

THE ADOPTION OF KAKAOTALK INSTANT MESSENGER

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ABSTRACT

The nearly ubiquitous presence of instant messengers on smartphones suggests that this type of innovation plays a significant role in how people communicate. This study examined the attitude towards adoption of KakaoTalk, a South Korean instant messenger, by South Koreans. First, the gratifications gained by South Koreans were measured from the use of KakaoTalk by looking at the pleasure-seeking aspects of the innovation: entertainment, expressing affection, and diversion. Using Diffusion of Innovations theory and its innovation characteristics, the study also looked at the attitude towards adoption by measuring participants' opinions about the perceived relative advantage, complexity, compatibility, trialability, and observability, and its relationship to attitude towards adoption of KakaoTalk. Finally, the study looked at perceptions of critical mass, and the relationship perceived critical mass had with the attitude towards adoption of KakaoTalk. The descriptive statistics results suggested that South Koreans are gaining entertainment-related gratifications from the use of KakaoTalk. A Pearson's correlation test also indicated a linear and positive relationship between the Diffusion of Innovations characteristics and the attitude towards adoption. A multiple regression analysis also confirmed that there is a relationship between the Diffusion of Innovations characteristics, including perceived critical mass, with perceived critical mass being the most significant predictor in the model.

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CHAPTER 1. INTRODUCTION

The importance of mobile computer-mediated communications (CMC) technologies is becoming increasingly apparent and having a mobile device is almost a necessary element in one's collection of communication devices in the modern world. Mobile phones are used by three-quarters of the world's population ("Mobile Phone Access Reaches Three Quarters of Planet's Population," 2012). Studies of their use point to the fact that people are utilizing a number of mobile services outside of the traditional voice functions of mobile phones, such as short messaging services (SMS) and instant messaging (IM). Specifically, uses of SMS (or texting) have been shown to be a global phenomenon, with data indicating, from over 20 different countries, that 75% of all cell phone users are also texting on their phones ("Global Digital Communication: Texting, Social Networking Popular Worldwide," 2012). Similarly, About 8% of mobile users are also instant messenger subscribers. IM use by mobile users is projected to increase to 31% in 2016. Globally, IM traffic is also expected to increase from 1.6 trillion messages in 2011 to 7.7 trillion messages in 2016 ("Global Mobile Statistics 2012 Part C," 2012).

1.1. Background and Rationale for Study

Over the past few years, one particular instant messenger application has garnered a significant amount of attention in Korea and attention in others parts of Asia. In 2010, KakaoTalk was released into the Korean IM application market, and soon reached staggering numbers in both downloads and usage. In October of 2010, the number of mobile instant messenger users in South Korea reached 15 million (Park, Oh, & Lee, 2011), with KakaoTalk users representing four million of those mobile IM users. KakaoTalk subsequently captured 10 million more Korean users by March of the

following year (Park, Oh, & Lee, 2011). In 2012, the number of users of KakaoTalk instant messenger reached 55 million, both internationally and domestically, and the number of instant messenger messages exchanged hit the three billion mark in 2012 (“KakaoTalk Daily Traffic Hits 3 Billion,” 2012). The instant messenger has a registered user base of 133 million users in 2014 (Mozur, 2014).

Surveys about KakaoTalk usage reveal that people are very happy with the application. 72.4 % of respondents to a Korean survey have said that they "will not buy mobile phones which do not support the messaging service" (Choi, 2013). Koreans demonstrate that they are happy with KakaoTalk not only by downloading the app, but also by using it. As of 2012, the average time spent on KakaoTalk peaked at 3,182 seconds, or 53 minutes, per day, beating both Viber (a well-known free-call messenger app) at 8 minutes and 51 seconds per day, and WhatsApp (a mobile instant messaging application) at 7 minutes and 2 seconds per day (Choi, 2013). In 2012, it was reported that KakaoTalk was hitting around one billion messages sent per day. To break down the magnitude of exchanges: KakaoTalk users are exchanging roughly 700,000 messages per minute, per day, sent on KakaoTalk --which is greater than both Twitter's 100,000 tweets per minute, per day, or Facebook's 510,00 comments posted per minute, per day, (Halcomb, 2012). In terms of growth, KakaoTalk was able to reach a total number of 12 million users in 14 months, whereas Facebook, one of the most popular social networking sites, took them nearly 34 months to get to 12 million users (SeuongWoo, 2012).

Additionally, KakaoTalk has disrupted traditional texting platforms by undermining their revenue base. With worldwide numbers suggesting that around 8.6 million short message service texts are sent annually (Heather, 2012), short message

services are forecasted to peak worldwide in 2013 (“Global mobile statistics 2012 Part C,” 2012). However in Korea, KakaoTalk has had a significant impact on SMS use already, and according to some figures, with the advent of KakaoTalk, and other messengers, SMS use dropped by a staggering 57% in 2012 (“KakaoTalk Daily Traffic Hits 3 Billion,” 2012).

Research into the study of why people choose to adopt one particular innovation over another has examined the antecedents or determinants that influence a person's decision to adopt. Some researchers (Blinkoff, 2002; Ling, 2000; Holflich & Rossler, 2001) have concentrated on the possible uses and gratifications of instant messaging adoption by examining adoption as an avenue through which individuals exercise agency and personal choice in satisfying their needs via media selection. Alternative research on adoption looks at adoption as acceptance (Hong, Thong, Moon, & Tam, 2008; Lee, Cheung, & Chen, 2007), where acceptance of a particular innovation is due to its perceived usefulness and its perceived ease of use. Here, adopters are generally more inclined to adopt a particular innovation simply based upon the idea that it might be easier to use. However, given the enormous popularity of KakaoTalk, both from the diffusion of the innovation, to the continued use of the innovation in Korea, and also the relative popularity that KakaoTalk is experiencing outside of Korea, it may not be enough to simply explore questions related to uses and gratifications only. However, this approach may be useful for exploratory information gathering. Similarly, looking at the usefulness of KakaoTalk can be a fruitful research endeavor, but saying that KakaoTalk is useful may not reveal other influential factors related to the attitude to adopt KakaoTalk.

This particular study takes the current trajectory on instant messaging adoption research in an alternative direction by directly looking at a particular instant messenger technology, and seeing what is particular to KakaoTalk that makes it so popular. Given the previous statistics on KakaoTalk versus other instant messengers, there is something about this particular application that makes it completely stand out from the other instant messengers in South Korea. It is not enough to say that it is popular. KakaoTalk is popular in a way that invites research into the particulars. That is why the research objective for this study included the following:

- * The gratifications South Koreans are getting from using KakaoTalk.
- * Whether the innovation characteristics associated with KakaoTalk influenced adoption.
- * The role played by the perceived critical mass of users of KakaoTalk and adoption of KakaoTalk.

CHAPTER 2. REVIEW OF LITERATURE

2.1. Introduction

The purpose of this chapter is to review the existing literature on uses, acceptance, and adoption of both short message services, and instant messenger applications. First, the chapter will give a brief overview and background of the smartphone market in South Korea, including both short message services, and instant messaging, and the present growth and popularity of these technologies worldwide. Next, along with a brief summary of the popularity of SMS and IM, the chapter will summarize the specifics of the technologies in terms of what functionalities and affordances it gives to its users. The reasons for reviewing literature related to both SMS and IM are that from a user's point of view, the affordances of both SMS and IM are nearly identical (Reid & Reid, 2007). Exploring not only the core literature related to IM, but also literature in the periphery, related to SMS, provides a more comprehensive account of IM and SMS adoption. Finally, the chapter reviews three relevant theories present in the literature related to uses, acceptance, and adoption of innovations: Uses and Gratifications (Katz, Blumler, & Gurevitch, 1974), Technology Acceptance Model (Davis, 1989), and Diffusion of Innovations (Rogers, 2003). Technologies are increasingly becoming more apparent in people's lives, so the adoption and the use of innovations have not stopped. However, scholars are still examining the fundamental determinants of why people adopt. Therefore, this literature review sets out to explore past research on the approaches and theories related to the use of technologies, the acceptance of technologies and, finally, the adoption of technologies from these three theoretical traditions.

2.2. Smartphones in South Korea

The first Apple iPhone arrived to South Korea on November of 2009. Korea Telecom brought the iPhone 3 into Korea, and a year later, in December of 2010, Korea Telecom added an extra 1.67--million smartphone users. In 2011, studies reported that most individuals who engaged in economic commerce were smartphone users (Kim, 2011). Additionally, 77% of South Korean users of smartphones were using their devices while using public transportation, such as the bus or subway (Myung, 2010). The Organization for Economic Cooperation and Development (OECD) states that South Korea attained the status of being the first country in the world to have reached 100% wireless broadband usage (Osborne, 2012). According to The Ministry of Science, ICT, and Future Planning, the number of mobile subscribers at the start of 2014 -- which includes feature phones, smartphones, and M2M communication technologies -- stands at around 54.51 million ("Era of One Smartphone Per Person Just Around The Corner," 2014). Statistics Korea (a government organization) estimates the population of South Korea (as of July 1st, 2013) at around 50,219,666 ("Era of One Smartphone Per Person Just Around The Corner," 2014), creating an environment where there are more mobile devices than people. Although 68% of the South Korean population (or 37.21 million Koreans) are smartphone users, as measured at the end of 2013 ("Era of One Smartphone Per Person Just Around The Corner," 2014), this figure increases to around 86% of the South Korean population when considering groups between 25 - 34 years of age (Wilcox, 2013)

2.3. Kakao Corporation

Kakao Corporation, developer of KakaoTalk instant messenger, was originally established in 2006 under the name IWI Lab. Kim Beom-soo founded the company in 2006, but in 2007, Lee Jae-Bum and Lee Sirgoo were asked to join Kakao Corporation, and both now serve as co-CEOs of KakaoTalk while Kim Beom-Soo chairs Kakao Corporation's board (Rousse-Marquet, 2013). Kakao utilizes a developer concept called “4-2” that requires four workers on a team (one planner, two developers and one designer) to work for a total for two months. If nothing manifests from this 4-2 project within this period, that team is immediately disbanded (“KakaoTalk Mobile App Case Study,” 2012). Originally, Kakao did not incorporate any type of revenue model into their apps or services, and 2011 saw the company suffer one its largest losses in net profits of 15.3 billion won. However, the advent of social app gaming and KakaoTalk's own Anipang game saw the company make huge rebounds in 2012, when it finally broke even as a business (Choi, 2013). Before the end of 2013, KakaoTalk projected that it would earn around \$200 million in revenues from gaming, stickers, and other content services. This would be a major increase over the \$42 million earned in revenue and the \$6.5 million in profits for 2012 (Frier, 2013).

2.4. Texting

2.4.1. Short Message Service (SMS)

Short Message Services (more commonly known as “Texting” inside North America) is a very popular and efficient way of sending messages across different mobile phone platforms (such as Google's Android platform or Apple's iOS platform). As long as

the sender and recipient have SMS capabilities, all that is needed to send a message is the recipient's phone number. Messages go from point A to point B in real time. Messages themselves have a defined upper limit of 160 characters using 7-bit encoding. However, for messages over 160 characters, messages can be split up and sent separately. When messages are sent, the actual message is managed by a short message service center, which stores sent messages and keeps them until the intended recipient logs onto the network (Brown, Shipman, & Vetter, 2007). According to studies about SMS use, 7.8 trillion messages were sent in 2011, and expectations from market watchers anticipate that this number will reach 9.6 trillion by 2012, with SMS revenues peaking at USD 150 billion by 2013 (“Global mobile statistics 2012 Part C,” 2012).

2.4.2. Instant messaging (IM)

Instant Messaging (IM) is a form of communication where text messages are exchanged synchronously between users of an IM-based client program. Generally, users download and then create an account with the IM provider. Users log into the program, and establish a “logged in” presence in the system, where other friends or “buddies” become aware of the presences of other users who are also logged in. Chat session may be set either as private discussion or as public discussions (Jennings et al., 2006). Technically, it is possible to send video, picture and music files through messenger programs. However, usually each IM client program has its own unique proprietary protocols that other third party programs will be incompatible with.

2.4.3. KakaoTalk mobile instant messaging (IM app)

KakaoTalk is a South Korean smartphone internet messenger that sends messages over a broadband connection. KakaoTalk works on iOS, Android, Bada OS, BlackBerry platforms, and operates just like a traditional personal-computer-based instant messenger by allowing users to send and receive text messages, exchange music, video and picture files, and to engage in both single and group conversations or chats. Users are required to download and install the client mobile instant messenger program on their mobile phones, and then users need to set up and create a KakaoTalk account. When logged in, the client program searches the network for friends who are also KakaoTalk users. KakaoTalk features include support in 12 languages, full data encryption, walkie-talkie capabilities, and user-defined backgrounds (“KakaoTalk Messenger,” 2012).

2.4.3.1 *KakaoTalk stickers*

The KakaoTalk app allows users to purchase and use a variety of stickers that can be placed into a chat session. The app itself comes with a free set of stickers, a set of KakaoTalk “Friends” that include cute animal characters. KakaoTalk always includes premium-paid stickers that are sold as packs, and occasionally, KakaoTalk will offer special event stickers that will last for a certain period. Stickers have been tremendously popular not just in Korea, but all over East and Southeast Asia.

Although KakaoTalk and other instant messengers describe “stickers” as emoticons and “emoji,” there are differences between stickers, emoticons, and emoji. First, emoticons (emotion + icon) are essentially pictorial representations of a person's facial expressions through the use and combination of keyboard punctuation marks, letters, and numbers. In many instances, these emotional representations are projected

sideways (“What are Emoticons?,” 2014). Emoji (ideographs meaning “picture” + “letter” in Japanese) build upon the idea of emoticons (such as the smiley face :), the frown :(and the wink ;), and render them more graphical, colorful, and cute (Goldfield, 2012). On the other hand, stickers have been described as a combination of both emoticons and emoji. Other technology writers liken them to “large scale emoticons” (Russell, 2013). However, although stickers do share that large-scale nature of emoticons, and the colorful aspects of emoji, it might be more accurate to view these large-scale emoticons as a combination of cartoon-like sketches, with an emphasis on anime-like facial expressions and emotions. As one Korean designer of KakaoTalk stickers states in designing a character, “I try to focus on the meticulous details of Molang’s [a sticker character] facial expressions and body gestures, instead of including other props or items in the stickers” (Horwitz, 2013).

2.5. Uses and Gratifications

A fundamental assumption of uses and gratifications is the belief that users or adopters have a clear understanding of their motivations and psychological needs, and pursue technologies to fulfill those needs (Katz, Blumler & Gurevitch, 1974). This essentially means that the need to address one's desire drives people to seek out media to satisfy those desires. Rubin (2002) argues that a uses and gratifications approach “stresses individual use and choice” (p. 525). By stressing individual choice, Uses and Gratifications theory posits that the audience is actively engaged in the selection of media choices. Active audience models can occupy either end of the theoretical spectrum, from “high audience activity to low levels of involvement” (Ruggiero, 2000). Alternatively,

media selection and use can vary depending on the extent of how much a person is dependent upon a medium (Galloway & Meek, 1981). Variability of use or involvement is also dependent upon prior assessments of the technology, the extent of use, and the subjectivity of time and use.

For instance, Blinkoff (2002) states that the adoption rates of mobile technologies can be linked to the perception of cellular devices as being status symbols. Similarly, Blinkoff (2002) and Ling (2000) argue that the motivational factors behind mobile usage were tied to social network and friendship connections for teenagers. Research into new media technologies is also implementing Uses and Gratifications as a theoretical framework. In Holflich and Rossler's (2001) study on adoption, researchers found instant message adoption and gratifications were associated with reassurance, immediate accessibility, and entertainment, while a more recent study (Quan-Haase & Young, 2010) has suggested sociability as a significant factor in gratifications. Quan-Haase and Young's study on IM use found that users were generally more open to intimate conversations with other users, and therefore more engaging in "social and emotional support from friends" (2010, p.17). Likewise, IM use was associated with a greater sense of gratification due to associations and "keeping-up-to-date" with one's social circle. In their study, Quan-Haase and Young conclude, "sociability is a central gratification obtained from both forms of social media" (2010, p.17).

Although the emergence of new media technologies are providing researchers with new opportunities to explore ideas about gratifications, and to further analyze concepts such as active audience, uses and gratifications as a method or approach suffers from a number of flaws. First, it overstates the simplicity of individual media choice or

selection (Wimmer & Dominick, 1994). Frameworks that posit audience activity and initiative open up the possibility of being challenged. For instance, Windahl (1981) states, “the notion of activeness leads a picture of the audience as super-rational and very selective, a tendency which invites criticism” (p.176). Media selection and activity is a variable concept that can fluctuate, depending upon the individual, place, and time of the person and his or her media or communication environment (Ruggiero, 2000). Similarly, the notion of an active audience could even mean different things to different cultures, where Western and non-Western cultures may have different mediated roles in individual media selection choices (Ruggiero, 2000). However, for this study, perhaps the most damning charge against Uses and Gratifications as a guiding framework for this study is the lack of a theoretical structure that encompasses this perspective. Scholars may still regard Uses and Gratifications as an approach rather than a theory (Ruggiero, 2000). Katz, Blumler, and Gurevitch (1973) argue that it lacks a theoretical underpinning, where the results outline a set of values and needs. In other words, as Katz et al. (1973) suggest, uses and gratifications has “barely advanced beyond a sort of charting and profiling activity” (p. 514). Therefore, Uses and Gratifications as an approach alone could not sufficiently address the larger aims of this study, since it lacks the predictive or explanatory powers of other adoption theories, nor would it be able to test the type of variables that this study examines.

Given the lack of theoretical underpinning in Uses and Gratifications, however, there appears to be some redeeming features of the Uses and Gratifications framework that allow researchers to glean some exploratory insight into less utilitarian and goal-oriented motives for using a technology (Nysveen, 2005). Thus, this study integrates

aspects of Uses and Gratifications as an approach along with Rogers' Diffusion of Innovations, as was done with Coursaris, Yun, & Sung's (2010) study on Twitter users and quitters, in order to get a more complete understanding of KakaoTalk users.

It is for this reason that this study applies Uses and Gratifications theory to explore the more pleasurable or entertaining aspects of using new technology or innovation, which can be a useful as an insight into the everyday use of a technology (Nysveen, 2005). The literature on perceived enjoyment defined the concept as the extent that a user or individual perceives that a particular innovation, idea, or service is independently enjoyable, separate from any expectations about the potential performance or benefits of the innovation (Kim, Park, & Oh, 2008). A number of studies have showed that perceived enjoyment plays an important role in understanding adoption behavior of new ICTs, such as SMS or cellular data services (Hong & Tam, 2006; Hong, Tam, & Kim, 2006).

Entertainment has also played an increasing role in looking at the more pleasurable aspects of new media uses and gratifications as it pertains to SNS use. In Papacharissi and Mendelson's (2010) study, researchers look at the social-psychological motives behind the use of Facebook and other social networking sites, and the possible social capital benefits that are acquired from SNS use. 344 students were asked to participate in a voluntary survey, and were questioned on their SNS use. Motives were combined into 11 categories: "pass time, relaxation, entertainment, information sharing, professional advancement, companionship, social interaction, cool and new technology, self expression, habit, escape" (Papacharissi & Mendelson, 2010, p. 218). The study found that using Facebook to pass time (pass time), relax (relaxation) , and for

entertainment (entertainment) scored the highest mean scores, and rendered these variables as being the most salient in the study. By rendering these variables as being most salient, the study further supports the idea that Facebook use in this particular context is highly ritualistic in use, where users simply feel that they have to constantly check-up on status updates, or comments, in the hopes that they are perhaps not left out of new social interactions. Finally, entertainment played an influential role in SNS use: Users were inclined to use Facebook to relax and enjoy themselves by looking at photos, or seeing what friends and family have to say on their SNS homepages.

Entertainment as a construct has also been found to influence loyalty and repeated use. For example, in Huang and Hsieh's (2011) study on online gaming, it was found that when it comes to particular variables, online gamers found a sense of control, perceived entertainment, and challenge as being important. In the end, their study supports prior research on online gaming and entertainment (Peters, Amato, & Hollenbeck, 2007). That research argues future developers of online games should take into consideration the reality that gamers are not only looking for greater story depth, character development and content, but gamers are also using games as a means of diversion or to simply use up time when they are free. As gaming becomes increasingly connected to mobile and tablet devices, there is a sense that people will perhaps use games as a ways to kill time when they are simply not doing anything important, and to provide them with a quick way to stay entertained. As Huang and Hsieh's (2011) study shows, casual entertainment has significant implications towards loyalty, and repeated use. For KakaoTalk users, enjoyment could be linked to the affordances, tools, and items that one can download to enhance the instant messaging experience. Similarly, Uses and Gratifications theory

could help in identifying other enjoyable elements or motives for why someone may choose to use an innovation, such as “fun-seeking, entertainment” (Nysveen, 2005, p. 332).

2.6. Technology Acceptance Model (TAM)

Research studies using the Technology Acceptance Model (TAM) have been extensively done in the information system (IS) field on users' adoption of technology (Davis, 1989). In contrast to the Theory of Reasoned Action (TRA) intention models, TAM, which can trace its evolution from TRA research, developed as an alternative explanation for human behavior based singularly on the acceptance of technologies. The Theory of Reasoned Action, developed by both Fishbein and Ajzen (1975), argues that the most salient motives behind a person's behavior are related to the intentions of that person. Consequently, intentions are linked to both an individual's attitude about carrying out the behavior, and his or her subjective norms.

Research with TAM has aimed to uncover some of the determinant factors that lead to technology acceptance over a more general spectrum of different technologies (Yan, Gong, & Thong, 2006). Although TAM employs a number of theoretical variables from TRA into its model, TAM also puts forth perceived usefulness (PU) and perceived ease of use (PEOU) as significant motivators for acceptance. For instance, perceived ease of use has been found to be a significant factor in mobile data services acceptance (Hong, Thong, Moon, & Tam, 2008). Similarly, Kleijnen, Wetzels, and De Ruyter (2004) reported in their study on wireless finance use that perceived usefulness produced a stronger effect on intentions for younger consumers.

In one particular study, Lai, Chau, and Cui (2009) found that integrating both the Diffusion of Innovations theory with TAM led to a better overall measurement of internet banking services acceptance. For studies involving similar topics, such as internet banking acceptance, this is a positive development, as their results imply that their composite model is an important improvement over using either model independently (Peslak, Ceccucci, & Sendall, 2010). A number of studies have found that perceived ease of use and perceived usefulness did have a direct effect upon IM adoption and use. An online study on IM adoption with business students found that perceived ease of use had an important impact upon intention to use IM (Lee, Cheung, & Chen, 2007). Similarly, a survey of undergraduate and graduates found that perceived ease of use had a positive effect on intentions to use IM (Strader, Ramaswami, & Houle, 2007).

However, in light of the research outcomes from all these studies, TAM as a theoretical tool presents a number of problems for this particular study of adoption and instant messaging. First, there appears a pattern of reductionism associated with TAM variables, where TAM researchers have increasingly narrowed down the ultimate determinants of adoption to perceived ease of use and perceived usefulness. The accumulation of studies using TAM as a framework has attested to the significance and importance of PU and PEOU in studying intention to adopt. Yet, the problem with collecting constructs with TAM is that it puts forth the impression that the accumulation of constructs equates to the accumulation of more knowledge. Over time, TAM research has uncovered constructs related to “trust, cognitive absorption, self-efficacy, job relevance, image...computer anxiety, computer playfulness, and perception of external control” (Benbasat, Barki, & Montréal, 2005, p. 213). The result of replicating PU and

PEOU is that one simply repeatedly returns to these two main constructs, and to the idea that "usefulness is useful" without ever getting the chance to unpack these terms (Benbasat & Zmud, 1999).

Lastly, TAM's PU and PEOU constructs appear closely to resemble the innovation characteristics in the Diffusion of Innovations theory. Davis (1986) constructed the TAM model using PU and PEOU, but existing adoption models such as Rogers' (1983) Diffusion of Innovations had already implemented innovation characteristics or variables that are capable of addressing the very same constructs in TAM, through perceived complexity and perceived relative advantage (Moore, 1991).

2.7. Diffusion of Innovations

This study's approach differs from both a strictly intentions-based model of TAM and its focus on ease of use and usefulness, and the social-psychological gratification and needs-based approach of Uses and Gratifications theory, instead focusing on a communications theory of adoption. Diffusion of Innovations theory explains why adopters use a particular innovation as it diffuses throughout a system. According to Rogers (2003), there are a number of concepts important in the diffusion process. Rogers states that "characteristics of innovations, as perceived by individuals, help to explain their different rates of adoption" (p.15). Rogers continues on saying, "The individual's perceptions of the attributes of an innovation, not the attributes as classified objectively by experts or change agents, affect its rate of adoption" (p. 223). According to Diffusion of Innovations theory, the five perceived characteristics of innovations are a) relative advantage, b) complexity, c) compatibility, d) trialability, and e) observability. Relative advantage and compatibility are usually tested as important factors in determining the

rate of innovation adoption (Rogers, 2003). A particular innovation does not necessarily have to be objectively better than a preceding innovation, only that the adopter perceives that the newly adopted innovation is better (Rogers, 2003). The concept of relative advantage has been categorized into a number of different categories: profitability, low starting costs, lower levels discomfort, social status, and efficiency. In Van Slyke, Ilie, Lour and Stafford's (2007) study on instant messaging, researchers found that perceptions on critical mass influenced intentions, which had effects on perceived usefulness. Perceived usefulness was found to be an important component of relative advantage, and therefore potentially influential in IM adoption or use.

Conceptually as a dimension under relative advantage, enjoyment is positively linked in explaining user adoption of innovations or new technologies, including SMS and mobile data services (Hong & Tam, 2006). Similarly, enjoyment and pleasure measurements associated with SMS use have shown to increase the perceived value of SMS, and have increased the intention to adopt SMS (Turel, Serenko, & Bontis, 2007).

Perceived usefulness, as related to relative advantage, was also found to be relevant when it came to the use of emoticons in Huang, Yen, and Zhang's (2008) study on the effects of emoticons with users of instant messengers. They found that emoticons tend to increase the perceived usefulness of IM use. Their study not only measured the pleasurable and more enjoyable aspects of using an instant messenger due to emoticons, but they also found that communication interactions were viewed as being richer in information exchange. Emoticons facilitated and added needed nuance and detail in expressing one's emotions or desires effectively without having to spell out a message (Huang, Yen, & Zhang, 2008).

In another study, on the choices that university students make between choosing email or instant messengers, instant messengers were perceived as granting more affordances or advantages with emoticons over email in the ability to convey emotions and solidifying relationships (Lancaster, Yen, Huang, & Hung, 2007). In particular, their study also found that individuals were more likely (60% or more) to use instant messengers for personal or informal reasons, whereas fewer than 1% of respondents to the study said they would use the instant messenger for work. Greater than 12% of the respondents said that they “strongly agreed” to the use of emoticons to express emotions, while 40% of the respondents said that they “agreed” with the questions about conveying emotions on instant messengers through emoticons. Finally, more than 62% of the respondents either "strongly agreed" or "agreed" that instant messengers were essentially more than a text-based communication platform, with almost 75% saying it is just simpler to express emotions through emoticons (Lancaster, Yen, Huang, & Hung, 2007). This adds to the literature that emoticons do have a functional advantage in conveying emotions through instant messenger. The need to express one's self through emoticons, however, appears to be grounded in the idea that it is both more efficient and more satisfying. For example, it is efficient to send emoticons to express one's emotions, as it may simply be quicker to send a happy “sticker” instead of having to type out how one feels. Additionally, communication-exchanges through emoticons can often offer a richer and more fulfilling experience in the conveyance of one's message, which makes the use of an instant messenger even more appealing.

Compatibility as a construct has been widely used and tested in a number of areas related to ICT adoption, including e-commerce (Van Slyke, Belanger, & Comunale, 2004), groupware (Van Slyke, Lou, & Day, 2002) and smart-card merchant systems (Plouffe, Hulland, & VanderBosch, 2001); this research suggests that perceptions of compatibility have some influence upon intentions. However, other research concerning perceptions of compatibility and its connection to attitude have pointed to either there being a strong connection between compatibility and attitude (Agarwal & Prasad, 2000), or where the relationship between compatibility and attitude has little relevance (Taylor & Todd, 1995). Similarly, Ilie, Van Slyke, Green, and Lou (2005) noted that gender differences played a role in how men and women accepted adoption. Women emphasized the ease of use more than men did as an important factor. A review of the literature also indicates that some researchers were able to implement other variables into the Diffusion of Innovations theory. Apart from the traditional Diffusion of Innovations factors, Ilie, Van Slyke, Green, and Lou (2005) also pointed out that a critical mass of adopters were crucial to the overall success of instant messaging adoption and behavior.

Perceived observability also plays a role in adoption. Because KakaoTalk is easy to use, the greater the number of adopters who are using it due to the perceived benefits of trialability, the greater the chance there is in seeing its use in public or noticing the instant messaging application. Some innovations are more noticeable than others, and some ideas are better observed and communicated. In such situations, Rogers (2003) argues that if an innovation is more visible in a system, then that innovation will generally have a progressively faster rate of adoption. This study uses Rogers' (2003) original definition of observability, but the distinction this study makes is relative to how

people are able to notice KakaoTalk. Rogers' original argument about observability and the distinction he made between hardware and software appears to challenge the use of observability as a measurement of adoption of an instant messenger, since it is easier to see hardware than software (1983). However, KakaoTalk is capable of being noticed by an audible instant messenger chat feature every time someone sends a message

Trialability is regarded as being more important for innovators or early adopters, where innovators will not have previous or earlier adopters to gain information on the innovation. Because KakaoTalk is effectively free to smartphone users, as long as the user has access to a computer, smartphone or tablet, there are zero costs associated with KakaoTalk instant messenger, and thus trialability lends itself to be a very useful dimension as an innovation characteristic for this study

Studies using Diffusion of Innovations theory have noted the varying significance of other innovation characteristics, such as complexity in the adoption of IM. For instance, Premkumar and Ramamurthy (2007) found an inverse relationship between complexity and the rate of adoption. Perceived complexity is regarded as the opposite of ease of use, or to the extent that an idea or innovation is relatively less demanding of physical and mental effort (Davis, 1989). Rogers (1995) argued that greater forms of perceived complexity lead to a greater resistance to adoption rates due to the lack of skills and knowledge. In a study by Premkumar and Ramamurthy (1995), researchers found an inverse relationship between adoption and complexity. Likewise, perceived complexity was used to test instant messaging adoption, where complexity was a significant factor in adoption in women versus men (Ilie, Van Slyke, Green, & Lou, 2005).

2.7.1 Adopters

According to the Diffusion of Innovations theory, adopters of technological innovations can be broken down into five different categories: innovators, early adopters, early majority, late majority, and laggards (Rogers, 2003). Early adopters and innovators are distinct in their demographic backgrounds. Early adopters and innovators tend to have "more education, higher social status, and the like" (Rogers, 2003, p. 174). However, a distinction exists between knowledge of an innovation and adoption: "Knowledge about an innovation is quite different from using it" (Rogers, 2003, p.174). Users or adopters of technology simply cannot know about an innovation, they should use it and interact with the technology in order to be an adopter.

2.7.2. Perceived Critical Mass

Originally, defined, critical mass is a smaller contingent making a "big contributions to the collective action" (Oliver, Marwell, & Teixeira, 1985, p. 524). Rogers (1995) defined critical mass as a point where an innovation has reached a certain number of adopters so that the rate of adoption becomes self-maintaining. Critical mass is thought to be influential upon innovation and technological use and adoption rates based upon Markus's (1987) of study Critical Mass theory and the diffusion of communication technologies. Later, Fulk (1993) would use Social Influence theory to explore some of the compelling effects critical mass has upon the acceptance of communication technologies, such as email use in a workgroup. However, for some scholars (Li, Chau, & Lou, 2005), critical mass itself is a very difficult concept to objectively measure, and adopters may proceed to use an innovation based upon the estimates of that critical mass

(Lou, Luo, & Strong, 2000). Thus, there is a difference between Rogers' systems view of critical mass, and the individual level understanding of critical mass. As Prescott and Conger (1995) suggest, finding a precise point or number where critical mass attains a certain threshold for a technology is difficult. Consequently, due to this difficulty in finding a precise measurement, adopter perceptions of this general concept of critical mass becomes a guiding indicator, and concept is referred to as "perceived critical mass" (PCM) (Lou et al., 2000). From the interactions and social engagement through one's groups of friends and family, potential users, or adopters construct a collection of profiles and perceptions of possible users of an innovation (Van Slyke, Ilie, Lou, & Stafford, 2007).

Markus (1994) maintains that Critical Mass theory depends upon two pre-requisites: interactivity of media (phone, email, or IM), and reciprocity. Senders and receivers of new media communications should be both active and participatory with an innovation for that innovation to be perceived as a viable technological selection (Van Slyke, Ilie, Lou, & Stafford, 2007). Thus, adoption of innovations should not be decontextualized from the social surroundings or membership into the community, when an adoption decision is made, as the marginal or incremental adopter of an innovation adds to the "value" or benefit of using that technology (Markus, 1994). The incremental benefit of that additional user also specifically contributes to the overall value of the instant messaging technology, such as KakaoTalk. Van Slyke, Ilie, Lou, and Stafford (2007) argue that perceived critical mass could have a "facilitating" effect on instant messaging. The lack of there being a critical mass of adopters, or there being a lower perception of users, would lead to diminishing opportunities to use the instant messenger.

Alternatively, a larger perception of their being a critical mass of users could help or influence use of instant messaging, even before a user has developed a positive or negative emotional response to the technology.

In Van Slyke, Ilie, Lou, and Stafford's (2007) study on instant messaging and adoption, researchers used a combination of Diffusion of Innovations theory and the Theory of Reasoned Action to argue that it may be difficult to measure the point of critical mass where a technology may take off. The perception of critical mass can play a factor in adoption. Van Slyke, Ilie, Lou, and Stafford (2007) suggest that studies using perceived critical mass show "empirical evidence that PCM has a direct impact on use intentions as well as indirect impact through beliefs" (p. 275). Similarly, perceptions of critical mass of adopters may also influence beliefs related to compatibility, where perceptions about critical mass may align with existing values, experiences and needs (Rogers, 1995). Results from this study (Van Slyke, Ilie, Lou, & Stafford, 2007) suggest that PCM is not only influential on beliefs; it is also directly influential on intentions, and therefore "does have an impact on behavioral intentions to use IM" (p. 278).

2.8. Summary

The review of literature shows there is a long history of studies about the gratifications individuals derive from media selection. In particular, some studies (Blinkoff, 2002; Ling, 2000) have shown that the gratifications obtained from using IM are linked to social status, entertainment, and networking. However, simply looking at the Uses and Gratifications of media selection focuses too narrowly on the individual, and fails as an overall theoretical framework for understanding the influence social groups have on the decision process to adopt (Ruggiero, 2000). TAM's perceived ease of use and

usefulness found that in some studies (Lee, Cheung, & Chen, 2007; Strader, Ramaswami, & Houle, 2007), the technological acceptance of IM use was tied to perceptions that the technology was easy to use. Researchers using TAM's variables addressing ease of use and usefulness, however, have been criticized for being recursive and reductionist, adding to the literature of acceptance, but without ever getting past why a technology is easy to use or useful to use. Diffusion of Innovations looks at adoption of technologies from a set of variables that look at the relative advantage, complexity, compatibility, trialability, observability and perceived critical mass of the technology, and finds these characteristics as influential in adoption.

CHAPTER 3. RESEARCH QUESTIONS

3.1. Introduction

This chapter discusses the three research questions (RQ) that are addressed in this study about the instant messenger KakaoTalk, including a rationale developed from the literature review preceding each RQ.

3.2. Research Question One

Uses and gratifications theory has been used in a number of new media studies to reveal the motivational and needs-based antecedents of technological adoption, from internet use (Stafford & Gonier, 2004), personal home pages (Jung, Youn, & McClung, 2007), e-bulletin forums (James, Wotring, & Forrest, 1995), and instant messengers (Leung, 2001). A number of motivational components have been used to test and identify the psychological drive related to a particular innovation, with perceived needs linked to entertainment, information seeking, self-expression, passing time, being trendy, and emotional connections (Coursaris, Yun, & Sung, 2010). Therefore, as Nysveen (2005) states, it is reasonable to "include nonutilitarian motives to explain consumers' intentions to use mobile services" (Nysveen, 2005, p. 331).

RQ1: What are the entertainment, affection, and diversion gratifications gained in using KakaoTalk as an instant messenger by adopters?

RQ1a: To what extent are users finding KakaoTalk entertaining?

RQ1b: To what extent does KakaoTalk let users express affection?

RQ1c: To what extent does KakaoTalk provide a diversion from what someone is doing?

3.3. Research Question Two

Rogers' (2003) Diffusion of Innovations theory attempts to explain the diffusion and adoption process of particular innovations (ideas, services, and products). Rates of adoption lead to quicker dissemination or diffusion of an innovation through a system once members of the social system perceive it to be better than what it replaced. In constructing his Diffusion of Innovations theory, Rogers (2003) identified and defined five main innovation attributes or characteristics as important factors affecting adoption of an innovation. The perceived characteristics include: a) perceived relative advantage, b) perceived complexity, c) perceived compatibility, d) perceived trialability, e) perceived observability.

RQ2: What is the relationship between the innovation characteristics of KakaoTalk and the Attitude towards adopting KakaoTalk?

RQ2a: What is the relationship between the Perceived Relative Advantage of KakaoTalk and the Attitude towards adopting KakaoTalk?

RQ2b: What is the relationship between the Perceived Complexity of KakaoTalk and the Attitude towards adopting KakaoTalk?

RQ2c: What is the relationship between the Perceived benefits of the Compatibility of KakaoTalk and the Attitude towards adopting KakaoTalk?

RQ2d: What is the relationship between the Perceived Trialability of KakaoTalk and the Attitude towards adopting KakaoTalk?

RQ2e: What is the relationship between the Perceived Observability of KakaoTalk and the Attitude towards adopting KakaoTalk?

3.4. Research Question Three

The concept of critical mass has been demonstrated through Critical Mass theory (Markus, 1987), and Social Influence theory to have a direct influence upon technological use, adoption, and acceptance (Fulk, 1993). Additionally, critical mass is a significant factor in use and adoption in a number of studies (Lou, Luo, & Strong, 2000; Soe & Markus, 1993). The perceived benefits of using an innovation or product, such as an instant messaging program, remain latent unless the potential adopter believes a certain number of people will use it (Lou et al., 2000). The importance and significance of critical mass relative to adoption is found in studies of Diffusion of Innovations (Prescott & Conger, 1995), but the problem in measuring the exact point at which a product researches critical mass has proven to be quite difficult. Therefore, obtaining an accurate metric or the exact point at which an innovation reaches critical mass requires adopters or potential adopters to have an estimate of whether an innovation has attracted enough users (Lou, Luo, & Strong, 2000). This perception or estimate is referred to as “perceived critical mass” (Lou et al., 2000, p. 274). Perceived critical mass has been shown to be influential directly in groupware adoption (Lou et al., 2000), and Van Slyke, Ilie, Lou, and Stafford (2007) used perceived critical mass to understand adopters' perceptions of critical mass and characteristics of instant messaging as an innovation.

RQ3: What is the relationship between the Perceived Critical Mass of adopters of KakaoTalk and the Attitude towards adopting KakaoTalk.

3.5. Key Concepts and Operationalizations

Entertainment -- Entertainment is defined as the use of KakaoTalk instant messenger for anything beyond sending a simple text message or checking a message.

I entertain myself through KakaoTalk by:

Q1: sending emoticons through KakaoTalk

Q2: buying virtual gifts through KakaoTalk

Q3: playing games on KakaoTalk

Q4: sending pictures through KakaoTalk

Q5: sending videos through KakaoTalk

Q6: sending voice clips through KakaoTalk

Q7: changing the background screen of my KakaoTalk

Affection -- Affection is defined as the need or desire to express love or to be loved by others (Schutz, 1966).

I use KakaoTalk to show I care about people by:

Q8: using KakaoTalk to ask about problems

Q9: using KakaoTalk to give others encouragement

Q10: using KakaoTalk to send people "thank you" messages

Q11: using KakaoTalk to send emoticons that convey a feeling of caring

Diversion -- Diversion is defined as something that provides as escape from routine activities, or an emotional release from tension (Ruggiero, 2000).

As a way to pass time, I use:

Q12: KakaoTalk to NOT think about school

Q13: KakaoTalk to NOT think about work

Q14: KakaoTalk to NOT think about family obligations

Q15: KakaoTalk to pass time between going places (such as public transport or walking)

Q16: KakaoTalk while waiting for something to get done (such as waiting in line)

Perceived Relative Advantage -- Rogers (2003) defines Relative Advantage as the perception of one innovation over another dependent upon the “degree to which an innovation is perceived as being better than the idea it supersedes” (p. 15). Relative Advantage (Rogers, 2003) has been utilized in a number of diffusion studies that have addressed the various dimensions of Relative Advantage: (a) economic profitability, (b) low initial cost, (c) decreased discomfort, (d) social prestige, (e) saving of time and effort, and (f) immediacy of reward.

This study uses this definition of Relative Advantage, and finds a number of the dimensions used to measure Relative Advantage as appropriate for this study. The perceived Relative Advantage of KakaoTalk may overlap with a number existing studies that have used Rogers' innovation characteristics, but this study differs from other studies about the economics or profitability in relation to Relative Advantage because KakaoTalk has always been free to use. The Relative Advantage of KakaoTalk can be categorized along the dimension of (a) low initial costs, (with KakaoTalk there are no initial costs

since the instant messenger is free to download onto a smartphone), (b) decreased discomfort through the perceptions of being always connected to family and friends, (c) saving of time and effort through the use of KakaoTalk, (d) social prestige sought by early adopters of a new IM app, (e) immediacy of reward by immediately being notified by people who are trying to contact the user (and allowing the user to immediately see the message), and (f) perceptions that KakaoTalk offers a more fulfilling or enjoyable communication experience through stickers. To measure the Perceived Relative Advantage of KakaoTalk, the following items are measured in a questionnaire (see Appendix A) on a 5-point Likert-type scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree.

Q 17: KakaoTalk has better emoticons than other instant messengers

Q18: KakaoTalk has better games compared to other smartphone instant messengers

Q19: KakaoTalk allow me to communicate effectively by saving time in sending messages

Q20: KakaoTalk is the primary instant messenger that my group of friends uses to communicate

Perceived Complexity (PC) -- Complexity is the degree to which an individual finds an innovation difficult to use or implement (Rogers, 2003). Complexity is one of five-innovation characteristic outlined by Rogers (2003). The Perceived Complexity of KakaoTalk is defined as the degree to which potential users of KakaoTalk finds KakaoTalk to be too high-tech, innovative, or technically difficult to use effectively. Complexity of use with KakaoTalk falls into three different categories: The Perceived

Complexity associated with (a) adding friends to KakaoTalk, (b) using add-ons for KakaoTalk, and (c) using other affordances of KakaoTalk. To measure the Perceived Complexity of KakaoTalk, the following items are measured in a questionnaire on a 5-point Likert-type scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree.

Q21: Adding friends to KakaoTalk is difficult to do

Q22: Downloading new emoticons (stickers) is easy to do

Q23: Other features associated with KakaoTalk are difficult to use (such as manipulating personal settings, or making free calls)

Perceived Compatibility -- Rogers (2003) defines Compatibility as “the degree to which an innovation is perceived to be consistent with the existing values, past experiences, and needs of the potential adopters” (p. 15). Specifically, Rogers defines Compatibility along the dimensions of whether an innovation is also compatible with (a) social and cultural values and beliefs, (b) formerly introduced ideas, or (3) adopter or user demands for that innovation (2003).

For this study, the Perceived Compatibility for users of KakaoTalk refer to the degree to which the instant messenger fits within the wider social and technical context and environment of KakaoTalk users. Compatibility of KakaoTalk with previously introduced ideas of technologies is a useful dimension to use. For KakaoTalk to be compatible, first, it has to be perceived as fitting in within a technological ecosystem that is aligned with potential users. Is it compatible with existing smartphones, or does it requires that someone change operating systems in order to use KakaoTalk? Additionally, Compatibility requires that KakaoTalk fit within the social environment of users by

allowing adopters to both communicate asynchronously and synchronously, allowing users to choose the time to respond with a message, if it is not feasible to communicate in real-time. Thus, the usefulness of the Perceived Compatibility of KakaoTalk can be identified through Rogers' original dimension of the Perceived Compatibility of an innovation by (a) being compatible with the cultural and social values of adopters in Korea (where instant messaging is a very popular form of communication), (b) being compatible with previously introduced technologies and ideas with smartphone applications through SMS and other smartphone IMs, and (c) satisfying user demand for an instant messaging innovation that allows users to communicate through texting. To measure the Perceived Compatibility of KakaoTalk, the following items are measured in a questionnaire on a 5-point Likert-type scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree.

Q24: The use of KakaoTalk as an instant messenger is socially acceptable in public

Q25: The functions of KakaoTalk is similar to previous forms of short message services (SMS) or instant messaging applications

Q26: KakaoTalk has fulfilled an innovation demand for me as an instant messenger user

Perceived Trialability -- Trialability is the degree to which an individual or potential adopter may be able to use, try, or install a particular innovation. New ideas or innovations that have the flexibility to be tested before adoption generally diffuse through a system faster than innovations without that flexibility (Rogers, 2003). For this study, the perceived benefits of Trialability refer to the perception that users may download and

use the instant messenger with little or no cost. To measure the perceived Trialability of KakaoTalk, the following item is measured in a questionnaire on a 5-point scale Likert-type scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree.

Q27: The free downloading of KakaoTalk is an attractive aspect in first experimenting with KakaoTalk

Perceived Observability -- Observability is the extent to which an innovation or new idea is perceptible or noticeable to others (Rogers, 2003). The proposed usefulness of Observability is applicable to KakaoTalk also because of the related dimension of Trialability, being that KakaoTalk is free to download. To measure the Perceived Observability of KakaoTalk, the following items are measured in a questionnaire on a 5-point Likert-type scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree.

Q28: I have seen KakaoTalk being used in public

Q29: I have seen family or friends using KakaoTalk

Perceived Critical Mass -- This research utilizes the previously used definition of Perceived Critical Mass (Lou, Luo, & Strong, 2000; Van Slyke, Ilie, Lou, & Stafford, 2007) by defining it to the extent that it may be difficult to precisely determine the exact point at which a technology reaches Critical Mass, or the exact point where a threshold is reached. Therefore, potential adopters or users often have already formulated an estimate or guess in relation to a technology having attained an actual Critical Mass through interactions with users of a technology, or through the increased discussions about a

technology. Thus, the perception of Critical Mass does not need to accurately represent the reality of there being an actual Critical Mass of users (Lou, Luo, & Strong, 2000).

For the present study, the Perceived Critical Mass of KakaoTalk users are those individuals whom one perceives are users of KakaoTalk. To measure the Perceived Critical Mass of KakaoTalk users, the following items are measured in a questionnaire on a 5-point Likert-type scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree.

Q30: Most of my friends use KakaoTalk

Q31: Most of my family uses KakaoTalk

Q32: Most of the people I associate with at work use KakaoTalk

Q33: Most of the people I associate at school use KakaoTalk

Attitude (towards adoption) -- An Attitude towards an action (adoption) or particular behavior is the extent to which an individual has either a positive or a negative evaluation of the behavior (Ajzen, 1991).

To measure the extent to which individuals have either a positive or negative Attitude towards adopting KakaoTalk, the items on the questionnaire draw from an already established set of semantic differential scales of bipolar adjectives based upon whether the behavior accomplishes a given task or act (e.g., useful - worthless) to experience-based items (Ajzen, 2006). As suggested by Ajzen (2006), the Attitude items on the questionnaire should also include a date by which the specified behavior should be accomplished or done. Most studies measuring Attitude towards an act have employed a 7-point bipolar scale to measure Attitude, and participants are then instructed to circle the number that best reflects their opinions (Ajzen, 2006).

*Q34: Keeping in contact with friends through KakaoTalk for the next 12 months
would be pleasant : __1__ : __2__ : __3__ : __4__ : __5__ : __6__ : __7__ :
unpleasant*

*Q35: Keeping in contact with family through KakaoTalk for the next 12 months
would be good: __1__ : __2__ : __3__ : __4__ : __5__ : __6__ : __7__ : bad*

*Q36: Using KakaoTalk as my primary instant messenger for the next 12 months
would be useful: __1__ : __2__ : __3__ : __4__ : __5__ : __6__ : __7__ :
useless*

CHAPTER 4. METHODS

4.1. Introduction

The present study utilized data collected through a survey using an online questionnaire. What follows is a discussion of the sample population, sampling procedure, questionnaire construction, questionnaire administration, and data analysis plan. The purpose of using a survey method for this study was to gather quantitative data on the feelings and opinions of South Koreans and the adoption of KakaoTalk.

4.2. The Sample Population

The units of observation and units of analysis were South Korean users of KakaoTalk living in South Korea. The study population consisted of both male and female Korean users of KakaoTalk, but the sampling frame with respect to age was within the age range of 18-45 years old. The rationale behind using this age bracket is that for Koreans within the age range of 20-29, 97.4% are smartphone users; within the age range of 30-39, 90.9% are smartphone users, and within the age range of 40-49, 74.1% are smartphone users (“Smart Device User,” 2013). This information, and the fact that 72.4 % of respondents to a Korean survey have said, “They will not buy mobile phones which do not support the messaging service” (Choi, 2013), suggests that targeting this particular age bracket could have helped to garner more KakaoTalk users for the survey. Additionally, in order to comply with the guidelines and regulations put forth by the Institutional Review Board (IRB), participants in this study were either 18 years of age or older.

4.3. Sampling Procedure

The study used (non-probability) snowball sampling. The purpose for choosing some type of non-probability snowball sampling was to gain as large a number of potential participants to take part in the survey. Those who filled out the online questionnaire could share the provided online link to the Qualtrics online survey to other KakaoTalk users. However, due to the nature of the selection of possible participants through this method, the representativeness of the samples are called into question, as it may be possible that individuals who shared the provided link with other individuals could introduce a particular bias (such as age or gender) into the accumulation of participants.

To increase the representativeness of the study, the Qualtrics online survey was posted in a number of different Facebook groups and fan pages (such as, Korean KakaoTalk pages, Korean photography pages, Korean political issue pages, and Korean technology interest pages).

4.4. Questionnaire

The questionnaire used for the study consists of five different parts: 1) KakaoTalk gratifications questions as it pertains to entertainment, affection, and diversion 2) Diffusion of Innovations characteristics questions 3) Perceived Critical Mass 4) Attitude towards adoption, and 5) demographic questions on background (gender, age, and ethnicity) of respondents.

The first part of the questionnaire includes 16 items constructed to assess the gratifications users get from using KakaoTalk. In particular, the first seven items (Q1-Q7) are related to the gratifications associated with the entertainment aspects of KakaoTalk.

The next four items (Q8 - Q11) are associated with the affection measured by the use of KakaoTalk, and the last five items are related to the measurement of diversion that KakaoTalk affords users (Q12- Q16). All questions are based upon a closed-ended format measured by a 5-point Likert-type scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree

The second part of the questionnaire consists of 12 items related to the respondents' perceptions of KakaoTalk's innovation characteristics, which measured the perceived Relative Advantage, Complexity, Compatibility, Trialability, and Observability. All questions are on a closed-ended format measured by a 5-point Likert-type scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree. Four items (Q17 through Q20) are designed to measure Relative Advantage questions, three items are designed to measure Complexity (Q21 - Q23), three items are designed to measure Compatibility (Q24 - Q26), one item is designed to measure Trialability (Q27), and two items are designed to measure Observability (Q28 - Q29). The concern with regard to items created, however, are twofold. The validity of whether the operationalized questions are measuring as much of the intended variable is always something to think about. The face validity of the questions appears to look as if they do. However, in considering the validity of a question, it is also important to consider that validity comes at a cost in reliability. However, in this case, validity appeared to be a bigger problem than reliability. Similarly, questions related to Trialability (Q27) and Observability (Q28 - Q29) may have required a larger number of items to get at a fair measurement of each innovation characteristic.

The third part of the questionnaire consisted of measuring the Perceived Critical Mass of users of KakaoTalk. The four items (Q30 - Q33) used to operationalize Perceived Critical Mass are a closed-ended format and a 5-point Likert-type scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree. The final part of the questionnaire measured Attitude towards adoption of KakaoTalk. That measure is under a closed-ended 7-point bipolar differential scale: 1-7.

The fourth part of the questionnaire consisted of measuring Attitude towards adoption. Question (Q34) is operationalized with a 7-point bipolar differential scale between (pleasant - unpleasant), question (Q35) is operationalized with a 7-point bipolar differential scale between (good - bad), and question (Q36) is operationalized with a 7-point bipolar differential scale between (useful - useless). Final questions included gender, age, and ethnicity.

In all cases, the questionnaire was tested in a pre-testing round. The reasons for pre-testing the questionnaire was to first clear up any ambiguity or misunderstandings that respondents may have gone unnoticed during the constructs of measurements. Secondly, a round of pre-testing was needed to make sure that the questions are once again reliably measuring what should be measured, to ensure that the items are validly measuring what should be measured, and to check wording, phrases, grammar, and punctuation. Both a Korean (see Appendix B) and English version of the questionnaire was provided. The questionnaire went through a back translation (see Appendix C) process, which required that the original English version of the questionnaire be translated into Korean. Then, a different translator translated the Korean translated version “back” into English. At the end of the questionnaire, participants filled out a

demographics section on age, gender, and ethnicity. Although this study was singularly concerned with only South Korean KakaoTalk users, the questionnaire still asked for demographic information on the non-South Korean users to see if there were other exploratory data that could be incorporated into the study.

4.5. Administration

The link to the questionnaire was posted in a range of demographically diverse internet forums in Korea. The Qualtrics online questionnaire was posted in forums with relatively high levels of internet traffic, and posted at the time of day most convenient for Korean internet users. The description included with the link briefly explained the study in Korean and English, and a thank you message was included, as well as a University of Hawai'i at Manoa graphic that was placed above the post.

All participants were shown a consent form (see Appendix D) required by the IRB (see Appendix E). The survey was constructed using Qualtrics online survey. Before participants were able to continue forward with the survey, the survey was locked behind a consent form (written in Korean). The consent form outlined 1) the time required to take the survey 2) the survey would remain anonymous 3) there is little risk in taking the survey for the participants 4) the survey is completely voluntary and participants may stop at anytime 5) there will be no computer tracking of survey participants through servers or IP addresses 6) and all data will be immediately deleted when data is no longer required for the study.

Two weeks into the administration of the survey, another round of posts were placed in the very same forums and Facebook pages. The exact same message and instructions were used in Korean and in English, with the very same University of Hawai'i logo included. The survey was posted from January 5th, 2014 through January 24th, 2014. After January 24th, the survey was locked. Anyone going to an already posted link would find a section explaining that the survey was closed.

4.6. Data Analysis

First, descriptive statistics of the data was gathered to record the genders and ages of the participants of the study. Next, a Pearson's correlation test was used to examine the relationships between both the Diffusion of Innovations characteristics and the variable Attitude. Finally, a multiple regression analysis of the independent Diffusion of Innovations characteristic variables (Relative Advantage, Complexity, Compatibility, Trialability, and Observability), and Perceived Critical Mass, was used to determine its relationship to the dependent variable, Attitude.

CHAPTER 5. RESULTS

5.1. Introduction

This chapter presents descriptive findings of the users of KakaoTalk and the results of the Pearson's correlation test, and the multiple regression analysis results between the dependent and independent variables.

5.2. Demographics of Respondents

In total, 165 people participated in the study. Males accounted for 56 of the respondents, representing (33.9%) of the responses, and females accounted for 109 of the respondents, representing 66.1% of the responses. There were a total of 2 missing responses, and therefore a total of 165 valid responses. With regards to age, participants who were 18-29 years of age accounted for 56 of the total responses (33.3%); participants who were 30-46+ years of age accounted for 109 of the total responses (66.1%).

5.3. Research Question One

The mean and standard deviation was collected to measure the entertainment, affection, and diversion gratifications gained from the use of KakaoTalk instant messenger. The values are reported below.

RQ1: What are the entertainment, affection, and diversion gratifications gained in using KakaoTalk as an instant messenger by adopters?

RQ1a: To what extent are users finding KakaoTalk entertaining?

On average, respondents answered ("Agree") that "sending pictures through KakaoTalk" ($M = 4.64$, $SD = 0.593$) and "sending emoticons through KakaoTalk" ($M = 4.26$, $SD = 0.881$) was entertaining. Respondents, however, were slightly more than

neutral in their scores ("Neutral" = 3) on the questions of whether "sending videos through KakaoTalk" ($M = 3.87$; $SD = 1.183$), "sending voice clips through KakaoTalk" ($M = 3.54$; $SD = 1.277$), and "changing the background screen of my KakaoTalk" ($M = 3.77$; $SD = 1.184$) were entertaining (Table 1). Finally, respondents answered less than neutral in their responses when it came to "buying virtual gifts through KakaoTalk" ($M = 2.90$; $SD = 1.276$), and "playing game on KakaoTalk" ($M = 2.85$; $SD = 1.364$).

Table 1
Entertainment Gratifications (Valid N=165)

Entertainment	Mean	Std. Deviation
sending pictures through KakaoTalk	4.67	0.593
sending emoticons through KakaoTalk	4.26	0.881
sending videos through KakaoTalk	3.87	1.183
changing the background screen of my KakaoTalk	3.77	1.184
sending voice clips through KakaoTalk	3.54	1.277
buying virtual gifts through KakaoTalk	2.90	1.276
playing game on KakaoTalk	2.85	1.364

RQ1b: To what extent does KakaoTalk let users express affection?

On average, respondents answered ("Agree") that "using KakaoTalk to ask about problems" ($M = 4.38$; $SD = 0.774$), "using KakaoTalk to give others encouragement" ($M = 4.18$; $SD = 0.868$), and "using KakaoTalk to send 'thank you' messages" ($M = 4.16$; $SD = 0.939$) lets users express one's affection. Respondents tended to agree with the practice of "using KakaoTalk to send emoticons that convey a feeling of caring" ($M = 3.98$; $SD = 1.047$) to users in their network (see Table 2).

Table 2
Affections Gratifications (Valid N=164)

Affection	Mean	Std. Deviation
using KakaoTalk to ask about problems	4.38	0.774
using KakaoTalk to give others encouragement	4.18	0.868
using KakaoTalk to send ‘thank you’ messages	4.16	0.939
using KakaoTalk to send emoticons that convey a feeling of caring (such as public transport or walking)	3.98	1.047

RQ1c: To what extent does KakaoTalk provide a diversion from what someone is doing?

Respondents disagreed ("Disagree" = 2) about using "KakaoTalk to NOT think about work" ($M = 1.86$; $SD = 1.081$); using "KakaoTalk to NOT think about school" ($M = 1.77$; $SD = 0.942$); and using "KakaoTalk to NOT think about family obligations" ($M = 1.58$; $SD = 0.793$). Respondents answered between neutral and agree ("Neutral" = 3, "Agree" = 4) when asked whether using KakaoTalk provides diversion: "KakaoTalk to pass time between going places (such as public transport or walking)" ($M = 3.47$; $SD = 1.269$), and "KakaoTalk while waiting for something to get done (such as waiting in line)" ($M = 3.34$; $SD = 1.242$) (see Table 3).

Table 3
Diversion Gratifications (Valid N=159)

Diversion	Mean	Std. Deviation
KakaoTalk to NOT think about work	1.86	1.081
KakaoTalk to NOT think about school	1.77	0.942
KakaoTalk to NOT think about family obligations	1.58	0.793
KakaoTalk to pass time between going places (such as public transport or walking)	3.47	1.269
KakaoTalk while waiting for something to get done (such as waiting in line)	3.34	1.242

5.4. Research Question Two

To address the relationship between the Diffusion of Innovations characteristic variables and the Attitude variable, a Pearson's correlation was used to test the relationship between Relative Advantage, Complexity, Compatibility, Trialability, Observability; and the variable Attitude. The strength of the relationship was reported using labels from Reinard (2006). After this initial exploration, a multiple regression was used to examine the overall relationship between the independent variables and the dependent variable, reported in the model summary (see Table 12). The results of this regression analysis are presented after the results for research question three, as it includes independent variables from both research questions two and three.

RQ2: What is the relationship between the innovation characteristics of KakaoTalk and the Attitude towards adopting KakaoTalk?

RQ2a: What is the relationship between the Perceived Relative Advantage of KakaoTalk and the Attitude towards adopting KakaoTalk?

As can be seen (Table 4), there was a moderate, positive, linear relationship ($r = 0.315$) between Relative Advantage and Attitude towards adopting KakaoTalk instant messenger. The correlation was significant ($p = 0.00$, 2-tailed).

Table 4
Correlation between Relative Advantage and Attitude (Valid N = 165)

		<u>Attitude</u>	<u>Relative Advantage</u>
Attitude	Correlation	1	0.315**
	Sig. (2-tailed)		0.000
Relative Advantage	Correlation	0.315**	1

Note: ** $p < .01$

RQ2b: What is the relationship between the Perceived Complexity of KakaoTalk and the Attitude towards adopting KakaoTalk?

As can be seen (Table 5), there was a weak, positive, linear relationship ($r = 0.001$) between Complexity and Attitude towards adopting KakaoTalk instant messenger. The correlation was not significant ($p = 0.99$, 2-tailed).

Table 5
Correlation between Complexity and Attitude (Valid N = 164)

		<u>Attitude</u>	<u>Complexity</u>
Attitude	Correlation	1	0.001
	Sig. (2-tailed)		0.990
Complexity	Correlation	0.001	1

RQ2c: What is the relationship between the Perceived Compatibility of KakaoTalk and the Attitude towards Adopting KakaoTalk?

As can be seen (Table 6), there was a moderate, positive, linear relationship ($r = 0.307$) between Compatibility and Attitude towards adopting KakaoTalk instant messenger. The correlation was significant ($p = 0.00$, 2-tailed).

Table 6
Correlation between Compatibility and Attitude (Valid N = 164)

		<u>Attitude</u>	<u>Compatibility</u>
Attitude	Correlation	1	0.307**
	Sig. (2-tailed)		0.000
Compatibility	Correlation	0.307**	1

Note: ** $p < .01$

RQ2d: What is the relationship between the Perceived benefits of the Trialability of KakaoTalk and the Attitude towards adopting KakaoTalk?

As can be seen (Table 7), there was a weak, positive, linear relationship ($r = 0.185$) between Trialability and Attitude towards adopting KakaoTalk instant messenger. The correlation was significant ($p = 0.01$, 2-tailed).

Table 7
Correlation between Trialability and Attitude (Valid N = 165)

		<u>Attitude</u>	<u>Trialability</u>
Attitude	Correlation	1	0.185*
	Sig. (2-tailed)		0.017
Trialability	Correlation	0.185*	1

Note: * $p < .05$

RQ2e: What is the relationship between the Perceived Observability of KakaoTalk and the Attitude towards adopting KakaoTalk?

As can be seen (Table 8), there was a moderate, positive, linear relationship ($r = 0.307$) between Observability and Attitude towards adopting KakaoTalk instant messenger. The correlation was significant ($p = 0.00$, 2-tailed).

Table 8
Correlation between Observability and Attitude (Valid N = 165)

		<u>Attitude</u>	<u>Observability</u>
Attitude	Correlation	1	0.307**
	Sig. (2-tailed)		0.000
Observability	Correlation	0.307**	1

Note: ** $p < .01$

5.5. Research Question Three

To address the relationship between Perceived Critical Mass and Attitude, a Pearson's correlation was used. Descriptive statistics for Perceived Critical Mass and Attitude towards adoption are also included.

RQ3: What is the relationship between the Perceived Critical Mass and the Attitude towards adopting KakaoTalk?

As can be seen (Table 9), there was a moderate, positive, linear relationship ($r = 0.373$) between Critical Mass and Attitude towards adopting KakaoTalk instant messenger. The correlation was significant ($p = 0.00$, 2-tailed).

Table 9
Correlation between Perceived Critical Mass and Attitude (Valid N = 165)

		<u>Critical Mass</u>	<u>Attitude</u>
Critical Mass	Correlation	1	0.373**
	Sig. (2-tailed)		0.000
Attitude	Correlation	0.373**	1

Note: ** $p < .01$

Participants reported they "Agree" they perceived "Most of my friends use KakaoTalk" ($M = 4.62$; $SD = 0.770$); "Most of the people I associate with at work use KakaoTalk" ($M = 4.37$; $SD = 0.913$); "Most of the people I associate at school use KakaoTalk" ($M = 4.27$; $SD = 1.037$); and "Most of my family uses KakaoTalk" ($M = 4.25$; $SD = 1.032$) (Table 10).

Table 10
Descriptive Statistics for Perceived Critical Mass (Valid N=165)

Perceived Critical Mass	Mean	Std. Deviation
Most of my friends use KakaoTalk	4.62	0.770
Most of the people I associate with at work use KakaoTalk	4.37	0.913
Most of the people I associate at school use KakaoTalk	4.27	1.037
Most of my family uses KakaoTalk	4.25	1.032

Participants reported (Table 11) it was "good" to keep in contact with family via KakaoTalk ($M = 2.29$; $SD = 1.534$); it was "pleasant" to keep in contact with friends via KakaoTalk ($M = 2.21$; $SD = 1.285$); and it was "useful" to use KakaoTalk as one's primary instant messenger ($M = 2.03$; $SD = 1.245$).

Table 11
Descriptive Statistics for Attitude (Valid N=165)

Attitude towards adoption	Mean	Std. Deviation
Keeping in contact with family through KakaoTalk for the next 12 months would be (good – bad)	2.29	1.534
Keeping in contact with friends through KakaoTalk for the next 12 months would be (pleasant – unpleasant)	2.21	1.285
Using KakaoTalk as my primary instant messenger for the next 12 months would be (useful – useless)	2.03	1.245

A multiple regression analysis was used to test if the diffusion characteristics and Perceived Critical Mass significantly predicted participants' Attitude towards adoption. The results of the regression indicated the predictors explained 17.7% of the variance ($R^2 = 0.177$, $F(6, 143) = 5.123$, $p < 0.05$). (Table 12).

Table 12
Multiple Regression Model Summary

Model Summary ^b	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin Watson
a. DOI Predictors & Critical Mass	.421 ^a	.177	.142	3.25592	1.951

Note a. DOI Predictors: Relative Advantage, Complexity, Compatibility, Trialability, and Observability

Critical Mass ($\text{Beta} = 0.247$, $p < 0.05$) was found to be significant predictor, with Compatibility approaching significance (Table 13).

Table 13
Coefficients

Model	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
(Constant)	6.858	2.861		2.397	.018
Relative Advantage	.170	.147	.098	1.157	.249
Complexity	-.016	.166	-.008	-.095	.924
Compatibility	.284	.155	.158	1.832	.069
Trialability	.043	.349	.011	.123	.902
Observability	.078	.251	.035	.312	.756
Critical Mass	.274	.117	.247	2.343	.021

Table 14
ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	325.847	6	54.308	5.123	.000 ^b
Residual	1515.946	143	10.601		
Total	1841.793	149			

a. Attitude

b. Predictors: DOI &
Critical Mass

Note: b. Predictors: Relative Advantage, Complexity, Compatibility, Trialability, Observability, Perceived Critical Mass, and a Constant

CHAPTER 6. DISCUSSION

Given the nearly ubiquitous presence and use of technological devices today, questions about why certain technologies diffuse faster than other technologies and what determines whether individuals choose to adopt and use certain technologies over others are important to ask. The aims of this study were to look into the gratifications gained by using KakaoTalk instant messenger as an innovation, and to look into the antecedents of adoption of KakaoTalk by South Koreans. The findings from this study suggest that there are important gratifications gained with KakaoTalk instant messenger, but they vary depending upon the functions used. Additionally, the Diffusion of Innovations characteristics of KakaoTalk and perceptions of Critical Mass of users of KakaoTalk did play a role in the adoption of the instant messenger, but those dimensions may not fully capture the motivations behind their continued use.

When looking at gratifications associated with the use of KakaoTalk, the results are that for South Koreans, “sending pictures” and “sending emoticons” via KakaoTalk are two ways that South Koreans glean some form of entertainment from the use of the instant messenger. These results are supported by earlier research into the gratifications gained through the entertainment (Quan-Haase & Young, 2010) experienced via the use of instant messengers. Specifically, these results reinforce the connection between the use of emoticons (stickers) and the use of instant messengers (Lancaster, Yen, Huang, & Hung, 2007) by showing that the use of emoticons is still a relevant and enjoyable part of the communication exchange through instant messengers.

KakaoTalk users also found that the instant messenger provided them with a means to let them express affection to others by letting them “ask about problems,” “give encouragement,” and “send thank you messages.” Given the deeply integrated nature of KakaoTalk within Korean society, and the diffusion of the technology between family and friends in South Korea, this finding supports the case that instant messenger users use the technology to be intimate with others through the sociability of the technology (Quan-Haase & Young, 2010).

However, for South Korean users of KakaoTalk, it should be important to note that the diversionary aspects of KakaoTalk played less of a role in the gratifications gained by the instant messenger. On average, the participants of this study of South Korean users did not find that the instant messenger was a tool that allowed them to escape from thoughts or concerns about their family. Similarly, KakaoTalk did not play an important role in allowing this group of South Korean users to forget about the stresses of school, nor did it help in relieving themselves about thinking of work obligations. Some of the literature on instant messenger use, to the contrary, has found that for users, instant messengers allowed users to “escape” from one's everyday routines and responsibilities (Leung, 2007).

One particular difference between the earliest studies on IM use and gratifications and this particular study on KakaoTalk is the age-range of the participants surveyed: A number of previous studies on IM adoption have study populations that are around the age of undergraduate college students (Flanagin, 2005; Leung, 2001; Leung, 2007; Reid & Reid, 2007). Findings there suggested that “escape” from the stresses of life by getting

away from what they are doing, or putting off something that they are doing for a later time, were gratifying aspects of using an instant messenger (Leung, 2007). For this study, the population skewed in towards participants who were mainly in their mid-thirties to early forties. Given this imbalance between the populations in age, there is reason to consider that perhaps older users of KakaoTalk instant messenger in South Korea found it difficult to disengage (escape) from school, work, and family concerns as easily as a college students could disengage or escape the pressures of school life. South Korea is a country that is deeply conservative and collectivist in nature, and therefore the family is tantamount to the identity of South Koreans (Shim, Kim, & Martin, 2008). Therefore, older South Koreans (who may also be parents in this study) may not feel that they “need” to get away from their children or their family: South Koreans parents are infamous for anxiously worrying about their children (“Test-taking in South Korea: Point me at the SKY,” 2013). For older KakaoTalk users, keeping in touch with family on KakaoTalk, not escaping from their family, may be part of the gratifications of using the instant messenger, and not the opposite. Finally, the technical affordances of KakaoTalk itself, as an instant messenger, necessarily mean that there is always a “logged in” presence by default for KakaoTalk (Jennings et al., 2006). Although KakaoTalk users may want to “get away” from it all, the default position of KakaoTalk means that users are always connected via smartphone (unless they choose to log out). A result of this is, alternatively, other users of KakaoTalk are also continuously “logged in.” This creates an environment where family members can also contact the older users (fathers and mothers) of KakaoTalk, which makes it difficult to use KakaoTalk, an IM that has been

installed in nearly 90% of smartphones in Korea (Russell, 2013), as a tool to escape from the daily routines in life.

A second key question for this study was looking at adoption through the Relative Advantage, Complexity, Compatibility, Trialability, and Observability of KakaoTalk. For South Korean users of KakaoTalk, the relationship between the Relative Advantage of KakaoTalk and their Attitude towards adoption of the instant messenger does moderately correlate. Users find that KakaoTalk is an efficient or effective way to communicate quickly with other people, and users do find that KakaoTalk is the dominant or primary chat apps within their social circle, making it advantageous for keeping in communication with others. Rogers (2003) argued that measures of Relative Advantage better predicted the diffusion of an innovation when compared to other Diffusion of Innovations dimensions, but there appears to be other factors at play in user Attitude toward the adoption of the instant messenger. Similar to Relative Advantage, Compatibility of KakaoTalk and Attitude towards adoption are moderately correlated. Participants found KakaoTalk, as an innovation and a product, to be fulfilling a need for South Koreans in the SMS/chat app market. Finally, South Koreans participants noted that they can observe the instant messenger being used by friends and family, and given the ubiquitous diffusion of the instant messenger throughout Korea, it is not surprising that aspects of the Observability of the innovation also had a relatively stronger relationship to Attitude towards adopting KakaoTalk.

In contrast to Relative Advantage, Compatibility, and Observability of KakaoTalk, South Korean users found that the Complexity of the innovation made little difference in the Attitude to adopt the instant messenger. In other words, whether the

instant messenger was viewed as being harder or easier to use in regards to tasks such as downloading stickers or adding friends, the end results were that this was neither associated with a greater or lesser intent to continue to use. This stands in stark contrast to previous studies on Complexity. For example, Rogers (1995) argued that greater forms of Perceived Complexity lead to a greater resistance to adoption rates due to the lack of skills and knowledge. Ilie, Van Slyke, Green, and Lou (2005) found in their analysis of gender and instant messaging adoption that females found Complexity to be a significant barrier to adoption. The regression model does show that Complexity is moving negatively, as theorized (Premkumar & Ramamurthy, 2007), in relation to Attitude towards adoption. A possible explanation for the differences in the results between previous studies on Complexity and adoption and this study could be the very nature of the South Korean population as being relatively more tech-savvy, or South Koreans being regarded as early adopters of technologies (Shim, Kim, & Martin, 2008). For example, South Koreans are on record for replacing their smartphones at the highest rate in the world (Yap, 2013). South Koreans may simply be less fearful of new technologies, given the ubiquitous presence of cutting-edge technologies in South Korea today.

The advantages of Trialability were not as strongly associated with the continued use of KakaoTalk for Korean users. Rogers (2003) argued that innovations that cost less would diffuse through a system faster than an innovation that cost more. However, South Korean participants' Attitudes on adoption and perceptions about Trialability were not strongly connected in this study. The reason for the weak relationship may be explained by the fact that KakaoTalk was never monetized as an app before use. It has always been free, and therefore, the perceived benefits of it being “free” may not have been that

strong. If KakaoTalk had been based upon a subscription, similar to the way WhatsApp currently operates (Mozur, 2014), then perhaps the benefits of being able to test it out because it is not free (initially) to try out could have played a larger role. Similarly, given the diffusion of the app before the study was conducted, it could be that the “window” of opportunity in seeing the full effects or benefits of a free app had already passed as the instant messenger reached higher rates of diffusion.

Finally, this study was interested in exploring whether the perception of the size of one's network of friends and family (Critical Mass) who were users of the app influenced one's Attitude on adoption. KakaoTalk users stated that most of their friends, family, coworkers, and schoolmates used KakaoTalk. Earlier studies on Critical Mass found that for innovations to be regarded as useful, the technology needs to have a sufficient number of adopters to engage with the technology (Van Slyke, Ilie, Lou, & Stafford, 2007), meaning that adding members to a network is adding "value" to the experience. For South Korean users in this study, this applies equally as well. KakaoTalk users found that most people they associate with did use KakaoTalk. For Koreans, if one's family and friends are associating and communicating with each other, being left out of the conversation or the social interactions among coworkers and friends can have unwanted consequences in maintaining valuable strong-tie relationships for Koreans (Shim, Kim, & Martin 2008). Therefore, there appears to be a strong incentive to download and to use KakaoTalk for South Koreans, regardless of whether they like the application or not.

The multiple-regression model explained 17.7% of the variance in the Attitude towards adoption. Among the Diffusion of Innovations characteristics variables and the Perceived Critical Mass variable, Perceived Critical Mass was found to be most significant as a predictor, with Compatibility approaching significance in the multiple-regression model. Other variables or factors to consider when looking at Attitude towards adoption of KakaoTalk are the social pressures related to adoption for South Koreans, and the role that individuals have in influencing others to adopt technologies. Given the relatively larger role that Perceived Critical Mass has factored into this study, it may be beneficial to continue to explore this route, focusing less upon the individual impact and advantages of KakaoTalk as an innovation, and instead examine deeper the social influence brought on by opinion leaders and change agents (Rogers, 2003) in South Korea.

CHAPTER 7. CONCLUSION

KakaoTalk instant messenger is an innovation that has diffused through South Korean society at an incredibly fast rate. Given its tremendous popularity in South Korea, this study explored some of the reasons for the success of the adoption of KakaoTalk by South Koreans.

To investigate this question systematically, an online questionnaire (via Qualtrics.com) was posted in various forums and social networking site group pages. The questionnaire was administered online in Korean, given that the target population wanted for the study was strictly South Korean citizens. The study explored some of the gratifications that South Korean users of KakaoTalk gained in using the instant messenger. Further, using the innovation characteristics conceptualized in Rogers' (2003) Diffusion of Innovations theory, the study explored the relationship between variables (Relative Advantage, Complexity, Compatibility, Trialability, and Observability) and Attitude towards adoption. In addition, Perceived Critical Mass was added into the analysis of the relationship of Attitude towards adoption. Finally, a multiple regression analysis was used to test if the Diffusion of Innovation characteristics and Perceived Critical Mass significantly predicted participants' Attitude towards adoption. The results of the regression indicated the predictors explained 17.7% of the variance, with Perceived Critical Mass being the most significant predictor.

The findings suggest that South Korean users are gaining certain gratifications from the use of KakaoTalk when it comes to using stickers, and expressing their affection. They are also gaining gratifications from KakaoTalk as a means to keep in touch with family members, coworkers, and schoolmates -- not as a diversion away from

those activities. When it came to understanding the relationship between the Diffusion of Innovations characteristics and the Attitude towards adoption, in this study, South Koreans reported that there are advantages in using KakaoTalk over previous forms of instant messengers. South Korean users of KakaoTalk were not worried about the Complexity of KakaoTalk to such an extent that it would persuade or dissuade them from adoption. Finally, when it came to Perceived Critical Mass, there exists a relationship between more people using KakaoTalk and the Attitude towards adopting KakaoTalk. In the end, the regression model found Perceived Critical Mass to be a significant predictor in the multiple-regression model, with Compatibility approaching significance.

7.1. Limitations

First, the limitations for this study concern the fact that it does not draw a population using probability-sampling methods. Therefore, this hinders the generalizability of the findings of the study to the South Korean population as a whole.

Time is also a limitation of the study, as the study is cross-sectional in nature, and does not include a longitudinal look at adoption over time. Given the progress through which technologies change, and in this case, KakaoTalk did change by expanding in technical affordances since 2012, the inherent difficulties with time made capturing evolving KakaoTalk practices that more difficult. Other limitations associated with the study are based upon the inherent weaknesses of survey research. Gratification items may not have been comprehensive enough fully to account for what enjoyment users were getting from KakaoTalk. Similarly, some of the Diffusion of Innovations characteristics

may have not been as relevant to adoption of KakaoTalk as other characteristics for a population of early adopters (Triability).

7.2. Further Research

A follow-up study on the adoption of KakaoTalk, or other popular smartphone instant messengers, such as Line App or WeChat, should take into account the changing nature of the technology. For instance, it may be beneficial not to focus upon the “messaging” aspect of KakaoTalk in the future, to the degree that it could possibly distort the other practices of KakaoTalk use. Given the large ecosystem of functions that make up KakaoTalk today (e.g., KakaoStory, Music Streaming, and offline-gift coupons), which were not fully present just a couple of years ago, it may be useful for future research to look into how instant messaging fits into this collection of affordances. The core messaging features of these chat-apps are starting to compete with other functions of the instant messenger. To do this, a detailed catalog of changes and updates should be kept to see where and when major shifts in the technologies take place (Ellison & Boyd, 2013). Are new affordances adding “value” to the core features of messaging for the chat-app as an instant messenger, or do the new affordances blur the line between a chat-app and something else (such as a social networking service). These concerns really go to the heart of what it means, today, to be a smartphone instant messaging app.

7.3. Contributions

This study contributes to the academic literature of instant messaging adoption. In particular, this study adds to the understanding of adoption of South Korean users in South Korea, as it pertains to the smartphone instant messenger app, KakaoTalk.

APPENDIX A: SURVEY INSTRUMENT (ENGLISH)

Questionnaire

Please indicate to what extent you agree, disagree or have a neutral response to the following statements. Circle the appropriate number to the right of each question using the scale given.

1)

Beside each statement presented below, indicate whether you Strongly Disagree (SD), Disagree (D), Neutral (N), Agree (A), or Strongly Agree (SA).

I entertain myself through KakaoTalk by:

	SD	D	N	A	SA
1) sending emoticons through KakaoTalk.	1	2	3	4	5
2) buying virtual gifts through KakaoTalk.	1	2	3	4	5
3) playing games on KakaoTalk.	1	2	3	4	5
4) sending pictures through KakaoTalk.	1	2	3	4	5
5) sending videos through KakaoTalk.	1	2	3	4	5
6) sending voice clips through KakaoTalk.	1	2	3	4	5
7) changing the background screen of my KakaoTalk.	1	2	3	4	5

2)

Beside each statement presented below, indicate whether you Strongly Disagree (SD), Disagree (D), Neutral (N), Agree (A), or Strongly Agree (SA).

I use KakaoTalk to show I care by:

	SD	D	N	A	SA
8) using KakaoTalk to ask about problems.	1	2	3	4	5
9) using KakaoTalk to give others encouragement.	1	2	3	4	5
10) using KakaoTalk to send “thank you” messages.	1	2	3	4	5
11) using KakaoTalk to send emoticons that convey a feeling of caring.	1	2	3	4	5

3)

Beside each statement presented below, indicate whether you Strongly Disagree (SD), Disagree (D), Neutral (N), Agree (A), or Strongly Agree (SA).

As a way to pass time, I use:

	SD	D	N	A	SA
12) KakaoTalk to NOT think about school.	1	2	3	4	5
13) KakaoTalk to NOT think about work.	1	2	3	4	5
14) KakaoTalk to NOT think about family obligations.	1	2	3	4	5
15) KakaoTalk to pass time between going places (such as public transport or walking).	1	2	3	4	5
16) KakaoTalk while waiting for something to get done (such as waiting in line).	1	2	3	4	5

4)

Beside each statement presented below, indicate whether you Strongly Disagree (SD), Disagree (D), Neutral (N), Agree (A), or Strongly Agree (SA).

	SD	D	N	A	SA
17) KakaoTalk has better emoticons than other instant messengers.	1	2	3	4	5
18) KakaoTalk has better games compared to other	1	2	3	4	5

smartphone instant messengers.

- | | | | | | |
|---|---|---|---|---|---|
| 19) KakaoTalk allows me to communicate effectively by allowing me to save time in sending quick messages. | 1 | 2 | 3 | 4 | 5 |
| 20) KakaoTalk is the primary instant messenger that my group of friends use to communicate. | 1 | 2 | 3 | 4 | 5 |
| 21) Adding friends to KakaoTalk is difficult to do. | 1 | 2 | 3 | 4 | 5 |
| 22) Downloading new emoticons (stickers) is easy to do. | 1 | 2 | 3 | 4 | 5 |
| 23) Other features associated with KakaoTalk are difficult to use (such as manipulating person settings or making free calls). | 1 | 2 | 3 | 4 | 5 |
| 24) The use of KakaoTalk as an instant messenger is socially acceptable in public. | 1 | 2 | 3 | 4 | 5 |
| 25) The functions of KakaoTalk are similar to previous forms of short message services (SMS) or instant messaging applications. | 1 | 2 | 3 | 4 | 5 |
| 26) KakaoTalk is fulfilling a demand for me as a mobile instant messenger user. | 1 | 2 | 3 | 4 | 5 |
| 27) The free downloading of KakaoTalk is an attractive aspect in first experimenting with KakaoTalk. | 1 | 2 | 3 | 4 | 5 |
| 28) I have seen KakaoTalk being used in public. | 1 | 2 | 3 | 4 | 5 |
| 29) I have seen family or friends using KakaoTalk. | 1 | 2 | 3 | 4 | 5 |
| 30) Most of my friends use KakaoTalk. | 1 | 2 | 3 | 4 | 5 |
| 31) Most of my family uses KakaoTalk. | 1 | 2 | 3 | 4 | 5 |
| 32) Most of the people I associate with at work use | 1 | 2 | 3 | 4 | 5 |

KakaoTalk.

33) Most of the people I associate at school use 1 2 3 4 5

KakaoTalk.

5) Under each statement presented below, indicate the extent to which you agree with the judgments on the scale.

Q34: Keeping in contact with friends through KakaoTalk for the next 12 months would be pleasant : __1__ : __2__ : __3__ : __4__ : __5__ : __6__ : __7__ : unpleasant

Q35: Keeping in contact with family through KakaoTalk for the next 12 months would be good : __1__ : __2__ : __3__ : __4__ : __5__ : __6__ : __7__ : bad

Q36: Using KakaoTalk as my primary instant messenger for the next 12 months would be useful : __1__ : __2__ : __3__ : __4__ : __5__ : __6__ : __7__ : useless

Demographic Information

1) Gender: Male / Female

2) Age: (18-21) (22-25) (26-29) (30-33) (34-37) (38-41) (42-45) (46+)

3) Nationality: Korean /Non-Korean

시간을 보내는 방법으로, 카카오톡을 사용한다:

	SD	D	N	A	SA
12) 학교에대한 생각을 하지 않기위해 카카오톡을 한다.	1	2	3	4	5
13) 일에대해 생각하지 않기위해 카카오톡을 한다	1	2	3	4	5
14) 가족의 의무에 대한 생각을 하지않기위해 카카오톡을한다	1	2	3	4	5
15)이동중 시간을 보내기위해 카카오톡을 한다 (예를들어 대중교통 혹은 걷는중)	1	2	3	4	5
16) 어떤것을 끝마치기를 기다리는동안 카카오톡을 한다 (예를들어 줄서서 기다리기)	1	2	3	4	5

5.아래에 제시된 각각의 질문 옆에 당신이 강하게 반대하면 (SD), 반대하면 (D), 중립이면 (N), 찬성(A), 혹은 전적으로 동의(SA)하는지를 나타내 주십시오.

	SD	D	N	A	SA
17) 다른 인스턴트메신저들 보다 카카오톡이 더 좋은 이모티콘을 가지고 있다.	1	2	3	4	5
18) 다른 스마트폰 인스턴트 메신저들에 비해 카카오톡이 더 나은 게임을 가지고 있다.	1	2	3	4	5
19) 빠른 메시지를 보냄으로 시간을 절약하여 카타오톡은 내가 효과적으로 의사소통하는 것을 가능케 한다.	1	2	3	4	5
20) 카카오톡은 내 친구들이 의사소통을 위해 사용하는 주요한 인스턴트 메신저이다.	1	2	3	4	5
21) 카카오톡에 친구들을 추가하기는 어렵다.	1	2	3	4	5
22) 새로운 이모티콘(스티커들)을 다운받는 것은 하기 쉽다.	1	2	3	4	5
23) 카카오톡과 관련된 다른 특색(기능)들은 사용하기 어렵다. (예를들어 개인 설정을 변경하거나 혹은 무료 전화를 걸기)	1	2	3	4	5
24) 인스턴트 메신저로 사람들이 있는데서 카카오톡을 사용하는것은 사회적으로 허용된다.	1	2	3	4	5
25) 카카오톡의 기능들은 이전 종류들의 문자 메시지전송 서비스(SMS) 혹은 인스턴트 메신저와 비슷하다.	1	2	3	4	5
26) 카카오톡은 휴대폰 인스턴트 메신저 사용자로서의 나의 요구를 충족시켜 주고 있다.	1	2	3	4	5
27) 카카오톡 무료 다운로드는 카카오톡을 처음 사용해보는데 있어 매력적인 부분이다.	1	2	3	4	5
28) 나는 사람들이 있는데서 카카오톡을 사용하는 것을 본적이 있다.	1	2	3	4	5

29) 나는 가족 혹은 친구들이 카카오톡을 사용하는걸 본적이 있다.	1	2	3	4	5
30) 내 친구 대부분은 카카오톡을 사용한다.	1	2	3	4	5
31) 나의 가족 대부분은 카카오톡을 사용한다.	1	2	3	4	5
32) 직장에서 나와 관련된 대부분의 직장 사람들은 카카오톡을 사용한다.	1	2	3	4	5
33) 학교에서 나와 관련된 대부분의 사람들은 카카오톡을 사용한다.	1	2	3	4	5

6.아래에 제시된 각각의 질문 밑에 당신이 판단하기에 어느 규모에 동의 하는지를 표시해 주세요.

Q34: 다음 12개월 동안 카카오톡으로 친구들과 연락을 유지하는 것은 ~하다.

기분좋은 : __1__ : __2__ : __3__ : __4__ : __5__ : __6__ : __7__ : 불쾌한

Q35: 다음 12개월 동안 카카오톡으로 가족과 연락을 유지하는 것은~하다.

좋은: __1__ : __2__ : __3__ : __4__ : __5__ : __6__ : __7__ : 나쁜

Q36: 다음 12개월동안 나의 주요한 인스턴트 메신저로서 카카오톡을 사용하는 것은~하다.

유용한: __1__ : __2__ : __3__ : __4__ : __5__ : __6__ : __7__ : 쓸모 없는

인구통계 정보

1) 성별: 남 / 여

2) 연령: (18-21) (22-25) (26-29) (30-33) (34-37) (38-41) (42-45)

3) 국적: 한국인 / 비 한국인

APPENDIX C: BACK TRANSLATION OF INSTRUMENT IN KOREAN

다음 진술문들 중에 당신이 어느 정도 찬성, 반대, 혹은 중립인지를 나타내 주십시오. 주어진 범위를 사용해서 오른쪽에 있는 각각의 질문의 알맞은 숫자에 동그라미를 치세요.

Please let us know how much you are agree, deny, or neuter with the following statements by making circles of given scale.

1. 아래에 제시된 각각의 진술문 옆에 당신의 답을 선택해 주십시오.

1. Please answer the following question.

A. 카카오톡을 다운로드 하셨습니까? 예 혹은 아니오

A. Did you download "kakao talk" application? Yes or No

B. 당신은 카카오톡을 당신의 인스턴트 메신저로 사용하십니까? 예 혹은 아니오

B. Are you using "kakao talk" as a instant messenger? Yes or No

2. 아래에 제시된 각각의 진술문 옆에 당신이 강하게 반대하면 (SD), 반대하면 (D), 중립이면 (N), 찬성(A), 혹은 전적으로 동의(SA)하는지를 나타내 주십시오.

2. Please rate your tendency by making circle of a given scale. SD = Strong Deny, D = Deny, N = Neuter, A = Agree, SA = Strongly Agree.

나는 아래의 것을 하면서 즐겁게 보냅니다.

I have fun with following

	SD	D	N	A	SA
1) 카카오톡으로 이모티콘들을 보내기	1	2	3	4	5
1) Sending emoticon at "kakao talk".					
2) 카카오톡으로 가상선물들을 사기	1	2	3	4	5
2) Buying virtual present at "kakao talk".					
3) 카카오톡에서 게임하기	1	2	3	4	5
3) Gaming at "kakao talk".					

- | | | | | | |
|--|---|---|---|---|---|
| 4) 카카오톡으로 사진들 보내기 | 1 | 2 | 3 | 4 | 5 |
| 4) Sending picture at "kakao talk". | | | | | |
| 5) 카카오톡으로 비디오들 보내기 | 1 | 2 | 3 | 4 | 5 |
| 5) Sending video clip at "kakao talk". | | | | | |
| 6) 카카오톡으로 음성 클립들 보내기 | 1 | 2 | 3 | 4 | 5 |
| 6) Sending voice clip at "kakao talk". | | | | | |
| 7) 내 카카오톡의 배경화면 바꾸기 | 1 | 2 | 3 | 4 | 5 |
| 7) Changing wallpaper of "kakao talk". | | | | | |

3. 아래에 제시된 각각의 진술문 옆에 당신이 강하게 반대하면 (SD), 반대하면 (D), 중립이면 (N), 찬성(A), 혹은 전적으로 동의(SA)하는지를 나타내 주십시오.

3. Please rate your tendency by making circle of a given scale. SD = Strong Deny, D = Deny, N = Neuter, A = Agree, SA = Strongly Agree.

나는 아래의 것을 함으로써 내가 관심이 있다는 것을 보여주기 위해 카카오톡을 사용한다.

I use "kakao talk" as communication channel to do following.

- | | SD | D | N | A | SA |
|--|----|---|---|---|----|
| 8) 문제들에 대해 물어보기 위해서 카카오톡을 사용함 | 1 | 2 | 3 | 4 | 5 |
| 8) To ask something through "kakao talk". | | | | | |
| 9) 다른 사람들을 격려해주기위해 카카오톡을 사용함 | 1 | 2 | 3 | 4 | 5 |
| 9) To cheer up someone through "kakao talk". | | | | | |
| 10) "고맙다"는 메시지들을 보내기 위해 카카오톡을 사용함 | 1 | 2 | 3 | 4 | 5 |
| 10) To thank someone through "kakao talk". | | | | | |

11) 배려심을 전하는 이모티콘을 보내기 위해 카카오톡을 사용함 1 2 3 4 5

11) To send a emoticon showing my concern through "kakao talk".

4. 아래에 제시된 각각의 진술문 옆에 당신이 강하게 반대하면 (SD), 반대하면 (D), 중립이면 (N), 찬성(A), 혹은 전적으로 동의(SA)하는지를 나타내 주십시오.

4. Please rate your tendency by making circle of a given scale. SD = Strong Deny, D = Deny, N = Neuter, A = Agree, SA = Strongly Agree.

시간을 보내는 방편으로서, 나는 사용한다.

I use "kakao talk" to kill a time

SD D N A SA

12) 학교에 대한 생각을 하지 않기위해 카카오톡을 한다. 1 2 3 4 5

12) I use "kakao talk" to prevent the care about school.

13) 일에 대해 생각하지 않기 위해 카카오톡을 한다 1 2 3 4 5

13) I use "kakao talk" to prevent the care about work.

14) 가족의 의무에 대한 생각을 하지않기위해 카카오톡을한다 1 2 3 4 5

14) I use "kakao talk" to prevent the care about role of family.

15)이동중 시간을 보내기 위해 카카오톡을 한다 1 2 3 4 5
(예를 들어 대중교통 혹은 걷는중)

15) I use "kakao talk" to kill a commuting time. (ex. walk or public transportation)

16) 어떤것을 끝마치기를 기다리는 동안 카카오톡을 한다 1 2 3 4 5
(예를 들어 줄서서 기다리기)

16) I use "kakao talk" to kill a waiting time. (ex. standing in line)

5. 아래에 제시된 각각의 진술문 옆에 당신이 강하게 반대하면 (SD), 반대하면 (D), 중립이면 (N), 찬성(A), 혹은 전적으로 동의(SA)하는지를 나타내 주십시오.

5. Please rate your tendency by making circle of a given scale. SD = Strong Deny, D = Deny, N = Neuter, A = Agree, SA = Strongly Agree.

	SD	D	N	A	SA
17) 다른 인스턴트 메신저들보다 카카오톡이 더 좋은 이모티콘들을 가지고 있다.	1	2	3	4	5
17) I think "kakao talk" has a better emoticon to offer rather than other instant messenger.					
18) 다른 스마트폰 인스턴트 메신저들에 비해 카카오톡이 더 나은 게임들을 가지고 있다.	1	2	3	4	5
18) I think "kakao talk" has a better games to offer rather than other instant messenger.					
19) 빠른 메시지들을 보냄으로 내가 시간을 절약하는걸 가능하게 함으로써 카카오톡은 내가 효과적으로 의사소통하는 것을 가능케 한다.	1	2	3	4	5
19) I think "kakao talk" save a part time to effective communication by sending the message quickly.					
20) 카카오톡은 내 친구의 무리들이 의사소통을 위해 사용하는 주요한 인스턴트 메신저이다.	1	2	3	4	5
20) I think "kakao talk" is my major instant messenger to communicate with groups of my friend.					
21) 카카오톡에 친구들을 추가하기는 하기 어렵다.	1	2	3	4	5
21) I think it isn't easy to include my friends at "kakao talk".					

- 22) 새로운 이모티콘들(스티커들)을 다운받는 것은
하기 쉽다. 1 2 3 4 5
- 22) I think it is easy to download a new emoticon(sticker) at "kakao talk".
- 23) 카카오톡과 관련된 다른 특색(기능)들은 사용하기
어렵다. (예를들어 개인적 설정들 변경하거나 혹은
무료 전화를 걸기) 1 2 3 4 5
- 23) I think it isn't easy to handle the feature(function) of "kakao talk".
- 24) 인스턴트 메신저로서 사람들이 있는데서 카카오톡을
사용하는것은 사회적으로 허용된다. 1 2 3 4 5
- 24) I think it isn't rude to use "kakao talk" as an instant messenger in public.
- 25) 카카오톡의 기능들은 이전 종류들의 문자 메시지전송
서비스(SMS) 혹은 인스턴트 메신저와 비슷하다. 1 2 3 4 5
- 25) I think "kakao talk" provide a similar function of a former SMS or instant messenger.
- 26) 카카오톡은 휴대폰 인스턴트 메신저 사용자로서의 나의
요구를 충족시켜 주고 있다. 1 2 3 4 5
- 26) I think "kakao talk" matches my needs as cell phone instant messenger.
- 27) 카카오톡 무료 다운로드는 카카오톡을 처음 사용해보는데
있어 매력적인 부분이다. 1 2 3 4 5
- 27) I think the new customer will be attracted "kakao talk" is served with no charge.

28) 나는 사람들이 있는데서 카카오톡을 사용하는 것을 1 2 3 4
5 본적이 있다.

28) I have seen someone using "kakao talk" in public.

29) 나는 가족 혹은 친구들이 카카오톡을 사용하는 걸 본적이 있다. 1 2 3 4 5

29) I have seen my family or friends using "kakao talk".

30) 내 친구들 대부분은 카카오톡을 사용한다. 1 2 3 4
5

30) Most of my friends use "kakao talk".

31) 나의 가족 대부분은 카카오톡을 사용한다. 1 2 3 4
5

31) Most of my family use "kakao talk".

32) 직장에서 나와 관련된 대부분의 사람들은 카카오톡을 1 2 3 4 5
사용한다.

32) Most of connected people at my work use "kakao talk".

33) 학교에서 나와 관련된 대부분의 사람들은 카카오톡을 1 2 3 4 5
사용한다.

33) Most of connected people at my school use "kakao talk".

6. 아래에 제시된 각자의 진술문 밑에 당신이 판단하기에 어느 규모에 동의하는지를 표시해 주세요.

6. Please rate your tendency of following statements by making circle of a given scale.

Q34: 다음 12개월 동안 카카오톡으로 친구들과 연락을 유지하는 것은 ~것이다.

Q34: I think it is (~~) to connect friends through "kakao talk" during the 12 months following.

feel good : __1__ : __2__ : __3__ : __4__ : __5__ : __6__ : __7__ : unpleasant

Q35: 다음 12개월 동안 카카오톡으로 가족과 연락을 유지하는 것은 ~것이다

Q35: I think it is (~~) to connect family through "kakao talk" during the 12 months following.

good : __1__ : __2__ : __3__ : __4__ : __5__ : __6__ : __7__ : bad

Q36: 다음 12개월 동안 나의 주요한 인스턴트 메신저로서 카카오톡을 사용하는 것은 ~것이다

Q36: I think it is (~~) to use "kakao talk" as a major instant messenger during the 12 months following.

useful : __1__ : __2__ : __3__ : __4__ : __5__ : __6__ : __7__ : useless

인구통계 정보

Gallup

1) 성별: 남 / 여

1) Gender : Male / Female

2) 연령: (18-21) (22-25) (26-29) (30-33) (34-37) (38-41) (42-45)

2) Ages :

3) 국적: 한국인 / 비 한국인

3) Nationality : Korean / Non Korean

APPENDIX D: CONSENT FORM INFORMATION

University of Hawai'i

Consent to Participate in Research

My name is Sky Kauwelo, and I am a graduate student at the University of Hawaii (UH). A requirement of my Master's degree program is to conduct a research project. The purpose of my project is to assess the reasons for adoption of KakaoTalk Messenger. Participation in this study will involve the completion of an anonymous on-line (Internet) survey. I am asking you to participate in this project because you are at least 18 years old and a user of KakaoTalk.

Project Description – Activities and Time Commitment: Participants will fill out a survey that is posted on the Internet. Survey questions are on a 5-point scale. Completion of the survey will take approximately 15 minutes.

Benefits and Risks: There will be no direct benefit to you for participating in this survey. The results of this project may contribute to a better understanding about the diffusion and reasons behind the popularity of KakaoTalk Messenger. There is little risk to you in participating in this project.

Confidentiality and Privacy: This survey is anonymous. I will not ask you to provide any personal information that could be used to identify you. Likewise, please do not include any personal information, such as your name, in your survey responses. There will be no tracking of computer information through servers, IP addresses or cookies for those taking the survey through the website.

Voluntary Participation: Participation in this project is voluntary. You can freely choose to participate or to not participate in this survey, and there will be no penalty or loss of benefits for either decision. If you agree to participate, you can stop at any time without any penalty or loss of benefits to which you are otherwise entitled.

Questions: If you have any questions about this study, you can contact me at 808.593.0919 or nsk@hawaii.edu. You can also contact my faculty advisor Dr. Jenifer Winter at jwinter@hawaii.edu. If you have any questions about your rights as a research participant, you can contact the UH Committee on Human Studies at 808.956.5007 or uhirb@hawaii.edu.

To Access the Survey: Please click the link to go to the survey and instructions for completing it should be presented. Submittal of the survey will be considered as your consent to participate in this study.

APPENDIX E: INSTITUTIONAL REVIEW BOARD (IRB)




UNIVERSITY
of HAWAII
MĀNOA

Office of Research Compliance
Human Studies Program

October 23, 2013

TO: Nyle Sky Kauwelo
Principal Investigator
School of Communications

FROM: Denise A. Lin-DeShetler, MPH, MA 
Director

SUBJECT: CHS #21623- "The Diffusion of KakaTalk Messenger"

This letter is your record of the Human Studies Program approval of this study as exempt.

On October 23, 2013, the University of Hawai'i (UH) Human Studies Program approved this study as exempt from federal regulations pertaining to the protection of human research participants. The authority for the exemption applicable to your study is documented in the Code of Federal Regulations at 45CFR 46.101(b)(Exempt Category 2).

Exempt studies are subject to the ethical principles articulated in The Belmont Report, found at <http://www.hawaii.edu/irb/html/manual/appendices/A/belmont.html>.

Exempt studies do not require regular continuing review by the Human Studies Program. However, if you propose to modify your study, you must receive approval from the Human Studies Program prior to implementing any changes. You can submit your proposed changes via email at uhirb@hawaii.edu. (The subject line should read: Exempt Study Modification.) The Human Studies Program may review the exempt status at that time and request an application for approval as non-exempt research.

In order to protect the confidentiality of research participants, we encourage you to destroy private information which can be linked to the identities of individuals as soon as it is reasonable to do so. Signed consent forms, as applicable to your study, should be maintained for at least the duration of your project.

This approval does not expire. However, please notify the Human Studies Program when your study is complete. Upon notification, we will close our files pertaining to your study.

If you have any questions relating to the protection of human research participants, please contact the Human Studies Program at 956-5007 or uhirb@hawaii.edu. We wish you success in carrying out your research project.

1960 East-West Road
Biomedical Sciences Building B104
Honolulu, Hawaii 96822
Telephone: (808) 956-5007
Fax: (808) 956-8683

An Equal Opportunity/Affirmative Action Institution

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