

Perceived characteristics, perceived popularity, and playfulness: Youth adoption of mobile instant messaging in China¹

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Abstract: Mobile instant messaging (MIM) has been gaining in popularity in China due to its free and user-friendly nature. Few scholarly studies have investigated factors affecting the adoption of MIM among Chinese youth. This web survey examined perceived characteristics of MIM and its adopter characteristics among 18 to 30 year-old users in China. The study found that the majority of Chinese youths adopted WeChat and Mobile QQ services and used texting most often. Socialization was their main purpose of using MIM. More than 75% of respondents used it to connect with friends, colleagues, and classmates. The results also showed age had a negative influence on the adoption levels of MIM while compatibility, perceived popularity, and perceived playfulness were positively associated with MIM usage among Chinese youths. Contrary to prior studies, perceived trialability of MIM was negatively related to MIM use. The implications of MIM usage and adoption are discussed.

Keywords: adoption, mobile instant messaging, perceived characteristics of innovation, perceived popularity, perceived playfulness, innovativeness

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Introduction

Mobile phones have gradually turned into the most widely used communication tool across the globe and have become the backbone of information society in recent years. According to International Telecommunication Union (ITU) (2013), global mobile-cellular penetration rate has reached 96% with more than half in the Asia-Pacific region (3.5 billion out of 6.8 billion total subscriptions). With the continuous high growth of mobile broadband, there would be more than 2 billion subscriptions worldwide by the end of 2013 (ITU, 2013). Increasingly popular mobile instant messaging (MIM) is a real-time presence-enabled messaging service which allows mobile phone users to send text-based messages to each other or in groups by downloading free MIM applications (e.g., Whatsapp and Line) or transporting Internet desktop messaging (e.g., ICQ and MSN) onto the mobile platform. Juniper Research (2012) forecast the total number of global MIM users would exceed 1.3 billion by 2016.

Due to the growth of smartphone adoption, low-cost data packages, and the development of high speed mobile networks, MIM's strong rise in popularity has affected mobile operators' Short Message Service (SMS) revenues negatively (Juniper Research, 2012; Thomas, 2013). Unlike SMS services charged by mobile operators based on the amount sent, MIM services, which are either free or charge nominal monthly fees, enable interoperability between mobile devices and cellular networks with no technical and consumer support. TNS' recent survey on 17,000 people in 30 countries shows that once people adopted MIM services, they reduced their use of SMS (Thomas, 2013). Millions of young mobile phone users became early adopters of MIM services (Kisiel, 2011) because they are attracted to these free or initially free services with diverse emoticons, multimedia functions, and mobile VOIP.

MIM has become the most popular mobile service in China with a great potential for market growth in late 2013 (Enfodesk, 2013). According to the Ministry of Industry and Information Technology (MIIT) (2013), the total number of Chinese mobile internet users reached 800 million by the August of 2013 and 83.9% of them

used at least one MIM service (CNNIC, 2013). Enfodesk (2013) reported that 1.48 billion MIM accounts were created in China and among them 480 million were active users. Three leading MIM applications (Mobile QQ, Mobile Fetion, and WeChat) occupy 83.8% of the whole market share in China (Enfodesk, 2013). They not only provide real-time one-to-one and group text messaging with multimedia functions, voice messaging, photo and location sharing, but also create innovative geo-social location-based features, such as “shake,” “look around,” and “drift bottle” to pick up mobile phone contacts of strangers in nearby areas. These interactive elements enable interpersonal mobile communication and appeal to an increasing number of Chinese MIM users. Moreover, similar to MIM take-up in other countries, 18 to 30 year-old users dominate the Chinese MIM market comprising 75.3% of the total user base (DCCI, 2011).

Although MIM services have developed rapidly in the world, few studies have investigated factors affecting their adoption and use in China. Prior research employs the Technology Acceptance Model (TAM) to examine the adoption of mobile-related technology (Lu, Zhou, & Wang, 2008; Sun, Cao, & You, 2010). This study aims to fill this research gap by using Roger’s (2003) Diffusion of Innovation Theory as a basis to examine MIM adoption among Chinese youth. This exploratory study can not only enhance the understanding of factors affecting adoption decisions of MIM among young Chinese adopters and shed light on future development but also establish a model to predict similar emerging mobile-mediated communication technology.

Literature Review

Various theories have been utilized to investigate the adoption of technological innovation adoption such as TAM (Davis, 1989), Theory of Reasoned Action (Ajzen & Fishbein, 1980) as well as their extensions and modifications (e.g., Venkatesh et al., 2003). Among them, Rogers’ (2003) Diffusion of Innovation theory is a well-cited one that seeks to explain how, why, and at what rate new ideas and technology spread through cultures.

Perceived Characteristic of Innovation

Diffusion is the process by which an innovation is communicated through certain channels over time among the members of a social system (Rogers, 2003). As individuals are seen as possessing different degrees of willingness to adopt innovations, portions of the adoption population at different stages are approximately normally distributed over time. “Perceived characteristic of innovation,” which is crucial in evaluating consumer adoption of an innovation and their decision-making process, is a major component in diffusion and innovation theory. According to Rogers (2003), there are five characteristics of innovations that consistently affect individuals in adopting or rejecting an innovation:

- (1) Relative advantage: whether it is perceived to be an enhancement of the current offering;
- (2) Compatibility: whether an innovation is perceived to fit together with potential adopters’ habits and practices;
- (3) Complexity: whether an innovation is perceived as being complicated to use;
- (4) Trialability, whether an innovation is trialable prior to adoption;
- (5) Observability: whether an innovation’s results of usage is visible to others.

With regards to ICT adoption, if an innovation is perceived better than existing similar products, simple to use, and compatible with adopter’s experiences as well as demonstrates benefits, and offer trials, people are more likely to adopt it. According to Rogers (2003), these five characteristics determine 49%- to 87% of the variations in the adoption of new products. However, Tornatzky and Klein (1982) argued that observability was unclear whether it referred to cost, compatibility, or other aspects. Moore and Benbasat (1991) suggested divide “observability” into two independent constructs: 1) “visibility,” an innovation can be seen by other individual; and 2) “result demonstrability,” the capability to communicate the results of using a new technology with others. As MIM is used on small screens of mobile phones, its visibility is difficult to be observed. However, users may communicate or demonstrate the results of MIM usage with others. Hence, this study replaced “observability” with “result demonstrability” as a variable.

Many prior studies have applied the Diffusion of Innovation Theory to investigate the adoption or acceptance of ICT technologies. For instance, Agarwar and Prasad (1997) found that relative advantage and result demonstrability were positively associated with acceptance on the internet. Similarly, a study on groupware applications (Slyke et al., 2002) showed that relative advantage, complexity, compatibility, and result demonstrability significantly influenced intentions to adopt. In term of mobile technologies, Teo and Pok (2003) found that perceptions of relative advantage play an important role in shaping adoption intention of WAP-enabled mobile phones. Factors identified as influencing the adoption of multimedia message service (MMS) included relative advantage, compatibility, and result demonstrability (Hsu, Lu, & Hsu, 2006). Brown et al. (2003) also identified relative advantage and trialability as the key determinants of mobile banking adoption.

Based on aforementioned literature review, the following hypotheses are proposed:

H1a: Perceived relative advantage is positively associated with MIM adoption.

H1b: Perceived compatibility is positively associated with MIM adoption.

H1c: Perceived complexity is negatively associated with MIM adoption.

H1d: Perceived trialability is positively associated with MIM adoption.

H1e: Perceived results demonstrability is positively associated with MIM adoption.

Image

In considering the diffusion process of new end-user technology, Moore and Benbasat (1991) also proposed some other characteristics such as image which is associated with the adoption of new information technology. "Image" emerged as a separate factor from relative advantage and was seen as the degree to which an innovation usage is perceived to enhance one's image or status in social system. Some studies argued that image is closely related with user acceptance of new technology (Venkatesh et al., 2003; Teo & Pok, 2003). Hence, the following hypothesis is proposed:

H2: Image is positively associated with MIM adoption.

Perceived Popularity

Prior research about the adoption of new media technology found that perceived popularity was significantly and positively associated with adoption (Zhu & He, 2002; Zhou, 2003; Wei & Zhang, 2006; Lin, Chiu, & Lim, 2011). Bukoski and Hoza (1989) defined popularity as “widely liked” or accepted by the majority of group members. Parkhurst and Hopmeyer (1998) interpreted it as being socially dominant. Rogers (2003) further highlighted perceived popularity is an important factor which is related to the adoption of interactive networked media. When people perceive an emerging technology like MIM to be more accepted or diffused among their social networks, the value of adoption increases. Young people were also more influenced by perceived popularity (Rogers, 2003). Therefore, perceived popularity is likely to play an important role in the youth adoption of MIM, especially in China which has a collective culture. This study proposes the below hypothesis:

H3: Perceived popularity is positively related to MIM adoption.

Perceived Playfulness

Moon and Kim (2001) defined perceived playfulness as users’ subjective experience of human-computer interaction and found that perceived playfulness greatly influenced users’ behavioral intention to use the internet. That is, individuals who experience pleasure or enjoyment from using information technology are more likely to use it (Venkatesh, 2000). Meanwhile, Chen, Gillenson, and Sherrell (2002) also found playfulness to be a key factor to motivate people to shop at a virtual store.

With the development of wireless technology, individuals can easily access wireless services anytime and anywhere. Some people use wireless services for entertainment purposes or to just kill time (Anckar & D’Incau, 2002). “Play” itself may become one objective of mobile application use. In this study, perceived playfulness is the degree to which a person thinks using MIM will make him or her feel joyful or playful (Fang et al., 2006)

In the mobile context, some studies regarded perceived playfulness as an influential factor for users' technological acceptance. According to Nysveen et al. (2005), playfulness is significant in determining user acceptance of four mobile services. Fang et al. (2006) revealed that perceived playfulness played a critical role when users performed gaming mobile tasks. Most recently, Lu, Zhou, and Wang (2008) showed that perceived playfulness was positively related with users' attitude towards IM use in China. These studies supported the notion that perceived playfulness is an influential factor affecting user acceptance of mobile services. More importantly, China's MIM services add recreational and interactive functions such as "shake," "look around," and "drift bottle" to attract users. This makes perceived playfulness even more relevant as a key factor to influence MIM adoption. Hence, the following hypothesis is proposed:

H4: Perceived playfulness is positively related to MIM adoption.

Adopters' Characteristics

Demographics

Demographic characteristics of individuals may influence their adoption of new technologies. According to Wei and Zhang (2008), gender, age, and educational levels are associated with the adoption of different information technologies. Most prior studies indicated that males were more likely to accept an innovation or technology (Rogers, 2003; Lenhart & Madden, 2007; Vishwanath & Goldhaber, 2003). As for age, younger people tend to be more innovative and willing to adopt new technologies (Rogers, 2003). Well-educated and higher-income individuals were found to be more willing to accept an innovation (Leung & Wei, 1999). Based on previous studies, this study proposes the following hypotheses:

H5a: Males are more likely to adopt MIM than females.

H5b: Young people are more likely to adopt MIM than older counterparts.

H5c: People with higher educational levels are more likely to adopt MIM than those with lower educational levels.

H5d: People with higher income are more likely to use MIM than lower-income people.

Innovativeness

In innovation diffusion research, it has long been recognized that highly innovative individuals are active information seekers for new ideas (Lu, Yao & Yu, 2005). Midgley (1977) has advanced one possible definition of innovativeness as the degree to which an individual makes innovation decisions independently of the communicated experience of others. Later, the definition of innovativeness was explained as an individual's willingness to try out any new information technology or seek new ideas (Lu, Yao, & Yu, 2005; Midgley & Dowling, 1978). Prior studies suggested innovativeness as an important predictor of new technologies adoption (Chan-Olmsted & Chang, 2006; Kang, 2002). The more innovative a person is, the more likely he or she accepts a new technology. This study proposes the following hypothesis:

H6: User innovativeness is positively related to MIM adoption.

Method

A self-administered web-based survey was used for data collection to recruit 18 to 30 year-old Chinese people who are mobile phone users and internet users. The reason why respondents should be internet users is that some MIM services are ported from desktop IM services and internet users tend to adopt innovative information services. Because this study investigates Chinese youth adoption of MIM, both the questionnaire and consent form were translated into Chinese. A pretest was conducted to confirm the validity and reliability of the survey. In March 2013, this study utilized a convenience sampling method to collect sample data. A self-administered web-based survey questionnaire was disseminated to researchers' social networks via China's social media (i.e., QQ, Renren, and Sina Micro-blogging). In total, this study gathered 280 valid respondents who are 18 to 30 year-old Chinese MIM users.

Figure 1 shows that the research framework examines the association of perceived characteristics of MIM

and adopter characteristics with youth adoption of MIM in China.

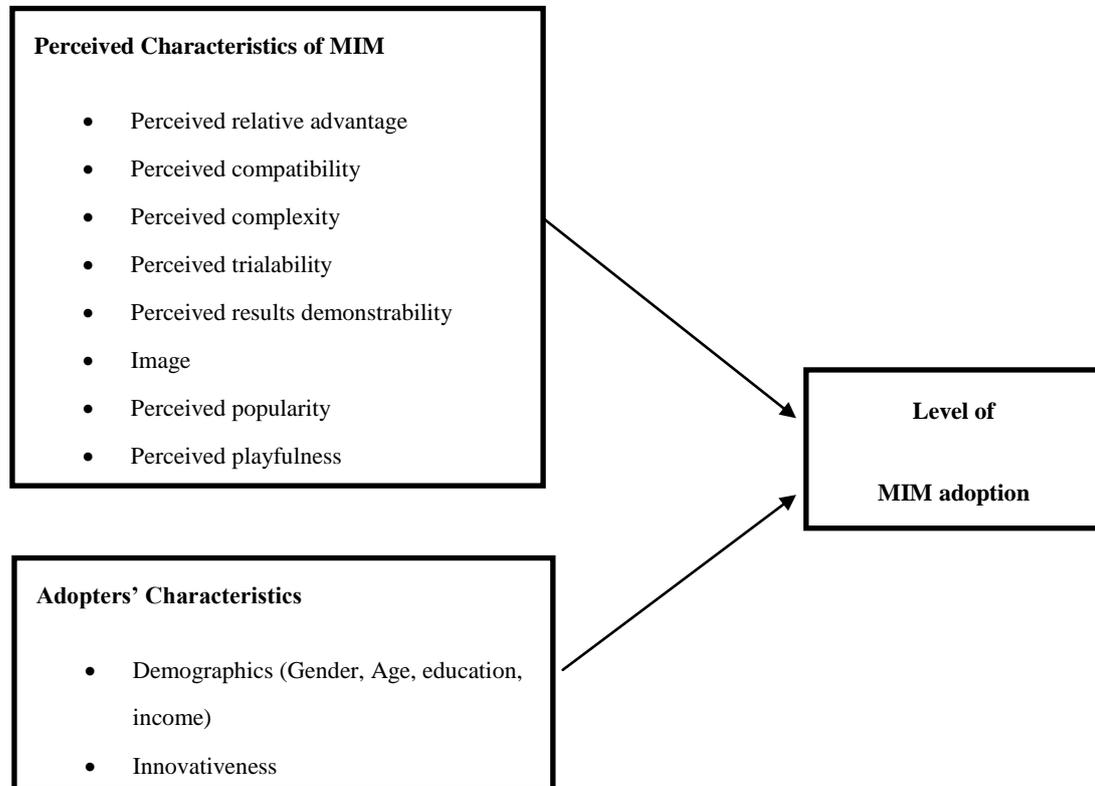


Figure 1. Research Framework

Dependent variable

The level of MIM adoption is treated as the dependent variable. Two questions were asked to indicate the level of MIM adoption: (a) “How much time do you spend using MIM per day” and (b) “How many times do you log in to this MIM per day”. The composite index of MIM adoption level ($M=2.714$, $SD=1.293$, $\alpha=.704$) were created from the average score of these two items.

Demographics

In addition to gender, as this study only focused on 18 to 30 year-olds, age groups were divided into “18-20,” “21-23,” “24-26,” and “27-30.” For the educational levels, the categories included “Primary school,” “Secondary school,” “Junior college,” “Bachelor,” “Master,” “PhD” and above. The monthly income categories included “below 2000,” “2000-3999,” “4000-5999,” “6000-7999,” “8000-9999,” and “10000 and above” (RMB).

Independent variables

The independent variables are measured on a Likert five-point scale ranging from “strongly agree” to “strongly disagree.” To ensure content validity of the scales, the items to measure the variables were adapted from previous studies (Table 1).

Table 1. Measurement Scales for Independent Variables

Variable	Measurement
Innovativeness (Rogers, 2003; Lin, 1998)	I like to learn about new ideas. I like to explore new technology for communication. I like to keep up with new technologies. I am willing to take risk.
Relative advantage (Rogers, 2003; Davis, 1989)	Using MIM allows me to stay in touch with the people I know more easily. Using MIM is useful for staying in touch with the people I know. Using MIM allows me to get to know people in my social circle better. Using MIM allows me to expand my social circle further.
Compatibility (Rogers, 2003; Moore & Benbasat, 1991; Slyke et al., 2007)	Using MIM is convenient for me because I am online most of the time. Using MIM fits well with my communication style. Using MIM suits me because I mostly communicate with the people I know online.
Complexity (Rogers, 2003; Davis, 1989; Moore & Benbasat, 1991)	MIM are difficult to use. Learning to use MIM would be easy for me. It would be easy for me to become skillful at using MIM. Using MIM would be a frustrating experience for me.
Trialability (Rogers, 2003; Moore & Benbasat, 1991)	I know that I can browse the profiles of users of MIM to see how it works before I decide whether to join it. I know that I can take a site tour to see how it works before I decide whether to join it.
Results demonstrability (Moore & Benbasat, 1991)	It is easy to communicate with others the consequences of using mobile instant messaging. It is obvious for me whether using mobile instant

	messaging is beneficial or not. It is difficult to explain why using mobile instant messaging may or may not be beneficial.
Image (Moore& Benbasat ,1991; Lin, Chiu & Lim, 2011)	Using MIM will make me more popular among people who know me. Using MIM will make me seem sociable among people who know me.
Perceived playfulness (Moon & Kim, 2001; Lin et al., 2005)	When using MIM, I am not aware of the time as it elapses. When using MIM, I am not aware of distracting noise. When using MIM, I often forget other commitments.
Perceived popularity (Zhu & He, 2002; Slyke et al., 2007)	Many people I communicate with use MIM. The people I communicate with will continue to Use MIM in the future. Most Of the people I communicate with regularly use MIM.

Scale Reliability

Cronbach's alpha was utilized to analyze the scale reliability of each proposed variable. Table 2 shows Cronbach's alphas of eight variables are above or close to 0.7, indicating good internal consistency. However, the scale of three items in "results demonstrability" showed a low alpha of 0.371 and thus it was dropped from further analysis.

Table 2. Analysis of Scale Reliability

Variable	No. of items	Cronbach's alpha
Innovativeness	4	0.845
Relative advantage	4	0.877
Compatibility	3	0.846
Complexity	4	0.704
Trialability	2	0.641
Results demonstrability	3	0.371
Image	2	0.859
Perceived popularity	3	0.756
Perceived playfulness	3	0.835

Data Analysis

After collected the questionnaire, the data was analyzed by using SPSS 21. A linear regression model was employed to see which factors influenced the level of MIM adoption among Chinese youths. Meanwhile,

relevant statistical calculations for analysis, such as means and standard deviations, were computed in order to get a clear picture from the results.

Results

With respect to the demographic profile of the sample (Table 3), there are more females (60%) than males (40%) and around 85% of respondents are between 24 to 30 years old. Office workers form around 70% and students form 26.8%. Nearly 84% of respondents has a bachelor's degree or above. About half of them earn between ¥2000 (USD\$340) to ¥5000 (USD\$850) monthly. Nearly 30.8% of respondents live in coastal urban areas.

Table 3. Demographic Profile

	Respondents	Percentage
Gender		
Male	112	40.0
Female	168	60.0
Age		
18-21	15	5.4
21-23	27	9.6
24-26	81	28.9
27-30	157	56.1
Occupation		
Student	75	26.8
Office worker	195	69.6
Out of work	2	.7
Others	8	2.9
Educational Level		
Primary school	1	0.4
Secondary school	5	1.8
Junior college	38	13.6
Bachelor	151	53.9
Master	79	28.2
PhD	6	2.1
Monthly income		
Below ¥1,000	51	18.2
¥1000-¥2000	11	3.9
¥2,000-¥2,999	43	15.4
¥3,000-¥3,999	52	18.6
¥4,000-¥4,999	38	13.6
¥5,000-¥5,999	38	13.6
¥6,000-¥6,999	7	2.5
¥7,000-¥7,999	9	3.2
¥8,000 above	31	11.1
Location		
Beijing	57	20.4

Shanghai	21	7.5
Jiangsu	82	29.3
Zhejiang	28	10.0
Guangdong	8	2.9
Sichuan	10	3.6
Xinjiang	16	5.7
Others	58	20.7

Usage Patterns of MIM

The survey shows 45.7 % of respondents spend less than one hour using MIM per day while 21.8% use MIM over 2 hours. About 60% log in to MIM less than six times per day and 19.6% more than 13 times. As shown in Table 4, Mobile QQ (46.4%) and WeChat (47.5 %) are the two most popular MIM services among the respondents. The rest of the MIM services are far behind (6.1% in total).

Table 4. Most Used MIM

	Frequency	Percentage
Wechat	133	47.5
QQ	130	46.4
Fetion	5	1.8
Others	12	4.3
Total	280	100.0

In Table 5, the majority of respondents (70.4%) chose sending text messages as the most used feature of MIM. 15.0% selected voice messages as the second popular while 5.0% chose “sharing photos/articles”.

Table 5. Most Used MIM Features

	Frequency	Percentage
Sending text message	197	70.4
Sending voice message	42	15.0
Video chat	2	.7
Group discussion	8	2.9
Sharing personal status	6	2.1
Sharing pictures or articles	14	5.0
Finding strangers	2	.7
Getting latest news story	8	2.9
Others	1	.4
Total	280	100.0

Regarding the time of day that people use the MIM most frequently, nearly half of the respondents (48.2%) use it in the evening between 8:00pm to 12:00pm. Using MIM “on the way home from work” and “during working or studying” come in second (21.8%) and third (15.7%). As for the location of MIM usage, home (42.1%) is most popular venue followed by public spheres (30.7%). Also, 22.9% of respondents use MIM at school or at work.

When asked about their purposes in using MIM, 49.6% respondents answered “socialization,” 31.8% chose “entertainment,” and only 11.1% used MIM for work or study. In response to the question of who they most frequently contact by using MIM, most of the respondents communicated with their friends who are nearby (23.6%) or distant (21.1%). 32.5% of them used MIM to keep in touch with colleagues or classmates. Only 15.7% of respondents used it to communicate with their lovers, and the least people (7.2%) contacted their families via this technology.

Factors Affecting Youth’s MIM Adoption

To examine the factors affection the level of MIM adoption in China, this study employed a linear regression model to analyze the data (Table 6). With regards to perceived characteristics of innovation, only “compatibility” ($t=4.160, p<.001$) and “trialability” ($t=-2.533, p<.05$) showed significant relationship with MIM adoption. However, different from prior studies, “trialability” was found to be negatively associated with MIM adoption in China, which will be discussed later. Hence, H1b was supported but H1d failed. That is, “compatibility” of MIM to one’s lifestyle and experiences is positively associated with the adoption while “trialability” has a negative relation. “Complexity” and “relative advantage” do not have any association with MIM adoption in China. Also, the result of “image” ($t=-0.32, p>.05$) was not significant, thus disproving H2. However, “perceived popularity” ($t=2.935, <.01$) and “perceived playfulness” ($t=3.271, p<.001$) showed significant results which supported H3 and H4.

Among demographic factors, “age” ($t=-2.985, p<.01$) is the only one that is significant in MIM adoption,

thus supporting H5b. Thus, younger people are more likely to adopt MIM than their older counterparts. However, there is no significant association in “gender” ($t=.830, p>.05$), “educational level” ($t=-1.508, p>.05$), and “monthly income” ($t=.635, p>.05$), hence rejecting H5a, H5c, and H5d. Another adopter characteristic, innovativeness, did not show any significant result ($t=1.483, p>.05$), rejecting H6.

Table 6. Factors affecting MIM Adoption

	Coefficients			Sig.
	B	Std. error	T	
Characteristics of innovation				
Relative advantage	-.111	.165	-.669	.504
Compatibility	.598	.144	4.160	.000***
Complexity	.184	.152	1.204	.230
Trialability	-.315	.124	-2.533	.012*
Image	-.003	.108	-.032	.974
Perceived popularity	.445	.151	2.935	.004**
Perceived playfulness	.298	.091	3.271	.001***
Adopter Characteristics (Demographic)				
Gender	.115	.138	.830	.407
Age	-.191	.064	-2.985	.003**
Educational level	-.131	.087	-1.508	.133
Monthly income	.019	.029	.635	.526
Adopter Characteristics				
Innovativeness	.185	.125	1.483	.139

Note: * $p<.05$. ** $p<.01$. *** $p<.001$

According to the hierarchy regression results, the block of “perceived characteristics of innovation” accounts for 16.9% of the variance towards MIM adoption in China, which has higher predicting power than “adopter’s characteristics” block which explains 10.7% of the total variance. Even though “perceived playfulness” and “perceived popularity” have significant influence on youth MIM adoption, they only explain 2.6% and 2.2% of the variance respectively.

Discussion and Conclusion

This study found five factors (age, perceived compatibility, perceived trialability, perceived playfulness, and perceived popularity) affecting youth adoption of MIM in China. In terms of characteristics of innovation, “compatibility” is influential in individuals’ adoption of MIM, which is consistent with most existing studies (Rogers, 2003; Slyke et al., 2002; Hsu, Lu, & Hsu, 2006). More importantly, regression analysis showed compatibility has the greatest prediction power among the classic characteristics of innovation. Thus, if users perceive using MIM as compatible to their existing lifestyles, past experiences, or other technologies in use, they tend to adopt MIM and use them more. This has applications for future MIM development.

“Perceived popularity” of MIM is another key factor in decisions to adopt or not adopt MIM. The result concurred with most existing studies (Zhu & He, 2002; Zhou, 2003; Wei & Zhang, 2006; Lin, Chiu, & Lim, 2011). Perceived popularity of MIM may be related to social pressure from others (e.g., peers) as Zhu and He (2002b) suggested. When Chinese young people feel peer pressure and perceive the popularity of MIM, they are more likely to adopt it. When the number of users increases, MIM use becomes more valuable to the adopter or potential adopters. Thus, the perceived popularity of MIM can be applied to effective marketing strategies to create hype and attract non-adopters to jump on the bandwagon and thus push the diffusion of MIM to reach critical mass.

“Perceived playfulness” is a new variable as MIM has location-based features and games in addition to communicative functions. The result showed a strong positive association with MIM adoption, similar to previous studies on technology adoption (Teo & Pok, 2003; Mallenius et al., 2007; Lu, Zhou, & Wang, 2008). When users log into an IM platform, they not only want to communicate with others but also to look for fun. Hence, more and more MIM app developers have paid attention to enhance playful functions.

However, perceived “relative advantage” and “complexity” showed no association with MIM adoption. The results can be explained by Tornatzky and Klein (1982) who argued that relative advantages and complexity were reduplicative to compatibility. Meanwhile, for young adopters who enjoy learning new functions on their mobile phones, MIM is not that different from other apps in terms of advantages or

complexity in use. “Image” is also an interesting factor in that it shows no significance in affecting MIM adoption in China. One possible explanation is that MIM is just a popular free app to get youths to connect with friends and its installation does not require extra expense or differentiate youths from their peers.

In most previous studies, the perception of more trials an innovation can offer makes it more likely that people will adopt it (Rogers, 2003; Brown et al., 2003; Compeau, Meister, & Higgins, 2007). However, this study found a contrary result which showed trialability has a negative association with the MIM adoption in China. That is, respondents who perceived MIM to have more trials tended not to adopt this technology. After extensive literature survey, Grimaudo’s (2009) study on adoption of precision agriculture technology showed a similar result. He argued that testing technology required a higher learning curve and sales had trouble convincing operators through demonstration, and thus more trials caused less adoption. However, in this case MIM has a low learning curve due to its user-friendly interface. As MIM in China is free and easy to use, there is no cost or learning barrier. Its innovative location-based features (e.g., “shake”) and games appeal to many Chinese young people. If someone who thinks such a free, user-friendly, and innovative technology requires many trials, he may be unfamiliar with using MIM or fearful of using mobile technologies. Thus, the negative influence of trialability may be attributed to adopters’ psychological characteristics which can be further explored in future.

As for “adopters’ characteristics,” among Chinese young respondents, “age” was found to be the only significant factor to affect the adoption level of MIM, which corroborates the findings of prior studies (Rogers, 2003; Zhang, 2009; Leung, 2007). Younger age groups tend to be more receptive to novel technologies and peers’ opinions. Adopting MIM allows youngsters to make new friends, maintain friendships, and keep in touch with families (Leung, 2007). However, whether the youth is innovative or not does not influence their adoption of MIM. Despite the platform differences, MIM is similar to internet messaging (e.g., QQ) which has been popular for years among Chinese young people. As MIM is not very novel to Chinese youths and its learning barrier is relative low, user innovativeness is not that influential on its adoption.

As for the theoretical contributions, this study is among the first to use Rogers' (2003) Diffusion of Innovation Theory to examine China's MIM context. The results show that some of its assertions are still applicable to MIM adoption issues in China, which can shed light in future studies on similar mobile-mediated communication technologies. Meanwhile, this study contributes to the understanding of Chinese youths' usage of MIM services and provides user insights for mobile service operators to promote MIM's future development. As for limitations, the small sample size with a convenient sampling may restrict generalization ability and weaken the validity to some extent.

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