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RESEARCH ARTICLE

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Instant Messaging Continuance: A Media Choice Theory Perspective

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Abstract Instant Messaging (IM) has become one of the most popular applications for many Internet users. While prior research has primarily focused on IM initial adoption, continued usage (or continuance) has not drawn much attention. This research integrates media choice theories with motivation theory to explain IM continuance. It tests the proposed model using data collected from a sample of 207 Chinese university students via an online survey. Results indicate that perceived enjoyment, perceived critical mass are key to IM continuance intention. Perceived social presence and perceived critical mass are positively associated with perceived enjoyment. We also find that perceived social presence, perceived media richness and perceived enjoyment have significant effects on perceived usefulness.

Keywords instant messaging (IM), continuance intention, perceived media richness, perceived social presence, motivation

1 Introduction

People often manage their social and personal relationships through a variety of communication tools. Historically, relational partners complement their face-to-face interactions with written forms of communication including post cards and letters. Telephone has served as another instrument for sustaining

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relationships through more immediate communication, particularly when partners are geographically separated. In recent years, due to the prevalence of computers and the Internet, computer-mediated communication (CMC) has become increasingly popular and changed the way people communicate with each other (Kettinger and Grover, 1997). Many asynchronous and synchronous communication tools have appeared, such as e-mail, newsgroups, BBS, real-time chat, blogs, and instant messaging (IM). Among these, IM is the communication tool whose number of users has witnessed the fastest growth in recent years (To, Liao, Chiang, Shih, and Chang, 2008). This is partly because the number of Chinese Internet users has exceeded 457 million by 2010. And over 352 million (about 77.1%) have used IM. IM has surpassed e-mail and become the most popular online communication means (CNNIC, 2011).

Existing studies on IM can be roughly divided into two categories in accordance with their purposes: Personal Instant Messaging is for individuals' entertainment and communication use, whereas Enterprise Instant Messaging for business communication use (Xin, Gurung, and Shim, 2010). This paper focuses on personal Instant Messaging in a voluntary social context.

In prior studies, the media richness theory and social presence theory have been applied to media choice, in which all media were ranked by the number of cues available in relation to face-to-face communication. These comparisons may work well for traditional media. As a new medium, however, IM has new capabilities (e.g., synchronous computer communication, storage and retrieval of communication, control over access to and participation in communication, and hierarchical cues) that may affectively make it more capable of "rich" communication in users' perceptions (Carlson and Davis, 1998). Li, Chau, and Lou argued that IM is a better alternative to face-to-face communication than other technologies (Li, Chau, and Lou, 2005). Therefore, the development of IM requires scholars to consider the existing theoretical perspectives on communication media such as media richness and social presence theory.

To better facilitate communication, most IM programs are free and easy to use, making them very affordable and attractive to potential users (Lu, Zhou, and Wang, 2009). Without initial instrumental cost, the switch cost of IM services is lower than other online services. The key issue for the IM service providers becomes how to retain and motivate the users to continue using this specific IM product because "the long-term viability of an IS and its eventual success depend on its continued use rather than its first-time use" (Bhattacherjee, 2001: 352).

The goal of this study is to integrate the media choice theories and motivation theory for empirically investigating factors that promote IM continuance in the

voluntary social context. We aim to reveal the underlying factors that account for IM continuance in everyday life. Specifically, the research explains how media capacity attributes, such as social presence, media richness, critical mass and users' extrinsic and intrinsic motivations influence IM continuance.

This paper contributes to the literature in three ways. First, from an information systems perspective, it extends our current knowledge on information systems (IS) continuance by examining the effects of media capacity attributes and motivations in the social context. Second, from a media choice perspective, it tests whether the theories developed from traditional media (e.g., face-to-face, telephone) are suitable for new media like IM. Third, it provides guidelines for IM service providers to retain IM users in practice.

This paper is organized as follows. It first reviews the literatures and presents the theoretical background of this study such as social presence theory, media richness theory, motivation theory and IS continuance model. Based on these, we develop our research model and propose the research hypotheses. Then we discuss the methodology used to test our research hypotheses, followed by the results of our data analyses. The paper concludes with the implications for theory and practice derived from these results.

2 Literature Review

McClea, Yen and Huang (2004) defined IM as a type of information technology to facilitate communication and labeled it as the ability for one to see if a chosen friend, co-worker, or associate is connected to the Internet (McClea, Yen and Huang, 2004). There are various types of IM software. The most popular ones in China include QQ[1], Fetion[2], MSN Messenger, and Trade Manager.[3]

Although there are differences among various IM systems, the main features are similar, including a "pop-up" mechanism that displays incoming messages, contact or "buddy" lists, a presence feature (a notification that a user is logged into the application), the ability to create a status message (a message indicating the whereabouts or availability of the user), the ability to send binary files,

[1] An instant messenger application developed by Chinese company Tencent.

[2] Fetion is a comprehensive telecommunication service provided by China Mobile Communication Corporation (CMCC), integrating IVR, GPRS and SMS and covering users' communication needs in three forms (complete real-time voice service, quasi real-time text and small amount data telecommunication service and non-real-time telecommunication service). In this way, a seamless telecommunication service between the Internet and mobile network is realized.

[3] A free instant messenger for Alibaba.com members.

custom backgrounds and logos, audio and video options, a feature set of emoticons (images used to indicate an emotion or mood), and integration with mobile devices (Quan-Haase, 2008). Integrating synchronous and asynchronous communications, IM builds a sense of social presence and community, diminishes transactional distance, and reduces the potential for misunderstanding in the building of social relationships (Luo, Gurung, and Shim, 2010).

As mentioned above, there are two streams of IM research. The first stream uses IS theories (e.g., the theory of reasoned action, theory of planned behavior, and technology acceptance model) to study the adoption of IM. Some studies focus on the workplace (Glass and Li, 2010; Isaacs, Walendowski, Whittaker, Schiano, and Kamm, 2002; To et al., 2008), whereas others focus on campus (Fox, Rosen, and Crawford, 2009; Lu, Zhou, and Wang, 2009; Quan-Haase, 2008). The second stream relies on media capacity theories (e.g. media richness theory, social presence theory) to compare IM with other media such as e-mail, or telephone, etc. (Hung, Huang, Yen, and Chang, 2007; Ramirez, Dimmick, Feaster, and Lin, 2008). Some studies focus on the purpose of using IM such as the interpersonal relationship maintenance (Lee and Sun, 2009; Ramirez and Broneck, 2009; Valkenburg and Peter, 2009), entertainment (Dahui, Chau, and Slyke, 2009; Lu et al., 2009) and information acquisition (Qiao, Lai, Shen, Zhang, and Chen, 2007), while others examine other computer-mediated communication tools which are similar to IM, such as social network sites (Sledgianowski and Kulviwat, 2009), mobile instant messaging (Li, Gu, Shang, and Wang, 2010), multimedia messaging services (Lee, Cheung, and Chen, 2007).

In general, relatively little attention has been paid to the users' psychological and behavioral traits, such as personality traits, motivations and experiences in the current media choice (Qiao and Fu, 2009). However, media usage depends on their technical features, users' communication purposes, user and partner characteristics, and social contexts (Dennis, Fuller and Valacich, 2008). Therefore, research on new media usage like IM should shift from the technological perspective to the social context. In order to better understand IM usage behavior, it is necessary to integrate media theories and psychological theories into the related IM research (Qiao et al., 2009). This study will integrate media choice theories and motivation theory to explain IM continued usage.

3 Theories

Several interrelated theories have been developed to study communication, such as media and information richness, social influence, media symbolism, social

presence, critical mass and communication genres. Among them, the social presence theory and media richness theory are based on the premise that media have different capacities to convey interpersonal communicative cues. They have long been used to explain users' media choice and use (Lee et al., 2007). The critical mass theory argues that critical mass influence the adoption and diffusion of communication innovations through network externalities and sustainability of the innovation (Van Siyke, Ilie, Hao, and Stafford, 2007). In addition, the motivation theory proposes that intrinsic and extrinsic motivations determine individuals' information technology usage behaviors. Bhattacherjee's IS continuance model explains that user's satisfaction and perceived usefulness are positively relate to the continuance intention (Bhattacherjee, 2001). Based on the prior literature, the research foundations for this study involve the social presence theory, media richness theory, critical mass theory, motivation theory, and the IS continuance model.

3.1 Social Presence Theory

"Social presence" means the extent to which the medium enables the perception of others' presence, which is a subjective quality of the communication medium (Short, Williams, and Christie, 1976). Social presence relates to the social psychology concepts of intimacy (determined by physical distance, eye contact, smiling, and personal topics of conversation) and immediacy (determined by the medium's capacity in transmitting information) (Short et al., 1976). Media capable of providing a greater sense of intimacy and immediacy will be perceived as having a higher social presence. Based on this theory, communication media such as face-to-face meetings are considered to have higher social presence than computer-mediated communication media and written documents.

Social presence influences the perception of media, the reception of information systems, and the choice of communication partners. Communication is effective if the communication medium has the appropriate social presence required for the level of interpersonal involvement. Thus, media with high social presence contributes to building a close interpersonal relationship.

3.2 Media Richness Theory

Richness (or leanness) is an intrinsic objective property of information technologies that serve as communication media. Media or information richness

is defined as the ability of information to change understandings within a certain time interval (Daft and Lengel, 1986). Communication media varies in the capacity to process rich information. The reasons for richness differences include a medium's capacity for immediate feedback, the number of cues and channels utilized, personalization, and language variety (Daft et al., 1986; Rice, 1992). In the continuum of richness, face-to-face communication has the highest richness and a numeric document has the most leanness. Rich media are more suitable for resolving equivocal situations while lean media is more suitable for reducing uncertainty (Daft et al., 1986).

3.3 Critical Mass Theory

The concept of critical mass indicates that the speed of adopting or using a new technology suddenly accelerates when a certain minimum amount of usage is achieved. In the communication media selection, critical mass is particularly important because an individual's use of the technology shall be consistent with that of his/her communication partner's (Markus, 1987). The benefits of using a communication technology, such as IM, cannot be achieved if the parties involved in a communication adopt different technologies (Li et al., 2005). However, an individual may use a communication technology based on the perception of the number of users rather than the actual number (Luo and Luo, 2000). Therefore, we use the subjective measure of critical mass, which is the perceived critical mass (Markus, 1987). Perceived critical mass in this study refers to the perceptions of whether IM has attracted a critical mass of users.

3.4 Motivation Theory

The motivation theory describes why and how human behaviors are activated and directed. In general, behaviors can be extrinsically and intrinsically motivated (Herzberg, Mausner, and Snyderman, 1959). Extrinsic motivation refers to performance of an activity, because it is perceived to be instrumental in achieving valued outcomes that are distinct from the activity itself (Davis, Bagozzi, and Warshaw, 1992). In contrast, intrinsic motivation focuses more on the pleasure and satisfaction of being involved in an activity (Deci and Ryan, 1985). According to Davis et al. (1992), perceived enjoyment can be described as a typical example of intrinsic motivation, whereas perceived usefulness is an example of extrinsic motivation in the contexts of technology adoption or technology continuance usage (e.g., Thong, Hong, and Tam, 2006).

3.5 IS Continuance Model

IS continuance describes behavioral patterns reflecting continued usage of a particular IS in the post-adoption phase (Limayem, Hirt, and Cheung, 2007). It is widely recognized that the continued IS usage has profound implications with regard to the ultimate success of the system (Bhattacherjee, 2001). More factors were identified in previous studies on continuance, such as perceived usefulness, conformation, and satisfaction (Bhattacherjee, 2001); perceived ease of use and usage experience (Kim and Malhotra, 2005); perceived enjoyment (Thong, Hong, and Tam, 2006); affective factors such as pleasure and arousal (Kim, Chan, and Chan, 2007). Perceived usefulness and perceived enjoyment are two important antecedents of IS continuance intention.

4 Research Model and Hypotheses

The focus of the present study is on individual's behavioral intention of continuance. Based on the social presence theory, media richness theory, critical mass theory and motivation theory, we develop a research model of IM continuance intention (Fig. 1). The three media choice factors are supposed to influence the two motivation factors, which, in turn, are believed to affect the continuance intention, as shown below.

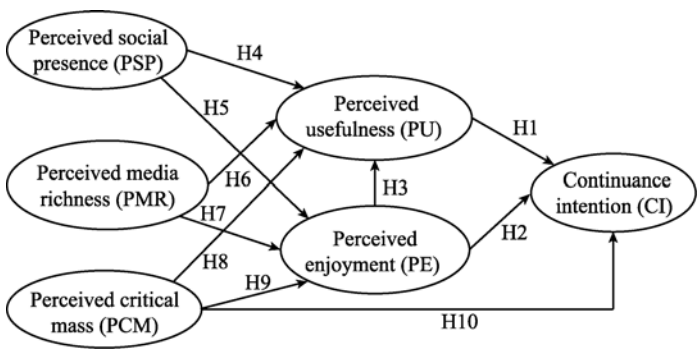

Fig. 1 Research Model

Perceived usefulness (PU) in the present study is defined as an evaluative belief on certain communication technology such as IM that builds and maintains interpersonal relationships in a social context (Li et al., 2005). PU is a very general perception about the efficiency of the communication technology in providing instant feedback, conveying multiple cues, and expressing feelings and emoticons, regardless of the conditions of communication tasks (Fulk, 1993).

In China, IM is a powerful communication platform, which integrates text message, voice mail and video clips together (Lu et al., 2009). Users tend to see IM as a key catalyst for forming and maintaining their social networks (Ramirez and Broneck, 2009). In IS continuance model, Bhattacherjee found a positive relationship between PU and IS continuance intention (Bhattacherjee, 2001). Previous studies have also validated this effect (Thong et al., 2006). Based on these, we propose the following hypothesis:

H1 Perceived usefulness has a positive effect on IM continuance intention.

In this study, perceived enjoyment is defined as the perception of the fun, enjoyment, and pleasure inherent in using a communication technology to keep and develop interpersonal relationships (Li et al., 2005). In China, IM is also an entertainment platform, which IM users can play games, listen to music and watch TV (Lu et al., 2009; Qiao et al., 2007). Some studies have confirmed the saliency of perceived enjoyment in explaining IT acceptance and continuance (Thong et al., 2006). This suggests the following hypothesis:

H2 Perceived enjoyment has a positive effect on IM continuance intention.

Li et al. (2005) argued that the fun, pleasure, and enjoyment derived from using IM with friends will positively affect an individual's perception of the usefulness of IM in supporting the interaction process, as well as building and maintaining the relationships among the users (Li et al., 2005). Prior studies also found that intrinsic motivators such as perceived enjoyment and playfulness affect extrinsic motivators such as perceived usefulness (Venkatesh, 2000). Hence, we hypothesize:

H3 Perceived enjoyment has a positive effect on perceived usefulness of using IM.

The social presence theory posits that media is different in terms of social presence (Short et al., 1976). Media which can provide a great sense of intimacy and immediacy will be perceived as having a higher social presence. As a new medium, IM can provide communication by video, audio and text at the same time, which promotes the perception of intimacy. IM's synchronicity gives it a feel of live conversation and the presence. The increased degree of presence and interactivity via IM enhance the degree of connection between relational partners in a manner that parallels face-to-face interaction (Ramirez et al., 2009; Stewart, Setlock, and Fussell, 2007). The real-time communication, presence awareness, and graphic emotional icons make the process of interactivity more enjoyable and pleasurable. Based on the above discussion, we propose the following:

H4 Perceived social presence has a positive effect on perceived usefulness of using IM.

H5 Perceived social presence has a positive effect on perceived enjoyment of using IM.

According to the media richness theory, media richness refers to a channel's relative ability to convey messages that communicate rich information. IM has a very high capacity to convey multiple cues including variable languages, text, audio, video, and various feelings and emotions. As a synchronous communication, IM also exhibits many interactive features that are closer to high richness media (e.g., face-to-face). The theory claims that richness is most likely to affect user's usefulness perception of a medium. Previous studies have found that a medium that allows sending and receiving rich information with multiple cues is more likely to be perceived useful (Lee et al., 2007). IM exhibits a great deal of flexibility, making the communication process more enjoyable. Hence, we develop the following hypothesis:

H6 Perceived media richness has a positive effect on perceived usefulness of using IM.

H7 Perceived media richness has a positive effect on perceived enjoyment of using IM.

In the context of IM, perceived critical mass is the point which the adopter perceives that the site has a significant number of members that he or she can associate with (due to common interests, friendship, for example). If a current or potential IM user perceives there are no enough active members which he/she can associate with, perceived critical mass will not been achieved or sustained for that user (Sledgianowski et al., 2009). If an individual perceives that many partners are using IM, the individual may perceive IM to be useful and enjoyable (Li et al., 2005; Luo et al., 2000; Markus, 1987; Li et al., 2010). Thus, we hypothesize:

H8 Perceived critical mass has a positive effect on perceived usefulness of using IM.

H9 Perceived critical mass has a positive effect on perceived enjoyment of using IM.

Perceived critical mass has a significant impact on the adoption of information and communication technologies. The direct effect of perceived critical mass and behavioral intention has been tested and found to be significant in several empirical studies (Li et al., 2005; Luo et al., 2000). Therefore, according to the

same logic, we expect perceived critical mass to impact IM continuance intention. Thus, we propose the final hypothesis:

H10 Perceived critical mass of IM has a positive effect on IM continuance intention.

5 Research Method

5.1 Measures

We measured all the variables in the research model using multiple-item scales adapted from prior studies, making minor wording changes to tailor them to the target context. We adapted items for continuance intention and perceived usefulness from Bhattacherjee (2001), items for perceived enjoyment from Davis et al. (1992) and Venkatesh (2000); items for perceived social presence from Short et al. (1976) and Yoo and Alavi (2001); items for perceived media richness from Carlson and Zmud (1999); items for perceived critical mass from Lou et al. (2000) and Li et al. (2005). All the Scales were 5-point. Appendix lists the final item used in the study.

The questionnaire was translated from English to Chinese and then translated back from Chinese to English by certified professional translators (Brislin, Lonner, and Thorndike, 1973) to ensure the integrity of the constructs. We conducted a pre-test to examine and validate the survey instrument, ensuring that it had content validity and reliability at an acceptable level. Before data collection, we sent the Chinese language version of the questionnaire to 20 students to check the face validity of the adapted measures and made changes concerning the format and wording of the questions. Some minor modifications were made based on their feedback as well as from examining the back translation. The revised questionnaire was then used for the online survey.

5.2 Data Collection

Online surveys were used to collect data. As students are the most representative users of online IMs (CNNIC, 2009), data were collected from undergraduate students in courses taught by the authors in the business school of a public university in China. We invited 418 students to participate in the survey during class. The survey attracted a total of 247 students. Cases where the respondent has overlooked the reverse order occurring among the continuance intention items were rejected (40 cases). As a result, 207 valid responses were left. The effective response rate was 49.5%. Participation was voluntary and anonymous.

Table 1 presents the demographic characteristics of the respondents.

Table 1 Sample Demographics

IM users	Category	Number ($N = 207$)	Percentage (%)
Age	18–22 years old	164	79.2
	23–29 years old	43	20.8
Gender	Male	86	41.5
	Female	121	58.5
Experience with IM	< 1 year	1	0.5
	1–3 years	51	24.6
	4–6 years	48	23.2
	7–9 years	18	8.7
	> 9 years	3	1.4

6 Date Analysis and Result

To test the proposed hypotheses, we conducted data analysis in accordance with a two-stage method (Anderson and Gerbing, 1988) using LISREL 8.7. The first step assessed the measurement model to analyze the relationships between the latent constructs and their associated items. In the second step, we examined the structural model to analyze the relationships among the various latent variables.

6.1 Measurement Model

The measurement model was assessed using confirmatory factor analysis (CFA). One item of perceived social presence, one item of perceived media richness and one item of perceived critical mass were dropped because of low loadings. All fitness indices (see Table 2) meet the commonly applied thresholds.

As shown in Table 2, all the measures demonstrated composite reliability (CR), and the average variance extracted (AVE) exceed the required levels (CR above 0.7 and AVE above 0.5) (Bagozzi and Yi, 1988), indicating adequate reliability and internal consistency.

Table 2 Measurement Model

Latent construct	Indicator	Standard loading	Cronbach's alpha	Composite reliability	Average variance extracted (AVE)
Perceived media Richness (PMR)	PMR2	0.54***	0.78	0.80	0.59
	PMR3	0.80***			
	PMR4	0.91***			
Perceived social Presence (PSP)	PSP1	0.95***	0.90	0.90	0.75
	PSP2	0.89***			
	PSP4	0.75***			

(*To be continued*)

(*Continued*)

Latent construct	Indicator	Standard loading	Cronbach's alpha	Composite reliability	Average variance extracted (AVE)
Perceived enjoyment (PE)	PE1	0.86***	0.93	0.93	0.82
	PE2	0.95***			
	PE3	0.90***			
Perceived usefulness (PU)	PU1	0.91***	0.93	0.93	0.77
	PU2	0.91***			
	PU3	0.91***			
	PU4	0.76***			
Perceived critical Mass (PCM)	PCM1	0.94***	0.93	0.93	0.82
	PCM2	0.85***			
	PCM4	0.80***			
Continuous usage Intention (CI)	CI1	0.78***	0.75	0.75	0.51
	CI2	0.66***			
	CI3	0.68***			

Note: * indicates $p < 0.05$; ** indicates $p < 0.01$; *** indicates $p < 0.001$. Model fit indices: $\chi^2/df = 1.71$ ($\chi^2 = 234.12$, df = 137), RMSEA = 0.059, CFI = 0.98, NNFI = 0.98, GFI = 0.89, AGFI = 0.85.

Content validity and construct validity of the measure were also assessed following the norm. The items in the questionnaire were adopted from instruments developed in previous studies, and were slightly modified for our research context through discussion with knowledgeable scholars. Thus, content validity should be attained to a large extent. Construct validity were examined through investigating convergent validity and discriminant validity. All items of standardized factor loading were higher than 0.6 (Nunnally and Bernstein, 1994), and, except for one item, had significant path loadings at the 0.001 level. Thus, convergent validity was achieved.

Discriminant validity infers each item correlate weakly with all the constructs besides its theoretically related construct. As shown in Table 3, the square root of

Table 3 Correlation Matrix, Mean, Standard Deviations and the Square Root of AVE

construct	Mean	S.D.	PMR	PSP	PE	PU	PCM	CI
PMR	4.18	0.72	0.77					
PSP	3.81	0.76	0.440**	0.87				
PE	4.00	0.78	0.451**	0.716**	0.91			
PU	3.96	0.73	0.480**	0.602**	0.622**	0.88		
PCM	4.64	0.50	0.356**	0.386**	0.419**	0.294**	0.87	
CI	4.25	0.62	0.323**	0.476**	0.547**	0.408**	0.492**	0.72

Note: * indicates $p < 0.05$; ** indicates $p < 0.01$; *** indicates $p < 0.001$. The shaded numbers on the diagonal are the square root of the variance shared between the constructs and their measures. Off-diagonal elements are correlations among constructs. For discrimant validity, diagonal elements should be larger than off-diagonal elements.

average variance extracted for each construct is higher than the inter-construct correlation (Fornell and Larcker, 1981), suggesting adequate discriminant validity.

6.2 Common Method Variance

There may be a potential common method variance (CMV) because the self-reported data is susceptible due to consistency motif, common rater effects, and social desirability (Podsakoff, MacKenzie, Lee, and Podsakoff, 2003). We conducted Harman's single factor test to see if a single factor would emerge from exploratory factory analysis. Results showed that the most covariance explained by one factor was 45.59%, suggesting that common method bias is not a significant problem. Therefore, the common method variance was not likely to present a serious problem in this study.

6.3 Structural Model

After confirming the psychometric properties of the items measuring the research variables, we turned to the estimation of the structural model. The proposed hypotheses were tested using two tailed *t*-tests. The significance of individual paths is shown in Fig. 2 and is summarized in Table 4. All fitness indices also met the commonly applied thresholds (see Fig. 2).

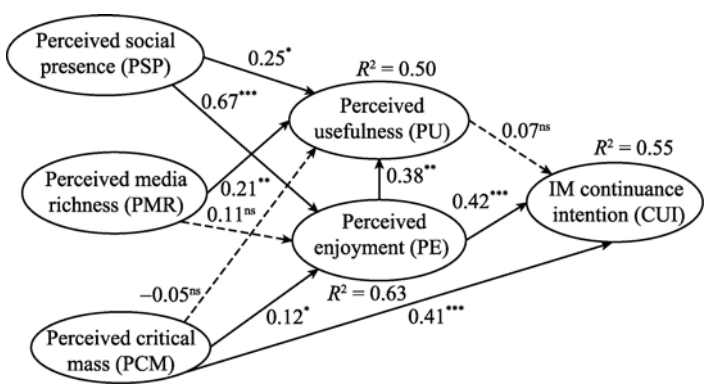

Fig. 2 Structural Equation Model

Note: * indicates $p < 0.05$; ** indicates $p < 0.01$; *** indicates $p < 0.001$; Model fit indices: $\chi^2 / df = 1.69$ (χ^2 =234.78, df=139), RMSEA=0.058, CFI=0.98, NNFI=0.98, GFI=0.89, AGFI=0.85, Standardized RMR=0.07.

Table 4 Results of Hypothesis Testing

Hypothesis	Path coefficient	Results
H1: Perceived usefulness has a positive effect on IM continuance intention	0.07	Not supported
H2: Perceived enjoyment has a positive effect on IM continuance intention	0.42***	Supported
H3: Perceived enjoyment has a positive effect on perceived usefulness of using IM	0.38**	Supported
H4: Perceived social presence has a positive effect on perceived usefulness of using IM	0.25*	Supported
H5: Perceived social presence has a positive effect on perceived enjoyment of using IM	0.67***	Supported
H6: Perceived media richness has a positive effect on perceived usefulness of using IM	0.21**	Supported
H7: Perceived media richness has a positive effect on perceived enjoyment of using IM	0.11	Not supported
H8: Perceived critical mass has a positive effect on perceived usefulness of using IM	–0.05	Not supported
H9: Perceived critical mass has a positive effect on perceived enjoyment of using IM	0.12*	Supported
H10: Perceived critical mass of IM has a positive effect on IM continuance intention	0.41***	Supported

Note: * indicates $p < 0.05$; ** indicates $p < 0.01$; *** indicates $p < 0.001$.

7 Discussion

This study focuses on the continuance intention of IM from the perspective of media choice theory and motivation theory. We drew upon media richness theory, social presence theory, critical mass theory and motivation theory with the continuance model. Some interesting research results deserve further discussion.

Overall, our research model demonstrates a good fit with the data collected in this study. Perceived enjoyment, perceived usefulness and perceived critical mass collectively explained 55% of the variance in continuance intention. The level of explanatory power is acceptable.

Consistent with previous studies, this study found that perceived enjoyment, perceived critical mass were significant in explaining an individual's continuance intention to use IM (Li et al., 2005). However, contrary to the previous findings (Li et al., 2005), we did not find the effect of perceived usefulness on the continuance intention. It indicates that perceived enjoyment and perceived critical mass are more important determinants to IM continuance intention than perceived usefulness. This interesting finding may be explained by the different types of technologies in our study and previous studies. In previous studies, the

utility of IT to improve the performance and productivity should be a dominant variable influencing behavioral intention. However, in the context of IM, the attributes which could communicate with friends via richness cues, play games, or listen music would be more attractive to the users. The perceived enjoyment of using IM became an important factor in a hedonic context (Sledgianowski and Kulviwat, 2009). In addition, IM is a kind of communication medium, the usage of IM in group is important according to the network theory. Thus, IM has its special characteristics.

From the perspective of media choice theory, media richness theory, social presence theory and critical mass theory provide additional insights for explaining perceived usefulness and enjoyment with regard to IM continuance. In particular, perceived social presence and perceived critical mass collectively explained 63% of the variance in perceived enjoyment, with perceived social presence being the dominant variable in shaping users' perception of enjoyment. This suggests that users are likely to be attracted to IM use based on their perceptions of other partners' physical presence and the critical mass, which strengthened their intrinsic motivation toward using the communication technology. Contrary to our hypothesis, perceived media richness did not significantly impact perceived enjoyment. One explanation is that media richness largely depends on whether there are additional program features or options for the users, and for users such things are far less important than being easy to use and matching with the task.

Perceived enjoyment, perceived media richness and perceived social presence explained 50% of the variance in perceived usefulness. IM's social nature enables an individual user to maintain interpersonal relationships with others in social context. We found that the users' perception of the medium's capacity and hedonic utility jointly informed perceived usefulness of IM. Contrary to our hypothesis, perceived critical mass did not demonstrate direct effect on perceived usefulness significantly. One possible explanation for the lack of direct effects is the mismatch between the purpose and performance of using IM (Li et al., 2005). The theory of media synchronicity points out that communication effectiveness is determined by the match between the goals of communication processes and the media capabilities. As a synchronic communication media, the quicker feedback, the multiple conversations simultaneously and an entertainment platform are the advantages for IM. These characteristic may be of great value to the enjoyment of communication partners but may not be good to the communication effectiveness. Today people have a set of media for selection, so they may switch among these media. But we did not collect data of using multiple media in

communication process. Future studies should address the integration of multiple media in the communication process.

7.1 Theoretical Implications

This study provides empirical evidence of the value for integrating the media choice theory and motivation theory to understand the IM continuance. In particular, the study integrates three media attributes variables including perceived media richness, perceived social presence and perceived critical mass, together with perceived enjoyment and perceived usefulness to explain IM continued usage. Our study provides support for the motivation perspective, which holds that perceived enjoyment, as an intrinsic motivation, has a significant effect on the continuance. However, the study does not provide support for the extrinsic motivation. This is contrary to the previous study and hypothesis, and should be studied in the future.

To sum up, this study put forth a useful perspective to study the information technology continuance in the context of computer-mediated communication. It highlights the importance of distinguishing different information technology and the need for considering the nature of information technology. Future studies should integrate more context factors and motivators.

7.2 Practical Implications

Findings of the study shed light on several areas that could benefit vendors and service providers of IM. This study identified that perceived media richness, perceived social presence and perceived critical mass had important effect on the continuance usage of IM via intrinsic motivation. In order to attract users' continued usage, vendors and the service providers should consider the construction of IM enjoyment platform from the technology aspect, such as improving the information richness through variable channels. Providing more customization and personalization may facilitate the interaction process and enhance the user's experience of social presence.

Since an individual's usage can be influenced by the group around him/her, perceived critical mass becomes an important factor for the adoption and continuance of IM. Therefore, maintaining the old customers is very important for attracting new users and the success of IM. This is one of the reasons that QQ invented by Tencent, a domestic IT company, occupies 86.4% of the IM market, far exceeding the share of MSN.

Finally, the significant effects of perceived enjoyment on continuance

intention and perceived usefulness suggest the importance of perceived enjoyment in the continuance usage.

7.3 Limitations

Certain aspects of the results presented here should be interpreted with caution. First, the data were collected from a student sample. This population may be more technologically savvy, and are more likely to be exposed to and utilize CMC tools than the overall population, thus it may not reflect the perceptions of people in other groups. Further studies should choose random samples of the population at large. Second, the respondents in the student sample were using different IM tools, such as QQ, Fetion and MSN. However, this study did not investigate the different features of these different technologies. Third, we measure the continuance intention, which is a concept of psychological perception, so the results may be different in the context of actual usage. Fourth, our focuses are the three media selection theories, however, there are other media theories perspective such as social influence theory which influencing the beliefs of post-adoption, and the continuance.

8 Conclusion

This paper examined the media natures of IM and the motivation of users influencing IM continuance. Results of this study indicate that the use of IM as an enjoyment platform is more important than its utilitarian purpose for IM continuance in social context. The perceived critical mass of IM users is another important factor to the IM continued usage. The media capacity attributes such as social presence and media richness have significant impact on continuance usage of IM via the intrinsic motivation. Results of the present study complement and extend previous research on IT continuance usage. They also lend support to contemporary CMC perspectives that emphasize the role of users over mere technology.

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Appendix: Measures and Scales

Perceived Social Presence (PSP) (adapted from Short et al. (1976); Yoo and Alavi (2001))

PSP1: I feel the communication environment of the instant messaging service is warm.

PSP2: I feel the communication environment of the instant messaging service is

sensitive.

PSP3: I feel the communication environment of the instant messaging service is personal. *(Deleted*)

PSP4: I feel the communication environment of the instant messaging service is sociable.

Perceived Media Richness (PMR) (adapted from Carlson & Zmud (1999))

PMR1: The instant messaging service allows my communication partner and me to give and receive timely feedback. (*deleted*)

PMR2: The instant messaging service allows my communication partner and me to tailor our messages to our own personal requirements.

PMR3: The instant messaging service allows my communication partner and me to communicate a variety of different cues (such as emotional tone, attitude) in our messages.

PMR4: The instant messaging service allows my communication partner and me to use rich and varied language in our messages.

Perceived Usefulness (PU) (adapted from Bhattacherjee (2001))

PU1: Using the instant messaging service improves my communication performance.

PU2: Using the instant messaging service increases my communication outcomes.

PU3: Using the instant messaging service enhances my communication effectiveness.

PU4: Overall, I find the instant messaging service useful to my communication.

Continued Usage Intention (CI): (adapted from Bhattacherjee (2001))

CI1: I will continue using the instant messaging service rather than discontinue its use.

CI2: I will continue using the instant messaging service rather than other traditional communication means (e.g., face-to-face).

CI3: I would like to discontinue my use of the instant messaging service (*reverse coded*).

Perceived Enjoyment (PE): (adapted from Davis et al. (1992); Venkatesh (2000))

PE1: I find using the instant messaging service to be enjoyable.

PE2: The actual process of using the instant messaging service is pleasant.

PE3: I have fun using the instant messaging service.

Perceived critical Mass (PCM): (adapted from Lou et al. (2000) and Li et al. (2005))

PCM1: Many of my buddies use instant messaging service.

PCM2: Of the buddies I communicate with regularly, many use instant messaging service.

PCM3: Few buddies I communicate with use instant messaging service (*reverse coded*). (*deleted*)

PCM4: A large percentage of my buddies use instant messaging service.