Use and Gratifications of Mobile SNSs: Facebook and KakaoTalk in Korea

ABSTRACT

Young Wook Ha, Jimin Kim, Christian Fernando Libaque-Sáenz, Younghoon Chang, Myeong-Cheol Park

Mobile instant messengers, which are types of social networking sites (SNSs), have become popular among smartphone users. This trend prompts Internet-based SNSs to join this wave by launching mobile versions of their applications. The business model of both mobile SNSs is based on advertisements where continuous use of the service represents higher profits. Founded on the Theory of Uses and Gratifications, this research attempts to identify gratifications driving mobile SNSs use. Gratifications were divided into “obtained” – cognitive, hedonic, integrative, social interactive – and “opportunities” – mobile convenience. We collected responses from 330 KakaoTalk and 311 Facebook users. The results shed light on the effect of hedonic, integrative, and mobile convenience in forming attitude. Social interactive gratification exerted a significant effect on all other gratifications-obtained variables whereas mobile convenience had a significant impact on all other gratifications. An exploratory comparison between KakaoTalk and Facebook was performed, and academic and managerial implications were discussed.

Keywords: mobile social networking sites, mobile convenience, gratifications-obtained, gratification-opportunities
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1. Introduction

Mobile communication technologies and the Internet have changed the way people interact and communicate with one another. With advances in technology, mobile phones have become an essential part of our lives because these devices are used for much more than voice communication (Ishii, 2006). For example, smartphones and the Internet allow users to integrate email service, short message service (SMS), instant messaging service (IM), and social network sites (SNSs) with other services in their mobile devices. Consequently, this new mobile communications ecosystem has led to the growth of services beyond traditional voice services (Ishii, 2006). SNSs have become one of the most popular Internet-based services, a phenomenon which is evident from the rapid growth experienced by SNSs such as Facebook, MySpace, and Friendster (Ku et al., 2013). SNSs enable users to generate, share, and search for content, in addition to communicating and interacting with others (Kim et al., 2010). Therefore, contrary to the concern that the Internet may isolate individuals from society, social connections are being developed, maintained, and strengthened in the cyber world via the Internet and other information technologies (ITs) (Humphreys, 2007).

Given the proliferation of smartphones, the development of mobile broadband networks, and the decrease in mobile data fees, the use of Internet-based services via mobile devices is becoming the major way to connect to the Internet (Okazaki and Romero, 2010; Wei, 2008). SNSs for mobile devices, which apply social networking technology optimized for the mobile environment, are actively emerging in the mobile communications ecosystem (Kuittinen, 2013). Currently, most of the Internet-based social network services have launched a mobile version of their SNS; consider Facebook, which has experienced a growth of 45% in a year, reaching 874 million mobile users by September 2013 (Kuittinen, 2013). Simultaneously, mobile instant messenger (MIM), another type of SNS, has also become popular among mobile smartphone users. For example, KakaoTalk, one of the most famous MIM services, has been downloaded and used by almost 90% of the smartphone users in Korea (Jo, 2013). Mobile SNS has become not only ‘a core service’ but also ‘the core service’ of the entire IT ecosystem.

In general, the primary SNS business model is based on advertisements (Enders et al., 2008), and mobile SNS is not an exception. The total revenue from mobile SNS services is increasing. For example, Facebook’s revenue in the third quarter of 2013 reached US$2.02 billion, with 49% coming from mobile advertisements (CNBC, 2013). The KakaoTalk business model encompasses not only advertisements but also other revenue sources such as mobile games and emoticons (Acuña and Kwon, 2013). In 2012, KakaoTalk’s revenue was reported to reach US$ 46 million, of which 67.5% was from games, 26.2% was from advertisements and 6.3% was from emoticons (Acuña and Kwon, 2013). KakaoTalk’s revenue is expected to quadruple to US$ 250 million in 2013 (Acuña and Kwon, 2013). It is clear that, regardless the source of revenue, continuous use of these mobile SNS services will result in higher profits. Consequently, research on mobile SNSs and the factors driving their use is critical for companies to provide them with the tools to achieve sustainable business growth in this fast-moving and changing mobile communication ecosystem.

Previous studies related to mobile communication services have focused primarily on the effect of mobile voice and messaging services on social connections (Humphreys, 2007; Oksman and Turtiainen, 2004). Numerous researchers have studied the antecedents of mobile service use by applying the uses and gratifications theory. Wei and Lo (2006) conducted research targeting cellular phone users, which identified fashion-status, mobility, and accessibility, in addition to the gratifications similar to the following for the existing online or wired phone: information-seeking, social utility, and affection. In addition, safety or emergency situations were identified in the research on mobile phones (Ling, 2000; Roos, 1993).

In spite of these research efforts and scholars’ calls to the academic society to focus on the factors driving SNS use (Ku et al., 2013; Xu et al., 2012), research on media effectiveness and its antecedents in the context of mobile SNS is limited. The purpose of the present study is to fill this gap in literature by finding the gratifications of mobile SNS use and their effect on user behavior.

The present research attempts to address the following three research questions: (1) What are the gratifications of mobile SNS use, and how do they affect attitudes toward mobile SNS, which, in turn, affect actual use? (2) How are these gratifications interrelated? (3) What are the differences between mobile SNSs? To address these questions, a literature review was conducted to identify salient constructs and build our research model. A structural equation modeling technique was used for data analysis. The implications of the differences between the primary mobile SNSs were identified by conducting exploratory research comparing each coefficient path in the structural equation model, which is consistent with Ha and Park’s (2013) approach.
2. Theoretical Framework

2.1. Mobile SNS

According to traditional social network theory, a social network refers to the aggregation of people who are connected socially through close acquaintances, information sharing, etc. (Garton et al., 1997). Whereas traditional social network theory focuses on the relationship between people and face-to-face relationships, today’s social network theory focuses on online or Internet activities (Kwon and Wen, 2010; Nikou and Bouwman, 2014).

SNSs, which include social networking activities occurring on the Internet, can be defined as Internet-based services that enable individuals to generate, share, and search for content, while also communicating and cooperating with others (Kim et al., 2010). Boyd and Ellison (2007) identified SNSs’ core functions as follows: (1) construct a personal profile, (2) articulate a list of other connected users, and (3) view and traverse their connection list and the lists that other users are making.

SNSs that are adequate for mobile devices have been developed because of the emergence and vitalization of smartphones. Mobile SNSs are thus establishing their position as the key channel of social services. Mobile SNSs enable the use of social network services via personal mobile devices. Mobile SNSs are similar to the Internet-based SNSs because users are provided with the necessary support to build valuable networks through the exchange of information and resources (Humphreys, 2007). However, mobile SNSs differ from the Internet-based sites because mobile SNS users are provided with the mobility to use services anytime and anywhere (Zhou et al., 2010).

Consequently, mobile SNSs are deemed to include all of the following attributes: (1) attributes of social networks, (2) attributes of the Internet, and (3) attributes of mobility.

2.2. Mobile SNS in Korea

The mobile SNSs that are widely used in Korea include KakaoTalk and mobile Facebook (KAA, 2012). These two services are similar because both enable social connections. However, KakaoTalk was originally developed for mobile devices, offering messenger service from the beginning; mobile Facebook started as a service for relationship management based on the Internet, and later moved into the mobile platform. Whereas KakaoTalk operates on a closed platform that does not allow users to see the friends of other users, mobile Facebook provides an open service that allows users to see other users’ friends and even to visit their accounts. Because of these differences between KakaoTalk and mobile Facebook, it is presumed there may also be potential differences in the level of users’ perceptions about the gratifications that can be gained from each one. Thus, a comparative analysis approach may provide meaningful implications to service providers to increase their mobile SNS competitiveness.

2.3. Uses and Gratifications (U&G) Theory: Gratifications-obtained, Attitude, and Behavior

As we explained in section 2.1, mobile SNSs are media so the U&G theory is appropriate for our study (Ku et al., 2013; Xu et al., 2012). U&G theory has been used as a key paradigm for explaining the use of media. It has been used for diverse areas, such as mass media (e.g., TV or magazine) and for communications among people via phone/mobile and via the Internet or online (C. S. Lee and Ma, 2012; Lin, 2002; Wei, 2008). U&G theory is useful for research addressing active media users and media content because this theory encompasses users’ socio-psychological needs, which may explain how and why individuals decide to use certain media (Xu et al., 2012). U&G theory explains not only which social or psychological desires motivate users to select certain media channels and contents but also the attitudinal and behavioral results (Ruggiero, 2000).

Unlike traditional offline media, in which users may be unwillingly exposed to media, in mobile SNS, the users’ will is necessary for media usage (Xu et al., 2012). For example, in the former service, individuals in public transportation might be exposed to a radio program without their consent. However, in the latter service, users can utilize this media only when they actively access the application on their mobile devices (Shin, 2011). Consequently, mobile SNSs fulfill the three assumptions of U&G theory: (1) people who are using the media are active users, (2) users select a media based on their goal-directed behavior and intentional purpose, and (3) users are conscious of their motivations for selecting a particular media (Ha and Fang, 2012; Katz et al., 1973).

U&G theory postulates that users are active in choosing media channels of their own will, while evaluating the latent benefits or gratifications following the use of the chosen media (Lee and Ma, 2012). These gratifications, therefore, are referred to as gratifications-sought or gratifications-obtained (Lo and Leung, 2009). When these gratifications of using media are realized by users, a positive attitude towards the media will develop, which affects the behavior that leads to continued use of media (Ku et al., 2013; Xu et al., 2012).
Mobile SNS, as a type of SNS, also has attributes of the Internet. Accordingly, mobile SNS should have behavioral motivations similar to traditional SNS and the Internet. Previous studies, from the U&G perspective, found there are various motivations for using SNS and the Internet (Ku et al., 2013). Research about gratification-obtained in these domains identified utilitarian (or cognitive) and hedonic benefits as the most fundamental gratifications determining attitude (Batra and Ahtola, 1991; Dobos and Dimmick, 1988). However, although SNS gratifications are similar to Internet gratifications, gratifications related to the social aspect are emerging as the core in the former (Ku et al., 2013; Xu et al., 2012). For example, Ancu and Cozma (2009) found that keeping in contact with friends and the formation of new acquaintances are the cores of SNS. Likewise, Raacke and Bonds-Raacke’s (2008) Myspace and Facebook research identified that most of these SNS users utilize these media as tools for forming and maintaining closeness. The social dimension of gratifications-obtained could be classified into two aspects: (1) outcome-oriented, and (2) cause. The former embraces personal identity or relationship formation (Dobos and Dimmick, 1988), whereas the latter refers to social interaction (Dobos and Dimmick, 1988). Accordingly, the following general gratification types were identified: (1) gratification from information acquisition and understanding of the surrounding environment (cognitive); (2) gratification from strengthening aesthetic or joyful experience (hedonic); (3) gratification from strengthening individual trust, sense of confidence, and connections with our acquaintances (integrative); and (4) gratification from strengthening interpersonal communication exchange (social interactive).

In this study, we adopt these four types of gratification as our gratifications-obtained variables. Previous studies also support these variables as a core set of the gratifications in media (Dobos and Dimmick, 1988; James et al., 1995; Nambisan and Baron, 2007; Palmgreen et al., 1980).

2.4. Gratification-opportunities

In contrast to gratifications-sought or gratifications-obtained, which are gratifications reflecting the attributes of a user (Lo and Leung, 2009), gratification-opportunities reflect the attributes or functions of a medium (Lo and Leung, 2009).

Dimmick (2003) postulated that gratification-opportunities are the result of the comparison between old and new media in terms of flexibility to allocate time for using the media, which may be limited by the users’ location. Allowing ubiquitous access – anywhere and anytime – is the core attribute of gratification-opportunities (Lo and Leung, 2009). Because all activities require time to be conducted, media services are indeed competing for this resource (Dimmick, 2003).

Consequently, users have less flexibility in accessing traditional media, such as radio and TV, than in accessing media such as mobile telephones and other mobile devices (Lo and Leung, 2009). Therefore, the attributes of mobile devices fulfill the concept of gratification-opportunities because of their mobility. Mobility encompasses the following two dimensions that represent the efficiency function: (1) spatial, which refers to location flexibility (i.e., the anywhere concept), and (2) temporal, which embraces real-time and saving time benefits (i.e., anytime concept) (Ishii, 2006).

As we stated in section 2.1, mobile SNS, which runs on smartphones and other mobile devices, also includes attributes of mobility. Therefore, mobile SNS should be considered to have gratification-opportunities so this attribute may have an effect on a users’ usage of these services. In the present research, we operationalize the concept of gratification-opportunities through mobile convenience (Ko et al., 2005; Leung and Wei, 2000), given that convenience is defined as “anything that simplifies work, adds to one’s ease” (Park and Han, 2013).

3. Conceptual Model and Hypotheses

Fig. 1 shows our conceptual model based on the U&G theory. It is proposed that the gratifications of mobile SNS usage affect attitudes towards mobile SNS, and attitude thus affects the use of mobile SNS (Ku et al., 2013; Xu et al., 2012). Factoring in the considerations established in the previous section, the present study classifies gratifications-related variables of mobile SNS into the following types: (1) cognitive, (2) hedonic, (3) integrative (i.e., aspect of social outcome), (4) social interactive (i.e., aspect of social cause), and (5) mobile convenience.

3.1. Attitude towards Mobile SNS

Attitude refers to the summarized evaluation of the psychological state that captures attributes such as good-bad, harmful-beneficial, and pleasant-unpleasant (Ajzen, 2001). According to the theory of reasoned action (TRA), which encompasses attitude, intention, and behavior as core constructs, attitude forms intention and
intention leads to behavior (Fishbein and Ajzen, 1975). A great deal of research has been conducted in various fields to study how well attitude forecasts behavioral intention or actual behavior (Ajzen, 2001). For example, Stock and Hoyer’s (2005) work on business-to-business manufacturing and service industries proved empirically that a salesperson’s customer-oriented attitude affects customer-oriented behavior. In the IT field, Hausman and Siekpe (2009) proved that attitude towards a website is a predictor of behavioral intention. Weijters et al. (2007) demonstrated that attitude towards self-service technology (SST), such as online shopping, is a strong predictor of actual SST use. In the mobile devices field, Tsang et al. (2004) conducted research on mobile short message service (SMS) and found a direct relationship among attitude, consumers’ behavioral intention, and actual behavior. Accordingly, attitude was found to be important in the Web, and it has been considered as a core index for assessing Web effectiveness (Chen and Wells, 1999). Considering that mobile SNS has attributes of both the Web and mobility, attitude towards mobile SNS is expected to affect actual behavior (Chiang, 2013). According to TRA, a favorable attitude prompts individuals to behavior performance, whereas an unfavorable attitude leads individuals to behavior avoidance (Fishbein and Ajzen, 1975). Therefore, the following hypothesis is developed based on the above-mentioned logic.

**H1**: Favorable attitudes towards mobile SNS will increase the amount of time this media is used.

![Fig. 1. Conceptual model.](image)

### 3.2. Cognitive, Hedonic, and Integrative Gratifications

Cognition is related to information on events and products, consultation, gratification of curiosity, learning, and acquisition of knowledge related to safety (Nambisan and Baron, 2007). Similar concepts, such as information, utilitarian, and learning, were used for research purposes in previous studies (Calder et al., 2009; Nambisan and Baron, 2007). For example, Chen et al. (2002) and Hausman and Siekpe (2009) concluded that attitude towards a website may be improved when the website is informative. Mobile SNS services enable users to gain everyday information through their network of acquaintances, gain information on the latest trends that are relevant to them, and obtain answers to questions (Humphreys, 2007). Mobile SNS can also be used as an important channel for acquiring information on the products and services that users want by utilizing functions such as “becoming friends”. Accordingly, gratification of this cognition is expected to play an important positive role in the formation of attitudes towards mobile SNS.

Hedonic gratification refers to the aesthetic related to deviation, resting, enjoyment, and spending time, that is, the gratification of a strengthening joyful experience (Chiang, 2013; Nambisan and Baron, 2007). Prior literature
has used similar gratification concepts, such as entertainment, intrinsic enjoyment, passing of time, and escapism (Calder et al., 2009; Nambisan and Baron, 2007; Smock et al., 2011; Wei, 2008; Wu and Holsapple, 2014). For example, Chen et al. (2002) and Hausman and Siekpe (2009) found that attitude towards a website is more favorable when the website’s entertainment value is higher. Mobile SNS users can eliminate boredom by engaging in dialogue with acquaintances during their spare time or examining the information generated from networks. Users can also enhance their enjoyment by playing games linked with this media. Accordingly, we hypothesize that hedonic gratification has a positive direct effect on attitude towards mobile SNS.

Integration is a concept that includes both personal integration (or identity) and social integration from the aspect of social relationships’ outcome (Nambisan and Baron, 2007). Integrative gratification refers to the gratification of forming identity, enhancing individual values, and forming a sense of closeness or belongingness by using the media (Nambisan and Baron, 2007). Weiser (2001) proved empirically that the use of the Internet forms social integration, and that integration affects an individual’s psychological state. Because personal integration increases a sense of inner authority (Pahnke, 1966), individuals perceive this gratification as beneficial. When using mobile SNS, it is easy to verify personal value by helping others and by viewing the reaction to one’s writing. It is also possible to gain other gratifications, such as maintaining relationships and building a sense of closeness with acquaintances who are met frequently or those who are difficult to meet. This type of integration can be considered the factor that differentiates SNS from other media. Consequently, and considering that attitude is a psychological state (Wang and Pfister, 2008), gratification of integration is expected to positively affect attitude towards mobile SNS.

The following hypotheses were developed based on the above-mentioned discourse.

**H2:** Cognitive gratification positively affects attitude towards mobile SNS.

**H3:** Hedonic gratification positively affects attitude towards mobile SNS.

**H4:** Integrative gratification positively affects attitude towards mobile SNS.

### 3.3. Social Interactive Gratification

Social interaction refers to whether “individuals feel at ease and comfortable to engage in interpersonal communication exchanges through the technology-enabled space” (Phang et al., 2009). Social media provides an interactive platform through the adoption of mobile and Web-based technologies (Kietzmann et al., 2011). Numerous users are engaged in social interactions by sharing content with people on their Internet network and by exchanging information with others (McKenna and Bargh, 1999).

Social exchange theory claims that interpersonal interaction includes resource exchange, and the social and economic outcome from this social exchange affects satisfaction. According to the affective social exchange theory as a special form, social interaction positively influences affective outcomes (Choo and Petrick, 2014). Accordingly, Ko et al.’s (2005) research on marketing websites empirically proved that interaction has a positive effect on attitude towards a website. Because mobile SNS embodies attributes of the Internet, gratification of interaction is expected to exert a positive effect on attitude towards mobile SNS.

Information collected via social interaction is perceived as more reliable than information provided by product and service supplying companies (Brown et al., 2007). The information acquired through mobile SNS social interaction tends to be customized because this information is primarily gathered from the users’ acquaintances or objects related to them (Chang et al., 2013). Thus, social interactive gratification is expected to positively affect cognitive gratification.

People do not merely gain information through interaction with friends during conversations; they also feel enjoyment during this process (Humphreys, 2007; Lin and Lu, 2011). Users can also mitigate boredom or feel joy while interacting socially online. Numerous studies support the fact that social interaction has a positive effect on users’ enjoyment (Okazaki, 2008; Vorderer et al., 2004). It is expected that mobile SNS hedonic gratification, such as spending time online, will increase as social interaction improves. Mobile devices allow users to spend short periods of time resourcefully (Nysveen et al., 2005) so this relationship is expected to be strong.

Finally, personal and social integration are based on interpersonal communication (Schein, 1960). Mobile interaction tends to be more effective than interaction in non-mobile environments (Zhou et al., 2010); therefore, mobile SNS would enhance the connection with people whom users could not meet often and facilitate a network expansion. This media may facilitate the expression of one’s own thoughts and the ability to check the reaction of others towards these opinions. Thus, it is hypothesized that the interactive features of mobile SNS have a positive direct effect on social integration, which is consistent with the dual dimension of social gratification (i.e., cause and outcome) explained in section 2.3.
Considering that gratifications of online media are obtained by interaction with the media (Nambisan and Baron, 2007), and because SNSs are media with strong social interactions (Kietzmann et al., 2011), we postulate that social interaction in mobile SNS becomes an antecedent of previous media gratifications and it becomes a gratification of media itself.

**H5:** Social interactive gratification positively affects attitude towards mobile SNS.

**H6:** Social interactive gratification positively affects cognitive gratification.

**H7:** Social interactive gratification positively affects hedonic gratification.

**H8:** Social interactive gratification positively affects integrative gratification.

### 3.4. Mobile Convenience Gratification

Mobility is an attribute that differentiates mobile SNS from Internet-based services. Previous research has found that three interrelated dimensions of mobility exist in interactions among people: (1) spatial mobility, (2) temporal mobility, and (3) contextual mobility (Akter et al., 2013; Ishii, 2006). Gehrt and Yale (1993) postulate that convenience is comprised of the three levels of time, space, and effort. This concept of convenience is consistent with the attribute of mobility. In mobile SNS, therefore, gratification of convenience is expected to become important. The present study defines mobile convenience as the ease of using mobile SNS with less effort, without time and space limitations.

Previous Internet-gratification-related studies have identified convenience as one key gratification (Ko et al., 2005; Papacharissi and Rubin, 2000). However, research conducted by Papacharissi and Rubin (2000) failed to obtain statistical evidence to support the claim that the Internet’s convenience affects attitudinal outcomes, such as Internet affinity or satisfaction with the Internet. These results may be because the Internet provides limited anytime and anywhere support, which are attributes of convenience. By contrast, mobile SNSs offer anytime-anywhere benefits and an interface that can be easily used, even on small devices. Consequently, the gratification of mobile convenience of mobile SNS is expected to exert a significant positive effect on attitude towards this service.

The attribute of mobility that overcomes the limitations of time and space is directly related to information access (Nysveen et al., 2005; Yu et al., 2013). Accordingly, mobile convenience reduces time and effort required for information acquisition (Collier and Sherrell, 2010). Hence, this mobility feature is expected to enable a fast and fluent acquisition of information. By investing some spare time with mobile SNS, it is possible to see information left behind by acquaintances, even when users are in motion. Mobile Facebook and KakaoTalk, representative mobile SNS mediums, enable users to select the advertisements they want to see (Shown in Fig. 2). Therefore, these services may facilitate fast access to necessary information through their mobile convenience. Consequently, the mobile convenience of mobile SNS is expected to positively affect cognitive gratification, such as information acquisition.

![Fig. 2. Mobile Facebook and KakaoTalk advertisements.](image-url)
Mobile convenience gratification is also expected to affect hedonic gratification. For example, Jayawardhena and Wright’s (2009) research on shopping malls demonstrated that sometimes consumers feel the value of convenience when they purchase products and services by investing small amounts of time, effort, and money, which are benefits that excite consumers. In Collier and Sherrell’s (2010) study of IT use, they disclosed that recognition of convenience affects hedonic motivation in using IT products. In the case of mobile SNS, which are services with strengthened convenience, this relationship is expected to be significant as well. Therefore, we hypothesized that mobile convenience has a positive effect on hedonic gratification (e.g., users can set aside time to play games “anywhere,” which is an attribute of mobile convenience).

Literature has identified integrative gratification (or social outcome) as the most salient gratification of social media (Ancu and Cozma, 2009; Papacharissi and Mendelson, 2010; Raacke and Bonds-Raacke, 2008). The constant connectivity of SNS enables individuals to maintain their social relationship and fulfill an integrative gratification (Bødker et al., 2009). The media exposure environment (e.g., indoor vs. outdoor, alone vs. with others) becomes the source of gratification for media users (Katz et al., 1973). With the attribute of mobile convenience, mobile SNS enables easy control of the media exposure environment so integrative gratification can be readily obtained. Mobile convenience gratification is thus expected to positively affect gratification of integration.

Ko et al. (2005) conducted empirical research targeting a marketing website and demonstrated that convenience can increase interaction among people. In the mobile domain, this relationship is expected to be strong as well. Existing research has demonstrated that information dissemination via social networks is easy through a mobile device (Nysveen et al., 2005); therefore, mobile convenience enables consumers to increase mutual interaction (Ul Haq, 2012).

In conclusion, given that exposure to media becomes a main antecedent of other media gratifications (Katz et al., 1973), mobile convenience that allows the use of media anytime and anywhere not only serves as gratification of media but also serves as an antecedent for other media gratifications.

**H9:** Mobile convenience gratification positively affects attitude towards mobile SNS.

**H10:** Mobile convenience gratification positively affects cognitive gratification.

**H11:** Mobile convenience gratification positively affects hedonic gratification.

**H12:** Mobile convenience gratification positively affects integrative gratification.

**H13:** Mobile convenience gratification positively affects social interactive gratification.

### 3.5. Control Variables

Literature on SNS and mobile usage suggests the need to include the two control variables of age and gender in our test model. In fact, previous studies found that gender and age might affect the actual use of media. For example, Joinson (2008) found in the case of Facebook, that females visit this SNS more frequently than males. Wei (2008), in his study of mobile phone usage, found that age negatively affects mobile phone usage, such as surfing the Web or playing games.

### 4. Methodology

#### 4.1. Sample

KakaoTalk and mobile Facebook are representative of the mobile SNS media used in Korea. A survey that limited the research to KakaoTalk and mobile Facebook services was conducted. Data were collected from a randomly selected panel by Embrain Inc., a company specializing in online surveys. The online survey was conducted from December 27, 2012 to January 3, 2013. A total of 641 observations were obtained, consisting of 330 KakaoTalk users and 311 mobile Facebook users.

The proportion of males (51.2%) and females (48.8%) in the sample are almost equal. The ages of the respondents are divided into the following groups: under 20 (14.5%), 20 -- 29 (27.6%), 30 -- 39 (25.0%), 40 -- 49 (21.5%), and 50 -- 59 (11.4%). These results are consistent with the survey conducted by KISA in September 2012, which found the age distribution of smartphone users in Korea was as follows: under 20 (14.8%), 20 -- 29 (27.6%), 30 -- 39 (25.1%), 40 -- 49 (21.6%), and 50 -- 59 (11.0%).

#### 4.2. Measurement
All constructs, excluding actual use, were measured using multiple items on a seven-point Likert scale: 1 - strongly disagree and 7 - strongly agree. Five types of gratifications—cognitive, hedonic, integrative, social interactive, and mobile convenience—were evaluated using the measurement method presented in existing U&G literature (Calder et al., 2009; Ko et al., 2005; Leung and Wei, 2000; Nambisan and Baron, 2007). To measure the attitude towards mobile SNS, we built the measurement items based on Hausman and Siekpe (2009). Finally, actual use was addressed through a direct question and the responses were converted to a seven-point scale (Moon and Kim, 2001). Appendix A shows the items used for measuring each variable in the present research.

5. Data Analysis and Results

We used SmartPLS version 2.0. M3 (http://www.smartpls.de) as the structural equation analysis tool. PLS offers the following benefits: (1) ability to handle extremely complex models, (2) $R^2$ values for all endogenous variables, and (3) alleviated assumptions regarding data distribution (Ruiz et al., 2010).

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<th>Explanation</th>
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<th>AVE</th>
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<td>Hedonic gratification</td>
<td>Aesthetic or entertainment</td>
<td>HED1</td>
<td>0.903</td>
<td>0.907</td>
<td>0.942</td>
<td>0.843</td>
</tr>
<tr>
<td>Integrative gratification</td>
<td>Personal identity, social sense of closeness, etc.</td>
<td>INT1</td>
<td>0.850</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>INT2</td>
<td>0.885</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>INT3</td>
<td>0.845</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>INT4</td>
<td>0.755</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>INT5</td>
<td>0.774</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>INT6</td>
<td>Deleted</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social interactive gratification</td>
<td>Comfortable gratification of interpersonal communication exchanges</td>
<td>SOI1</td>
<td>0.773</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mobile convenience</td>
<td>Easy to use with less effort without being subjected to time and space limitations via mobile devices</td>
<td>SOI2</td>
<td>0.864</td>
<td>0.813</td>
<td>0.878</td>
<td>0.644</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SOI3</td>
<td>0.851</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>SOI4</td>
<td>0.715</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>MOC1</td>
<td>0.850</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>MOC2</td>
<td>Deleted</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>MOC3</td>
<td>Deleted</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>MOC4</td>
<td>0.821</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>MOC5</td>
<td>0.714</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>ATT1</td>
<td>0.852</td>
<td>0.709</td>
<td>0.839</td>
<td>0.635</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ATT2</td>
<td>0.910</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>ATT3</td>
<td>0.808</td>
<td>0.819</td>
<td>0.893</td>
<td>0.735</td>
</tr>
<tr>
<td>Attitude towards mobile SNS</td>
<td>Overall evaluation of the attributes (psychological state)</td>
<td>ATT4</td>
<td>Deleted</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5.1. Measurement Model Assessment

The measurement model was evaluated through the assessment of individual item reliability, internal consistency, and discriminant validity (Duarte and Raposo, 2010).

The reliability of individual items is evaluated by conducting research on the loading of each item’s applicable construct and cross-loadings. First, cog4, int6, moc2, moc3, and att4 were excluded from the analysis because the loading value for the applicable construct was 0.7 or less. It was proven that all items’ loadings and cross-loadings, except excluded items, satisfy the acceptable standard (See Appendix B).

The measurement model’s internal consistency was evaluated using a composite reliability index and average variance extraction (AVE) value (Fornell and Larcker, 1981). The composite reliability index for all constructs was above the recommended 0.7 (Nunnally and Bernstein, 1994), and AVE was greater than the recommended 0.5 (Bagozzi and Yi, 1988). Accordingly, the internal consistency of our measurement model was
satisfied (See Table 1).

To judge the discriminant viability of our measurement model, the square root of the AVE values for each construct was compared with its correlation with other constructs (Fornell and Larcker, 1981). The square roots of the AVE values for all of the constructs were higher than their correlations with other constructs so our measurement model achieved discriminant viability (see Table 2).

### Table 2
Construct correlations: numbers in bold represent the square root of the AVE while numbers in italics represent the correlations.

<table>
<thead>
<tr>
<th></th>
<th>COG</th>
<th>HED</th>
<th>INT</th>
<th>SOI</th>
<th>MOC</th>
<th>ATT</th>
<th>USE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive gratification (COG)</td>
<td>0.881</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hedonic gratification (HED)</td>
<td>0.486</td>
<td>0.918</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Integrative gratification (INT)</td>
<td>0.535</td>
<td>0.634</td>
<td>0.824</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social interactive gratification (SOI)</td>
<td>0.407</td>
<td>0.585</td>
<td>0.583</td>
<td>0.797</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mobile convenience (MOC)</td>
<td>0.489</td>
<td>0.615</td>
<td>0.709</td>
<td>0.635</td>
<td>0.803</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attitude towards mobile SNS (ATT)</td>
<td>0.424</td>
<td>0.624</td>
<td>0.552</td>
<td>0.622</td>
<td>0.530</td>
<td>0.858</td>
<td></td>
</tr>
<tr>
<td>Actual use (USE)</td>
<td>0.141</td>
<td>0.299</td>
<td>0.219</td>
<td>0.206</td>
<td>0.157</td>
<td>0.307</td>
<td>1.000</td>
</tr>
</tbody>
</table>

### Table 3
Structural equation model assessment: C.V. = Control variable, *p < 0.05, **p < 0.01.

<table>
<thead>
<tr>
<th>Path</th>
<th>Proposed Effect</th>
<th>Coefficient</th>
<th>t-value</th>
<th>Testing Hypothesis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual Use</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATT ➔ USE (H1)</td>
<td>+</td>
<td>0.277</td>
<td>7.332**</td>
<td>Supported</td>
</tr>
<tr>
<td>C.V.: SEX ➔ USE</td>
<td></td>
<td>0.222</td>
<td>6.603**</td>
<td></td>
</tr>
<tr>
<td>C.V.: AGE ➔ USE</td>
<td>-0.216</td>
<td>6.748**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R² (USE) without C.V.</td>
<td></td>
<td>0.094</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R² (USE) with C.V.</td>
<td></td>
<td>0.191</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attitude toward mobile SNS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>COG ➔ ATT (H2)</td>
<td>+</td>
<td>0.070</td>
<td>1.745</td>
<td>No Supported</td>
</tr>
<tr>
<td>HED ➔ ATT (H3)</td>
<td>+</td>
<td>0.317</td>
<td>6.690**</td>
<td>Supported</td>
</tr>
<tr>
<td>INT ➔ ATT (H4)</td>
<td>+</td>
<td>0.111</td>
<td>2.198*</td>
<td>Supported</td>
</tr>
<tr>
<td>SOI ➔ ATT (H5)</td>
<td>+</td>
<td>0.006</td>
<td>0.117</td>
<td>No Supported</td>
</tr>
<tr>
<td>MOC ➔ ATT (H9)</td>
<td>+</td>
<td>0.339</td>
<td>8.017**</td>
<td>Supported</td>
</tr>
<tr>
<td>R² (ATT)</td>
<td></td>
<td>0.503</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inter U&amp;Gs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOI ➔ COG (H6)</td>
<td>+</td>
<td>0.387</td>
<td>8.729**</td>
<td>Supported</td>
</tr>
<tr>
<td>SOI ➔ HED (H7)</td>
<td>+</td>
<td>0.408</td>
<td>8.580**</td>
<td>Supported</td>
</tr>
<tr>
<td>SOI ➔ INT (H8)</td>
<td>+</td>
<td>0.568</td>
<td>12.957**</td>
<td>Supported</td>
</tr>
<tr>
<td>MOC ➔ COG (H10)</td>
<td>+</td>
<td>0.161</td>
<td>3.551**</td>
<td>Supported</td>
</tr>
<tr>
<td>MOC ➔ HED (H11)</td>
<td>+</td>
<td>0.325</td>
<td>7.902**</td>
<td>Supported</td>
</tr>
<tr>
<td>MOC ➔ INT (H12)</td>
<td>+</td>
<td>0.222</td>
<td>5.449**</td>
<td>Supported</td>
</tr>
<tr>
<td>MOC ➔ SOI (H13)</td>
<td>+</td>
<td>0.635</td>
<td>23.957**</td>
<td>Supported</td>
</tr>
</tbody>
</table>

### 5.2. Structural Model Assessment

Table 3 shows the results of the structural equation analysis. Whereas attitude manifests high explanatory power (R² = 0.503), actual use manifested slightly lower explanation power (R² = 0.191 when the control variable is included, and R² = 0.094 when the control variable is excluded). However, existing U&G literature shows that gratifications explain a dispersion of 1% --15% with regard to media’s actual use (Larose et al., 2001). Thus, it is possible to claim that our structural equation model effectively coincides with the data.

As expected, attitude towards mobile SNS positively affects the duration of actual mobile SNS use (coefficient = 0.277), supporting H1. Hedonic, integrative, and mobile convenience gratifications positively affect
attitudes towards mobile SNS (the coefficients are 0.317, 0.111, and 0.339, respectively); however, the effects of
cognitive and social interactive gratifications on attitudes towards mobile SNS are not significant (the coefficients
are 0.070 and 0.006, respectively). Thus, H3, H4, and, H9 are supported; H2 and H5 are not supported. All of the
inter-gratifications hypotheses are supported. Social interactive gratification positively affects cognitive, hedonic,
and integrative gratifications (the coefficients are 0.387, 0.408, and 0.568, respectively), supporting H6, H7, and H8.
Mobile convenience increases cognitive, hedonic, integrative, and social interactive gratifications (the coefficients
are 0.161, 0.325, 0.222, and 0.635, respectively), supporting H10, H11, H12, and H13.

5.3. Exploratory Analysis of Group Differences between Mobile SNS

The main goal of the present study is to examine how the gratifications of general mobile SNS affect
attitude and behavior. However, the mobile SNSs addressed in the present research have different attributes, i.e.,
message-based vs. relationship-based, and closed network vs. open network. Accordingly, we must provide insights
for future research through an exploratory examination of the representative mobile SNSs. Table 4 shows the results
of the exploratory analysis of differences by mobile SNS type. In the average value comparison, mobile Facebook
presented a higher value in cognitive gratification only, whereas KakaoTalk manifested higher values in all other
variables. Compared to the mobile Facebook users, KakaoTalk users realized higher hedonic and mobile
convenience gratifications and thus an increasingly improved attitude and greater time of actual use.

When the individual hypotheses are examined separately, hypotheses 1, 3, 6, 7, 8, 9, 11, 12 and 13 are
supported by the overall sample and by both mobile Facebook and KakaoTalk samples, whereas hypothesis 2 is not
supported by any of these samples. However, the results for the other hypotheses are found to be different between
sample groups. For example, hypothesis 4 (relationship between integrative gratification and attitude towards mobile
SNS) is supported by the overall sample; however, this relationship is not significant for any of the mobile-SNS-
specific samples. Hypothesis 5 (relationship between social interactive gratification and attitude towards mobile
SNS) is not supported by the overall sample; however, this relationship is significant for the KakaoTalk sample.
Finally, hypothesis 10 (relationship between mobile convenience and cognitive gratification) is supported by the
overall sample; however, this relationship is not significant in the case of KakaoTalk users.

Table 4
Comparison between media: P.C. = Path coefficient, S.D. = Standard deviation, *p < 0.05, **p < 0.01.

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Mobile Facebook</th>
<th></th>
<th>KakaoTalk</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean/S.D.</td>
<td>Antecedents (P.C.)</td>
<td>Mean/S.D.</td>
</tr>
<tr>
<td>USE</td>
<td>2.39/1.11</td>
<td>ATT (0.225**)</td>
<td>3.25/1.61</td>
</tr>
<tr>
<td>ATT</td>
<td>4.55/0.83</td>
<td>COG (0.089)</td>
<td>4.97/0.89</td>
</tr>
<tr>
<td></td>
<td></td>
<td>HED (0.377**)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>INT (0.129)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>SOI (-0.061)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>MOC (0.254**)</td>
<td></td>
</tr>
<tr>
<td>COG</td>
<td>4.38/0.94</td>
<td>SOI (0.287**)</td>
<td>4.29/1.11</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MOC (0.205**)</td>
<td></td>
</tr>
<tr>
<td>HED</td>
<td>4.82/0.94</td>
<td>SOI (0.410**)</td>
<td>5.11/0.98</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MOC (0.297**)</td>
<td></td>
</tr>
<tr>
<td>INT</td>
<td>4.67/0.89</td>
<td>SOI (0.539**)</td>
<td>4.82/0.88</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MOC (0.185**)</td>
<td></td>
</tr>
<tr>
<td>SOI</td>
<td>5.08/0.79</td>
<td>MOC (0.579**)</td>
<td>5.11/0.84</td>
</tr>
<tr>
<td>MOC</td>
<td>4.98/0.70</td>
<td>-----</td>
<td>5.32/0.85</td>
</tr>
</tbody>
</table>

6. Discussion and Implications

6.1. Discussion

The present study sought to identify the gratifications affecting attitudes towards mobile SNS and to
determine the relationship among these gratifications based on U&G theory.

First, it was proven that mobile SNS use time increases when attitude towards these services is improved,
which is consistent with Weijters et al.’s (2007) study targeting self-service technology (SST). Formulating a
positive attitude towards mobile SNS can become the index factoring the success of this service.

Based on existing literature, cognitive, hedonic, integrative, and social interactive gratifications-obtained
were set as antecedents of attitude towards mobile SNS. It was proven empirically that hedonic and integrative gratifications exert a direct effect on attitude towards mobile SNS, which is consistent with the findings of previous studies that targeted other media (Chen et al., 2002; Hausman and Siekpe, 2009; Weiser, 2001). Existing research has found that cognitive gratification is a key to attitude formation in an Internet environment (Chen et al., 2002; Hausman and Siekpe, 2009). However, this relationship was not statistically supported in a mobile SNS environment. This finding may be explained when we consider the characteristics of mobile devices. Users face a significant barrier when searching and acquiring information through mobile devices because their small screens make it difficult to enter data. Consequently, it was shown in the present study that the average value of cognitive gratification was the lowest among all gratifications. There was no statistical support for the direct relationship between social interactive gratification and attitude. J. Lee, Lee, and Choi’s (2012) research on the antecedents of attitude and willingness to continue to use social network games also failed to find statistical support that would prove that motivation for social interaction exerts a positive effect on attitude towards social network games. This result suggests that social interaction is perceived more as a cause than as an outcome so it affects attitude indirectly by affecting other gratifications instead of affecting attitude directly.

In addition, the present research verified that social interactive gratification exerts a significant effect on all other gratifications. By providing a place to communicate with friends, mobile SNS may encourage users to disclose their opinion, so these services may: (1) enhance the cognitive gratification of providing information that is learned through social relationships, (2) enhance the hedonic gratification obtained during the exchange of funny stories with acquaintances, and (3) enhance the integrative gratification of improving closeness with acquaintances or being able to find identity.

The investigation of gratification-opportunities from mobile SNS is another novel contribution of this study, particularly considering that previous studies on other types of media failed to find statistical support for related variables. The concept of gratification-opportunities was operationalized by the mobile convenience construct. Existing research failed to prove empirically that convenience gratification exerts a significant effect on attitude formation (Papacharissi and Rubin, 2000), whereas in the present study it was proven empirically that convenience is a key gratification in attitude formation. Mobile convenience, which strengthens the interface provided to suit mobile’s ubiquitous nature, affects cognitive gratification by enabling users to gain information quickly and easily, it leads to pleasant feelings and increases hedonic gratification, influences integrative gratification by forming a sense of closeness anytime and anywhere, and improves social interactive gratification by facilitating user communication with acquaintances.

We explored the similarities and differences between KakaoTalk, a messenger-focused mobile SNS designed for mobile devices that operates in a relatively closed environment, and mobile Facebook, a relationship-focused mobile SNS adapted to mobile devices that operates in a relatively open environment. With KakaoTalk, communication among acquaintances affects attitude formation; however, the only verified mobile Facebook fact is that social interactive gratification exerts an indirect effect on attitude. In addition, it was shown that integrative gratification’s effect on attitude is higher in the relationship-based mobile Facebook, whereas the relationship between social interactive gratification and cognitive gratification was higher for KakaoTalk. This finding may be explained by the strong KakaoTalk ties with acquaintances, given that this media operates in a closed environment and information provided by acquaintances can be considered highly reliable.

6.2. Managerial and Academic Implications

Several important managerial implications of the study results are presented.

To vitalize the use of mobile SNS, it is necessary to form positive attitudes towards these services. The implications for each gratification as key antecedents to attitude formation are as follows.

First, the enhancement of mobile convenience, which is the most significant differentiating attribute of mobile SNS, is required to form the users’ positive attitude. This attribute must be considered in terms of not only time and space but also ease-of-use. In fact, users may hesitate to use the mobile communications network because of the cost, which may be translated into time and space restrictions. However, in Korea, these time and space restrictions do not seem to be a significant problem because network operators provide unlimited broadband connections at a fixed fee. Considering that users tend to access mobile SNS for short periods during their spare time, convenience may be negatively affected when significant time is required for loading. Thus, technology to enable rapid execution should be applied. In addition, because of the limited size and the input tools of mobile devices, it is important to have an interface designed to overcome these limitations. In particular, an easy and intuitive interface is required for mobile SNS.

Second, mobile SNSs are media in which the social aspect is the core, even more important than in existing
Internet-based SNSs. Integrative gratification, as the social outcome aspect, exerts a direct effect on attitude, and this relationship is enhanced by social interactive gratification. Social interaction also has a positive effect on hedonic gratification. The design of these platforms for communication with acquaintances should enhance the sense of closeness and enjoyment. For example, it is possible to increase integrative and hedonic gratifications by enabling users to use fun emoticons, which may provide a familiar feeling in communications among acquaintances.

Third, cognitive and hedonic gratifications have been identified in existing literature as the most basic drivers for attitude determination, but only hedonic gratification was found to exert a significant effect in mobile SNS. To enhance the users’ hedonic gratification, it may be possible to increase the joy of conversation through the provision of fun emoticons or to provide fun games similar to Internet-based SNSs. Recently, mobile SNSs have developed diverse emoticons and launched varied games based on mobile SNS as basic platforms. However, cognitive gratification fails to exert a significant effect on attitude formation, most likely because of mobile devices’ restricted environment for obtaining information. Therefore, although mobile SNSs enable users to select desired information and advertisements and other personalized services, improvement to facilitate the users’ ability to search for information is required.

Finally, the influence of individual gratifications on attitude formation may be slightly different for each type of mobile SNS. The provision of a social interactive platform is more important in messenger-based mobile SNS than in a relationship-based SNS, and it is expected that social interactive gratification would be more sensitive to mobile convenience. Thus, messenger-based mobile SNSs must focus more on mobile convenience and a social interactive platform, whereas relationship-based mobile SNS should focus on forming social outcomes more effectively.

This study also presents academic implications as follows.

First, the present research employed U&G theory to identify the gratifications of mobile SNS. From a literature review on U&G theory, five gratifications-related variables were identified. The present study not only shed light on the mobile SNS gratifications-obtained but also on gratifications-opportunity, which have remained unexplored in the mobile SNS context. We empirically verified that hedonic, integrative, social interactive, and mobile convenience gratifications are the key gratifications exerting direct and indirect significant effects on the formation of attitude towards mobile SNS. However, cognitive gratification, which is considered a basic gratification of the Internet, did not exert a significant effect in mobile SNS context.

Second, the present research shed light on the interrelation among gratifications, which was not addressed by any previous study to our knowledge. Moreover, social interactive and mobile convenience gratifications, which are mobile-SNS-specific attributes, were found to exert a significant influence on other gratifications.

Third, through an exploratory analysis we verified that the effect of each gratification on attitude formation varies with each type of mobile SNS. To our knowledge, no study has addressed these differences before so this finding is another novel contribution of the present research. The messenger-type mobile SNSs have a stronger influence on social interactive gratification than the relationship-type mobile SNSs have, and accordingly, social interactive gratification is more sensitive to mobile convenience in the former.

6.3. Limitations and Future Research

Generalization of the present study is limited because it is based on the single Korean case, and SNS use is expected to be sensitive to culture differences. For example, KakaoTalk, which operates in a relatively closed environment, is more successful in Korea than mobile Facebook, which operates in an environment that is more open. This difference may be derived from Korea’s cultural attributes. Consequently, additional research on other nations is required.

Diverse types of mobile SNSs are emerging. Considering that the present study showed slightly different results for each type of mobile SNS, additional research on other types of mobile SNSs is required to provide managers with adequate tools to develop detailed and specific strategies.

Finally, because the concept of social aspect was simplified into cause and outcome, the present research provides a limited view of this aspect. Additional research is required to ensure an in-depth understanding of the social aspect by dividing this concept into more detailed dimensions.

Appendix A. Survey Items

<table>
<thead>
<tr>
<th>Item</th>
<th>Measurement question</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>COG1</td>
<td>Provide information that helps me make important decisions</td>
<td>Calder et al. (2009)</td>
</tr>
<tr>
<td>COG2</td>
<td>Enhance my knowledge about the product and its usage</td>
<td>Nambisan and Baron (2007)</td>
</tr>
</tbody>
</table>
COG3 Help me make good purchase decisions Calder et al. (2009)
COG4 Help me better manage my money Calder et al. (2009)
HED1 Spend some enjoyable and relaxing time Nambisan and Baron (2007)
HED2 Derive fun and pleasure Nambisan and Baron (2007)
HED3 Entertain and stimulate my mind Nambisan and Baron (2007)
INT1 Expand my personal/social networks Nambisan and Baron (2007)
INT2 Enhance the strength of my affiliation Nambisan and Baron (2007)
INT3 Enhance my sense of belongingness Nambisan and Baron (2007)
INT4 Reinforce my credibility/authority Nambisan and Baron (2007)
INT5 Derive gratification from influencing others Nambisan and Baron (2007)
INT6 Derive gratification from influencing others Nambisan and Baron (2007)
SOI1 See what other people said Ko et al. (2005)
SOI2 Keep up with what’s going on Ko et al. (2005)
SOI3 Express myself freely Ko et al. (2005)
SOI4 Meet people with same interests with me Ko et al. (2005)
MOC1 Conveniently provide immediate access to others anywhere anytime Leung and Wei (2000)
MOC2 Not convenient to use (R\textsuperscript{a}) Ko et al. (2005)
MOC3 Get what I want for less effort Ko et al. (2005)
MOC4 Easier to use Ko et al. (2005)
MOC5 Obtain the information I want without any delay New
ATT1 I am satisfied with the service provided by this mobile SNS Hausman and Siekpe (2009)
ATT2 I feel comfortable in surfing this mobile SNS Hausman and Siekpe (2009)
ATT3 I feel surfing this mobile SNS is a good way to spend my time Hausman and Siekpe (2009)
ATT4 Compared with other mobile SNS, I would rate this one as one of the worst (R\textsuperscript{a}) Hausman and Siekpe (2009)

\textsuperscript{a} R = reverse coding
\textsuperscript{b} COG = Cognitive gratification, HED = Hedonic gratification, INT = Integrative gratification, SOI = Social interactive gratification, MOC = Mobile convenience, ATT = Attitude towards mobile SNS

Appendix B. Cross Loading Table

<table>
<thead>
<tr>
<th>Item</th>
<th>COG</th>
<th>HED</th>
<th>INT</th>
<th>SOI</th>
<th>MOC</th>
<th>ATT</th>
</tr>
</thead>
<tbody>
<tr>
<td>COG1</td>
<td>0.877</td>
<td>0.493</td>
<td>0.521</td>
<td>0.498</td>
<td>0.435</td>
<td>0.427</td>
</tr>
<tr>
<td>COG2</td>
<td>0.895</td>
<td>0.399</td>
<td>0.439</td>
<td>0.418</td>
<td>0.327</td>
<td>0.327</td>
</tr>
<tr>
<td>COG3</td>
<td>0.870</td>
<td>0.371</td>
<td>0.483</td>
<td>0.355</td>
<td>0.289</td>
<td>0.352</td>
</tr>
<tr>
<td>HED1</td>
<td>0.445</td>
<td>0.093</td>
<td>0.378</td>
<td>0.569</td>
<td>0.549</td>
<td>0.532</td>
</tr>
<tr>
<td>HED2</td>
<td>0.444</td>
<td>0.940</td>
<td>0.599</td>
<td>0.584</td>
<td>0.562</td>
<td>0.595</td>
</tr>
<tr>
<td>HED3</td>
<td>0.450</td>
<td>0.911</td>
<td>0.369</td>
<td>0.540</td>
<td>0.498</td>
<td>0.570</td>
</tr>
<tr>
<td>INT1</td>
<td>0.442</td>
<td>0.512</td>
<td>0.850</td>
<td>0.615</td>
<td>0.498</td>
<td>0.467</td>
</tr>
<tr>
<td>INT2</td>
<td>0.412</td>
<td>0.598</td>
<td>0.885</td>
<td>0.636</td>
<td>0.577</td>
<td>0.511</td>
</tr>
<tr>
<td>INT3</td>
<td>0.400</td>
<td>0.610</td>
<td>0.845</td>
<td>0.628</td>
<td>0.584</td>
<td>0.511</td>
</tr>
<tr>
<td>INT4</td>
<td>0.483</td>
<td>0.422</td>
<td>0.755</td>
<td>0.301</td>
<td>0.225</td>
<td>0.354</td>
</tr>
<tr>
<td>INT5</td>
<td>0.501</td>
<td>0.433</td>
<td>0.774</td>
<td>0.520</td>
<td>0.261</td>
<td>0.403</td>
</tr>
<tr>
<td>SOI1</td>
<td>0.388</td>
<td>0.498</td>
<td>0.517</td>
<td>0.773</td>
<td>0.489</td>
<td>0.409</td>
</tr>
<tr>
<td>SOI2</td>
<td>0.338</td>
<td>0.530</td>
<td>0.568</td>
<td>0.864</td>
<td>0.566</td>
<td>0.453</td>
</tr>
<tr>
<td>SOI3</td>
<td>0.448</td>
<td>0.529</td>
<td>0.618</td>
<td>0.851</td>
<td>0.524</td>
<td>0.464</td>
</tr>
<tr>
<td>SOI4</td>
<td>0.396</td>
<td>0.410</td>
<td>0.571</td>
<td>0.715</td>
<td>0.456</td>
<td>0.368</td>
</tr>
<tr>
<td>MOC1</td>
<td>0.290</td>
<td>0.515</td>
<td>0.477</td>
<td>0.586</td>
<td>0.850</td>
<td>0.490</td>
</tr>
<tr>
<td>MOC2</td>
<td>0.199</td>
<td>0.457</td>
<td>0.432</td>
<td>0.519</td>
<td>0.821</td>
<td>0.512</td>
</tr>
<tr>
<td>MOC5</td>
<td>0.482</td>
<td>0.420</td>
<td>0.482</td>
<td>0.406</td>
<td>0.714</td>
<td>0.483</td>
</tr>
<tr>
<td>ATT1</td>
<td>0.315</td>
<td>0.541</td>
<td>0.466</td>
<td>0.480</td>
<td>0.584</td>
<td>0.852</td>
</tr>
<tr>
<td>ATT2</td>
<td>0.376</td>
<td>0.551</td>
<td>0.478</td>
<td>0.461</td>
<td>0.571</td>
<td>0.910</td>
</tr>
<tr>
<td>ATT3</td>
<td>0.408</td>
<td>0.511</td>
<td>0.477</td>
<td>0.419</td>
<td>0.433</td>
<td>0.808</td>
</tr>
</tbody>
</table>

Note: Numbers in bold represent item loading in their variable while numbers in italics represent item loading in other variables

Acknowledgement

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