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1-1-2013

### **Analysing mobile instant messaging user satisfaction and loyalty: an integrated perspective**

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# Analysing mobile instant messaging user satisfaction and loyalty: an integrated perspective

## Abstract

Mobile instant messaging (mobile IM) is a cutting edge technology of the P2P communication. The prevalence of the mobile IM boosts the research of the perceived satisfaction and loyalty towards mobile IM long-term usage. In the era of 4G, individuals use mobile IM to communicate with their friends in every-day life. However, prior studies neglected a holistic view of users' roles and then yielded insufficient explanation about the usage satisfaction of mobile IM. Based on the integrated users' role framework, this research-in-progress explores the determinants of mobile IM satisfaction and loyalty with the consideration of the triangulation perspective of users' multiple roles: the technology user role, the service consumer role, and the network member role. To this end, a survey is designed to collect data from mobile IM users. The data analysis results will validate the proposed hypotheses.

## Keywords

analysing, user, mobile, messaging, instant, perspective, integrated, loyalty, satisfaction

## Disciplines

Engineering | Science and Technology Studies

## Publication Details

Huang, P. & Li, M. (2013). Analysing mobile instant messaging user satisfaction and loyalty: an integrated perspective. Proceedings of the 21st European Conference on Information Systems (ECIS) (pp. 1-8). Netherlands: Universitat Trier.

# ANALYZING MOBILE INSTANT MESSAGING USER SATISFACTION AND LOYALTY: AN INTEGRATED PERSPECTIVE

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## Abstract

*Mobile instant messaging (mobile IM) is a cutting edge technology of the P2P communication. The prevalence of the mobile IM boosts the research of the perceived satisfaction and loyalty towards mobile IM long-term usage. In the era of 4G, individuals use mobile IM to communicate with their friends in every-day life. However, prior studies neglected a holistic view of users' roles and then yielded insufficient explanation about the usage satisfaction of mobile IM. Based on the integrated users' role framework, this research-in-progress explores the determinants of mobile IM satisfaction and loyalty with the consideration of the triangulation perspective of users' multiple roles: the technology user role, the service consumer role, and the network member role. To this end, a survey is designed to collect data from mobile IM users. The data analysis results will validate the proposed hypotheses.*

*Keywords: Mobile IM, Satisfaction, Loyalty, Integrated users' role framework.*

# 1 Introduction

The mobile instant messaging (mobile IM), such as “WhatsApp”, is an integrated messaging system that includes: the app for mobile device, network and mobile instant messaging service (Deng, et al., 2010). The use of mobile IM has been prevailing around the world. In Europe, the mobile IM user will grow from 8% (26.7 million subscribers) in 2007 to 24% (80 million subscribers) by 2013 (Forrester-Research, 2008). In Asia and North America, some carriers begin to improve the mobile IM service quality. According to the Juniper Research’s report in 2011, the number of global mobile IM user will exceed 1.3 billion by 2016. It is almost the three times of the current market capacity (Juniper-Research, 2011).

The prevalence of mobile IM arouses research on the mobile IM long-term usage in academic field. Scholars have stressed the perceived satisfaction and loyalty towards mobile IM as two critical indicators of long-term usage (Zhou and Lu, 2011a). However, there is a dearth of investigation on the perceived satisfaction and loyalty of mobile IM from a comprehensive understanding of users’ multiple roles (Pedersen, et al., 2002). Without an integrated view of users’ role in the usage of mobile IM, such studies may not capture the essence of mobile IM context and fail to screen out the determinants effectively (Zhou and Lu, 2011a). In this regard, the present research-in-progress intends to fill the gap by adopting the integrated users’ role framework. The integrated users’ role framework refers to the triangulation view of the roles of mobile IM users in sociology framework (Pedersen, et al., 2002). In particular, this integrated framework suggests a holistic consideration of mobile IM satisfaction from the technology user perspective, service consumer perspective, and network member perspective.

The research-in-progress is organized as follows. First, we explain the characteristics of mobile IM context. Next, we introduce the integrated users’ role framework and review prior literature with the theoretical lens of this framework. After that, we develop a series of hypotheses that detail the impact of different users’ role-based constructs on perceived satisfaction and loyalty. Lastly, we describe the research methodology in a concise manner.

## 2 Literature Review

### 2.1 Mobile IM

Mobile IM is quite different from SMS and other mobile service. Prior studies argued that the mobile services could be generally classified in accordance with the interactive means and interactive objectives (see Table 1) (Nysveen, et al., 2005). For the interactive means, the Person-to-Person interactive means the usage of mobile service is mainly conducted between persons. The Person-to-Machine interactive means the communicating parts of using the mobile service is human and machine (or system). For the interactive objectives, the Goal-directed refers to the usage of mobile service is goal driven. The experiential-directed refers to the usage of mobile service is aiming for acquiring the experiential feedback from using the mobile service.

	Person-to-Person interactive	Person-to-Machine interactive
Goal-directed	Text Messaging (SMS)	Payment
Experiential-directed	Contact (Mobile IM)	Gaming

*Table 1. Classification of mobile services*

From Table 1, it can be identified that the mobile IM service is different from other mobile services, such as mobile payment and mobile gaming. In addition, although the SMS mobile service and mobile

IM service are seemingly similar, these two mobile services differ in terms of the interactive objectives. On the one hand, the SMS mobile service is mainly used for delivering instrumental communications to accomplish a task, such as informing news and accessing mobile end user services (Nysveen, et al., 2005). With the low channel capacity, the SMS service could only transmit symbol characters with the plain interface on device. In this regard, the SMS mobile service may not appropriate to support the highly interactive and vividly communication experience among peers.

On the other hand, mobile IM service is designed for experiential communication among peers (Zhou and Lu, 2011a). With the advanced mobile technology, the mobile IM service could deliver vivid communication experience to users, such as voice chat, video chat, emoticon, and changeable communication interface. In addition, users could easily access to the friends network with the mobile IM service and form various kinds of group-based communications. With the strong support of multimedia and networked peers, the mobile IM service complements other communication means by providing a more experiential communication means for every-day life.

## **2.2 Integrated users' role framework**

Prior studies made significant contribution to the understanding of users' satisfaction and loyalty of the mobile IM (Deng, et al., 2010). However, the neglect of an integrated users' role perspective often causes insufficient examination of the determinants of users' satisfaction of the mobile IM and loyalty (Pedersen, et al., 2002). For instance, some studies anchored on the utilitarian value perspective to examine the mobile IM usage satisfaction and loyalty (Kim, et al., 2010). They found the perceived effectiveness of the mobile IM functions (functional value) positively influence users' satisfaction of using mobile IM. Some studies shed the light on the usefulness of mobile IM and its impact on satisfaction (Zhou and Lu, 2011b). Although a large portion of research supports the utilitarian perspective as a pertinent way to explain the satisfaction, it is questionable whether this approach is sufficient for mobile IM context. Besides, other studies inclined to examine the satisfaction and loyalty from the hedonic perspective (e.g., happiness and enjoyment) (Zhou and Lu, 2011a). These studies usually overlooked the technical usage of the mobile IM and failed to investigate the mobile IM per se (Wiredu, 2007). Considering these situations, an integrated users' role framework could complement prior literature by encapsulating multiple roles of users for the examination of perceived satisfaction and loyalty of mobile IM usage.

As Pedersen and his colleagues argued: "combining the (multiple roles of user in mobile context) may improve their understanding of the end-users" (Pedersen, et al., 2002). The integrated users' role framework is constituted with three roles: the technology user, the service consumer, and the network member. The technology user means the individual's role as a user who utilizes the technology (e.g., mobile IM) for communication purpose. In this regard, some technical factors should be considered when evaluating the satisfaction of the holistic usage experience, such as the technology compatibility, usefulness, and relative advantage (Saeed and Abdinnour-Helm, 2008). The service consumer means the individual's role as a consumer who uses the service/product that the technology built upon. In this regard, the service/product-based factors should be highlighted, such as service quality and perceived enjoyment. The network member refers to the user's role as a member in the networked environment for sensing and communicating with outer world (e.g., environment, other people), rather than inner world (e.g., self) (Bryant, et al., 2006). This role is particularly important in the mobile context. It is because, in the mobile context, users could communicate ubiquitously with other people. Such social communication could influence users' attitude towards using the technology. It then positively influences satisfaction about the technology (Ngai and Gunasekaran, 2007).

In summary, these three roles of users in the mobile context encompass the possible roles that users may encounter with the use of mobile technology. Each of them explicitly represents one of the specific usage aspects (Pedersen, et al., 2002). Other scholars examined the antecedents of consumers' satisfaction and loyalty from the consumer and the user perspectives (Lin and Wang, 2006). However, there is a dearth of examinations with the overarching framework for the mobile IM service usage

satisfaction and loyalty. Therefore, this study complements prior researches by adding the investigation on the impacts of antecedents from consumers' multiple roles perspective on the consumers' satisfaction and loyalty. As a result, the integrated users' role framework is suitable for the investigation of the mobile IM. It provides more details of the relationships between the possible antecedents and the consumers' satisfaction for mobile IM. In the followings of this section, we contextualize the three different roles of users in terms of mobile IM context.

- Mobile IM app user (Technology user)

In the research context of mobile IM, the mobile IM app user can represent the technology user role. Users download mobile IM apps from online store to their own mobile device, and then use the app to communicate with their friends and/or other people. In this process, the perceived satisfaction and loyalty of mobile IM is influenced by the performance of the app. For example, Deng and her colleagues argued that technical benefits (e.g., sending emoticon, voice chatting) have direct positive influence on the satisfaction of mobile IM (Deng, et al., 2010). It is because the good performance of mobile IM app could facilitate the communication process, thus enhance the functional perception towards the app. As a result, users could perceive satisfaction with the usage of mobile IM app. Other scholars also found the quality of the mobile IM app significant influences the perceive satisfaction (Kim, et al., 2010).

- Mobile IM service subscriber (Service consumer)

The mobile IM service subscriber could represent the service consumer role in the mobile IM service context. In this context, mobile IM users subscribe (paid or free) the instant messaging service and the complementary service/product for communication. In this regard, the usage experience of mobile instant messaging service is critical determinant of the perceived satisfaction towards the usage of mobile IM. Zhou and Lu (2011a) examined the impact of usage experience of mobile IM on the users' satisfaction. They found the good usage experience of mobile IM enhances the perceived enjoyment of using the mobile instant messaging service. As a result, the perceived enjoyment positively influences users' satisfaction. This result suggests the mobile IM service subscriber evaluates the service as a service consumer and then determines the perceived satisfaction.

- Relationship stakeholder (Network member)

The relationship stakeholder means the role that affects or can be affected by the relationship with others. It can represent the network member role of the integrated users' role framework. In the research context of mobile IM, users utilize the mobile IM to build/maintain relationship with friends and facilitate the interpersonal communication (Bryant, et al., 2006). Some scholars examined the friendship network formation process and found that when users use the IT-based messaging tools to communicate more frequently, they would build the friendship network more easily. What's more, their usage of IT-based messaging tool will be enhanced by the built friendship (Peter, et al., 2005). It indicates that mobile IM users could become active to build friendship by using mobile IM. In addition, the built friendship increases the need of sharing happiness/communicating with their friends. As a result, they keep on using the mobile IM and are satisfied with it.

### **3 Research Model and Hypotheses**

Anchoring on the integrated users' role framework, we propose the overarching thesis: Factors derived from perspectives of users' different roles (e.g., the mobile IM app user perspective, mobile IM service subscriber perspective, and relationship stakeholder perspective) will have positive impacts on users' perceived satisfaction of the mobile IM. It then positively influences the perceived loyalty. Figure 1 illustrates the research model.

- Perceived satisfaction and perceived loyalty

The perceived satisfaction refers to the summary psychological state when users' prior feelings about the usage experience of mobile IM is coupled with the emotion surrounding disconfirmed expectations (Oliver, 1981), whereas the perceived loyalty means "a deeply held commitment to rebuy or patronize

a preferred product/service consistently in future, despite situational influences and marketing efforts having the potential to cause switching behaviour” (Oliver, 1981). The perceived satisfaction and perceived loyalty of mobile IM are two important research topics in Information Systems discipline. Scholars argued that the high satisfaction and high loyalty is significantly correlated (Zhou and Lu, 2011b). If the mobile IM can satisfy the users’ requirement, the perceived loyalty could be built easily. Hence, in line with most of prior studies, we posit:

Hypothesis 1: Users’ perceived satisfaction of mobile IM positively influences the perceived loyalty of mobile IM.

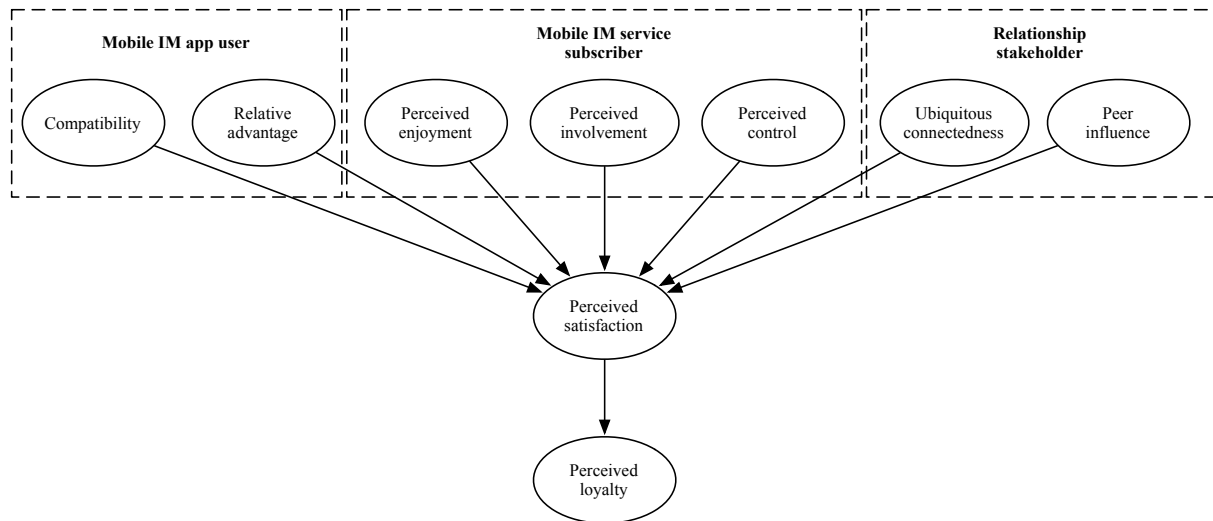


Figure 1. Research model

- From the mobile IM app user perspective

Mobile IM app user role refers to the technology user perspective of mobile IM service. Prior IS researchers suggested that how the technology can be used to fit the task and the usefulness of technology are critical determinants for the users’ perception and intention towards the usage of technology (Maruping and Agarwal, 2004). In the mobile IM service context, we argue the compatibility and relative advantage are capable to represent the main determinants from the technology user perspective.

- Compatibility:

Compatibility refers to the extent to which the technology fit users’ experience with their needs for technology. Prior studies demonstrated that the technology compatibility is the main factor that ultimately determines the user satisfaction of using the technology (Pagani, 2004). If the mobile IM has high compatibility, it means the technology is capable for completing the assigned task. Users’ experience of using mobile IM could fit their needs for technology, and they will feel satisfied. Thus, we posit:

Hypothesis 2: The compatibility of the mobile IM positively influences the users’ perceived satisfaction of mobile IM.

- Relative advantage:

Relative advantage refers to the extent to which the technology has more advantages than the other technology, which could provide users with more profit. Considering the mobile IM as a new technology, Venkatesh and his colleagues found (2003) that relative advantage accounted for the large majority of the explanation power than other constructs, such as ease of use, trialability, and result demonstrability. When people use mobile IM to contact with their friends, the mobility of the mobile IM is superior to the traditional instant messaging. Scholars found that the mobility is the key

characteristic of the mobile IM (Zhou and Lu, 2011b). Compared with the traditional instant messaging, the mobile instant messaging can connect the people more effectively in terms of broken the place and time constraints. Moreover, as discussed above, with the strong support of multimedia and networked peers, the mobile IM service could deliver vivid communication experience to users. People will perceive the mobile IM is more useful and eventually would be satisfied with using it. Thus, we posit:

Hypothesis 3: The relative advantage of mobile IM positively influences the users' perceived satisfaction of mobile IM.

- From the mobile IM service subscriber perspective

Mobile IM service subscriber refers to the service user role in the mobile IM context. Both the service itself and the process by which the service is provided could influence users' perception and satisfaction toward certain service. In this regard, three factors, namely perceived enjoyment, perceived involvement, and perceived control, are the key indicators that best represent the users' interaction with the service (Koufaris, 2002).

- Perceived enjoyment:

Perceived enjoyment refers to the extent to which users enjoy the usage of mobile IM service. When building friendship by using the mobile IM, users feel the enjoyment of the interaction with their friends and the process of the chatting activities. In the previous studies, scholars argued that perceived enjoyment is an important determinant of the intrinsic motivation of using the mobile IM service (Nysveen, et al., 2005). In this regard, the perceived enjoyment acts as the general assessment of the mobile IM service itself. If the assessment is positive, the users will have positive attitude towards the mobile IM service. As a result, the users' satisfaction would be high. In addition, scholars demonstrated the perceived enjoyment has more explanation power than some other constructs for influencing the users' attitudes towards use (Nysveen, et al., 2005). Hence, we expect the perceived enjoyment represent the main determinant of the users' satisfaction from the service user perspective. Thus, we posit:

Hypothesis 4: The perceived enjoyment positively influences the users' perceived satisfaction of mobile IM.

Despite the service itself, the process by which the service is provided can also influence users' perception and satisfaction. Whether the users are fully involved when using the mobile IM service, and to what extend users can adapt/control the process to make it meet their preference, are the main consideration in this study about users' perception of service process.

- Perceived involvement:

Perceived involvement refers to "a psychological state experienced as a consequence of focusing one's energy and attention on a coherent set of stimuli or meaningfully related activities and events" (Witmer and Singer, 1998). In this study, perceived involvement represents the extent to which user concentrate on the act they are doing when using the mobile IM service. Prior studies have already demonstrated the importance of involvement on users' perception of service quality (Kim, et al., 2010). In mobile IM context, when users are highly involved, they may focusing on the process of chatting with their friends and respond their friends instantly. Such concentration increases the effectiveness of communication, and thus improves the using experience. The improved communication experience can positively influence the satisfaction of mobile IM usage. Thus, we posit:

Hypothesis 5: The perceived involvement positively influences the users' perceived satisfaction of mobile IM.

- Perceived control:

Perceived control refers to users' perception about the capability of the control over the service process of mobile IM. Prior studies have argued that perceived control is a crucial determinant of how individual interprets the service (Saeed and Abdinnour-Helm, 2008). In this study, users use mobile



IM to chat with their families, friends and co-partners. A high level of perceived control could result in the feeling that they have the capability to determine how the service is provided and they can effectively adapt the service to meet their own needs of using the mobile IM, thus induce high evaluation to the usage the mobile IM service. The high evaluation then positively influences mobile IM satisfaction. Thus, we posit:

Hypothesis 6: The perceived control positively influences the users' perceived satisfaction of mobile IM.

- From the relationship stakeholder perspective

Relationship stakeholder means the role that affects or can be affected by the relationship with others. In relation to the mobile IM service context, the ubiquitous connectedness and peer influence would represent the characteristics of the network member perspective (Zhou and Lu, 2011b).

- Ubiquitous connectedness:

The ubiquitous connectedness refers to users' perception about the extent to which the mobile IM facilitates the experience of connectedness ubiquitously (Pagani, 2004). It represents the experience of users with the feelings of "be with friends" any time regardless geographical constraint. The ubiquitous is one of the main factors when doing research with mobile commerce topics. In addition, the ubiquitous connectedness is the unique characteristic of the mobile IM service, compared with other factors such as network externality. If the users perceive high ubiquitous connectedness, there is a high likelihood that they satisfy with the mobile IM usage by which a close relationship is created. Thus, we posit:

Hypothesis 7: The ubiquitous connectedness positively influences the users' perceived satisfaction of mobile IM.

- Peer influence:

Peer influence means the degree of influence that users perceive from peers in the same social group in deciding the use of mobile IM. Scholars demonstrated the peer influence could take a larger part of explanation power of influencing the use of technology than other factors, such as external influence in the network context (Zhou and Lu, 2011a). In this regard, it is especially important to examine the peer influence for the examination of the network-based mobile application, such as the mobile IM. In this study, with the prevailing of mobile IM, users' satisfaction towards the mobile IM is influenced by how the peers evaluate the mobile IM usage behaviour. The rationale for this effect is that users communicate with friends via mobile IM, the positive evaluation of the important others could motivate the users to keep consistent with peers' opinion and thus perceive a good use of mobile IM, therefore high satisfaction will be achieved. Thus, we posit:

Hypothesis 8: The peer influence positively influences the users' perceived satisfaction of mobile IM.

## **4 Research Method**

In this research-in-progress, we will apply the online survey to collect data from mobile IM end-users. Measurements of each construct will be adopted from prior literature and they will be modified to fit the research context (Deng, et al., 2010). Data will be collected using a seven point Likert-type scale. A pilot study will be given to test the validity and reliability of the questionnaire. The main survey will be conducted on the Internet via some of the popular online forums. Participants who have the mobile IM usage experience more than half a year are eligible to answer the survey questions, and they can access to the questionnaire by click the link we posted on the online forums using either smart phone or other devices. We intend to collect more than 360 responses. Moreover, we will use multiple methods to enhance the response rate, such as advertising the survey in social media and a lucky draw for winning an iPad mini. Only participants who delivered valid questionnaires are qualified to join in the lucky draw. For the data analysis, we will firstly check the common method bias and the non-response bias. Then, we will use SEM package (e.g., LISREL or PLS) to test the hypotheses.

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