
<tr>
<td>Use Behavior</td>
<td>CC=.327** Sig=.000</td>
<td>CC=1.000</td>
</tr>
</tbody>
</table>

**Spearman’s correlation is significant at the 0.01 Level (two-tailed)**

According to the coefficient in table 4-2, use behavior and behavioral intention are correlated to each other, so we integrate those two variables and the proposed research model has been revised, the revised model is presented in Figure 4-6.
A correlation analysis of the revised research model thus performed. Table 4-3 shows the results of the Spearman correlation calculation. CC is the Spearman’s correlation coefficient which measures the strength of association between two variables, and Sig. is hypothesis testing which is used to test Spearman coefficients, which called as P value (Laerd 2013). This value indicates whether there is a true correlation between two factors. From the Table 4-3, all of the factors are correlated to each other. According to correlation coefficient, it shows the strong correlation between Social Influence and behavioral intention to use the application, and weak correlation between Behavior Intention to use the application and Privacy among these relationships.
Table 4.3 Correlation coefficients analysis of the UTAUT model (Number of items=189)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Performance Expectancy</th>
<th>Effort Expectancy</th>
<th>Social Influence</th>
<th>Facilitating Conditions</th>
<th>Behavior Intenions</th>
<th>Cost</th>
<th>Privacy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance Expectancy</td>
<td>CC=1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Effort Expectancy</td>
<td>CC=.84 7**</td>
<td>CC=1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sig.=.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Influence</td>
<td>CC=.41 7**</td>
<td>CC=.52 1**</td>
<td>CC=1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sig=.000</td>
<td>Sig=.000</td>
<td>Sig=.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facilitating Conditions</td>
<td>CC=.35 5**</td>
<td>CC=.48 8**</td>
<td>CC=.52 8**</td>
<td>CC=1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sig=.000</td>
<td>Sig=.000</td>
<td>Sig=.000</td>
<td>Sig=.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Behavioral Intention to use the application</td>
<td>CC=.43 8**</td>
<td>CC=.55 6**</td>
<td>CC=.61 6**</td>
<td>CC=.59 9**</td>
<td>CC=1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sig=.000</td>
<td>Sig=.000</td>
<td>Sig=.000</td>
<td>Sig=.000</td>
<td>Sig=.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost</td>
<td>CC=-.262**</td>
<td>CC=-.340”</td>
<td>CC=-.365”</td>
<td>CC=-.555”</td>
<td>CC=1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sig=.000</td>
<td>Sig=.000</td>
<td>Sig=.000</td>
<td>Sig=.000</td>
<td>Sig=.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Privacy</td>
<td>CC=-.012</td>
<td>CC=-.030</td>
<td>CC=-.012</td>
<td>CC=-.092</td>
<td>CC=-.171”</td>
<td>CC=.05</td>
<td>CC=.00</td>
</tr>
<tr>
<td></td>
<td>Sig=.871</td>
<td>Sig=.677</td>
<td>Sig=.865</td>
<td>Sig=.208</td>
<td>Sig=.019</td>
<td>Sig=.498</td>
<td></td>
</tr>
</tbody>
</table>

* Spearman’s correlation is significant at the 0.05 Level (two-tailed)

** Spearman’s correlation is significant at the 0.01 Level (two-tailed)

4.2.4 Regression analysis

Regression analysis is a statistical analysis method that is used to determine the quantitative relationship of interdependence between two or more variables. (Sykes, 2013) There are different types of regression analysis. According to the number of independent variables involved, the analysis can be divided into single regression analysis and multiple regression analysis; based on the type of relationship between the independent and dependent varia-
bles, regression analysis can be divided into linear regression analysis and non-linear regression analysis. If regression analysis only includes one independent variable and one dependent variable, this regression analysis is called a linear regression analysis. If the regression analysis including two or more independent variables and a linear relationship exist between the dependent and independent variables, it is called a multiple linear regression analysis. (Sykes, 2013)

In our study, we aimed to test the relationship between the factors of our proposed research model, and they are basically conforming to the many to one relationship. Multiple linear regression analysis will hence be applied to explain the relationship between factors, and to test the proposed hypotheses.

4.2.4.1 **Multiple linear regression analysis**

Initially, we calculated the sum of different groups of questions (or scales) that belonged to different factors. As the answers to the survey were stored in the Excel document, corresponding columns of answers to the questions was integrated into one column that only presented one specific factor after the summing up. Subsequently, the new integrated column was regarded as an independent variable in regression testing in SPSS. Therefore, after regression test, we concluded the following result; see Table 4-4, 4-5 and 4-6.

**Table 4-4** Model summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>$R^2$</th>
<th>Adjust $R^2$</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.781$^a$</td>
<td>.611</td>
<td>.598</td>
<td>.998</td>
</tr>
</tbody>
</table>

**Table 4-5** Anova

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of squares</th>
<th>df</th>
<th>Mean square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>284.369</td>
<td>6</td>
<td>47.395</td>
<td>47.588</td>
<td>.000$^a$</td>
</tr>
<tr>
<td>Residuals</td>
<td>181.260</td>
<td>182</td>
<td>.996</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sum</td>
<td>465.630</td>
<td>188</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
In the presenting tables above, \( a \) stands for predictor variable which includes Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Cost, Privacy; \( b \) stands for dependent variable: behavior intention to use the application.

\( R^2 \) in the table 4-4 indicates to what extent the independent variable can predict the dependent variable in multiple regressions. In this test, it means that independent variables (such as Performance Expectancy, Effort Expectancy, Social Influence, etc.) can explain 61.1\% of the variability in dependent variable (behavior intention to use the application).

The \textbf{Sig.} in the ANOVA table means the \( p \) value. If it is smaller than 0.05, the model can significantly predict dependent variable (behavior intention to use the application), and the number here is .000, so this model can significantly predict behavior intention. The \textbf{Sig.} in coefficient\(^a\) table indicates which independent variable has a significant influence on behavior intention. Noteworthy there is one independent variable that has a \textbf{Sig.} larger than 0.05. This variable is “performance expectancy”, so there is no linear relationship between “performance expectancy” and “behavior intention to use the application”, which means the performance expectancy does not predict this dependent variable in the model.

\textbf{B} in coefficient \textbf{Table 4-6} means the increment in “behavior intention” when a change is given to the independent variable. So the \textbf{B} coefficient here shows whether the factor is positively affecting the “behavior intention” or not. If the coefficient is minus, the corresponding factor will negatively affect the “behavior intention”.

From the analysis above, we can conclude that Effort Expectancy, Social Influence, Facilitating Conditions, Cost and Privacy are the variables that have impact on behavior intention. For Performance Expectancy, however, due to its \textbf{Sig.} is larger than 0.05, we needed

---

**Table 4-6 Coefficient a**

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized coefficient</th>
<th>Standardized coefficient</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>( (Constant) )</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>9.963</td>
<td>1.168</td>
<td>8.527</td>
<td>.000</td>
</tr>
<tr>
<td>Performance Expectancy</td>
<td>-.031</td>
<td>.043</td>
<td>-.045</td>
<td>-.719</td>
</tr>
<tr>
<td>Effort Expectancy</td>
<td>.102</td>
<td>.041</td>
<td>.178</td>
<td>2.484</td>
</tr>
<tr>
<td>Social Influence</td>
<td>.228</td>
<td>.047</td>
<td>.281</td>
<td>4.838</td>
</tr>
<tr>
<td>Facilitating Conditions</td>
<td>.176</td>
<td>.042</td>
<td>.241</td>
<td>4.163</td>
</tr>
<tr>
<td>Cost</td>
<td>-.196</td>
<td>.078</td>
<td>-.332</td>
<td>-6.377</td>
</tr>
<tr>
<td>Privacy</td>
<td>-.100</td>
<td>.036</td>
<td>-.129</td>
<td>-2.761</td>
</tr>
</tbody>
</table>

---

\( ^a \) Coefficient
to re-run the analysis without it in order to reach a more accurate estimate. We call it the trimming process, the trimming process will be repeat until only significant variable is left in the model.

**Trimming**

We re-ran the multiple regression analysis without the independent variable “Performance Expectancy”, as its Sig. (or p value) is the highest. And we came to the following result; see Table 4-7, Table 4-8 and Table 4-9.

**Table 4-7 Model summary**

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R²</th>
<th>Adjust R²</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.781*</td>
<td>.610</td>
<td>.599</td>
<td>.997</td>
</tr>
</tbody>
</table>

**Table 4-8 Anova b**

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of squares</th>
<th>df</th>
<th>Mean square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>283.855</td>
<td>5</td>
<td>56.771</td>
<td>57.154</td>
<td>.000*</td>
</tr>
<tr>
<td>Residuals</td>
<td>181.775</td>
<td>183</td>
<td>.993</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sum</td>
<td>465.630</td>
<td>188</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table 4-9 Coefficient a**

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized coefficient</th>
<th>Standardized coefficient</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std.Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>9.701</td>
<td>1.108</td>
<td></td>
<td>8.752</td>
</tr>
<tr>
<td>Effort Expectancy</td>
<td>.084</td>
<td>.032</td>
<td>.147</td>
<td>2.583</td>
</tr>
<tr>
<td>Social Influence</td>
<td>.230</td>
<td>.047</td>
<td>.284</td>
<td>4.899</td>
</tr>
<tr>
<td>Facilitating Conditions</td>
<td>.176</td>
<td>.042</td>
<td>.242</td>
<td>4.174</td>
</tr>
<tr>
<td>Cost</td>
<td>-.496</td>
<td>.078</td>
<td>-.332</td>
<td>-6.382</td>
</tr>
<tr>
<td>Privacy</td>
<td>-.102</td>
<td>.036</td>
<td>-.132</td>
<td>-2.840</td>
</tr>
</tbody>
</table>
After the trimming of the regression analysis, the p-value of all the independent variables in Table 4-9 is smaller than 0.05, which means all the variables in the model are significant currently, so the hypotheses testing could be started.

4.2.5 Hypotheses testing

The hypotheses can be tested one by one based on the result of regression analysis.

**H1: User’s performance expectancy positively affects the behavioral intention to use WeChat.**

The p-value (Sig.) of this factor was over 0.05 when we do the first regression test, so there is no linear relationship between “performance expectancy” and “behavior intention to use the application” which means the performance expectancy does not affect the behavioral intention to use WeChat. This hypothesis was thus rejected.

**H2: WeChat’s effort expectancy positively affects the behavioral intention to use WeChat.**

The p-value (Sig.) for effort expectancy was smaller than 0.05, so this factor has a linear relationship with ‘behavioral intention to use the application’. The B coefficient of effort expectancy is 0.084, which means effort expectancy can positively affect the behavioral intention to use the application. This hypothesis was thus supported.

**H3: User’s social influence positively affects the behavioral intention to use WeChat.**

The p-value (Sig.) for social influence is smaller than 0.05, so this factor has a linear relationship with ‘behavioral intention to use the application’. The B coefficient of effort expectancy was 0.230, which means social influence can positively affect the behavioral intention to use the application. This hypothesis was thus supported.

**H4: WeChat’s facilitating conditions positively affects the use behavior of WeChat.**

The p-value (Sig.) for facilitating conditions is smaller than 0.05, so this factor has a linear relationship with ‘behavioral intention to use the application’. The B coefficient of facilitating conditions is 0.176, which means facilitating conditions can positively affect the behavioral intention to use the application. This hypothesis was thus supported.

**H5: The cost of WeChat negatively affects the behavioral intention to use WeChat**

The p-value (Sig.) for cost is smaller than 0.05, so this factor is has a linear relationship with ‘behavioral intention to use the application’. The B coefficient of cost is -0.496, which means cost of WeChat can negatively affect the behavioral intention to use the application. This hypothesis was thus supported.

**H6: The privacy condition of WeChat affects the behavioral intention to use WeChat**

The p-value (Sig.) for privacy is smaller than 0.05, so this factor has a linear relationship with ‘behavioral intention to use the application’. The B coefficient of privacy is -0.102,
which means privacy conditions of WeChat can negatively affect the behavioral intention to use the application. This hypothesis was thus supported.

The result of hypotheses testing is presented in table 4-10.

**Table 4-10 Result of hypotheses testing**

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1: User’s performance expectancy positively affects the behavioral intention to use WeChat.</td>
<td>Rejected</td>
</tr>
<tr>
<td>H2: WeChat’s effort expectancy positively affects the behavioral intention to use WeChat.</td>
<td>Supported</td>
</tr>
<tr>
<td>H3: User’s social influence positively affects the behavioral intention to use WeChat.</td>
<td>Supported</td>
</tr>
<tr>
<td>H4: WeChat’s facilitating conditions positively affects the use behavior of WeChat.</td>
<td>Supported</td>
</tr>
<tr>
<td>H5: The cost of WeChat negatively affects the behavioral intention to use WeChat.</td>
<td>Supported</td>
</tr>
<tr>
<td>H6: The privacy condition of WeChat affects the behavioral intention to use WeChat</td>
<td>Supported</td>
</tr>
</tbody>
</table>
5 Conclusions

This study aimed to explain the user acceptance of a specific mobile application, WeChat, among users from specific companies and universities. Through a qualitative study, we proposed our research model based on UTAUT model, and factors that could affect user acceptance have been tested through a quantitative analysis. Based on this, we present the answers to our research questions:

Research question 1: What are the factors that affect the users’ acceptance of WeChat?

Based on the result from the hypotheses testing, “effort expectancy” of WeChat can positively affect the user’s intention to use WeChat, which means the more easier and relax users feel when they using WeChat, the more they are willing to accept this application. Besides, “social influence” is the factor that has the strongest impact on the use behavior of WeChat, users are affected by the important people around them when they considering to use WeChat or not. “Facilitating conditions” can also positively influence users’ attitude towards using WeChat. This means that the more comprehensive support system WeChat have, the more users are willing to use it. Although “cost” and “privacy” have impact on the behavior intention of using WeChat according to the regression analysis, both of their impact are negative. “Privacy” is a factor that could affect the behavior intention of users, which could be explained as: users in our survey still have privacy concern while using LBS service as the LBS function in WeChat is strongly tied to location exposure. “Cost” is also a factor that hinders users from accepting WeChat, as its B coefficient is minus, and its negative influence on behavior intention is stronger than privacy, so if WeChat starts charge in the future, its user acceptance will decrease. “Performance expectancy” is not a valid factor that will affect user acceptance of WeChat, as its Sig. value is larger than 0.05, which means this variable does not have a linear relationship with behavior intention. Therefore, WeChat’s performance expectancy doesn’t positively affect the behavior intention, which indicates that most people from the survey don’t believe that using WeChat could improve their work performance. In fact, as the B coefficient for performance expectancy is -.031, it can be explained as to advertising the idea that WeChat will help to improve working performance will negatively affect the acceptance of WeChat, as people in the survey don’t believe it can improve their working performance. The factors that could affect user acceptance of WeChat are summarized in table 5-1:
### Table 5-1 Summary of factors affect the users’ acceptance of WeChat

<table>
<thead>
<tr>
<th>Factors</th>
<th>B coefficient</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effort expectancy</td>
<td>.084</td>
<td>.011</td>
</tr>
<tr>
<td>Social influence</td>
<td>.230</td>
<td>.000</td>
</tr>
<tr>
<td>Facilitating conditions</td>
<td>.176</td>
<td>.000</td>
</tr>
<tr>
<td>Cost</td>
<td>-.496</td>
<td>.000</td>
</tr>
<tr>
<td>Privacy</td>
<td>-.102</td>
<td>.005</td>
</tr>
</tbody>
</table>

- B coefficient is the increment in “Behavioral intention to use WeChat” for a change in corresponding factors.
- Sig. is the indicator that tells which factor has a significant impact on “Behavioral intention to use WeChat”

#### Research question 2: How could other competing instant messaging applications improve their user acceptances?

As this study proposed a model that is used for measuring the user acceptance of WeChat based on UTAUT, and through reliability analysis and correlation analysis, the model we proposed (see Figure 5-1) is valid and reliable for this kind of mobile application acceptance study. Thus, for other similar IM mobile applications, the proposed research model could be applied as a useful tool to test their user acceptance.

According to the result form the first research question, social influence has the strongest impact on WeChat users’ acceptance, which indicates that most respondents in our survey are using WeChat because people who are important to them think they should use it. Therefore, the social influence on users could be regard as an important factor that other competing IM mobile application’s should pay attention to. Cost and privacy are also two important factors that could negatively affect the user acceptance of other competing IM mobile applications. Improved privacy conditions and less charging for IM mobile applications is necessary for user acceptance improvement.

Another phenomenon we concluded from the first research question is that users may think common IM software is not helping in improving their working performance. Therefore, this is an issue that other competing IM mobile applications can pay attention to when they are developing their product.
Performance expectancy

Effort expectancy

Social influence

Facilitating conditions

Cost

Privacy

Behavioral Intention to Use the application

Figure 5-1 Research Model

* supported at the .01 level
6  Discussion

This section discusses the results of this study, proposed research model and method of this study. Subsequently, research implications and suggestion for further research will be presented.

6.1  Discussion of results

This study has developed six hypotheses based on a literature review and an expert interview. After the data analysis, five of them were proved to be supported. Five corresponding factors were confirmed to have impact on behavioral intention of WeChat users.

To divide those factors into two parts, “effort expectancy”, “social influence” and “facilitating conditions” are the positive factors that influence the user acceptance of WeChat. “Cost” and “privacy” are the negative factors that influence the user acceptance of WeChat. Among three positive influencing factors, social influence has the strongest impact on behavioral intention to use WeChat than the other two factors. Therefore social influence among users is the strongest motivation for users to use WeChat compare to “effort expectancy” and “facilitating condition”. Between two negative influencing factors, the impact of “cost” is stronger than the impact of “privacy”, so user will consider about the cost of WeChat rather than concerning the privacy issues at the first time they use it.

6.2  Discussion of proposed research model

Based on the reliability analysis and bivariate correlation analysis, the proposed research model is reliable and variables in the model are correlated to each other. Regarding the linear relationship between different variables, as $R^2$ in the table 4-7 indicates independent variables’ ability (such as Performance Expectancy, Effort Expectancy, Social Influence, etc.) to predict dependent variable (behavior intention to use the application) is 61%. Although all the independent variables can well predict the dependent variable in the proposed model, one variable “performance expectancy” was tested to have no linear relation with the dependent variable “behavioral intention to use the application”.

Direct variables impact

UTAUT have proposed four dimensions for direct variables: “performance expectancy”, “effort expectancy”, “facilitating conditions” and “social influence”. The result of this study only proved that three dimensions have impact on behavioral intention. “Social influence” has the highest impact, and then followed by “facilitating conditions” and “effort expectancy”. So the impact of direct variables in this study does not fully correspond to the original UTAUT model.

Interference variables impact

The impact of interference variables in the UTAUT model has not covered in this study, but more valuable result will be discovered if the study had analyzed the impact that age, gender or experience has on different influencing factors.
Additional variables impact

“Cost” and “Privacy” are two additional variables that explained in this study, they do not belong to the original UTAUT model, but they have direct negative impact on behavioral intention to use the application in this study. Future user acceptance studies of similar IM mobile application that applied UTAUT could elaborate on those two additional variables.

6.3 Discussion of method

This study used qualitative method and quantitative method to fulfill the purpose of research factors that affect user acceptance. Qualitative data were collected and analyzed for hypothesis development through a literature review and an expert interview. Quantitative data were collected to test hypotheses through a survey.

In the interview part of this study, due to the time limitation and uncertain reasons, we have only one expert interview. Therefore the study could be improved through conducting more expert interviews. While summarizing the qualitative data, we realized more expert interviews could enhance the quality and reliability of the qualitative data. If we could have more expert interviews, we can obtain more specific information about factors of influencing acceptance of WeChat as a mobile application expert’s views, so that the additional factor from interview can be more reliable. We can also have the possibility to generate more additional factors, which would have been more helpful for the questionnaire design.

In quantitative data collecting in this study, because of the time limitation, we just got 200 respondents from the survey. If we could have more respondents to the survey, the quantitative data from the survey could be more generalizable. It can enhance the generalizability of the quantitative data. That will also help to improve the reliability of the hypothesis testing in the study.

6.4 Research implications

Performance expectancy

As this factor have proved to have no impact on behavioral intention to use the application, it can be interpreted as the users of WeChat do not think that using WeChat could affect their working performance or working efficiency. This conclusion could also be deducted to other similar study that focused on the user acceptance of mobile application. WeChat or other competing IM mobile applications could work on the functions to generate impact for this factor so that users’ behavioral intention could be influenced.

Effort expectancy

In this study, effort expectancy was interpreted as the extent of easiness in interaction between users and WeChat. As the effort expectancy proved to have positive impact on users’ behavioral intention, WeChat should maintaining their user interface and looking for further improvements in application functions that could adopted by users easily. The same
implication could apply to other similar competing IM mobile applications. A better user interface and more adaptable functions would help in improving user acceptance.

**Facilitating conditions and Social influence**

Those two factors also have positive impact on users’ behavioral intention to use WeChat, which can be interpreted as users concern about support service from the software and other people’s opinion when they are using WeChat. Social influence has the strongest impact on behavioral intention. Since other people’s opinion is very important for a users’ intention to use an IM application, IM software producers could invest more on marketing activities to wide spread their IM application among different range of users. An Effective marketing strategy could also help in improving the social influences of the specific IM application.

**Cost and Privacy**

As cost and privacy have negative impact on user intention to use WeChat, it is not a good idea to charge WeChat users if the company wants to keep their user acceptance. Also, WeChat could work on technical measures to protect users’ location privacy while providing LBS service, so that users would feel more secure while using the application and related services. The same implications could apply to other competing IM mobile applications. Users prefer IM software instead of phone calls mainly because of its convenience and because it is free of charge. Thus, increasing cost of an IM application would possibly bring a decrease in user acceptance for this application.

**6.5 Suggestion for further research**

**Collect data from different cluster of people**

This study was targeted at two different clusters which were student and company staff. More attention should be paid to other clusters, such as different age groups or different field of students or company staff. Furthermore, the respondents of this study are from China. In the future researchers should also pay more attention to different people, who are from different countries, in order to obtain a comprehensive perspective of affecting users’ acceptance in mobile application.

**Explain additional variables in UTAUT model**

In this study, the external variables were privacy and cost factors which influence the Behaviors Intention. Further research can introduce other factors to optimize the UTAUT model, in order to gain more comprehensive factors which will influence users’ acceptance of mobile application, such as the number of user base, personal use habit and culture differentia.
List of References


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Appendix 1 Interview Questions

1. How do you describe the current mobile application’s acceptance among users in general? What factors do you consider could affect user acceptance of mobile application in general?

2. Do you know the mobile application—WeChat? If so, what factors do you consider could affect user acceptance of WeChat? (Like what factors could encourage user to use WeChat or what factors could hinder user from using it)

3. As a mobile application that provides location based service, do you consider privacy as an issue that could affect the user acceptance of WeChat?

4. What’s your opinion on the cost of WeChat, do you consider it as an advantage for WeChat to increase its users or a factor that encourage user to use it?

5. What do you think of the point that “using WeChat can help to improve work performance”?

6. What do you think of the point that “using WeChat can ease the burden from work”?

7. Have you had the opportunity to use WeChat? If so, why do you use it?

8. From an expert perspective, can you propose some improvements for other instant messaging mobile applications regarding their user acceptance?
### Appendix 2 Questionnaire construct related to proposed research model

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Type</th>
<th>Definition</th>
<th>Items</th>
<th>Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Performance Expectancy (PE)</strong></td>
<td>Likert scale; Independent</td>
<td>The extent to which an individual believes that this system will help to improve working performance.</td>
<td>4</td>
<td>Venkatesh et al (2003)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Davis et al (1989)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Taylor &amp; Todd (1995)</td>
</tr>
<tr>
<td><strong>Effort Expectancy (EE)</strong></td>
<td>Likert scale; Independent</td>
<td>the ease of use of the system</td>
<td>4</td>
<td>Venkatesh et al (2003)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Thompson et al (1991);</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Davis et al (1989)</td>
</tr>
<tr>
<td><strong>Social Influence (SI)</strong></td>
<td>Likert scale; Independent</td>
<td>the extent to which an individual perceived that people who are important to him or her think he or she should use the system</td>
<td>3</td>
<td>Venkatesh et al (2003)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Davis et al (1989)</td>
</tr>
<tr>
<td><strong>Facilitating Conditions (FC)</strong></td>
<td>Likert scale; Independent</td>
<td>the extent to which an individual believes existing organization or technical infrastructure will support the use of the system</td>
<td>4</td>
<td>Venkatesh et al (2003)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Thompson et al (1991)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Moore &amp; Benbasat (1991)</td>
</tr>
<tr>
<td><strong>Behavioral Intention (BI)</strong></td>
<td>Likert scale; dependent</td>
<td>The extent of individual’s willingness to use WeChat</td>
<td>2</td>
<td>Venkatesh et al (2003)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Davis et al (1989)</td>
</tr>
<tr>
<td><strong>Use Behavior (UB)</strong></td>
<td>Likert scale; dependent</td>
<td>Whether an individual’s will use WeChat in the future</td>
<td>1</td>
<td>Venkatesh et al (2003)</td>
</tr>
<tr>
<td><strong>Cost</strong></td>
<td>Likert scale; Independent</td>
<td>The cost of WeChat</td>
<td>2</td>
<td>Dai &amp; Palvia (2009)</td>
</tr>
<tr>
<td><strong>Privacy</strong></td>
<td>Likert scale; Independent</td>
<td>The privacy condition of WeChat</td>
<td>2</td>
<td>Xu, Teo, Tan and Agarwal (2010)</td>
</tr>
</tbody>
</table>
## Appendix 3 Measurement scales for Questionnaire

| PE1: I would find the Wechat useful in my job/study. |
| PE2: Using the Wechat enables me to accomplish tasks more quickly. |
| PE3: Using the Wechat increases my productivity. |
| PE4: If I use the Wechat, I will increase my chances of getting a raise. |
| EE1: My interaction with the Wechat would be clear and understandable. |
| EE2: It would be easy for me to become skillful at using the Wechat. |
| EE3: I would find the Wechat easy to use. |
| EE4: Learning to operate the Wechat is easy for me. |
| SI1: People who influence my behavior think that I should use the Wechat. |
| SI2: People who are important to me think that I should use the Wechat. |
| SI3: In general, the organization has supported the use of the Wechat. |
| SI4: A specific person (or group) is available for assistance with Wechat difficulties. |
| FC1: I have the resources necessary to use the Wechat, (such as Internet) |
| FC2: I have the knowledge necessary to use the Wechat. |
| FC3: The Wechat is not compatible with other mobile OS I use. |
| FC4: A specific person (or group) is available for assistance with Wechat difficulties. |
| BI1: I intend to use Wechat in the next 12 months. |
| BI2: I predict I would use Wechat in the next 12 months. |
| BI3: I plan to use the Wechat in the next 12 months. |
| CI1: I think the charge of Wechat in the future will not affect my intention to use it. |
| CI2: I think the cost of Wechat is neither resonable nor acceptable. |
| PI1: I think the privacy issue will not affect my intention to use it. |
| PI2: LBS in Wechat can detect my location is acceptable. |

### Performance Expectancy

- PE1: I would find the Wechat useful in my job/study.
- PE2: Using the Wechat enables me to accomplish tasks more quickly.
- PE3: Using the Wechat increases my productivity.
- PE4: If I use the Wechat, I will increase my chances of getting a raise.

### Effort Expectancy

- EE1: My interaction with the Wechat would be clear and understandable.
- EE2: It would be easy for me to become skillful at using the Wechat.
- EE3: I would find the Wechat easy to use.
- EE4: Learning to operate the Wechat is easy for me.

### Social Influence

- SI1: People who influence my behavior think that I should use the Wechat.
- SI2: People who are important to me think that I should use the Wechat.
- SI3: In general, the organization has supported the use of the Wechat.
- SI4: A specific person (or group) is available for assistance with Wechat difficulties.

### Facilitating Conditions

- FC1: I have the resources necessary to use the Wechat, (such as Internet).
- FC2: I have the knowledge necessary to use the Wechat.
- FC3: The Wechat is not compatible with other mobile OS I use.
- FC4: A specific person (or group) is available for assistance with Wechat difficulties.

### Behavioral Intention to Use the Application

- BI1: I intend to use Wechat in the next 12 months.
- BI2: I predict I would use Wechat in the next 12 months.
- BI3: I plan to use the Wechat in the next 12 months.

### Cost Factor

- CI1: I think the charge of Wechat in the future will not affect my intention to use it.
- CI2: I think the cost of Wechat is neither resonable nor acceptable.

### Privacy Factor

- PI1: I think the privacy issue will not affect my intention to use it.
- PI2: LBS in Wechat can detect my location is acceptable.
Appendix 4 Questionnaire

This questionnaire is used for the study of WeChat’s user acceptance. Currently WeChat is a popular mobile application that owns millions of users. And this survey mainly aims to investigate the users’ attitudes towards using WeChat. Your answer will be valuable for our study. And thank you for your participation.

General questions:

Question 1: What’s your gender?
1. Male
2. Female

Question 2: How old are you?
6. Under 20
7. 20-29
8. 30-39
9. More than 40

Question 3: What’s your occupation?
1. Student
2. Employee

Question 4: How long have you been using WeChat?
1. 1-6 months
2. 7-12 months
3. 1-2 years
4. More than 2 years

Question 5: How often do you use WeChat every day?
1. 1-2 times
2. Occasionally
3. Often
4. Frequently
Questions regarding attitudes towards using WeChat:

Choose one of the numbers as your answer to each question below (1 = completely disagree, 2 = moderately disagree, 3 = somewhat disagree, 4 = neutral (neither disagree nor agree), 5 = somewhat agree, 6 = moderately agree, and 7 = completely agree.)

Question 6: I would find WeChat useful for my job/study.
   1 o o o o o o o 7

Question 7: Using the WeChat enables me to accomplish tasks more quickly.
   1 o o o o o o o 7

Question 8: Using the WeChat increases my productivity.
   1 o o o o o o o 7

Question 9: If I use the WeChat, I will increase my chances of getting a raise.
   1 o o o o o o o 7

Question 10: My interaction with the WeChat would be clear and understandable.
   1 o o o o o o o 7

Question 11: It would be easy for me to become skillful at using the WeChat.
   1 o o o o o o o 7

Question 12: I would find the WeChat easy to use.
   1 o o o o o o o 7

Question 13: Learning to operate the WeChat is easy for me.
   1 o o o o o o o 7

Question 14: People who influence my behavior think that I should use the WeChat.
   1 o o o o o o o 7

Question 15: People who are important to me think that I should use the WeChat.
   1 o o o o o o o 7

Question 16: In general, the organization has supported the use of the WeChat.
   1 o o o o o o o 7
Question 17: I have the resources necessary to use the WeChat. (such as Internet)

1 o o o o o o o 7

Question 18: I have the knowledge necessary to use the WeChat.

1 o o o o o o o 7

Question 19: The WeChat is not compatible with other mobile OS I use.

1 o o o o o o o 7

Question 20: A specific person (or group) is available for assistance with WeChat difficulties.

1 o o o o o o o 7

Question 21: I intend to use WeChat in the next 12 months.

1 o o o o o o o 7

Question 22: I predict I would use WeChat in the next 12 months.

1 o o o o o o o 7

Question 23: I think the charge of WeChat in the future will not affect my intention to use it

1 o o o o o o o 7

Question 24: I think the current cost of WeChat is neither reasonable nor acceptable

1 o o o o o o o 7

Question 25: I think the privacy issue will not affect my intention to use it

1 o o o o o o o 7

Question 26: LBS in WeChat can detect my location is acceptable

1 o o o o o o o 7

Question 27: I plan to use WeChat in the next 12 months.

1 o o o o o o o 7