Analyzing User Satisfaction Factors for Instant Messenger-Based Mobile SNS*

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Abstract. Users of smart phone-based instant messenger such as KAKAO TALK, MSN messenger are rapidly increasing. However, research on user satisfaction for smartphone instant messengers has not been done at all. This study analyzed factors affecting user satisfaction by conducting a survey on 220 users of mobile messengers in smartphones. The survey results showed that self-disclosure, flow, and social presence significantly affected user satisfaction. This study will benefit researchers and contribute to industries that possess interest in factors affecting user satisfaction regarding the use of smartphone applications and mobile messengers.

Keywords: Mobile Instant Messenger, Mobile Instant Messaging, Mobile SNS.

1 Introduction

The smart phone market succeeded in achieving a high growth rate even amid a depression of the cell phone market during the 2009 global economic crisis. While the smart phone market achieved a growth rate of 43% in 2010. The market is expected to achieve a growth rate of 40% in 2013 [1]. Users of smart phone-based Social Network Service (SNS) are rapidly increasing in number along with the development of the smart phone market, and it is predicted that the number of users will continuously increase. SNS refers to the service that facilitates formation of relationships between online users that possess similar interests and provides various activities, such as managing personal connections and sharing information and contents for such relationships [2]. SNS can be largely classified into web-based social network services and Instant Messenger-based social network services [3]. This study investigated user satisfaction of SNS services by doing research on Instant Messenger users among various social network services.

As of October 2010, the number of mobile instant messenger users in Korea was 15,000,000 NateOn messenger users, 4,000,000 KAKAO TALK users, 2,700,000 MSN messenger users, 850,000 Skype users, and 100,000 Yahoo messenger users.

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The use of such mobile messengers is expected to continuously increase in the future [4][5]. In particular, KAKAO TALK acquired more than 10,000,000 Korean members by March 2011 just a year after its release [6]. Fig. 1 shows the ranking for free social networking software in the AppStore, in order of popularity. According to the figure, the instant messenger KAKAO TALK took 1st place in the social networking category with NateOn ranked 4th, Skype 8th, and MSN Messenger 9th thereby verifying the great popularity of instant messengers among social network services.

Fig. 1. Free software ranking for social network service in AppStore

However, in spite of the large number of smart phone SNS users, hardly any research has been done on factors affecting user satisfaction regarding smart phone SNS. Furthermore, research on user satisfaction for smart phone instant messengers has not been done at all. Such facts place a high significance on studying and analyzing factors affecting user satisfaction of smart phone SNS and instant messengers, which have recently gained great popularity. In order to achieve this, this study has conducted a survey on smart phone instant messenger users in order to research user satisfaction and investigate factors affecting user satisfaction.

2 Literature Review and Research Hypotheses

2.1 Mobile Messenger

When internet service first started facilitating inter-communication and cooperation between individuals, messenger was first introduced in 1996 by a company named Mirabilis. Mirabilis launched a service named ICQ (“I Seek You”), which enabled friends to send online messages with one another through their PC [7]. Since Messenger possesses the same meaning as Instant Messenger, the two terms are frequently used together. Messenger refers to the service for actualizing various interactive communications within cyber space, such as verifying the access of other users, or sending and receiving messages or files between individuals or groups [8]. Mobile Instant Messenger refers to instant messaging using mobile devices, such as

cell phones or PDA. It enables users to connect to the Internet through mobile devices in order to achieve interactive communication within cyber space, such as verifying access of other users, sending real-time messages, chatting one-on-one or multilaterally, or sending files [9]. Mobile Messenger is a service that has achieved improvement in terms of efficiency when compared to previous PC-based messengers as it provides communication that is more abundant and enables users to achieve quicker communication based on mobility. In addition, when compared with previous SMS or PC-based instant messaging, it can be said that Mobile Messenger allows users to abundantly express emotions in terms of a Social Presence [10].

Previous studies have observed user satisfaction as an important factor that affects the success and usage of the information system [11]. User satisfaction, which is one of the most commonly used dependent variables, is defined as the sum of attitudes or feelings regarding various factors that affect certain situations [12], and is regarded as the user's evaluative response on the information system [13]. As Mobile Messenger is a service that was also created by using information technology, an analysis on the factors affecting satisfaction of Mobile Messenger users is required in order to move along discussions on success factors and on expanding the user base of Mobile Messengers. This study established a research model shown in Fig. 2 in order to analyze the factors affecting the satisfaction of mobile messenger users.

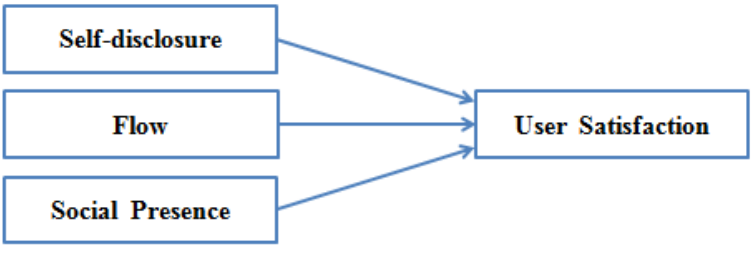

Fig. 2. Research model

2.2 Self-disclosure and User Satisfaction

Self-disclosure is defined as a process that enables others to verbally read one's private information, such as personal emotions, experiences, or opinions [14]. Self-disclosure is a important communication behaviour for establishing and maintaining human relationships [15]. Exchange of self-disclosure has been verified as an important factor in not only enhancing good feelings between two people [16], but also in forming satisfactory long-term relationships [17]. People have a tendency to develop favourable feelings toward the people they have exposed themselves [16]. Furthermore, self-disclosure not only helps establish relationships with others, but it provides a catharsis for exposing personal information [18]. Thus, the exchange of self-disclosure is regarded as an extremely significant variable in achieving satisfaction through interaction in relationships [17][19]. Schau and Gilly (2003)

stated that the concept of self-expression can be an important factor in researching SNS services, such as micro-blogs [20]. This study established the following hypothesis based on such previous studies.

H1: Self-disclosure has a positive effect on user satisfaction.

2.3 Flow and User Satisfaction

Flow refers to the state of being completely absorbed in a certain act, for example, losing the sense of time and becoming unaware of surrounding situations. Situational flow through interactive media refers to the cognitive state experienced during activity in computer-interactive environment [21]. Experienced by participants deeply related with certain situations, goals, and activities, this cognitive state refers to the status of being completely absorbed in the situation [22]. Flow is the factor that affects satisfaction and performance of activities in various areas, such as sports, leisure, sociology, and business [23]. The importance of flow has been emphasized in relation to satisfaction and performance of services using information technology. Flow enables users to discover enjoyment in the process to show more active participation in the activity to gain greater satisfaction. Various studies have verified that flow in cyber environments is a variable that significantly affects satisfaction [24]. Flow is a positive strengthener that increases future use of the information system in a computer environment [25]. This study presents the following hypothesis based on such previous studies.

H2: Flow has a positive effect on user satisfaction.

2.4 Social Presence and User Satisfaction

As a concept for explaining the psychological experience formed by interaction between communicators, social presence can be defined as the "salience of the other in communication interaction" [26]. Steuer (1992) defined social presence as the sense of being within a certain environment, stating that the sense of being in a distance place is the experience of sensing each other's existence in a certain environment through the communication medium [27]. It has been verified that social presence in cyber space can form positive relationships with the creation of results, such as satisfaction [28]. On the other hand, instant messenger has been verified to facilitate real-time dialogues to provide social presence to users, thus enabling users to forget about the computer medium and feel as if he or she is actually existing in the same space as the other user [29]. Certain studies predict that the mobile messenger will provide abundant emotional expressions in terms of the social presence, as the new mobile messenger can be accessed anywhere and anytime unlike previous SMS, PC-based instant messengers. However, this hypothesis has not been empirically proven by research results. As the appearance of smart phones have enabled users to exchange more information through mobile messengers, social presence, in relation to sharing emotions with others and experiencing co-existence with other distant users, can be regarded as a factor of greater significance for mobile messenger users. Thus, this study presents the following hypothesis.

H3: Social presence has a positive effect on user satisfaction.

3 Methods

In order to prove the research model and hypothesis, self-disclosure was defined as the act of revealing personal information, such as private emotions and opinions, and was composed of 4 items based research by Kendzierski and DeCarlo (1991). Absorption was defined as the state of being completely absorbed during use of the mobile messenger service and was composed of three items based on research by Webster and Ahuja (2006). Social presence was defined as the state of feeling as though the user has personally met the other user during the use of the mobile messenger service, and was composed of four items based on research by Dodds & Monroe (1991). Satisfaction for user experience was defined as the degree of satisfaction when using a mobile messenger and was composed of four items based on research by Cronin Jr., Brady, & Hult (2000) and Thomson (2006).

A survey was conducted on users of smart phone messengers for approximately 4 weeks in October 2010. A total of 220 surveys were collected, and 202 surveys, excluding 18 inaccurate surveys, were used in the data analysis. The 202 respondents were composed of 64 women (32%) and 138 men (68%), with 162 people in their 20s (80%) and 40 people in their 30s (20%). Also, the survey results showed that 90 people used a mobile messenger for less than 30 minutes per week (45%), 76 people used a mobile messenger for 30 min ~ 1 hour per week (38%), 30 people used a mobile messenger for 1 hour ~ 3 hours per week (15%), and 6 people used a mobile messenger for 3 ~ 5 hours per week (3%).

4 Results

Data analysis was conducted with SPSS ver. 12.0. The questionnaire asked participants to rate the extent to which they agree with each statement by circling a number from one to seven with fourteen items.

4.1 Factor Analysis

To test the construct validity of the measurement, we conducted a factor analysis on the survey questions using a principal component analysis, with a varimax rotation. Factor lading cutoff was set with value greater than 0.5. Factors with eigen value greater than 1.0 are extracted. As a result of factor analysis, two factors are exacted, named “Self-disclosure”, “Flow”, “Social presence”, and “ User satisfaction”. Results are shown in Table 2.

4.2 Reliability Analysis

A measurement instrument with a Cronbach’s α value of 0.6 or greater is generally considered satisfactory in terms of reliability. All factors show significant reliability level, ranged from .762 to .945 by Cronbach’s α in Table 1.

Table 1. Results of factor analysis and reliability analysis

Variables	Items	Factor1	Factor2	Factor3	Factor4	Cronbach's α
Self-disclosure	SEN3	.931				.945
	SEN2	.916				
	SEN1	.881				
	SEN4	.684				
Flow	FLO2		.849			.813
	FLO1		.838			
	FLO3		.705			
Social Presence	SPR3			.893		.859
	SPR4			.831		
	SPR2			.596		
User Satisfaction	SAT3				.788	.762
	SAT2				.779	

4.3 Regression Analysis

Findings of the regression analysis on the relationship between self-disclosure and user satisfaction, the relationship between flow and user satisfaction, and the relationship between social presence and user satisfaction show the significant associations, supporting the hypothesis 1, hypothesis 2, and hypothesis 3(R^2=.456). Details are shown in Table 2.

Table 2. Results of regression analysis

Variables	B	Std. Error	β	t	p	R^2
(Constant)	.855	.283		3.021	.003	.456
Self-Disclosure	.149	.066	.153	2.242**	.026	
Flow	.281	.059	.289	4.787***	.000	
Social Presence	.408	.071	.381	5.714***	.000	

5 Conclusions

This study conducted the survey on mobile messenger users to investigate the effect of self-disclosure, flow, and social presence on the user satisfaction of mobile messengers. The survey results showed that self-disclosure, flow, and social presence significantly affected user satisfaction; the influence shown in the order of magnitude from greatest to least was social presence, flow, and self-disclosure, respectively.

The theoretical contributions of this study are as follows. First, since this study conducted research on the user satisfaction of smart phone applications during a period that lacked various studies on smart phones, it can provide help to future researchers that will investigate smart phone applications. Second, since this study has clarified the factors affecting user satisfaction of mobile messengers during a period that lacked research on mobile messengers, it can contribute to future research on mobile messengers, to the satisfaction of messenger users, and to the use of mobile messengers.

The operational contributions of this study are as follows. First, since self-disclosure has been shown to be a factor affecting user satisfaction, industries should realize that the development of functions for facilitating easier self-disclosure of mobile messenger users should be considered during mobile messenger production and planning. Diversification regarding font, emoticon, or flashcon can be cited as a specific measure. Second, since absorption has been verified as a factor affecting user satisfaction, industries should realize that an environment for achieving better user absorption during the use of mobile messengers should be provided. Thus, factors hindering absorption, such as the internet cut-off phenomenon or, data transfer quality must be eliminated to maintain a stable internet status. In addition, a wide bandwidth for transmitting abundant information should be provided to users and an appropriate size for advertisements must be established to prevent ads from blocking the view of users during communications so not to disturb absorption. Third, since social presence has been presented as a factor affecting satisfaction, producers must consider functions for maximizing social presence, such as establishing the same background screen to make users feel as though they are in the same space or announcing the current status of users by displaying messages such as "the user is currently writing a message."

However, this study did not consider other important factors such as the utilitarian value, hedonic value, and functional characteristics of smart phones for mobile messengers. Future research must include the different effects on user satisfaction according to the various purposes of mobile messengers and should be done taking into consideration other important factors that influence user satisfaction, such as mobility, convenience of user interface, usefulness, dialogue transfer speed, diversity of sharable data, and financial risk, in addition to self-expression, flow, and social presence.

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