THE COST OF AWARENESS:

A NETWORK PERSPECTIVE ON NEGATIVE IMPACTS OF

COMMUNICATION TECHNOLOGY ON PSYCHOLOGICAL WELLBEING

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A dissertation submitted to the

School of Graduate Studies

Rutgers, The State University of New Jersey

In partial fulfillment of the requirements

For the degree of

Doctor of Philosophy

Graduate Program in Communication, Information and Media

Written under the direction of

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New Brunswick, New Jersey

OCTOBER, 2019

ABSTRACT OF DISSERTATON

The cost of awareness:

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This dissertation investigates how new communication technologies, which

afford ubiquitous accessibility to one's social networks affect his/her psychological

well-being. Research on this topic often suggests that these technologies accelerate

the fragmentation of an individual's personal networks, which, in turn, causes serious

mental health problems such as depression. Counter to this view, I propose that new

communication technologies allow individuals to have extensive awareness of various

types of people in their networks, leading to diverse effects on their wellbeing. Given

this proposition, my work focuses on the complexities of context, where continuous

flows of information about social ties entails both positive and negative effects on an

individual's wellbeing. To generate a deeper understanding of this phenomenon, I

conceptualize network awareness as one's knowledge about other network members'

lives, relate it to use of communication technologies and examine negative

psychological outcomes, such as stress and anxiety. The methodological approach of

this study is primarily quantitative, but I leverage the strengths of qualitative interviews to add depth and detail.

The findings lend greater theoretical foundations for the relationship between newer forms of communication technology and psychological well-being. I found that use of these technologies was not directly associated with negative psychological outcomes. Rather, it was indirectly associated with one's psychological wellbeing through heightened network awareness. More specifically, use of some technologies, such as mobile messages and Facebook was associated with higher awareness of undesirable life events in the lives of others. This increased awareness then became a source of psychological discomfort in the form of higher stress or less belief in a just world. However, the negative relationship between awareness and psychological wellbeing was not uniform. Instead, it became more or less pronounced depending on the relationship an individual had with the people who experienced the undesirable life events, as well as which life events that individual had personally gone through themselves. Altogether, these findings suggest that the indirect effects of communication technology on psychological wellbeing are limited: users of technology experience different social strains depending on with whom they communicate what information through which technology. This dissertation ultimately corroborates the idea that the use of communication technologies is socially embedded, and its implications are socially determined.

ACKNOWLEDGEMENTS

Pursuing a PhD degree was a lot harder than I thought it would be. I took exactly 6 years to complete it. Without support and assistance from many people in my network I would not have finished this journey. I am so grateful to God for blessing me with these amazing people.

I would first like to thank my advisor, Keith Hampton, who always encouraged me to finish this dissertation. Whenever I faced challenges, he carefully listened to my concerns and cleared any doubts from my mind. Beyond this research project, he is my academic inspiration all the time. He has taught me how to become a better researcher and writer.

Next, I am thankful to my dissertation committee, Mary Chako, Katya Ognyanova, and Larry Gross. Mary's sociological perspective made my research more fruitful and strong. Katya's expertise on social networks was invaluable to the refining of my research idea and methodology in particular. Finally, it was my great pleasure to learn from Larry, whose works I have long admired. His innovative and insightful feedback has improved the quality of this research.

This dissertation benefited from many other academic colleagues and friends as well. I deeply appreciate the committee for my qualifying exam, Jen Gibbs, Matt Webber, and Paul McLean. Their inspiring comments helped me frame and advance this dissertation further. I was also so fortunate to have opportunities to work with many wonderful researchers, Jeff Lane, Kate Kang, Bibi Reisdorf, Laleah Fernandez, and Bill Dutton. Collaborations with them allowed me to extend my research idea to marginalized sub-populations.

Moreover, I want to express my thankfulness to my Annex B buddies. Lunch and coffee breaks with them were like an oasis in the desert. I will never forget them

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Introduction

One's ability to navigate social environments is important for individual and collective well-being (Adler, 1964). By looking at the lives of others, people can perceive available resources and information embedded in their interpersonal environments (Coleman, 1988; Lin, 2002). They also indirectly learn how to handle their own lives by reflecting on the events experienced by others (Bandura & Walters, 1977). Awareness of the environment and events happening around an individual also allow them to identify and understand others in need, which, in turn, prompts provision of social support and other prosocial behaviors (Eisenberg-Berg & Hand, 1979; Shumaker & Brownell, 1984). However, there is a sometimes-neglected side effect of this benefit: the more knowledge, the more grief. Recognition of the needs and struggles of others often exerts a pressure to provide appropriate supports and tangible aids (Shumaker & Brownell, 1984). Even if one is not involved as a supporter, affective reactions, such as empathy, guilt, anger, or jealousy can occur (Mittelmark, 1999). This dual nature of awareness has long been emphasized in traditional interpersonal theories, such a social exchange theory (Blau, 1968) and relational dialect theory (Baxter, 1988). However, there is a tendency among some researchers to equate awareness with positive outcomes, such as social support (Lu & Hampton, 2017) and social capital (Chen, 2013; Hampton, Lee, & Her, 2011).With the exception of studies suggesting there are costs involved with providing social support (Chesler & Barbarin, 1984; Kessler & McLeod, 1984; Smith & Rose, 2011), there are few studies distinguishes positive and negative social outcomes of awareness while examining their relative effects on psychological well-being.

Paradoxical aspects of awareness can be intensified in the current media environment. The growth of personal communication technology, such as mobile phones and social media, has extended the context in which a person develops his or her own social network and shares diverse information with a wide range of people (Rainie & Wellman, 2012). Through various communicative forms (e.g., group messages, massive emails, social media status updates), personal information about others continuously flows into one's daily life. An individual can be easily aware of actions, thoughts, and experiences of others by merely logging into social media or looking at his/her mobile phone. This heightened exposure implies that people are also more aware of others' undesirable or risky life experiences. According to a national survey conducted by my colleagues and I (Hampton, Rainie, Lu, Shin, & Purcell, 2015), heavy users of e-mail and mobile phones were more likely to become aware of stressful events in the lives of others, and this awareness was associated with higher levels of stress. In addition to stress, increased awareness can affect the ways of interpreting and judging social environments. Scholars have long emphasized the importance of exposure to the experiences of others in the process of (re)constructing one's worldview (Gerbner & Gross, 1976; Lerner & Miller, 1978). When individuals are continuously exposed to negative life events experienced by others, they are more likely to overestimate potential risks that exist in real life (Shumaker & Brownell, 1984). This increased awareness can instill skepticism towards oneself, others, and the social world.

This dissertation is concerned with the relationship between awareness and individual wellbeing. I specifically focus on awareness of network life events - major life events in the lives of others - and explore how this awareness is increased through use of new communication technology, which ultimately brings a variety of

psychological discomforts to individuals. Several theories and research from different disciplines, such as the cost of caring (Kessler & McLeod, 1984), mean-world syndrome (Gerbner, 1998; Gerbner & Gross, 1976; Gerbner et al., 1977), social comparison (Festinger, 1954; Taylor & Lobel, 1989; Wills, 1981), and empathy (Davis et al., 1999; Hoffman, 2001) suggest that one's psychological wellbeing is affected by others' life experiences as well as personal experiences. However, each theory makes different predictions about the influences of vicarious experiences and sometimes contradict each other. Therefore, this dissertation attempts to test these various competing theories from the perspective of awareness and delineate, while delineating commonality and differences among them.

To accomplish this, I adopt the social network perspective. Previous studies tend to restrict the scope of awareness at a dyad or small social circle, such as family (e.g., Kessler, 1997), friendships (e.g., Smith & Rose, 2011), small work groups (e.g., Dourish & Bly, 1992), or local neighborhoods (e.g., Sampson, 1986). However, today's communication technology enables people to share personal information with all types of relationships at the same time (Thompson, 2008). In this context, I define one's sense of awareness from an entire personal network as network awareness. This dissertation views network awareness as an attribute of personal networks that creates possibilities and/or constraints to an individual's life. Following intellectual pursuits of network scholars, I emphasize an attribute of personal networks, which is network awareness in this case rather than individual attributes (e.g., age, sex, and race), affect the perception of one's social world. In terms of methodology, I use a mixed method that integrates quantitative and qualitative analysis. This approach allows me to investigate research phenomenon from different methodological angles and provide

detailed descriptions of complex processes, where use of communication technology,

features of personal networks, and individual attributes are intertwined.

The goals of this dissertation are threefold. First, I aim to examine the

relationship between use of communication technology and network awareness. One

may argue that network awareness is embedded in new communication technology,

consisting largely of mobile and social media. Indeed, network awareness is often

believed to be inextricably tied to constant use of text messages, emails and/or social

media status updates (Leonardi, 2015; Levordashka & Utz, 2016). However, the

awareness itself is not a new phenomenon created by current communication

technology. Although new communication technology expands network awareness

beyond particular social ties (Hampton, 2016), people are experiencing certain levels

of awareness through traditional communication channels such as face to face

conversations, letters, and/or telephone. New communication technology merely

serves as an enhancer of network awareness. Therefore, I conceptualize network

awareness separate from communication technology. Specifically, network awareness

is operationalized as one's knowledge of network life events (Kessler & McLeod,

1984)- major life events experienced by network members - in this dissertation. Such

conceptualization ultimately enables me to scrutinize the role of current

communication technologies in one's personal networks. Considering specific

conditions where individual technologies are used, this dissertation proposes specific

hypotheses that pertain to individual technologies and network awareness. I also seek

to investigate how and why users of communication technology encounter

information about network life events. By delineating users' motivations and

intentions, I explore ways in which use of communication technology shapes network

awareness.

The second goal of this dissertation is to demonstrate specific processes through which the increased awareness becomes a source of psychological discomfort. Network awareness is awareness of others' life experiences. These indirect experiences, although less substantive, may have similar positive or negative impacts with one's personal experience. While identifying the desirability of life events (desirable vs. undesirable) and strengths of relations with network members who experienced the events (strong ties vs. weak ties), I examine how the awareness of network life events is associated with two psychological outcomes: one's stress and one's belief in a just world. Furthermore, I attempt to specify the circumstances where the psychological impacts of awareness might be more or less pronounced. The ways of interpreting others' life events have a self-centered bias (Kunda, 1987; Miller & Ross, 1975), meaning people react to the awareness in ways that are more advantageous to themselves. By analyzing one's personal experience along with network life events, I explore how psychological influences of network awareness vary. The second goal of this study is also addressed through a mixed method approach. The integration of quantitative and qualitative analysis enables an in-depth understanding of contradictory aspects of network awareness, which can simultaneously alleviate and/or disturb one's psychological state.

Finally, this dissertation attempts to highlight mediating roles of network awareness in the relationship between communication technology and psychological well-being. Although negative psychological impacts of technology have received much attention in studies of communication (see Walther & Parks, 2002 for review), existing research misattributes the cause of mental distress to the actual use of communication technology itself (Hampton, 2019). The assumption here is that use of communication technology replaces quantity and quality of time spent with family,

friends, and other acquaintances. Counter to this conventional view, this dissertation posits that use of communication technology is extending the possibility to interact with individual network members within one's overall network. Accordingly, looking at how people's psychological states may be greatly affected by this overall heightened awareness, rather than solely looking at the time spent using communication technology, should be fruitful. Formally stated, use of communication technology would be indirectly, through awareness, associated with deleterious psychological outcomes. My ultimate goal is to elaborate the importance of network awareness in the studies of communication technology. The social implications of communication technology will be determined by the awareness that people develop, based on with whom they share what information through which communication technology.

The structure of this dissertation is as follows. Chapter 1 presents the theoretical framework, tying together the various perspectives to conceptualize network awareness. Then, I review relevant literature which suggests roles of awareness in the relationship between use of communication technology and psychological wellbeing. Based on previous works, I propose hypotheses and research questions in this chapter.

Chapter 2 outlines research designs used for this dissertation. I specifically chose a mixed-method approach that utilizes both surveys and interviews. The procedures for collecting and analyzing data are explained in great detail. The explanation of the measures used, including a newly developed scale for awareness of network life events and experiential (dis)similarity, is also included.

Chapter 3 is the first of three chapters discussing my findings. This chapter illustrates not only the statistical relationships between use of communication

technology and network awareness, but also unravels mechanisms through which network awareness happens. Next, Chapter 4 presents findings on the *cost of awareness*. Using a quantitative analysis, I specifically address whether the awareness is related to stress/belief in a just world. This finding is supplemented with results from qualitative analysis. In doing so, I attempt to explain why people react to the awareness in negative ways. Chapter 5 provides the findings on the context dependent nature of network awareness. Psychological wellbeing is mainly determined by one's life experience. Therefore, network awareness must be considered together with personal experience when researchers evaluate its psychological influence. This chapter reveals how the influences of network awareness can be either aggravated or relieved, depending on an individual's personal situation.

Finally, Chapter 6 synthesizes the findings of previous chapters from the perspective of social network studies. To explain strains derived from network awareness, I drew a number of previous theories and research on networks and psychological wellbeing such as media multiplexity (Haythornthwatie, 2001), the cost of caring (Kessler & McLeod, 1984), cultivation theory (Gerbner & Gross, 1976), experiential similarity (Suitor, Keeton, & Pillemer, 1995), and social comparison (Festinger, 1954; Will, 1981). By extending these various theories to the context of awareness, this chapter discusses theoretical, methodological, and practical implications of the research, and makes suggestions for future research.

Chapter 1. Literature Review

A Shift in the Structure of Personal Networks: From a 'Small Sphere' to an 'Expanding Sphere'

Since George Simmel first emphasized the importance of structures of relationship (Simmel, 1950), enormous scholarly interest has been directed toward the impacts of social networks on psychological well-being (see reviews by Berkman, 1995; Kawachi & Berkman, 2001; Pescosolido, 2006; Thoits, 2011). Over the past decades, social networks have been studied as the basic outlet for basic human supports (Berkman & Glass, 2000; Kana'iaupuni, Donato, Thompson-Colón, & Stainback, 2005; Seeman, 1996) and source of valuable information, such as job opportunities and new innovations (Burt, 1987; Granovetter, 1977). However, people take the role and impact of social networks for granted and often misunderstand social networks as being the same thing as social media or Facebook. However, social networks refer to a set of relations among individuals, not a particular technology. They have been around people's lives well before the advent of social media (Rainie & Wellman, 2012).

For a clear understanding, one can visualize social networks as a 'sphere' with a single person (ego) placed at the center (Wellman & Berkowitz, 1988). Those who are strongly tied with an ego, such as family, relatives, and friends are generally positioned in the inner realm of the sphere. These strong ties tend to be small, informal, intimate, and interconnected with each other, thereby sharing strong group cohesion and reciprocal obligations (Berkman & Glass, 2000; Kana'iaupuni et al., 2005; Seeman, 1996). An individual views people with strong ties as "significant others" (Sullivan, 1953) who are important and influential in his/her life. Yet, strong ties share highly similar backgrounds and beliefs and provide little diversity

(McPherson, Smith-Lovin, & Cook, 2001). Distant acquaintances, on the other hand, are situated at the edge of the sphere where they are weakly tied to one another. Although weak ties do not share intimacy and mutual obligation, they provide individuals with access to different social circles beyond immediate networks. As a result, a person often obtains novel and diverse social resources and information through contacts with these weak ties (Granovetter, 1983).

In studies of social networks, an individual's degree of social integration is represented by his/her network characteristics, such as size and density. As recent large-scale social changes (i.e., industrialization and urbanization) have altered the ways of interacting with others, many scholars have been concerned with social disintegration, that is, the lack or weakness of cohesion within social networks (Nisbet, 2014; Park, 1915; Tönnies, 1987/1955; Wirth, 1938). Compared to pre-industrial society, where a person's networks were small but strongly tied with family and extended relatives, one's social networks now may become larger, but ties are weak and transitory (Fischer, 1982). People tend to organize and patternize their ties to others in separate social units, such as school, company, and other voluntary organizations besides households (Feld, 1981). Individuals often move from one place to another for education and employment so that social ties are easily disrupted and replaced with new ties within these new environments (Coleman, 1988). According to the US General Social Surveys (GSS), the inner realm of personal networks, where strong ties are positioned, has become smaller and less diverse (Marsden, 1987; McPherson, Smith-Lovin, & Brashears, 2006). On the other hand, a person tends to have more than a thousand weak ties (Killworth, Johnsen, Bernard, Ann Shelley, & McCarty, 1990). This restructuring of personal networks indicates that people have more access to the outside world, at the risk of lower levels of social cohesion.

Research on communication has focused on the role of technology in this shift of personal networks. A prevalent view of communication technology is that it accelerates disintegration and mobility in personal networks (see a review by Hampton, 2016). This view assumes that communication technology leads to a disconnection with pre-existing ties by allowing people to make new ties in new environments. However, people have a tendency to maintain established intimacy even if large-scale, social changes make it difficult for the relationship to be sustained (Wellman & Wortley, 1990). Communication technology, in this context, serves as an important channel for contact to geographically dispersed, strong ties. For example, Wellman and his colleagues (Hampton & Wellman, 2001; Wellman, 1979; Wellman & Wortley, 1990) argue that intimacy among strong ties can also thrive outside of local community. They found that a variety of communication technologies, such as telephones and regular correspondence, facilitate connections with strong ties at long distances. The introduction of new communication technology, including the internet and mobile devices, only strengthens this trend. For example, Boneva, Kraut, and Frohlich (2001) reveal that in addition to telephones, e-mailing with family and close friends contributes to maintenance of closeness in relationships. They found that frequent mobile text messages also strengthen intimacy among romantic partners, because they permit continuous exchanges that contain detailed life events (Ito, 2005).

In addition to maintenance of strong ties, recent advancement of communication technology helps to sustain weak ties. Although some online communities and chat services allow people to contact strangers who have common interests (Baym, 2000), considerable evidence suggests that people use the internet for frequent contacts with existing acquaintances living both near and far (Quan-Haase, Wellman, Witte, & Hampton, 2002). With the advent of social media, the extensive networks of weak ties

become relatively stable and persistent (Hampton, 2016). Most users of social media compose their online connections with pre-existing social ties organized in various settings, such as home, school, workplaces, and other voluntary associations (Hampton, Goulet, Rainie, & Purcell, 2011). When users move to a new place, the social relationships in previous contexts can be actively maintained through online platforms, which would have been abandoned otherwise (Coleman, 1988).

Taken together, communication technologies, including telephones, the internet, mobile devices, and social media enlarge one's personal networks. A large amount of research suggests that these technologies supplement contact with pre-existing strong ties and weak ties (Hampton & Wellman, 2001; Quan-Haase & Wellman, 2004) as well as create connections with new groups (Wellman et al., 2003). As a result, individuals continuously receive a large volume of information, which, in turn, lead to awareness of resources and information that other network members hold. However, higher awareness creates new forms of social pressure pertaining to dealing with others and with information. Depending on with whom they share what information, people may experience different possibilities and constraints that arise from these social networks. To understand the social implication of communication technology, it is necessary to consider the content of information received through personal networks. The effects of communication technology on one's psychological wellbeing may vary depending on the types of information received as well as the structural characteristics of the social networks.

Much of the empirical evidence suggests that flows of information within networks are patterned across tie-strength (Back et al., 1950; Granovetter, 1983; Haythornthwaite, 2002, 2005; Krackhardt, Nohria, & Eccles, 2003; Wegener, 1991; Wellman & Wortley, 1990). Strong ties tend to exchange emotional and personal

information reflecting diverse aspects of one's life that range from work, to school, health, and romantic relationships (Krackhardt et al., 2003; Wellman & Wortley, 1990). On the other hand, communication among weak ties tends to be formal, thereby reflecting a singular dimension of the content. For example, weak ties organized in a work-related context typically share work-related information and rarely share other events in each other's personal lives (Haythornthwaite, 2002; Haythornthwaite, Wellman, & Mantei, 1995). Within weak ties, members' knowledge about one another is less personal. However, such a pattern of information exchanged within networks is changing, as mediated communication via technologies is becoming more widespread. Unlike in the past, when personal information, such as experiencing major life events, was shared within a closed social circle comprised of family or close friends (Kessler, McLeod, & Wethington, 1985), people now disclose their personal experiences related to diverse domains, including work, school, health, and romantic relationship to extensive networks, using diverse communication technologies (Bevan et al., 2015; Bevan, Gomez, & Sparks, 2014). Because of "context collapse"(Marwick & boyd, 2011), in which diverse social ties organized from different contexts are integrated into one platform, it is far easier for people to access personal information about weak ties as well as strong ties.

In this context, this dissertation addresses the influence of use of communication technology on the content of information shared within strong and weak ties. To aid in this task, I will capitalize on the concept of "network awareness". Network awareness specifically refers to the levels of an individual's knowledge related to ideas, thoughts, opinions, and everyday activities of other network members (Hampton, 2016). Higher network awareness may result from frequent exchange of

information on a wide range of topics among social ties. Therefore, today's communication technology may heighten network awareness by increasing quantity and quality of information shared within networks; broadcasting personal information has become routine and the exposure to such information is pervasive; people can reach out to their social ties and search for details about them at any time, in any place. Based on this reasoning, I will specifically investigate how users of current communication technology experience higher network awareness and address the psychological and social outcomes under the condition of heightened awareness. In the following section, I will discuss the specific definition of network awareness and suggest how to operationalize this concept as a separate construct of social interaction. This study ultimately attempts to shed light on the effect of communication technology on individual psychological well-being by highlighting the contents of information shared within one's personal networks.

Network Awareness and Communication Technology: From a Limited to a Pervasive Awareness

Awareness is a foundational component for making and maintaining connections within networks. Dourish and Bellotti (1992) define awareness as "an understanding of the activity of others, which provides a context for your own activity" (p. 107). Awareness, in this sense, represents a decrease of uncertainty about other network members, playing a key role in initiating, maintaining, and enhancing intimacy with them (Berger, 1979; Kellermann & Reynolds, 2006). Furthermore, awareness is tied to the understanding of the distress of others and its causes, which allows for provision of social supports and other prosocial behaviors among social ties (Eisenberg-Berg & Hand, 1979; Shumaker & Brownell, 1984).

Communication is a key process through which an individual is aware of others and their lives. People develop a sense of awareness of others, such as family, friends, and co-workers by exchanging personal information. We, as social beings, tend to share personal experiences with others as a way of fulfilling our social and psychological needs. For those who experience a significant life event, such as marriage, illness, or other crises, sharing of personal experience offers an opportunity to acquire material and emotional support to cope with events or to vent thoughts, feelings, and emotions (Shumaker & Brownell, 1984; Stroebe & Stroebe, 1996; Taylor, Friedman, & Silver, 2007). When people disclose experience of their major life events, they are likely to collect information about the experience of others. Such a process also prompts the confidantes to learn about the events of the sharer (Kessler et al., 1985). For example, if Person A connects with Person B to talk about a bad day at work, Person B learns about Person A's employment and difficulty at work through the communication process. Individuals also develop network awareness through third parties' communication by way of small talk and gossip. These types of everyday conversations often allow people to become aware of the lives of network members who do not directly engage in this communication (Baumeister, Zhang, & Vohs, 2004).

Awareness itself is not a novel phenomenon of new communication technology. Rather, awareness of networks has evolved from subtle awareness to pervasive awareness. People have the capacity to develop network awareness through diverse communication channels, including face-to-face interactions, letters, and telephones (Hampton, Lu, & Shin, 2016). Many disciplinary fields, including communication, sociology, and psychology, have long recognized the importance of network awareness. Scholars have connected this concept with several social outcomes, such

as provision of social support (e.g., Hoffman, 2001), access to social capital (e.g., Lin, 2008), collaboration in work related contexts (e.g., Dourish & Bellotti, 1992), and neighborhood surveillance (e.g., Bellair, 2000; Sampson, 1986). Despite its important social implication, network awareness remains an unstudied area in the communication technology literature. The definition on this concept is still unclear, but it often appears interchangeably with different concepts, such as social presence. For example, studies of collaboration in work-related contexts have treated network awareness as equivalent to a sense of presence (Biocca, Harms, & Burgoon, 2003; Dourish & Bly, 1992). These studies specifically suggest that co-presence is an optimal condition for network awareness in work environments, because co-workers who share the same office can easily pick up cues about each other. Accordingly, research from this field assumes that network awareness in remote contexts relies heavily on the ability of technology to enable users to experience higher social presence, mimicking a co-present situation (Markopoulos & Mackay, 2009).

However, network awareness should be distinguished from social presence, because it occurs regardless of the quality of social presence (Hampton, 2016). Social presence is defined as the "degree of salience of the other person in a mediated communication and the consequent salience of their interpersonal interactions" (Short, Williams & Christie, 1987, p. 65). Higher social presence in this sense can enhance network awareness, but not a prerequisite for higher awareness. Mobile text messages illustrate the difference between social presence and network awareness. In text messaging, there is little salience in the presence or lack of sensory impressions related to voices and facial expressions (Rettie, 2003). Nonetheless, mobile text messages can contribute to higher awareness of other network members. For example, trivial but ongoing text messages between two individuals sharing updates about their

daily lives allow people to pick up cues that elicit what is going on in the other person's life. In fact, romantic partners in a long-distance relationship were found to prefer the use mobile text messages rather than phone calls, because text messages afford brief but incessant updating about each other (Ito et al., 2009; Taylor & Harper, 2002).

The awareness literature mistakenly presumes that higher network awareness occurs only within specific conditions where strong ties are interconnected. For example, studies of community posit that network awareness is caused by the interconnection of family, friendship, and associational networks in a community (see Kasarda & Janowitz, 1974, p. for reveiw). However, scholars argue that personal networks become dispersed and fragmented due to large-scale social changes (Nisbet, 1969; Wirth, 1938). The assumption here is that this fragmentation causes people to become less aware of others within their networks. The observed outcome is a weakened level of social cohesion and solidarity as compared to the past (Putnam, 2001). Despite this fragmentation, people strive to maintain access to information about their network members (Wellman, 1979). With the growth of digital communication technologies, individuals now have the capacity to simultaneously connect to a greater number of people and continuously receive information from them. Consequently, current network awareness is not limited to a small circle, but has a broader reach among and across the entirety of an individual's personal networks. Hampton (2016) describes this phenomenon as 'pervasive awareness', which explains the uniqueness of contemporary network awareness. By studying the pervasiveness of network awareness, this dissertation explores how people experience awareness not only among strong ties but also among their weak ties.

I specifically argue that three new communication technologies – mobile messages, emails, and social network sites (SNS) – are more crucial for pervasive awareness than other communication channels because these technologies afford ubiquitous accessibility to personal ties. More specifically, individuals widely utilize mobile messages, emails, and SNS to maintain and strengthen their pre-established networks rather than meeting new people; mobile messages facilitate communication with family and close friends, especially in long distances (Bales, Li, & Griwsold, 2011; Ling, 2008); email serves as a main communication channel for work-related ties (Kim, Kim, Park, & Rice, 2007; Quan-Haase & Wellman, 2006); SNS enables its users to learn about diverse pre-existing social ties organized from different contexts (Hampton, Goulet, et al., 2011; Marwick & boyd, 2011). Furthermore, these technologies generally provide asynchronous and text/photo-based communication. Combined with mobile devices, people can send and receive messages at any time and any place (Katz & Aakhus, 2002). Lastly, "broadcastability" of messages provided by these technologies brings the shift in the pattern of information exchanged within networks (boyd, Golder, & Lotan, 2010). Individuals are now able to spread their personal stories to entire networks, using functions of group messages, massive emails, and SNS status updates (Rains & Brunner, 2018). This trend allows people to access detailed information about their weak ties as well as providing their weak ties with access to their information. In contrast to traditional communication channels such as face to face interaction and phone calls, which often occur within a specific context where a small and certain audience exists, the awareness achieved through these three technologies may not be limited to dyadic or small group contexts, but applicable to one's overall social networks.

Although a growing number of studies attempt to explain the implications of mobile or social media using the concept of network awareness (e.g., Leonardi, 2015; Levordashka & Utz, 2016; Zhao, Rosson, Matthews, & Moran, 2011), network awareness is often misrepresented; it is believed to be imbedded in new communication technology rather than existing as a separate construct. For example, Leonardi and Meyer (2015) suggest the role of network awareness in knowledge sharing within an organization but do not measure awareness itself. Instead, they treated the frequency of passive contact through social media (e.g. browsing others' online profiles or reading comments of others) as an indicator of network awareness. Such a methodological approach assumes that network awareness is only achieved through a specific communication technology. However, as discussed above, higher awareness happens through ubiquitous accessibility of social ties afforded by technology, not technology itself.

Only a few researchers have attempted to measure network awareness separately from communication technology. However, network awareness is multidimensional and situational. Each researcher suggests different ways of operationalizing according to their research contexts. For example, Hampton, Shin & Lu (2017) examined influences of social media on political deliberation and thus measured network awareness based on opinions of social ties regarding political issue. On the other hand, Kim, Gibbs, & Scott (2018) were interested in knowledge sharing within an organization, leading them to operationalize awareness as a worker's understanding of other workers' tasks and specialties. Because the current research aims to investigate the relationship between network awareness and psychological wellbeing, it is necessary to operationalize network awareness differently from previous studies. The literature on psychological wellbeing has long considered

experience of major life event as an external source of stress or other forms of psychological discomfort. Extending this trend, I operationalize network awareness as the level of knowledge of network life events - major life events experienced by network members (Kessler & McLeod, 1984).

Network life events generally include "normative transitions in life (e.g., first job, marriage), meaningful changes (e.g., birth of a child, moving in with a partner), and major individual experiences (e.g., death of a family member, unemployment)" (Specht, Egloff, & Schmukle, 2011, p. 863). When people are aware of network life events, they are able to describe important social status of others including health, financial, educational and residential statuses. Network life events may have different impacts on an individual's wellbeing depending on its desirability. In general, a negative life event, such as unemployment or illness, is studied as a source of stress and mental problems (Dohrenwend & Dohrenwend, 1974; Taylor, 1991), whereas an occurrence of a positive event is viewed as an enhancer for one's psychological well-being (Cohen & Hoberman, 1983). This trend may not change in the context of vicarious experiences, because people generally have a certain level of ability to understand the distress of others and its causes (Batson, Early, & Salvarani, 1997).

Desirable and undesirable network life events are common topics shared through both offline and online communication (Bevan et al., 2015; Humphreys, Gill, Krishnamurthy, & Newbury, 2013; Levordashka & Utz, 2016). By disclosing undesirable events to others, a person can alleviate the distress induced by these events and recruit relevant resources to cope with difficulties (Stroebe & Stroebe, 1996; Taylor et al., 2007). Sharing experiences of desirable life events is also highly prevalent. Positive feedback received from others not only enhances the significance

of the event but also serves as a signal to increase self-esteem (Bolger & Eckenrode, 1991; Gable, Reis, Impett, & Asher, 2004).

Technological affordances of mobile messages, emails and SNS may encourage people to share their desirable and undesirable personal experiences through a form of mediated communication. In terms of mobile messages and emails, people compose messages only for small groups or just one trusted person(s). In this context, diverse topics ranging from desirable to private and undesirable life events can be shared because there is less possibility of being judged by others (O'sullivan, 2000). Compared to mobile messages and emails, communication on SNS is visible to a relatively large and diverse audience. A user's messages and activities are broadcasted to other users' SNS 'newsfeed'. Due to its higher visibility, some research suggests that SNS serves as the showcase for positive images and experiences of users (Bazarova & Choi, 2014; Jang, Park, & Song, 2016; Vogel, Rose, Roberts, & Eckles, 2014). However, although less frequent than positive ones, SNS users also broadcast undesirable personal experiences such as suffering from depression (Bazarova, Choi, Whitlock, Cosley, & Sosik, 2017) and illness (Gage-Bouchard, LaValley, Mollica, & Beaupin, 2017), loss of loved one (Marwick & Ellison, 2012), and relationship breakup (Haimson, Andalibi, De Choudhury, & Hayes, 2018), to collect social resources from diverse social ties(Bevan et al., 2014; Zhang, 2017). Besides the newsfeed function, the popular SNS platforms offer additional forms of one-to-one contact like private messaging. Given these findings, I anticipate that the use of mobile messages, emails, and SNS is associated with awareness of both desirable and undesirable network life events:

H1: Uses of mobile message, email, and SNS are associated with higher levels of awareness of network life events (AoNLE) within one's overall network

H1a: Frequent use of mobile messages is associated with higher levels of

awareness of *desirable* and *undesirable* network life events

H1b: Frequent use of email is associated with higher levels of awareness of

desirable and *undesirable* network life events

H1c: Frequent use of SNS (e.g., Facebook, Twitter, and Instagram) is

associated with higher levels of awareness of *desirable* and

undesirable network life events

Variation in the Relationship Between Communication Technology and AoNLE Depending on Tie-strength

Although uses of all three communication technologies are expected to be associated with AoNLE across its desirability, their impacts on AoNLE may be dependent on what types of social ties are involved in AoNLE. Social network scholars generally characterize social ties with its strength (strong vs weak ties). Tie strength are determined by a combination of several factors such as frequency of contact, duration of the association, intimacy of the tie, and provision of reciprocal services (Granovetter, 1977). However, Marsden and Campbell (1984) suggest that relational "closeness" or intensity is the best indicator of tie-strength. Other studies also found that strong ties generally include family, relatives and close friends, whereas weak ties consist of coworkers, supervisors, instructors, church members and voluntary group members, whose interactions are formal and less personal. Given this evidence, I consider strong ties as the group of people who share relational closeness with individuals, and weak ties as a group of acquaintances individuals know a bit but not as close friends. Following media multiplextity theory (Haythonwaite, 2002), which suggests differential use and impacts of media across

tie-strength, I anticipate that each technology is differently associated with awareness of network life events in the lives of strong ties and weak ties.

Considerable evidence shows that mobile phones are widely used among strong ties, such as family and close friends to sustain their connections (Campbell & Russo, 2003; Ling, 2004; Ling, 2008). Strong ties are generally based on greater intimacy and emotional bonds, which in turn makes it easier to share positive and negative emotions to each other in these relationships (Rosen & Tesser, 1972; Uysal & Öner-Özkan, 2007). Along with this evidence, strong ties tend to exchange mobile text messages frequently, sharing miscellaneous information such as trivial daily activities and personal news concerning political, heath, financial, and relational status (Campbell & Kwak, 2011; Ling, Bertel, & Sundsøy, 2012). Compared to consistent evidence regarding mobile messages and strong ties, there is controversy over the impacts of mobile messages on contact with weak ties. For example, Habuchi (2005) suggests "telecocooning" hypothesis by arguing that people use mobile messages to maintain connections with family and close friends at the expense of weaker and more diverse social ties. However, there are mixed results for this zero-sum perspective; analyzing texting traffic data in Norway, Ling et al. (2012) did not find any positive or negative relationship between mobile texting and contacts with weak ties, although mobile texting supplements contacts with family and close friends. Furthermore, some researchers found empirical evidence to support the capacity of mobile messages that increase, rather than decreases, the opportunities to encounter and communicate with weak ties (Boase & Kobayashi, 2008; Campbell & Kwak, 2012). Considering this inconsistent evidence on mobile messages and weak ties, I do not hypothesize a relationship between the use of mobile texts and awareness of network life events in

the lives of weak ties. Instead, I propose the hypothesis regarding mobile messages and awareness of network life events of strong ties as follow:

H2: Frequent use of mobile messages is associated with higher levels of awareness of a) *desirable* and b) *undesirable* network life events occurring to the lives of *strong ties*

Unlike mobile messages, the primary function of email is based on maintenance of contact with weak ties (Kim et al., 2007; Mazmanian, Orlikowski, & Yates, 2013). Evidence shows that email fosters contacts with weak ties and increase network diversity (Miyata, Boase, Wellman, & Ikeda, 2005). Contents shared through email may not be limited to a particular topic; communication via email ranges from simple task related messages to personal and complex discussions. According to Quan-Haase and Wellman (2006) study of a high-tech firm, weakly tied pairs use email to exchange more detailed information, preserve records of an interaction, and broadcast messages. A national survey conducted by Hampton et al. (2015) supports another finding that email is one of the key channels for weak ties to communicate diverse major life events. Although early studies on email suggested that email can be used for intimate communication among a small number of strong ties (Boneva et al., 2001), there is little empirical evidence that email actually support the connection of strong ties. Therefore, I propose a hypothesis as follows:

H3: Frequent use of email is associated with higher levels of a) *desirabl*e and b) *undesirable* AoNLE in a person's networks of *weak ties*

In contrast to the aforementioned technologies, SNS enables its users to reach out to a wide network of close and more extensive ties (Hampton, Goulet, et al., 2011). Almost every American Internet user currently participates in at least one SNS platform. According to a national survey report (Statista, n.d.), the three most popular

SNS platforms are Facebook, Instagram and Twitter; more than 80% of adult American Internet users use Facebook, followed by Instagram (62%) and Twitter (36.4%). Given its nearly universal adoption and usage, Facebook is focused on as the most salient source for network life events amongst all technologies. However, the relationship between Facebook usage and AoNLE may not be simple. Algorithms behind Facebook may further complicate the relationship between Facebook and awareness. Facebook offers a variety of online activities including browsing newsfeeds, updating statuses, clicking like buttons, leaving comments, and exchanging private messages. Depending on what activities Facebook users usually engage in, the Facebook algorithms make specific posts created by certain social ties more or less visible (Hamilton, Karahalios, Sandvig, & Eslami, 2014). However, Facebook does not explicitly reveal the mechanism of its algorithm (Facebook, 2018). In this context, I offer specific hypotheses as to which activities on Facebook are associated with certain types of AoNLE rather than focusing on the algorithm itself.

Intensive use of Facebook is practically associated with awareness of network life events experienced by all social ties. When logging into Facebook, individual users first see their newsfeeds, which expose them to a variety of information about others' lives (Joinson, 2008). This trend might be more pronounced when people have numerous online connections on Facebook (Bakshy, Rosenn, Marlow, & Adamic, 2012; Kim & Lee, 2011; Manago, Taylor, & Greenfield, 2012). The larger the number of connections one has on Facebook, the more information about diverse social ties appears on one's newsfeed. Therefore, I hypothesize:

H4: The number of Facebook friends is associated with higher awareness of

desirable network life events experienced by a) strong ties and b) weak ties

and with higher awareness of *undesirable network life events* experienced

by c) strong tie and d) weak ties

Facebook users can also leave comments or click "like" buttons in response to posts contributed by other users. Such responses may make posts contributed by others more memorable (Kabadayi & Price, 2014). Both commenting and liking activities could be associated with higher AoNLE. However, commenting and liking demand different levels of effort (Burke & Kraut, 2014). Commenting require users to compose short texts directly targeting another, whereas liking simply involves clicking a button. In this sense, commenting often serves as a signal of how close a relationship is (Burke & Kraut, 2016). Unlike Facebook liking, therefore, commenting may occur in a more limited context where strong ties communicate. Based on this reasoning, I pose the following hypotheses regarding Facebook commenting and liking:

> H5: Frequent *commenting* on Facebook is associated with higher awareness of
>
> a) *desirabl*e and b) *undesirable* network life events in lives of *strong ties*
>
> H6: Frequent *liking* on Facebook is associated with higher awareness of
>
> *desirable* network life events in lives of a) *strong ties* and b) *weak ties*, and
>
> with higher awareness of *undesirable* network life events in lives of c)
>
> *strong ties* and d) *weak ties*

Beyond public exchanges like commenting and liking, Facebook provides a communication channel for one-to-one interaction. Through a private message feature, Facebook users can exchange private messages with a specific Facebook friend. Based on the same reasoning as mobile messages, I expect that frequent use of Facebook private messaging is related to higher levels of both desirable and undesirable AoNLE. However, unlike mobile messages, which generally provide

contacts with strong ties (Ling, 2008), Facebook plays an important role in reaching out to weak ties as well (Ellison, Steinfield, & Lampe, 2007). Thus, I hypothesize that the frequent use of messaging is associated with higher awareness of desirable and undesirable events that have happened to strong ties as well as weak ties:

> H7: The frequent use of Facebook *private messages* is associated with higher awareness of *desirable* network life events experienced by a) *strong ties* and b) *weak ties*, and higher awareness of *undesirable* network life events experienced by c) *strong ties* and d) *weak ties*.

In contrast to other Facebook activities, status updates may not be related to higher awareness. Updating a Facebook status is actually a double edged social action; it allows people to broadcast their personal stories and receive feedback from their entire network while at the same time it leads users to focus more on themselves than learn about the lives of others (Bareket-Bojmel, Moran, & Shahar, 2016; Panek, Nardis, & Konrath, 2013). Indeed, Bazarova and Choi (2014) found that Facebook users update their statuses to validate their self-images and concepts. In this sense, the intensive updating of Facebook status can be detrimental to developing higher awareness, as it displaces time and effort for attending and responding to other people. Based on this reasoning, I hypothesize:

> H8: Frequent *status updating* on Facebook is associated with *lower* awareness of *desirable* network life events experienced by a) *strong ties* and b) *weak ties*, and with lower awareness of *undesirable* network life events experienced by c) *strong ties* and d) *weak ties*

Besides Facebook, this dissertation considers two other SNS planforms, Twitter and Instagram. Similar to Facebook, these SNS enable people to sustain a diverse set of connections with others. Not only can Twitter users post, reply to, and forward

posts made by others, but they can also keep updated with all others' activities through the newsfeed (Levordashka & Utz, 2016; Naaman, Boase, & Lai, 2010). Instagram has become quite popular among young adults, as it allows users to edit and share photo-based contents with large audiences who they have met in real life (Manikonda, Hu, & Kambhampati, 2014; Smith & Anderson, 2018). Given these findings, I anticipate that the use of other SNS is associated with awareness of desirable and undesirable network life events experienced by strong and weak ties.

> H9: Frequent use of other SNS (i.e. Twitter and Instagram) is associated with
> higher awareness of *desirable* network life events experienced by a)
> *strong ties*, and b) *weak ties*, and higher awareness of *undesirable* network
> life events experienced by c) *strong ties*, and d) *weak ties*

Mechanisms through Which Communication Technology Increases AoNLE

As described in the previous section, obtaining information about network life event is a key factor for developing awareness. People often share their personal experiences through mobile messages, emails, and SNS. From another perspective, users of these technologies continuously receive information about network life events, whether they want it or not. This dissertation posits that the frequent use of mobile messages, emails and SNS is associated with higher AoNLE. However, how and why individuals use these communication technologies to acquire this network information have not been adequately studied. In this context, I seek to scrutinize the mechanism through which the use of communication technologies promotes network awareness. This will allow me to contextualize the results from the tests of the previously proposed hypotheses.

According to the literature on information acquisition behavior, there are numerous ways to obtain network information with varying degrees of intention and

incident (Erdelez, 1999; Makri & Blandford, 2012; Quan-Haase & McCay-Peet, 2014; Rubin, 1984). The current media environment expands the path for people to acquire information about network life events intentionally or unintentionally. For example, an individual may obtain information about network life events as a result of *information-seeking* behavior (Ramirez, Walther, Burgoon, & Sunnafrank, 2002). Mobile, email, and/or other private messages allow individuals to contact someone and ask about specific network life events from anywhere at any time any. With SNS, people also find information about network life events by observing others' personal profiles. Occasionally, they broadcast specific queries to their entire network in order to satisfy the curiosity about their social ties.

On the other hand, awareness of network life events can be obtained unintentionally. Combined with mobile devices, contemporary technologies heighten individuals' capabilities to initiate communication, while at the same time increase the likelihood to join communication initiated by others. There are less barriers of place and time when receiving messages through mobile texts and emails (Rainie & Wellman, 2012). The habitual use of technology, such as browsing SNS newsfeed once or twice a day, also allows serendipitous discoveries on network life events (Dantonio, Makri, & Blandford, 2012). With advancement of these technologies, people may develop awareness of network life events in more coincidental and even more unexpected ways than they did in the past (De Bruijn & Spence, 2001). This dissertation aims to delineate technology users' intentions and motivations and then provide in-depth accounts of the network awareness facilitated by the use of three prevalent communication technologies.

RQ1: What is the process in which people become aware of network life events using mobile messages, email and/or SNS?

RQ1a: What types of motivation lead users to acquire information about network life events?

RQ1b: What external factors (e.g., a technology used, desirability of network life events, and relationship with the person who experienced the events) influence the process in which people are made aware of network life events?

Psychological Cost Associated with Network Awareness: How Awareness of Network Life Events Becomes a Source of Psychological Discomfort

The overall argument of this dissertation is that contemporary communication technology provides heightened awareness of network life events occurring to a wide range of social ties. To support this argument, I propose several hypotheses and research questions pertaining to communication technologies and awareness of network life events. However, one question remains: If communication technology provides pervasive awareness in personal networks, is such a shift positive or negative for an individual's life? The communication technology literature has already studied the positive consequences of pervasive awareness. For example, heightened network awareness is regarded as a mechanism to facilitate social actions, such as the exchange of social support (e.g., Lu & Hampton, 2017) and social capital (e.g., Chen, 2013; Hampton, Lee, et al., 2011) as well as indirectly increasing civic engagement (e.g., Hampton, 2011). In work-related contexts, network awareness is considered a prerequisite component for knowledge sharing. Evidence supports that enterprise social media contributes to increasing a person's level of awareness of each organization's member, which in turn promotes smooth knowledge transfer within an organization (Leonardi & Meyer, 2015; Treem & Leonardi, 2013).

However, higher awareness is not always beneficial and can even be paradoxical to individuals. For example, those who are aware of various network events can perceive available resources and information that network members hold and, at the same time, may recognize more demands from their extensive networks. Those with higher awareness in this sense are more likely to respond to the needs of others, which leads them to spend actual resources such as time and money (Shumaker & Brownell, 1984). Even though they are not involved in the life events of others, the exposure itself can cause negative reactions, such as emotional distress, feelings of loss of control, guilt, and jealousy (Collins, 1996; Mittelmark, 1999). Such a contradictory aspect of awareness is not entirely new in the personal networks literature; traditional interpersonal relationship theories, such as the social exchange theory (Blau, 1968) and relational dialectics (Baxter, 1990) have long emphasized the complex nature of social interactions, yet many researchers tend to overlook the negative consequences of social interaction by assuming that contact with social ties always brings about positive outcomes, such as social supports and social capital (Rook, 1984).

My initial research conducted with my colleagues challenged the prevalent positive view of awareness (Hampton et al., 2016). We specifically found that awareness of other people's struggles and problems is associated with higher levels of psychological stress. This finding suggests a paradoxical trend in new communication technology that allows people to sustain large connections with others yet threatens the individual's well-being by amplifying stress from receiving broadcast life events. Although the 'cost of awareness' was limited to the context of psychological stress in the previous study, I believe that it can be extended to the influence of one's perception of the world, which serves as a fundamental cognitive schema to

understand and interpret social environments (Crocker, Fiske, & Taylor, 1984; Janoff-Bulman, 2010). Research about an individual's value system has long argued the importance of personal experiences, as people construct and modify their personal theories about the world based on their past experiences (Janoff-Bulman, 1989; Park, 2010). In addition to personal experiences, indirect experiences such as exposure to televisions are found to influence one's perception of reality as it serves as the primary source of local and global information (Gerbner, 1998; Gerbner & Gross, 1976; Gerbner, Gross, Morgan, & Signorielli, 1980). In the same way, intentional and unintentional awareness of network life events can affect one's sense of reality because such awareness involves exposure to potential risks and dangers that exist in the social world. Therefore, I seek to examine the consequences of awareness in two contexts – one's psychological stress and perception of the social world. I will review the literatures relevant to negative consequences of awareness and propose related research questions and hypotheses.

The Relationship between AoNLE and Stress

I first attempt to elaborate my previous findings about stress by differentiating AoNLE in terms of the desirability of the event and tie-strength. Psychological stress occurs when individuals feel their lack of abilities or resources to adapt or handle demands from external stimuli (Cohen, Kessler, & Gordon, 1997). Personal experiences of major life events, especially undesirable ones, are primary sources of psychological stress because they prompt an individual to make significant readjustments and transitions in life (Dohrenwend & Dohrenwend, 1974; Holmes & Rahe, 1967). Scholars have long argued that experience of major life events is socially determined (Aneshensel, 1992; Link & Phelan, 1995; Turner, Wheaton, & Lloyd, 1995). Indeed, low social status groups such as women, those with low

incomes, and those who are less educated, have a greater likelihood of experiencing stressful life events than those with high social status (Dohrenwend & Dohrenwend, 1969; Pearlin, 1989). Along with disparities in relevant personal and social resources, such difference in life experiences aggravates social stratification of psychological conditions (Aneshensel, 1992). For this reason, psychological distress derived from experience of life events is called "social stress" (Turner et al., 1995).

In addition to personal experience of life events, a growing body of research demonstrates that undesirable network life events cause social stress. Evidence shows that a person experiences similar emotional distress to their network members by recognizing their difficulties and problems (Hatfield, Cacioppo, & Rapson, 1993; Kessler & McLeod, 1984; Smith & Rose, 2011). Investigators have suggested a wide range of mechanisms through which undesirable network life events affect one's stress. For example, those who experience undesirable life events often express their negative emotions caused by those events, and people around them are generally empathetic to the negative feelings of others (Hoffman, 2001). Subsequently, social interactions within networks may serve as conduits to spread stress (Cacioppo, Fowler, & Christakis, 2009). In addition, individuals are often involved as supporters of network members who experienced undesirable life events. Providing social supports to someone in need can be burdening because the provider actually needs to spend real time and money to help their network members (Rook, 1984). The distressing impacts of providing social support is referred to as the "cost of caring" in the mental health literature. The cost of caring was initially discussed to explain the vulnerability of professional support providers (e.g., teachers, social workers, or medical practitioners) (Shumaker & Brownell, 1984). Kessler and other colleagues (Kessler & McLeod, 1984; Kessler et al., 1985), however, focused on the cost of

caring experienced by informal support providers, such as family and friends. According to their explanation, women are more likely to feel the cost of caring more than men because of their caring positions in networks, which exert more pressure to provide appropriate social supports than men (Kessler & McLeod, 1984). Whether they are just feelings of empathy or actual cost of caring, awareness of someone's negative moods or demands can be sources of social stress, which go beyond one's control. This awareness may be facilitated by communication technology such as mobile messages, emails, and SNS.

Unlike undesirable life events, awareness of desirable network life events may not have adverse effects on mental health. Rather, it can work as a reducer of one's stress. The personal experience of desirable events such as personal achievement and marriage induces positive emotions. In the same way as undesirable network life events, these positive feelings can flow through social interactions (Gable et al., 2004). The people around those who experience desirable life events not only partake in joy with them (Cialdini et al., 1976), but also unconsciously mirror their emotions (Barsade, 2002). Moreover, other network members' fortunate circumstances relieve individuals from the pressure to provide appropriate supports (Kalra, Kamath, Trivedi, & Janca, 2008). Therefore, I propose separate hypotheses regarding desirable and undesirable network life events

H10: a) Awareness of *undesirable* network events is associated with *higher*
levels of psychological stress and, b) awareness of *desirable* network life
events is associated with *lower* levels of psychological stress

Awareness of network life events has been mainly examined within interactions between strong ties. The role of weak ties is relatively discounted in the literature on network life events (Kessler & McLeod, 1984; Kessler et al., 1985; Turner et al.,

1995). There is, however, reasonable ground to argue the substantial influence of weak ties. Compared to desirable network life events, occurrence of undesirable life events, especially traumatic events which can be the most likely source of stress (e.g., sudden death of loved ones and serious illness) are rare. However, weak ties consist of a wide range of peoples belonging to different social circles and thus are more likely to have different experiences from strong ties (Granovetter, 1977). Contact with weak ties may provide more opportunity to encounter different kinds of network life events. In the context of today's communication, the peripheral realm in one's social networks becomes more extensive. Although most people tend to have few close ties (McPherson et al., 2006), while frequently using communication technology, they are continuously in contact with a large number of weak ties (Rainie & Wellman, 2012; Wang & Wellman, 2010). Therefore, awareness of network life events in the lives of weak ties exerts additional social pressure on an individual's life, along with network life events among strong ties. I hypothesize:

> H11: Awareness of *undesirable* network life events in lives of a) *strong ties* and
> b) *weak ties* is associated with higher levels of psychological stress, and
> awareness of *desirable* network life events in lives of c) *strong ties* and d)
> *weak ties* is associated with lower levels of psychological stress

However, the impacts of AoNLE within strong ties and weak ties may not be uniform. I anticipate that the AoNLE in the lives of strong ties has a greater impact on individuals than AoNLE of the lives of weak ties. This is not only because of the affective character of strong ties but also because of their structural closure (McPherson et al., 2001). People in these ties share strong emotional bonds and empathy toward each other (Smith & Rose, 2011), thereby quickly reacting to each other's network life events. The networks of strong ties are also likely to be more

interconnected than those of weak ties (Granovetter, 1977; White & Houseman, 2002). This network closure among strong ties reinforces reciprocal obligation (Coleman, 1988), in which people feel more pressure to respond to the major life events of strong ties than to those of weak ties. Based on these findings and reasoning, I propose that:

> H11e: The relationship between the lives of *strong ties* and stress is stronger
>
> than AoNLE in the lives of *weak ties* and stress

As already discussed in the previous section, use of new communication technology is likely to enhance AoNLE. According to the argument in this section, AoNLE is positively or negatively related to one's stress levels, depending on its desirability. Taken together, these proposed relationships imply that use of communication technology, through AoNLE, is indirectly associated with stress. The existing studies about communication technology and stress tend to ignore the mediating role of AoNLE. They assume that frequent use of communication technology is directly associated with higher level of stress because it reduces the opportunity to exchange social support from pre-existing social ties (Kraut et al., 1998; Nie, 2001; Stepanikova et al., 2010; Turkle, 2016). Much of the empirical evidence, however, does not support this displacement hypothesis. Based on time-use data, Robinson (2011) found that communication technology users have more social and leisure time than they did in the past. Other studies also show that use of communication technology supplements the quantity and quality of communication with family, friends, and other acquaintances (Hampton, Lee, et al., 2011; Wellman, Haase, Witte, & Hampton, 2001), which in turn lead to acquisition of social supports (Lu & Hampton, 2017). In previous research, my colleagues and I (Hampton et al., 2016) found that use of communication technology was directly associated with lower

levels of psychological stress. We found no evidence to support direct distressing impacts of communication technology. Instead, use of some communication technologies such as mobile messages and email was associated with higher awareness of network life events, which in turn increases one's psychological stress. This finding suggested that use of communication technology is indirectly associated with higher levels of stress, through higher AoNLE. However, we did not verify the statistical significance of such an indirect relationship due to the parsimony of the AoNLE measure. To assess one's levels of AoNLE through a telephone survey, we asked participants to report whether their strong or weak ties experienced twelve selected life events. This limited range of network life events eventually truncated the range of possible scores for most people on our AoNLE measures. Therefore, the current dissertation includes more representative life events in AoNLE measure than the previous attempt. This inclusion will permit an examination of whether an AoNLE mediates the relationship between the use of technology and stress.

> H12: Awareness of network life events mediates the relationship between the
>
> use of communication technology and one's stress.

The Relationship between AoNLE and BJW

In addition to stress, this dissertation suggests that a greater awareness of network life events is associated with a fear of mean and scary world. People generally perceive themselves and people around them as good, capable, and moral beings and believe that their worlds are benevolent and fair (Lerner, 1980). One's psychological wellbeing is sustained and strengthened by these "positive illusions" (Taylor & Brown, 1988);those who have these biased positive perceptions tend to be happy and contented with their lives (Freedman, 1978; Myers & Diener, 1995) , care

about others (Batson, Coke, Chard, Smith, & Taliaferro, 1979), and engage more on productive and creative works (Taylor, 1989).

However, major life events, especially undesirable life events, change such positive beliefs about the world. According to the research of Janoff-Bulman (1989), victims of traumatic life events reveal a higher sense of risk and mistrust toward their social environment. Interestingly, this pessimistic view of the world is also affected by indirect experiences such as the exposure to television news. Cultivation theory (Gerbner & Gross, 1976; Gerbner et al., 1977; Gerbner et al., 1980) suggests that heavy users of television view their world as more dangerous and mistrustful because television exposes them to a great deal of information about violence and crime. In fact, Gerbner (1996) found that the heavy viewers were more likely to overestimate crime rates and have higher risk perception of personal exposure to crime and violence. This phenomenon is identified as the 'mean-world syndrome'(Gerbner, 1998). Critics of cultivation theory argue that television had a relatively limited impact on sharpening people's worldviews compared with personal experiences (Hirsch, 1980; Shrum & Bischak, 2001; Tyler, 1980). As Gross and Aday (2006) put it, "people's levels of fear should be based more on the reality of where they live than what they see on television" (p, 412). However, the real possibility of experiencing crimes or violence are extremely low. People are often exposed to such tragic events through social networks rather than the direct experience. This indirect exposure is perhaps more powerful in shaping our perceptions of reality than viewing TV news reports on negative occurrences in the lives of complete strangers. Given this reasoning, I relate AoNLE to the mean-world syndrome.

 I specifically consider belief in a just world (BJW) as an indicator for people's world view. BJW reflects how individuals perceive their world as a just place, where

good things happen to good people and bad things happen to bad people (Lerner &
Miller, 1978), which is tied to one's perception of causality. Lerner (1980) argues that
BJW is a "personal construct" which individuals are (re)shaping during the course of
one's life. Based on their own direct experiences as well as indirect experiences,
people appear to learn how to interpret causality of events. For example, individuals
learn whether the world is a fair place based on what they get as a return on their
efforts (Sutton et al., 2008). Fortunes or unfortunes experienced by others also give
them cues about how the social environment works (Dalbert, 1999, 2001; Hafer &
Bègue, 2005). If people are aware of undesirable events occurring to family or
friends, they begin to believe that their world is not benevolent and fair; they learn
that bad things can happen to those whom they believe are 'good' people. On the
other hand, those with a higher awareness of desirable network events see their world
as just and fair where good people deserve positive outcomes.

BJW is not a single dimensional construct, but is composed of two different
dimensions: the belief in a just world for oneself (BJW-self) and the belief in a just
world for others (BJW-others) (Lipkusa, Dalbert, & Siegler, 1996; Whatley, 1993).
While the BJW-self is based on the judgement of whether oneself is treated fairly, the
BJW- others reflects one's perceptions of how social-political systems function to get
people what they deserve (Begue & Bastounis, 2003). Studies show that the BJW-self
should be separated from the BJW-others. Individuals generally believe that the world
is more just to themselves than to others (Dalbert, 1999; Lipkusa et al., 1996) because
of self-serving biases – the tendency of people to interpret information to enhance
their self-esteem (Miller & Ross, 1975). Moreover, these two constructs predict
different social outcomes. Evidence suggests that the BJW-self promotes one's pro-
social behaviors (e.g. donating to charity) (Bègue, Charmoillaux, Cochet, Cury, & De

Suremain, 2008) or other adaptive social behaviors (e.g. pursuing long-term goals) (Lipkusa et al., 1996). The BJW-other, on the other hand, is associated with negative and harsh attitudes toward disadvantaged groups such as refugees (Khera, Harvey, & Callan, 2014), the poor (Strelan & Sutton, 2011), and AIDS patients (Furnhaml & Procter, 1992). Given the theoretical formation of the BJW, AoNLE is thus expected to have different impacts on belief in a just world for the self and others.

People generally connect desirable network life events more toward themselves and undesirable network life events more toward others in general. In other words, the injustice experienced by someone in one's network may be detrimental to BJW-others, not the self. Indeed, individuals underestimate the possibilities that undesirable life events occur in their own lives (Weinstein, 1980). This *ego-defensive optimism* is unlikely to be threatened by indirect experience, such as the exposure to network life events (Block & Colvin, 1994). When they are aware of undesirable network life events, individuals perceive that similar misfortune is likely to happen to the lives of others in general, not to their own lives (Weinstein & Lachendro, 1982). Even after discovering undesirable events occurring to someone an individual knows, his/her belief in justice of their personal world might be maintained. Unlike the BJW-self, the BJW-others can be more vulnerable to the awareness of undesirable network life events. In fact, several studies in cultivation theory have found that heavy television viewing alters people's perception of the general environment (e.g., national crime rate), but not the perception of their own personal environment (e.g., local neighborhood crime rate) (Morgan & Shanahan, 2010; Shrum & Bischak, 2001; Tyler, 1980; Tyler & Cook, 1984). Extending these findings on cultivation effects, I hypothesize as follows:

H13: Awareness of *undesirable* network life events is associated with *lower*

levels of *BJW-others*

In line with the reasoning above, the awareness of desirable network life events would be associated only with the BJW-self. People are inherently inclined to view their personal world as a just place (Lerner, 1980). Justice experienced by others enhances this pre-established representation of the personal world. For example, when individuals are aware of their friend's financial improvement, they expect that their efforts would likewise be repaid. However, this "justice" motive may not be applied to the BJW-other. As discussed above, people believe that the world is more just for themselves than for others (Dalbert, 1999). Or to state it another way, they see the general world as relatively unfair when compared to their personal world. Awareness of desirable network life events in this sense may have a limited power to increase one's BJW-others. Moreover, positive reactions provoked by desirable events is less salient and persistent than negative ones caused by undesirable events (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001). Thus, desirable AoNLE may not be related to BJW-others. I propose the hypothesis only pertaining to desirable AoNLE and the BJW-self.

H14: Awareness of *desirable* network life events is associated with *higher*

levels of *BJW-self*

Although I presume that awareness of desirable network life events within the overall network heightens the positive illusion of the BJW-self, the impacts of the awareness may differ by the strength of ties with the people who experienced the events. Strong ties are composed of homogenous people who share similar social and psychological backgrounds (McPherson et al., 2001). Due to these similarities, justice experienced by strong ties would be more influential to one's BJW-self. Weak ties, on

the other hand, are more likely to bridge to more heterogenous groups (Granovetter, 1983). As a result, individuals may not expect that justice experienced by weak ties apply to their own personal world in the same way. Therefore, I hypothesize:

> H15: *Desirable* AoNLE in the lives of a) *strong ties* and b) *weak ties* is related to *higher* levels of *BJW-self*, but (c) the relationship is more substantive for desirable AoNLE in the lives of strong ties than weak ties.

As described above, undesirable AoNLE would be related only to BJW-others. Since the belief for the others are based on one's evaluation of general social systems (Furnhaml & Procter, 1992; Sutton & Douglas, 2005), network life events occurring to weak ties as well as strong ties serve as critical information to shape BJW-others. Indeed, weak ties conveys diverse information about the outside world (Granovetter, 1983; Greenbaum, 1982; Hansen, 1999; Montgomery, 1992). Consequently, undesirable network life events in the lives of weak ties would be considered as relevant information, which gives hints to how the societal world functions. I do not provide a specific hypothesis which compare the impacts of AoNLE in the lives of strong ties with those of weak ties. Instead, I anticipate that undesirable AoNLE in the lives of both weak ties and strong ties are related to lower levels of BJW-other.

> H16: Undesirable AoNLE in the lives of (a) strong ties and (b) weak ties are related to higher *BJW- others*

As stated in the hypotheses in the previous section, use of communication technology would be related to all types of AoNLE. Altogether, I anticipate that the use of communication technology is indirectly related to the BJW-self and other, through AoNLE. In the study of cultivation theory, the mean-world syndrome is derived from the content that television conveys rather than the action of television viewing itself (Gerbner, 1998). Extending this argument, the use of communication

technology is not directly related to BJW-self or BJW-other. Drawing upon what network life events people are aware of, people perceive their social world differently. Thus, I hypothesize:

H17: Awareness of *desirable* network life events mediates the relationship

between the use of communication technologies and *BJW-self*.

H18: Awareness of *undesirable* network life events mediates the relationship

between the use of communication technologies and *BJW-others*.

Mechanism Through Which AoNLE Becomes a Source of Psychological Discomfort

This dissertation is concerned with negative relationship between heightened network awareness and psychological well-being. As discussed in the previous section, I proposed several hypotheses, which related AoNLE to two problematic outcomes: psychological stress and BJW. In doing so, I aim to address the question of whether undesirable network life events become sources of stress or violate one's BJW. In addition to ascertaining the proposed relationships, this dissertation also seeks to investigate how and why people are susceptible to negative psychological responses to specific network life events. Although many scholars from different fields imply negative consequences of network life events, the mechanism through which network life events become a source of psychological discomfort has not been well-established. This is not because theoretical explanatory process are missing; a wide range of theoretical explanations have been proposed such as emotional contagion (Hatfield et al., 1993), empathy (Hoffman, 2001), social comparison (Festinger, 1954), and risk perception (Gerbner, 1996), yet no attempts have been made to organize or clarify such various mechanisms. (Birditt et al., 2005; Rook, 1984; Rook, Luong, Sorkin, Newsom, & Krause, 2012; Spector & Jex, 1998; Turner

et al., 1995)In this context, this study will unravel processes through which network life events influence people's feelings, attitudes, and perceptions toward social environments and systematize the theoretical mechanisms from the literature. As proposed in the hypotheses, the effects of AoNLE on psychological wellbeing vary depending on desirability of network life events and tie-strength involved in awareness. Expending dichotomous divisions used in the hypotheses (i.e., desirable vs. undesirable events, and strong vs. weak ties), I will closely examine what types of network life events and which types of social ties provide what kinds of psychological discomfort. The research questions are as follow:

RQ2: How do people shape negative feelings, attitudes and perceptions toward network life events?

RQ2a. How do the negative responses to network life events differ by topics of network life events?

RQ2b. How do the negative responses to network life events differ by the relationship with people who experienced the events?

The ultimate goal of this dissertation is to increase overall understanding of technology use on psychological well-being. As discussed in the previous section, the current media environment increases the possibilities that people gain information about network life events; the effects of awareness rely on how one encounters information through technologies. For example, individuals obtain information about network life events for different purposes and reasons. The literature on information acquisition suggests that people's reactions and satisfaction toward information differ by what intentions and motivation they hold. It is highly possible that the intentional use of technology (Tewksbury, Hals, & Bibart, 2008), based on strategic and articulated goals, leads to selective exposure (Klapper, 1960). According to self-

verification theory (Swann & Read, 1981), people are more likely to attend to and remember social feedback that will confirm rather than disconfirm their self-conceptions. Therefore, this deliberate exposure may not cause adverse reactions because people are selectively exposed to specific topics with which people feel comfortable.

On the other hand, unintended or habitual use of technology, such as browsing SNS or receiving a mobile message can allow for an unexpected or unfamiliar discovery about others. When people use technology in these casual manners, they are not oriented to gaining specific network life events and thus their awareness includes unplanned and serendipitous discoveries. Such incidental exposure is often discussed as a positive potential of new communication technology, because it allows people to be informed about a wide range of social topics rather than being restricted in one or two (Tewksbury et al., 2008). However, people can also be aware of unfavorable information, which violate their pre-existing perception about themselves, others, and the social environment (Dantonio et al., 2012; Goel, Mason, & Watts, 2010). In the previous section, I proposed research questions regarding how individuals acquire information about network life events through communication technologies. By extending this research question, I aim to explore how negative feelings, attitudes and perception toward network life events differ according to the process by which users of technology acquire information. In doing so, I can ultimately explain how consequences of awareness are associated with the usage practices of technologies:

RQ3: How do these negativities of network life events differ according to the

process by which users acquire relevant information?

Personal Experiences and Awareness of Network Life Events: How Personally Experienced Life Events Interact with Network Life Events

Personal experiences of major life events affect individual psychological wellbeing in several different ways. A major life event has long been considered a common source of stress, as it brings out a significant change or readjustment in one's life (Holmes & Rahe, 1967). Furthermore, individuals' judgements of the self, others, and social worlds are constructed based on their personal experiences. These experiences eventually influence one's cognitive "schema" which guides how to interpret new information (Axelrod, 1973; Crocker et al., 1984; Janoff-Bulman, 1989; Srull & Wyer, 1979). The significance of network life events is thus contingent upon personal experiences. Competing theories and research suggest that one's life events not only directly affect his/her psychological wellbeing, but also regulate the impacts of network life events on wellbeing (Morgan & Shanahan, 2010; Schumann, Zaki, & Dweck, 2014; Shrum & Bischak, 2001; Suitor et al., 1995; Taylor & Lobel, 1989; Thoits, 1992). However, there is little consensus with respect to how personal experiences interact with network life events. In this context, I seek a clear theoretical formation to explain the role of personal experience in cost of awareness.

How Personal Experiences Moderate the Relationship between AoNLE and Psychological Well-Being

People interpret network life events in manners favorable to themselves (Miller & Ross, 1975). Their reactions to others' life events vary depending on their own situations. Formally stated, psychological effects of network life events can be moderated by one's life experience. Various branches of theory and research suggested that an individual's personal experiences alter strengths or directions in the relationship between AoNLE and psychological outcomes (i.e., stress and BJW). For

example, literature on empathy has implied that vicarious experience such as AoNLE has little impact on individuals who are going through difficult situations. According to Schumann et al. (2014), one's ability to empathize is neither fixed nor innate, but highly "context-dependent" (p476). Those in problematic situations tend to avoid empathizing with others (Davis et al., 1999; Pancer, 1988), because they cannot afford to understand or support another in need. In contrast, individuals in positive moods or desirable circumstances show greater levels of social interest and engagement (Isen, 1987; Isen, Clark, & Schwartz, 1976). Based on this evidence, the effects of AoNLE on stress/BJW can be neglected among those who experienced a number of undesirable events, since they focus on coping with their own difficulties. Those who experienced a small number of undesirable life events, on the other hand, are more sensitive to AoNLE because they possess a more empathetic mindset to be actively involved in their social surroundings.

Cultivation theory also suggested similar predictions about the interaction between AoNLE and personal experience. To be specific, Gerbner et al. (1980) found that the gap in the "mean world" perception between heavy and light television viewers was larger especially among white people with high incomes. They explained this finding using the term "mainstreaming". According to their argument, (Gerbner, Gross, Morgan, Signorielli, & Shanahan, 1994), television messages become more informative when personal situations dramatically differ from the world that television portrays. For socially advantaged people, such as those who are white or have higher income, television is almost the only source which informs them of the negative sides of the social world. In this context, television news can be convincing because there is no alternative way to disprove the content on television (Shrum & Bischak, 2001). Likewise, undesirable life events occurring to others inevitably

influences an individual, if the individual has barely experienced undesirable life events themselves. (Shrum & Bischak, 2001).

Unlike the studies of empathy and cultivation, which suggested amplifying or weakening effects of AoNLE, social comparison theory (Festinger, 1954; Wills, 1981) discusses the possibility that personal experiences convert the direction of desirable or undesirable network life events. This theory specifically focuses on people's inclination to seek comfort or relief by comparing themselves with others. Based on Festinger's (1954) original theory of social comparison, people typically make comparisons with those who are similar to them to obtain precise evaluation of themselves. However, if individuals experience some misfortunes such as illnesses or financial troubles, they often compare themselves with others who are worse off. This comparison is termed "downward social comparison" (Wills, 1981). Downward social comparison is one of the strategies for distressed individuals to defend their subjective well-being (Taylor & Lobel, 1989; Wood, Taylor, & Lichtman, 1985). By discovering others who seem more miserable, the distressed individuals generally feel better about themselves or personal situations. The opposite direction of social comparison – upward social comparison – also can occur (Collins, 1996). There always exists those who are better off than oneself. It is almost impossible to avoid exposure to desirable life events occurring to others (Appel, Crusius, & Gerlach, 2015; Lin & Utz, 2015; Liu, Li, Carcioppolo, & North, 2016). If individuals have seldomly experienced desirable events over a period of time, this comparison may lead them to perceive their situation as miserable or inferior.

Given such varied suggestions in the existing literature about the moderating effects of personal experiences in the relationship between AoNLE and psychological well-being, I propose the research questions below, rather than hypotheses:

RQ4: How do the personal experience of life events moderate the relationship between AoNLE and stress/BJW?

RQ4a: How do the relationships between awareness of desirable network life events and stress/BJW vary depending on personal experience of desirable life events?

RQ4b: How do the relationships between awareness of undesirable network life events and stress/BJW vary depending on personal experience of undesirable life events?

People are exposed to network life events occurring to a variety of people, such as family, close friends, co-workers, and acquaintances. It is possible that those who personally experienced undesirable life events show different responses to AoNLE in lives of strong ties from lives of weak ties. In the research regarding empathy, it is widely accepted that people empathize more strongly with their strong ties (Preston & de Waal, 2002; Wellman & Wortley, 1990), not only due to their emotional bond (Beeney, Franklin, Levy, & Adams, 2011), but also because of their similar social structural characteristics (Feld, 1981; McPherson & Smith-Lovin, 2002). Even though individuals experience personal difficulties, they cannot ignore the undesirable life events happening to strong ties. There is little empirical evidence of the role of tie-strength in cultivation theory because most studies were conducted in the context of consumption of mass media. One contribution is made by Romer, Jamieson, and Aday (2003)'s study. They specifically found that "mean world" effects can be more pronounced, when negative events occurred in local areas. This finding implies that negative effects of undesirable AoNLE would be the highest if individuals rarely experienced the negative occurrences, but their strong ties experienced them. In terms of social comparison theory, however, there is mixed evidence on the roles of tie

strength. Some researchers argue that upward or downward social comparison are less likely to occur among strong ties than weak ties (Brickman & Bulman, 1977). Strong ties are not only more objectively similar to individuals, but people tend to avoid discovering the dissimilarity with strong ties because negative feelings caused by such comparison can be threatening to these relationships (Wheeler & Miyake, 1992). By contrast, Tesser (1988) suggests opposite explanation about the role of tie-strength in upward and downward social comparison. People expect strong ties to share similar abilities, skill, and knowledge (Feld, 1981), yet this preconception toward strong ties can be violated by upward or downward social comparison. Consequently, psychological effects of upward or downward social comparison can be more pronounced in response to network life events in the lives of strong ties than weak ties. To examine the exact role of tie strength in the interaction between personal experience of undesirable life events and AoNLE, the following research question is proposed:

> RQ4c: How do the interactions between personal experiences and awareness of network life events vary depending on the tie strength between individuals and people who experienced the network event?

As stated above, I hypothesize that use of communication technology is indirectly associated with psychological outcomes, through AoNLE. Along with the proposed research questions about the moderating effects of personal experience, it is highly possible that this indirect relationship is moderated by personal experiences. It seems unlikely that those who frequently use communication technology experience more life events than other people. Rather, the use of mobile and social media would increase AoNLE. One's personal experience may interfere with the impacts of heightened AoNLE through communication technology. Such a complex dynamic in

the psychological effects of communication technology can be described as

moderated mediation (Preacher, Rucker, & Hayes, 2007), where the mediating effects

of AoNLE are moderated by personal experiences. More specifically, the relationship

between use of communication technology and psychological outcomes would be

mediated by AoNLE, but these mediating effects of AoNLE can be moderated by

personal experiences (Please see Figure 1-2 for its conceptual model). Based on this

conceptual model, I propose the research question, which summarizes the

relationships among use of communication technology, network awareness, personal

experience, and psychological outcomes:

> RQ5: How do the indirect relationships between use of communication
>
> technology and stress/BJW, through AoNLE vary depending on personal
>
> experience?

How Experiential Similarity Influences One's Psychological Well-Being

Individuals tend to build and maintain supportive relationships with others who

are similar to themselves. This tendency is generally called 'homophily'. Scholars

across a variety of fields have suggested homophily across one's social status, such as

gender, age, education, and/or occupation (see a review by McPherson et al., 2001).

People gain many benefits from having others who are similar in their networks.

Lazarsfeld and Merton (1954)'s study on friendship networks implied that those who

are in the same social positions are likely to share similar values and thus understand

each other better. Extending this finding, Suitor and her colleagues (Pillemer &

Suitor, 1996; Suitor et al., 1995; Suitor & Pillemer, 1993) have focused on

experiential similarity - having experienced a similar life event with others. By

analyzing several data sets, they argued that sharing similar life events with others is

indeed more advantageous to the individual's well-being than sharing similar social

positions with others, as those who had similar experiences provide effective emotional and informational supports that buffers one's stress.

Based on the argument of experiential similarity, I delineate the moderating effects of personal experiences based on experiential (dis)similarity with social ties. More specifically, people may experience different psychological consequences depending on whether they have experienced a similar event with their network members. A number of theories and studies imply positive or negative impacts of experiential similarity on one's psychological well-being. In the studies of social support, experiential similarity has been regarded as a positive facilitator (Thoits, 1992). People are more empathetic to others who have been through similar events as well as being well-prepared to advise them on how to handle the problems caused by these events (Suitor et al., 1995). Even though individuals are in difficult situations, they do not see others' similar problems as sources of distress or discomfort. Rather, those who share similar experiences can build their emotional bonds and supportive relationships (Milardo, 1987; Pillemer & Suitor, 1996). Moreover, experiential similarity serves as an important resource among individuals who are going through personal difficulties. They not only learn how to handle their own problems from similar experiences faced by others, but also comfort themselves by realizing that they are not the only one who is suffering from those difficulties. Altogether, in the context of social support, experiential similarity is likely to alleviate negative effects of awareness.

On the other hand, cultivation theory has suggested the opposite effect of experiential similarity from the research on social support. In addition to mainstreaming, Gerber and his colleagues (Gerbner et al., 1980; Gerbner, Gross, Morgan, & Signorielli, 1982) specified another condition under which cultivation

effects are amplified, referred to as *resonance*. According to their explanation, the "mean world" effects of television could become powerful among those whose life experiences were congruent with television messages. Those people may have already possessed pessimistic views on their social worlds before watching the news because they might have experienced similar events. The negative information from television can resonate with their pre-established views of their social worlds. Indeed, Shrum and Bischak (2001) found that those who actually experienced crime in real life were more affected by television news that showed the crime. In line with the reasoning of resonance, network life events, similar to personal experiences, may not only remind individuals of the emotions they have felt before, but also reinforce the pre-existing attitudes toward the past experiences. In this sense, the effects of network life events can be amplified among individuals who have experienced similar events.

Compared to experiential similarity, little theoretical attention has been paid to elucidating effects of experiential dissimilarity on psychological well-being. Research of experiential similarity and social support (Suitor & Pillemer, 2000; Thoits, 2011) implies that people's stress or perception of the world are vulnerable to personal events happening only to oneself or dissimilar network life events that they have never experienced before. Compared with life events occurring for both oneself and social ties, people may perceive life events experienced only by themselves as endogenous risks that no one else has experienced. Those who experience undesirable life events and do not find similar others may have a hard time recruiting effective resources and end up feeling miserable and lonely. Likewise, people probably treat dissimilar network life events as entirely exogenous risks that an individual cannot control. Given this reasoning, life events experienced by oneself are referred as endogenous personal life events (EnPLE), whereas network life events experienced

purely by social ties are termed as exogenous network life events (ExNLE). Based on suggestions derived from multiple research and theories, I propose a research question as follows:

RQ6: How does the relationship between AoNLE and stress/BJW vary depending on (dis) similarity between one's life experiences and those of others?

RQ6a: Which one has the most substantive effect on stress/BJW among experiential similarity, EnPLE, or ExNLE?

In addition, I seek to examine how people respond differently to experiential similarity depending on whom they share it with. The role of tie-strength in experiential similarity is complex. Strong ties generally share similar social positions such as occupations and social class (Coleman, 1988). Due to their structural closeness, people are more likely to empathize and support the similar experiences faced by strong ties (Lazarsfeld & Merton, 1954). On the other hand, weak ties often hold new information about similar experiences that strong ties may not have (Burt, 1987; Granovetter, 1977). Occasionally, individuals need to reach out to acquaintances or even strangers to learn about how to handle their own struggles (Bolger & Eckenrode, 1991). In other words, experiential similarity among weak ties may not be disturbing, but actually helpful to one's psychological well-being. Given this complexity of tie-strength, I propose the following research question:

RQ6b: How do the influences of experiential similarity and ExNLE depend on tie-strength with people who experienced the events?

Along with my overall argument, communication technology provides an additional avenue to discover experiential similarities and dissimilarities within personal networks. Those who are going through personal difficulties use mobile

phones and social media to look for information about others' similar experiences (Vitak & Ellison, 2013; Wise, Alhabash, & Park, 2010). Even though they are not intentionally searching the network information, the frequent use of communication technologies may increase the likelihood of encountering network life events, which spontaneously lead to discovering experiential similarity and dissimilarity in one's networks. Based on this reasoning, I propose the last research question as follows:

RQ7: How does frequent use of communication technologies associate with experiential similarity and ExNLE?

In order to answer RQ6 and RQ7 pertaining to experiential similarity and dissimilarity, this dissertation will create constructs for experiential similarity and dissimilarity by comparing AoNLE with personal experience of life events. Specifically, the life events that happened to both oneself and network members will be treated separately from the events experienced only by oneself, or only by network members. Such operationalization may represent experiential similarity and dissimilarity most accurately.

All in all, I propose that ubiquitous communication afforded by mobile messages, emails, and SNS enhances awareness of network life events, which in turn, affects one's judgments of the personal and social environment. Depending on desirability of life events, relational strength with the people who experienced the events, and personal experience, it is expected that the extent of positive or negative effects of AoNLE will vary. Table 1.1 summarize research questions and hypotheses proposed thus far. The following Figures 1.1-1.3 show the theoretical models of the current research.

Table 1-1

Hypotheses and Research Questions

Hyp.	Direction	Relationship	
		Independent Variable	**Dependent Variables**
H1	Positive	a) Use of mobile messages	Overall AoNLE including both AoNLE-D (desirable network life events) and AoNLE-U (undesirable network life events)
		b) Use of email	
		c) Use of SNS	
H2	Positive	Use of mobile	a) AoNLE-DS (awareness of desirable network life events in the lives of strong ties)
			b) AoNLE-US (awareness of undesirable network life events in the lives of strong ties)
H3	Positive	Use of email	a) AoNLE-DW (awareness of desirable network life events in the lives of weak ties)
			b) AoNLE-UW (awareness of undesirable network life events in the lives of weak ties)
H4	Positive	Number of Facebook friends	a) AoNLE-DS
			b) AoNLE-US
			c) AoNLE-DW
			d) AoNLE-DW
H5	Positive	Facebook commenting	a) AoNLE-DS
			b) AoNLE-US
H6	positive	Facebook liking	a) AoNLE-DS
			b) AoNLE-US
			c) AoNLE-DW
			d) AoNLE-DW
H7	positive	Facebook messaging	a) AoNLE-DS
			b) AoNLE-US
			c) AoNLE-DW
			d) AoNLE-DW
H8	Negative	Facebook status updates	a) AoNLE-DS
			b) AoNLE-US
			c) AoNLE-DW
			d) AoNLE-DW
H9	Positive	other SNS monthly visits	a) AoNLE-DS
			b) AoNLE-US
			c) AoNLE-DW
			d) AoNLE-DW

Note: Hyp.=Hypothesis

(cont.) Table 1-1

Hyp.	Direction	Relationship	
		Independent Variable	**Dependent Variables**
H10	Positive	a) AoNLE-U	Psychological stress
	Negative	b) AoNLE-D	
H11	Positive	a) AoNLE-US	Psychological stress
		b) AoNLE-UW	
	Negative	c) AoNLE-DS	
		d) AoNLE-DW	
	e) The relationship between AoNLE-DS/US and stress is stronger than between AoNLE-DW/UW and stress		
H12	AoNLE mediates the relationship between the use of communication technology and one's stress.		
H13	Negative	a) AoNLE-U	BJW-other
H14	Positive	b) AoNLE-D	BJW-self
H15	Positive	a) AoNLE-DS	BJW-self
		b) AoNLE-DW	
	c) The relationship between AoNLE-DS/US and BJW-self is stronger than between AoNLE-DW/UW and BJW-self		
H16	Negative	a) AoNLE-US	BJW-other
		b) AoNLE-UW	
H17	AoNLE-D mediates the relationship between the use of communication technologies and BJW-self.		
H18	AoNLE-U mediates the relationship between the use of communication technologies and BJW-others.		

Note. Hyp.=Hypothesis

(cont.) Table 1-1

Research Question

RQ1: What is the process in which people become aware of network life events using mobile messages, email and/or SNS?
  a: What types of motivation lead users to acquire information about network life events?
  b: What external factors (e.g., a technology used, desirability of network life events, and relationship with the person who experienced the events) influence the process in which people are made aware of network life events?

RQ2: How do people shape negative feelings, attitudes and perceptions toward network
  life events?
  a: How do the negative responses to network life events differ by topics of network life events?
  b: How do the negative responses to network life events differ by the relationship with people who experienced the events?

RQ3: How do these negativities of network life events differ by the process by which users acquire relevant information?

RQ4: How does the personal experience of undesirable events moderate the relationship between AoNLE and stress/BJW?
  a: How do the relationships between AoNLE-D and stress/BJW vary depending on personal experience of desirable life event?
  b: How do the relationships between AoNLE-U and stress/BJW vary depending on personal experience of undesirable life event?
  c: How do the interactions between personal experiences and awareness of network life events vary depending on the tie strength between individuals and people who experienced the network events?

RQ5: How do the indirect relationships between use of communication technology and stress/BJW, through AoNLE vary depending on the personal experience of major life events?

RQ6: How does relationship between AoNLE and stress/BJW vary depending on (dis) similarity between one's life experience and those of others?
  a: Which one has the most substantive effects on stress/BJW among experiential similarity, EnPLE, or ExNLE?
  b: How do the influences of experiential similarity and ExNLE depend on tie-strength with people who experienced similar events?

RQ7. How does frequent use of communication technologies associate with experiential similarity and ExNLE?

Figure 1-1

Theoretical Model for H1-H18

Use of Communication Technology	Overall AoNLE	Psychological Well-being
Use of mobile message	AoNLE-D — Strong ties, Weak ties	Stress
Use of email	AoNLE-U — Strong ties, Weak ties	BJW-self
Use of Facebook — Number of friends, commenting, liking, Facebook private messaging, Status update		BJW-other
Use of Twitter		
Use of Instagram		
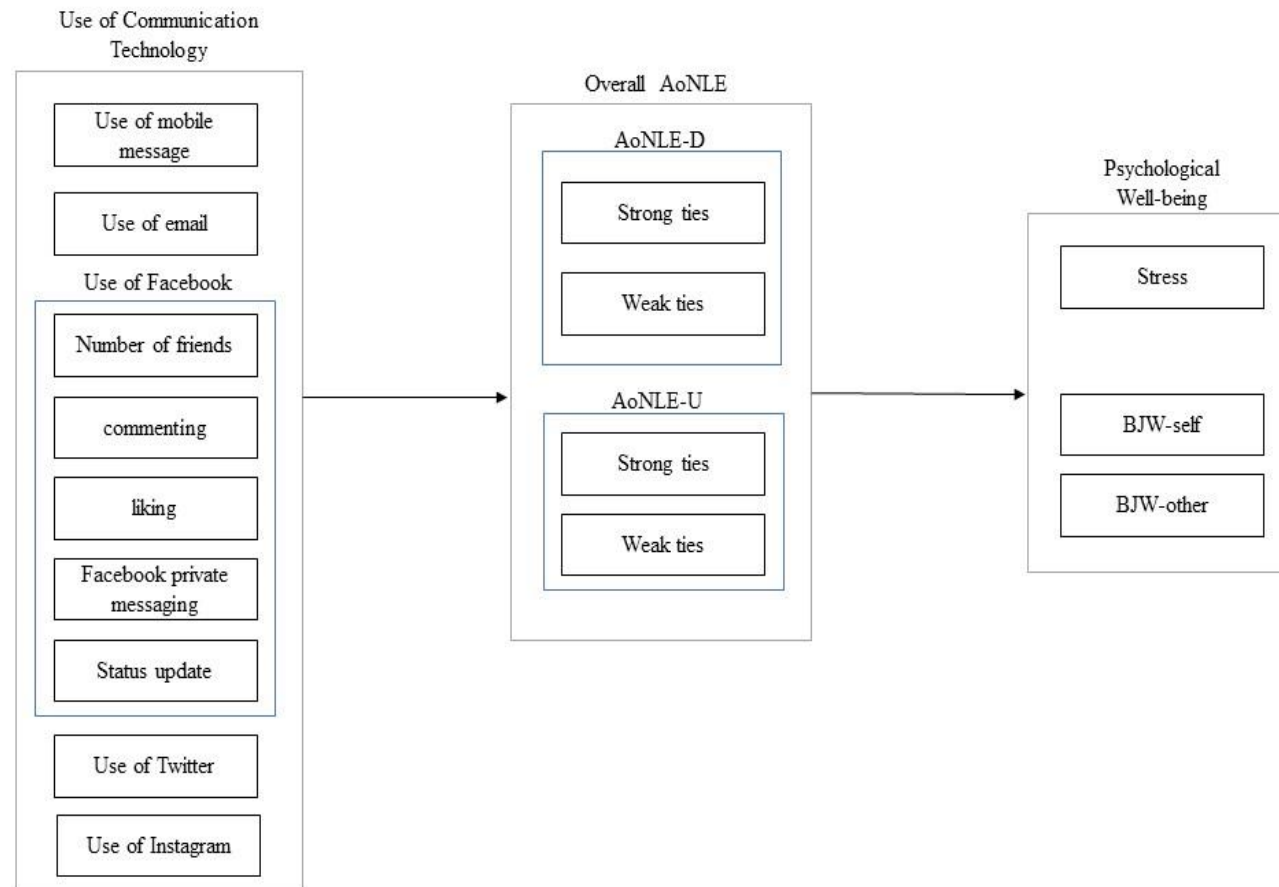
Figure 1-2

Theoretical Model for RQ4 and RQ5
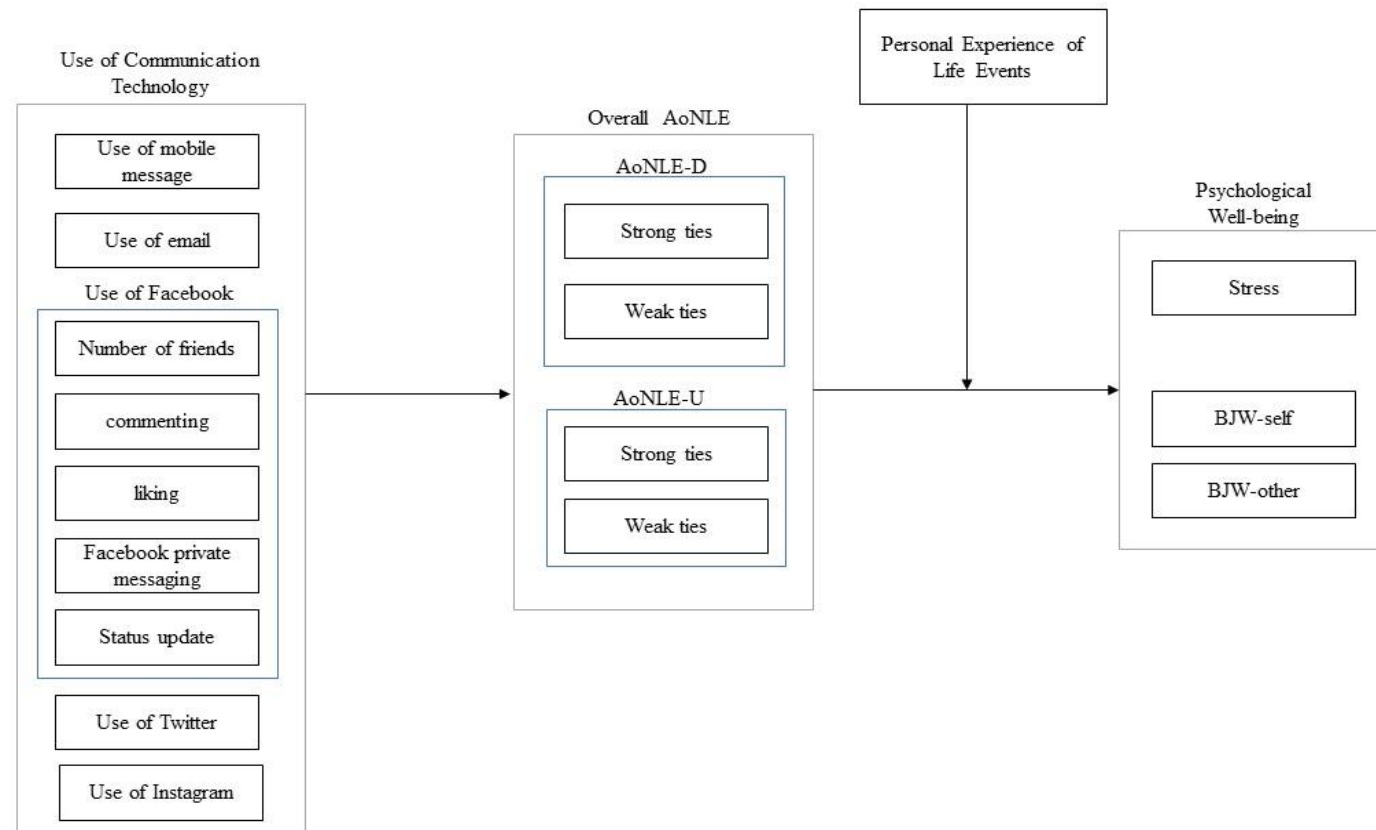
Figure 1-3

Theoretical Model for RQ6 and RQ7
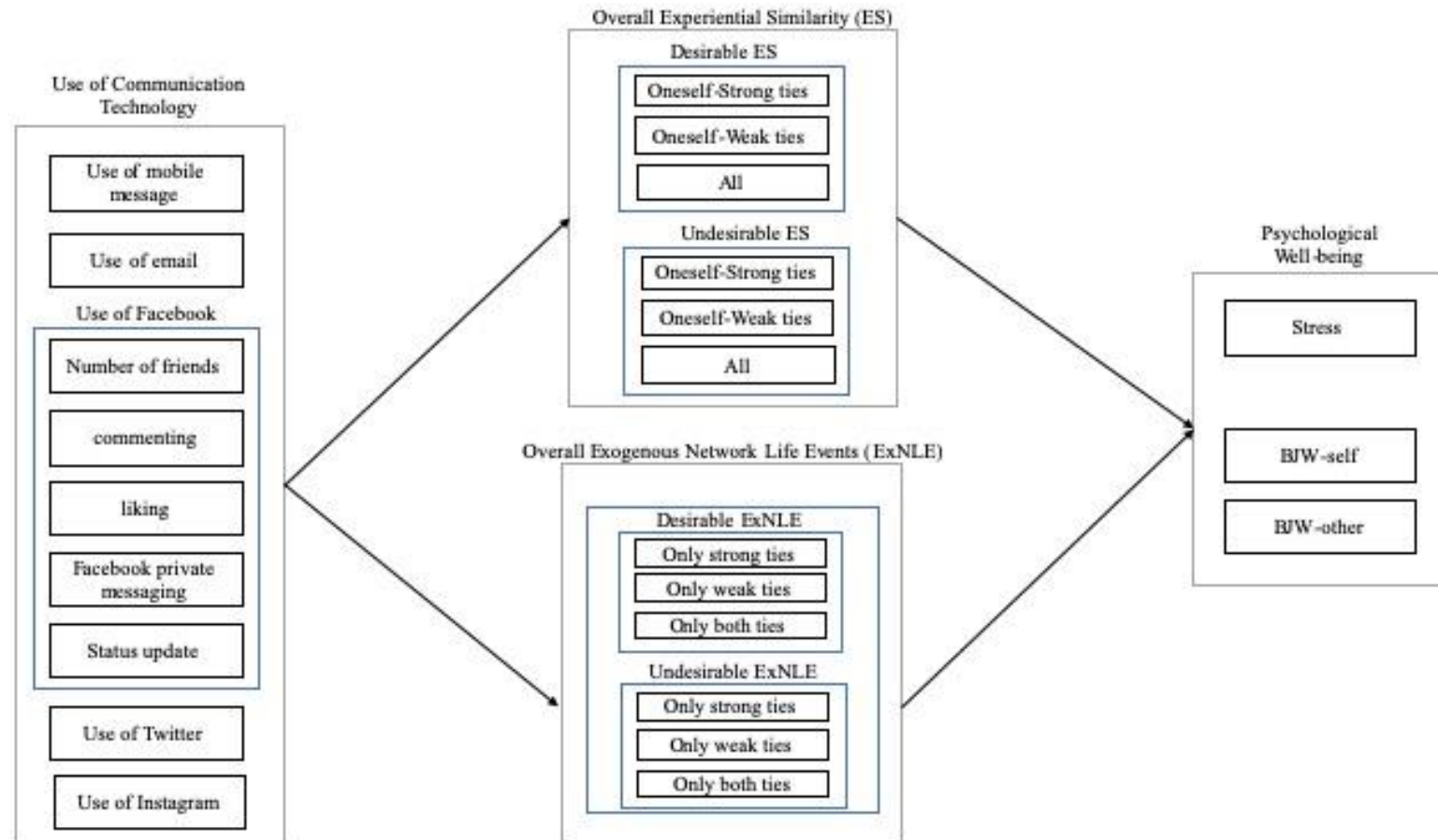
Chapter 2. Method

The first study conducted for this dissertation research employed a quantitative research method that utilized analysis of survey data, whereas the second study incorporated in-depth interviews to gather insight into real-world behaviors pertaining to awareness of network life events. This mixed-methods approach allows me to interpret and integrate the data from different perspectives (Myers & Powers, 2017). For example, the analysis of quantitative data provides evidence to support the actual occurrence of pervasive awareness through the technology and its negative consequences, in terms of one's stress and BJW. The qualitative analysis of interview data, on the other hand, helps me explain the mechanisms of network awareness through the technologies and the reasons behind the negative reactions to the awareness. Overall, this mixed methods approach yields an in-depth understanding of how increased awareness through the technologies heightens the paradoxical nature of social networks.

Quantitative Approach: A Cross Sectional Survey

A cross-sectional survey was used to collect data on people's use of communication technology, awareness of network life events, personal experiences, and two psychological outcomes (i.e., stress and BJW). Amazon Mturk (Mturk) was used to administrate the survey from April 16 to 23, 2015.

Sampling

Mturk, an online crowdsourcing site, was used to recruit the sample. On Mturk, a researcher creates a Web-based task called a "Human Intelligence Task (HIT)", and registered users complete HITs for small cash compensation. Mturk, in this sense, is similar to an opt-in panel in which volunteers are recruited through non-probability sampling. However, Mturk has a more diverse pool covering a larger volume of

populations when compared to other opt-in panels (Mullinix, Leeper, Druckman, & Freese, 2015). According to a World Bank report (Kuek et al., 2015), Mturk has approximately 500,000 registered worldwide users, and 80% of them are residents of the United States. Recently, a number of academic studies from various fields have utilized Mturk to recruit participants for surveys and experiments because it allows for time-saving and cost-efficient data collection (Mason & Suri, 2012).

I anticipate Mturk to bring a highly desirable degree of diversity when compared to "typical" samples (i.e. college undergraduates) in communication literature (Sheehan, 2018). Samples from Mturk are found to be more representative than undergraduate convenience samples, in terms of age, race, and education (Berinsky, Huber, & Lenz, 2012; Paolacci, Chandler, & Ipeirotis, 2010). Levay, Freese, and Druckman (2016) replicated the population-based American National Election Studies by using a sample of Mturk. In a number of analyses, they concluded that responses from a Mturk sample do not differ significantly from responses from a population-based sample. In addition, the samples from Mturk are known to provide reliable answers on various psychometric measures on personality (Holden, Dennie, & Hicks, 2013), emotional states (Schütz et al., 2013), and general mental health (Schleider & Weisz, 2015).

However, Mturk still has deficits in representing the U.S adult population. Coppock (2018) contends that Mturk samples differ from the population-based sample in "both measured and unmeasured ways" (p2). Indeed, Mturk users are more educated and younger than the general population (Sheehan, 2018). Nevertheless, I chose Mturk to recruit survey participants, considering my research purpose: examining the relationship between use of new communication technology, network awareness, and psychological wellbeing. Previous studies suggest that heavier users

of new communication technology tend to be younger and more educated (Howard, Rainie, & Jones, 2001; Rice & Katz, 2003). Through Mturk, I was able to a wide range of people who developed AoNLE through new communication technology and use those data to connect network awareness with psychological wellbeing.

Survey Procedures

To recruit as diverse a set of participants as possible, I specifically posted four identical HITs in different days (weekdays and weekend) and times (11am, 3m and 10pm, EST). Consistent with recommended practices (Peer, Vosgerau, & Acquisti, 2014), only users who met three criteria– those who are older than 18 years old, reside in the US, and have at least a 90% approval rating – were allowed to participate. Those who accepted the HIT were provided a URL for the survey where attention check questions were inserted to screen individuals who were paying less attention on the questionnaire[1]. 1000 adult Mturk users participated in the survey but only 76.1 % of participants provided accurate answers for the attention check questions. Even among those who passed the attention check, some participants appeared to rush through the survey clicking on the same responses in several questions (N=16) or missed answering some questions on the survey (N=13). To preserve the data quality, they were dropped from the analysis. Twenty-six participants who did not report any use of mobile, email, or SNS were also excluded from the analysis. My analysis was based on 712 participants who identified themselves as users of mobile messages (92.9%), email (98.2 %) and/or SNS (92.4%).

Sample Description

Slightly more than half of the participants were female (52.3%). The average age of this sample was 35.05 years. 88.06% of participants were White and 4.3% were African American. 53.9 % of participants were married or living with a partner. The

average number of years of education completed by this sample was 14.71 years.

More than half of the sample (59.7%) reported that their yearly household incomes

were less than $50,000, approximately 20% of participants report between $50,000

and $75,000, and the rest (18%) reported more than $75,000. Participants reported

living in 50 different states: 8.0% of participants answered that they lived in

California, followed by Florida with 7.4%, Pennsylvania with 6.8% and Texas with

5.9%.

To confirm the internal and external validity of my data, I compared

demographic characteristics and communication technology use of my Mturk

participants with those of U.S population. For the population characteristics, data

from U.S census (2018) and core trends survey of Pew research center (2018) were

used. Results are presented in Table 2-1. Consistent with the previous findings on

Mturk sampling, white, unmarried, and younger adults were overrepresented in the

Mturk sample. This result confirms that my findings from the Mturk sample cannot be

used to estimate a generalizable trend in the use of communication technology itself.

However, the sample from Mturk contained more heavy technology users than is

typical in the U.S . This bias may help rule out confounding factors which may

increase network awareness. In other words, the findings regarding communication

technology and network awareness may have the highly desirable effect of increasing

internal validity, as the Mturk data provide a better context to test relationships

between communication technology and network awareness.

Table 2-1

Demographic Characteristics and Communication Technology Use of the MTurk
Sample and the Population-based Sample

	Mturk Sample	U.S Population
Demographic Characteristics [a]		
Age (mean of years)	35.16	38.2
Female	51.40%	50.8%
White	87.20%	76.5%
Bachelor's degree or higher	48.2%	30.9%
Never Married	37.1%	35.2%
Household income $50,000, or higher	40.3%	62.96%
Communication Technology use [b]		
Smartphone/cellphone users	92.9%	96%
Twitter users	57.4 %	22%
Instagram users	43.3%	37%
Facebook users	91.7%	69%

[a] Source of U.S population characteristics: U.S census (2018)
[b] Source of U.S population characteristics: core trends survey of Pew research center (2018)

Measures

Psychological Stress. One's stress was assessed using a Perceived Stress Scale (PSS) (Cohen & Williamson, 1988), a widely used and valid measure of psychological stress (Cohen & Janicki-Devert, 2012; Roberti, Harrington, & Storch, 2006). The PSS specifically includes 10 items that measure the degree to which one perceives aspects of one's life as uncontrollable, unpredictable, and overloading (See Table 2-2 for details). Participants responded to each question on a 5-point Likert-type scale, ranging from 0 (never) to 4 (very often), indicating how often they had felt or thought in the given way within the past month. The final PSS score was calculated by combining the ten items (range:0-40).

Belief in a Just World. To assess one's worldview, I used the multidimensional just world belief scale (MJWB) (Furnhaml & Procter, 1992). This measure is

composed of three different sub-scales: Belief in a personal just world, belief in an interpersonal just world, and belief in a socio-political just world. As discussed in the previous chapter, the current study posits that AoNLE is associated differently with the BJW-self and the BJW-other. Given this assumption, I selected only two sub scales –belief in a personal just world and a socio-political just world –for the analysis[2]. The scale for the personal just world specifically represents the BJW-self by asking whether participants believed that they themselves were treated fairly. On the other hand, the scale for the socio-political just world focuses on evaluating one's BJW-other; it was phrased as 'people in general' in the questionnaires and asked participants to report whether they perceived political and social systems as just. Furnhaml and Procter (1992) provided the construct validity for MJWB by relating it with attitudes to AIDs. Each scale consisted of ten statements: five statements described justice and fairness and five statements indicated injustice and unfairness (See Table 2-2 for details). Participants rated how much they agreed or disagreed with individual statements, using a 7-point scale (0-6). Overall, ten items for belief in a socio-political just world showed satisfactory reliability (Cronbach's α=.769), whereas the other ten items for the belief in a personal just world had an unacceptable reliability (Cronbach's α=.523). This low reliability is consistent with much of the previous research (Furnham, 1998, 2003; Furnhaml & Procter, 1992). To improve low reliability, I followed a widely used method: compute the correlation of each test item with the total score and delete one item with low correlation (Tavakol & Dennick, 2011). The scores for the BJW-self were calculated by summing up the participants' responses on 9 items (Cronbach's α=.570, range: 0~63). The scores for the BJW-other were computed by combining the 10 items (range:0~70). A higher score indicates positive views on the world.

Table 2-2

Individual Items of PSS and BJW

BJW	Mean	SD
Perceived Psychological Stress (Cronbach's α=.922)		
I have been upset because of something that happened unexpectedly	2.64	1.02
I have felt unable to control the important things in my life	2.54	1.10
I have felt nervous and "stressed"	2.99	1.14
I have felt confident about my ability to handle any personal problems	3.66	1.00
I have felt that things were going my way	3.33	0.96
I have found that I could not cope with all the things that I had to	2.34	1.09
I have been able to control irritations in my life	3.56	0.93
I have felt that I was on top of things	3.48	0.97
I have been angered by things that were outside of my control	2.65	1.06
I have felt difficulties were piling up so high that I could not overcome them	2.45	1.16
BJW-self (Cronbach's α=.570)		
I think that I deserve the reputation I have among the people who know me	5.20	1.25
When I get lucky breaks, it is usually because I have earned them	4.63	1.46
When I take examinations, I rarely seem to get the grade I deserve	2.25	1.26
As a child, I was often punished for things that I had not done	2.58	1.70
I am less likely to get hurt in traffic accidents if I drive with caution	5.73	1.30
I have found that people who work the hardest at their job are not always the ones to get promoted	5.20	1.44
If I watch what I eat, I will live longer	5.38	1.30
If I suffer a misfortune, I have usually brought it on myself in some way	3.87	1.53
Being nice to people will not necessarily bring me lots of friends	4.82	1.58
BJW-others (Cronbach's α=.769)		
The political candidate who sticks up for his principles rarely gets elected	4.51	1.57
It is rare for an innocent man to be wrongly sent to jail	3.56	1.71
Although evil men may hold political power for a while, in the general course of history good wins out	3.99	1.56
Crime does not pay	5.26	1.65
It is often impossible for a person to receive a fair trial in this country	3.48	1.66
In a free market economy, the only excuse for poverty can be laziness and lack of enterprise	2.68	1.69
Political representatives are more interested in getting into power than representing their constituency	5.52	1.37
The federal government has ensured that every citizen has an acceptable standard of living	2.53	1.53
The forces of law and order discriminate against black people in this country	4.24	1.93
Harsh as it may sound, mass unemployment has ensured that the people in work are the ones most deserving of employment	2.62	1.61

Communication Technology Use. All participants included in the analysis were using email, mobile texts or SNS. Over 98 % of participants who provided valid answers identified themselves as users of mobile texts, followed by mobile messages (92.8%) and SNS (92.4%).

Use of Email and Mobile Message. Use of Email was evaluated based on the self-reported number of emails sent and received per week. Use of Mobile messages was assessed in two ways: the average number of texts sent and received, and the number of photos sent and received via a mobile phone per week. For the analysis, the average number of text messages were combined with that of photo messages. However, these two measures were highly positively skewed. The use of email ranged from 0 to 5000 (mean=161.8, SD=618.9, skewness=13.7); the use of mobile message ranged from 0 to 11000 (mean=120.5, SD=266.7, skewness=10.1). In this case, a log transformation of the raw data is strongly suggested (Christensen, 2006). This transformation significantly reduced the skewness of the original variables; the natural log of email use ranged from 0 to 9.32 (Skewness=-.146), and the base 10 log of mobile message use ranged from 0 to 8.52 (Skewness=-.194). The log-transformed data for these two variables were thus analyzed instead of the original.

Use of Facebook. I asked participants their frequent use of the three most popular SNS platforms: Facebook, Twitter, and Instagram. Facebook is the dominant social media that a great number of American adults have adopted. 91.7 % of my participants reported that they were using Facebook. Existing research suggests that the relationship between Facebook and social outcomes such as social support (Lu & Hampton, 2017) and social capital (Burke & Kraut, 2014) vary depending on the different activities being carried out. Given this evidence, I measured five different Facebook activities: monthly visits, liking, commenting, private messaging, and the

number of friends. Participants reported how often they visit their Facebook, update their Facebook newsfeed, click 'like' buttons, leave comment and send and receive private messages. Their answers were recoded as a scale of frequency of monthly visit (range: 0-90). This self-report scale of Facebook usage was validated by Hampton and his colleagues (Goulet, 2012; Hampton, Goulet, et al., 2011) who compared self-reported data with transaction of log data provided by Facebook. I also asked participants to report the number of Facebook friends. Like use of email and mobile messages, the number of Facebook friends were highly skewed (Range: 0-2000, M=215.8, SD=250.6, skewness=2. 464). To reduce this skewness, log-transformation were conducted; the natural log of the number of Facebook friends was used for the analysis (Range: 0-7.60, Skewness=-1.167).

Use of Other SNS. Besides Facebook, frequent use of Twitter and Instagram were also measured. Participants reported how often they visit Twitter and Instagram using a six-point scale. Their answers were also recoded as a frequency of monthly visits (0-90). Although Twitter and Instagram also offer various online activities such as 'tweeting', 'retweeting', and 'liking', I did not measure specific usage patterns for these two sites. In my data, 57.4 % and 43 % of participants identified themselves as Twitter and Instagram users respectively. To make the analysis less complicated, only frequency of monthly visits on Twitter and Instagram were assessed.

AoNLE and Personal Experiences of Major Life Events. There is no established measure of AoNLE. Hampton et al. (2016)'s study was the only attempt identified while reviewing the literature at developing a scale for AoNLE. Based on pre-existing measurements of major life events, they developed a checklist of potential events and asked respondents to select the ones that occurred to their family and friends (strong ties) or acquaintances (weak ties). This checklist approach has

become the dominant method used in the major life event literature because it allows

researchers to systematically operationalize and standardize people's experiences

(Cohen & Williamson, 1988). Most pre-existing life events checklists include a wide

range of events to capture the population of life events. The number of items typically

ranges from to 45 to 118 (Tausig, 1986). However, Hampton et al. (2016) were not

able to cover a sufficient number of life events in their scale; only 12 life events were

included, as the data were collected through a telephone survey. Due to its

parsimonious design, the scale developed by Hampton et al. (2016) did not separate

undesirable and desirable network life event indexes, although the literature has long

emphasized the opposing impacts of desirable and undesirable life events (Cohen &

Hoberman, 1983; Taylor, 1991). Their findings thus likely underestimated the role of

network life events in psychological wellbeing, as the negative effects of undesirable

network life events could compensate for the positive effects of desirable network life

events. Consistent with Hampton et al. (2016), I adopted a checklist inventory method

to assess AoNLE. However, I expanded the number of both desirable and undesirable

network event items to develop a sophisticated measure for AoNLE. Based on Tausig

(1986)'s review of the inventory of major life events, I specifically established a scale

of AoNLE composed of 48 event items (22 desirable and 26 undesirable events). The

procedure for composing the scale are discussed in greater detail below.

Initial Item Poll of 72 Life Events. The initial pool of our checklist consisted of

72 life events based on Tausig (1986), which reviewed pre-existing measures of major

life events (Dohrenwend, Askenasy, Krasnoff, & Dohrenwend, 1978; Holmes &

Rahe, 1967; Myers, Lindenthal, & Pepper, 1975). Specifically, he examined all

individual 118 life events included in the existing scales in terms of their desirability,

and internal statistical properties among them (i.e., intercorrelation and factor

loading). His findings revealed that there was no underlying construct across the life event scales; life events were statistically unrelated to one another. Based on this result, Tuasig (1986) concluded that all existing life event-scales follow the theoretical assumption of a checklist approach: each life event should serve as an independent external stressor that brings out different readjustment in one's life. Furthermore, he tested whether each life event was clearly distinguished as desirable and undesirable and found that some events were not universally described as either desirable or undesirable. For example, 'child left home for marriage' and 'change belief in political view' were perceived as desirable by merely 50% of his respondents. Other half of respondents reported them as undesirable or uncertain. Since these ambiguous events can obscure negative and positive impacts of life events, Tausig suggested using the events that are perceived as either desirable or undesirable by at least 80% respondents. Along with his suggestion, I only included 72 events (39 desirable and 33 undesirable events) in the initial pool of network life events. Participants specifically indicated whether they, someone close to them (strong ties) and/or an acquaintance (weak ties) had experienced each of the listed 72 life events within the previous twelve months.

Reduction to 50 Events. To ensure desirability of each event, I also asked participants whether the event that occurred had a positive, negative or no impact on their lives. Since the identical question was utilized in Tausig (1986)'s study, I anticipated that more than 80% of our participants perceive each item as either desirable or undesirable. Table 2-2 and 2-3 presents the perceived desirability of desirable and undesirable life events evaluated by my participants. Although many events were evaluated as distinctively desirable or undesirable, some events had inconsistent agreement with Tausig (1986)'s findings. For example, 'other family

member left home' had been perceived as a desirable event by more than 90% of Tausig's respondents, yet only 32.7% of my respondents regarded it as a desirable one. Similarly, more than 90% of Tausig's had described 'minor violation of the law' as an undesirable event, merely 59% of our participants viewed it undesirable. Consistent with the criteria suggested by Tausig (1986), I decided to drop 22 events (15 desirable events and 7 undesirable events) that more than 80% of my participants perceived as either desirable/undesirable.

Reduction to 48 Events. According to Tausig (1986), each item included in the scale should be independent from each other, so that the checklist measurement is expected to have no internal reliability, such as a high Cronbach's alpha and thus high correlations among items (Turner & Wheaton, 1995). Counter to this finding, however, not all events in our list had an independent likelihood of occurrence. Rather, some of them were not only statistically related, but also conceptually similar. Specifically, 78.7% of my participants who had experienced 'promotion or expanded businesses' reported that they also had experienced 'significant success at work'. This might signal item redundancy or casual dependency (Cleary, 1981). Another pair of events had the same issue: 80% of respondents who had personally experienced 'improved relationship with spouse', answered that they also had experienced 'marital reconciliation' in the same period. To solve this problem, I combined each pair of highly correlated items. For example, the answers for 'promotion, or expanded businesses' were integrated with those for 'significant success at work' and reworded as 'significant success at work'. The responses for 'improved relationship with spouse' and 'marital reconciliation' were also combined and rephrased as 'improved relationship with spouse'.

Table 2-3

Percentages of Participants Who Perceived the Events as Desirable in the Current

Study (N=712)

The events that more than 80% of Tausig (1986)'s participants perceived as desirable	Percentages of my participants
Built a new house	100.0
Engaged	100.0
Improved relations with spouse[a]	97.4
Major improvement in finance	95.5
Improvement in health of family member	95.3
Began serious relationship	95.2
Outstanding personal achievement	94.8
Improved relations with neighbor, friend, relative	94.3
Birth of Child	94
Vacation	93.9
Home study to improve work or skill	93.0
Wanted Pregnancy	91.8
Significant success at work[b]	91.6
Remodeled house	90.2
Promotion or expanded business[b]	89.7
Child married with parental approval	85.7
Marital reconciliation[a]	85.0
Moved to same or a better type of neighborhood	85.0
Married (other than child married)	84.1
Started a new job other than first job	83.4
Major decision regarding the future	81.5
Major purchase or mortgage	80.6
Started to work first time	80.0
Retirement	80.0
Moderate purchase	79.6
Adoption of a child	77.8
Changed to same type of job	76.6
Moved within same town	72.6
Moved to a different town	72.2
New person entered household	71.2
Change in religious beliefs	70.8
Transfer at work	62.1
Child left home for other reasons	61.5
Family member entered armed forces	61.5
Major dental work	58.9
Child left home for college	57.1
More responsibilities at work	54.3
Began extramarital affair	44.4
Other family member left home	32.7

Note. Only bolded events were included in the analysis

[a] They were combined into one variable because of high correlation, and reworded as "improved relationship with spouse" in the analysis

[b] They were combined into one variable because of high correlation, and reworded as "significant success at work" in the analysis

Table 2-4

Percentages of Participants Who Perceived the Events as Undesirable in the Current

Study (N=712)

The events that more than 80% of participants in Tausig's study (1986) perceived as desirable	Percentages of my participants
Death of child	100.0
Death of brother or sister	100.0
Miscarriage	100.0
Laid off	96.7
Death of pet	96.4
Financial status a lot worse than usual	96.1
Sexual difficulties	94.9
Death of other close family member	94.3
Serious arguments with neighbor, friend, relative	94.0
Death of parent(s)	93.8
Increased arguments with spouse	92.9
Trouble with in-laws	92.8
Frequent minor illness	92.7
Trouble with boss	92.7
Loss, robbery, or damage of property	92.6
Other work troubles	92.3
Arrested	91.7
Trouble with other co-workers	91.0
Loss of driver's license	90.9
Credit rating difficulties	90.5
Serious injury or accident	90.3
Mental illness	88.8
Community crisis (fire, crime, etc.)	87.5
Trouble with persons under supervision	86.2
Broke engagement	80.0
Out of work over a month	78.4
In jail	77.8
Abortion	75
Unwanted Pregnancy	71.4
Minor violations of the law	56.6
Child married without parental approval	42.9
Fewer responsibility at work	27.9
Death of spouse[a]	-

Note. Only bolded events were included in the analysis

[a] Its percentage was missing because no participant reported to experience death of spouse within 12 months. Considering general perception of this event, I treated it as an undesirable event.

Administration of AoNLE, Personal Experiences, Experiential Similarity

Variables. A total 48 life events (22 desirable and 26 undesirable events) were

included in the analysis. Participants answered whether each event occurred to

themselves, someone close to them (strong ties), and/or someone not close to them

(weak ties). For the analysis, each answer was coded as a dichotomy (yes-no) and

combined into 28 analysis variables: 7 indexes of AoNLE, 3 indexes of personal

experiences, 8 indexes of experiential similarity and 10 indexes of experiential

dissimilarity. Table 2-6 illustrates the process used for the operationalization of each

variable.

Table 2-5

Operationalization of AoNLE, Personal Experiences, and Experiential (Dis)Similarity

Variables	Operationalization	skewness	range
AoNLE			
Overall AoNLE	Sum of network life events that participants reported as having happened to *someone they know* – either someone close to them or not close to them	.70	0-47
AoNLE-D	Sum of *desirable* network life events participants reported as having happened to someone they know	.42	0-22
AoNLE-U	Sum of un*desirable* network life events participants reported as having happened to someone they know	.98	0-26
AoNLE-DS	Sum of *desirable* network life events participants reported as having happened to *someone close to them (strong ties)*	.71	0-22
AoNLE-US	Sum of *undesirable* network life events participants reported as having happened to *someone close to them (strong ties)*	1.34	0-24
AoNLE-DW	Sum of *desirable* network life events participants reported as having happened to *someone not close to them (weak ties)*	.91	0-22
AoNLE-UW	Sum of *undesirable* network life events participants reported as having happened to *someone not close to them (weak ties)*	1.69	0-26

(cont.) Table 2-5

Variables	Operationalization	skewness	range
Personal experiences			
Overall personal events	Sum of life events that participants reported as having *personally* experienced	1.39	0-34
Desirable personal experiences	Sum of life *desirable* events that participants reported as having *personally* experienced	1.15	0-19
Undesirable personal experiences	Sum of life *undesirable* events that participants reported as having *personally* experienced	1.36	0-15
Experiential similarity			
Desirable experiential similarity	Sum of individual *desirable* life events that participants reported as having happened to both *themselves* and *someone they know*	1.51	0-18
Undesirable experiential similarity	Sum of individual *undesirable* life events that participants reported as having happened both *themselves* and *someone they know*	2.07	0-12
Desirable experiential similarity with strong ties	Sum of *desirable* life events that participants reported as having happened to both *themselves* and *strong ties*, but not weak ties	2.25	0-11
Undesirable experiential similarity with strong ties	Sum of undesirable life events that participants reported as having happened to both *themselves* and *strong ties*, but not weak ties	2.35	0-8
Desirable experiential similarity with weak ties	Sum of *desirable* life events that participants reported as having happened to both *themselves* and *weak ties*, but not strong ties	4.38	0-4
Undesirable experiential similarity with weak ties	Sum of undesirable life events that participants reported as having happened to both *themselves* and *weak ties*, but not strong ties	4.71	0-4
Desirable experiential similarity – all	Sum of *desirable* life events that participants reported as having happened to *themselves*, *strong ties*, and *weak ties*	1.79	0-12
Undesirable experiential similarity – all	Sum of *undesirable* life events that participants reported as having happened to *themselves*, *strong ties*, and *weak ties*	2.88	0-12

(cont.) Table 2-5

Variables	Operationalization	skewness	range
Experiential dissimilarity – Endogenous personal experiences			
Endogenous desirable personal life events (EnPLE-D)	Sum of *desirable* life events that participants reported as having happened to *themselves*, but not other social ties	1.53	0-8
Endogenous undesirable personal life events (EnPLE-U)	Sum of *undesirable* life events that participants reported as having happened to *themselves*, but not other social ties	1.76	0-10
Experiential dissimilarity-Exogenous network life events			
Exogenous desirable network life events (ExNLE-D)	Sum of *desirable* network life events that participants reported as having happened to *social ties, but not themselves*	.64	0-17
Exogenous undesirable network life events (ExNLE-U)	Sum of *undesirable* network life events that participants reported as having happened to *social ties, but not themselves*	1.02	0-25
Exogenous desirable network life events-strong ties (ExNLE-DS)	Sum of *desirable* network events that participants reported as having happened to *strong ties, but neither themselves nor weak ties*	1.29	0-10
Exogenous undesirable network life events-strong ties (ExNLE-US)	Sum of *undesirable* network events that participants reported as having happened to *strong ties, but neither themselves nor weak ties*	1.18	0-11
Exogenous desirable network life events-weak ties (ExNLE-DW)	Sum of *desirable* network events that participants reported as having happened to *weak ties, but neither themselves nor strong ties*	1.77	0-11
Exogenous undesirable network life events-weak ties (ExNLE-SW)	Sum of *undesirable* network events that participants reported as having happened to *weak ties, but neither themselves nor strong ties*	3.59	0-11
Exogenous desirable network life events-both strong and weak ties (ExNLE-DSW)	Sum of *desirable* network events that participants reported as having happened to *both strong and weak ties, but not themselves*	1.84	0-14
Exogenous undesirable network life events-both both strong and weak ties (ExNLE-USW)	Sum of *undesirable* network events that participants reported as having happened to *both strong and weak ties, but not themselves*	1.85	0-23

Control Variables. Control variables were included in the analysis for demographic characteristics established elsewhere in the literature (Aneshensel, 1992; Turner & Wheaton, 1995) as predictive of AoNLE and negative outcomes of psychological well-being: sex, age, race, year of education, marital status and income levels.

Analysis

Preliminarily Analysis. Before conducting the main analysis, I conducted a preliminary analysis including descriptive statistics and correlations among variables included in the analysis. Table 2-6 presents descriptive statistics of variables including means, standard deviations, and intercorrelations. Most variables were moderately correlated with one another[3], with the exception with four AoNLE variables: AoNLE-DS, AoNLE-DW, AoNLE-US, and AoNLE-UW. The correlation coefficients among four variables ranged from .596 to .791. This high correlation was partly derived from one's network features embedded in AoNLE. To be specific, AoNLE includes a variety of major life events that people are commonly exposed to in their daily lives such as birth of child, getting a new job, and death of loved ones. If individuals have extensive networks, they are likely to be aware of diverse desirable and undesirable network life events across tie-strength. Other reasons for the high correlation among AoNLE variables may be explained by the use of communication technology. Consistent with my argument, today's communication technology reduces differences between AoNLE in the lives of weak ties and those in the lives of strong ties.

Table 2-6

Zero-Order Correlation Matrix for All Study Variables (N = 712)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
2.age	.070															
3.White	-.057	.086*														
4.Married	.126**	.180**	.077*													
5.education	.008	.051	-.099**	.071												
6.income	-.024	.062	-.026	.359**	.315**											
7.No. of mobile messages (ln)	.073	-.297**	-.010	.046	.018	.138**										
8.No. of emails (ln)	-.015	.032	.069	.090*	.178**	.283**	.272**									
9. Use of Facebook (FB)	.192**	-.064	.000	.097**	-.061	-.005	.179**	.011								
10.No. of FB friends (ln)	.091*	-.235**	-.036	.036	.014	.059	.289**	.106**	.518**							
11.FB liking	.219**	.019	-.008	.073	-.093*	-.054	.177**	-.008	.623**	.402**						
12.FB commenting	.188**	.104**	.041	.032	-.120**	-.086*	.173**	-.017	.521**	.321**	.729**					
13.FB status updating	.094*	-.041	-.016	-.016	-.031	-.088*	.077*	.027	.306**	.224**	.394**	.483**				
14.FB private messaging	.062	-.064	-.024	-.025	-.069	-.118**	.098**	-.084*	.422**	.271**	.429**	.455**	.302**			
15. Use of Twitter	-.149**	-.089*	-.018	-.100**	.016	.020	.090*	-.032	.015	.047	.004	-.006	.028	.015		
16. Use of Instagram	.059	-.223**	-.059	.011	-.010	.059	.207**	-.050	.176**	.158**	.178**	.121**	.077*	.025	.283**	
17.Overall AoNLE	-.006	-.039	-.031	.054	.047	.118**	.119**	.060	.130**	.159**	.181**	.134**	-.027	.104**	-.026	.012
18.Overall Personal experiences (PE)	.009	-.128**	-.023	.166**	.048	.093*	.146**	.115**	.110**	.118**	.165**	.104**	.070	.141**	-.057	.079*
19. AoNLE-D	-.054	-.072	-.056	.026	.077*	.140**	.126**	.059	.126**	.179**	.142**	.110**	-.034	.086*	.011	.030
20. AoNLE-U	.049	-.001	.000	.077*	.008	.080*	.099**	.051	.116**	.115**	.199**	.141**	-.016	.109**	-.062	-.010
21. Desirable PE	-.023	-.134**	-.047	.204**	.087*	.177**	.165**	.128**	.114**	.136**	.111**	.080*	.068	.120**	-.063	.084*

*<.05 **<.01

(Cont.) Table 2-6

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
22.Undesirable PE	.045	-.079*	.013	.067	-.015	-.039	.076*	.063	.071	.059	.177**	.100**	.049	.120**	-.032	.047
23 AoNLE-DS	-.056	-.100**	-.079*	.034	.052	.138**	.161**	.044	.099**	.182**	.139**	.123**	-.031	.089*	.016	.045
24. AoNLE-DW	-.083*	-.090*	-.074*	-.006	.124**	.134**	.110**	.068	.149**	.180**	.160**	.109**	.002	.092*	.017	.047
25. AoNLE-US	.053	-.034	-.011	.081*	.004	.067	.113**	.040	.094*	.094*	.167**	.112**	-.013	.091*	-.052	.001
26.AoNLE-UW	-.022	-.008	-.020	.023	.035	.059	.054	.039	.117**	.122**	.185**	.135**	-.005	.132**	-.044	-.015
27.Desirable ES	-.042	-.151**	-.054	.148**	.089*	.169**	.155**	.090*	.104**	.151**	.114**	.083*	.037	.129**	-.029	.067
28.Undesirable ES	.013	-.083*	-.002	.072	.005	.007	.063	.048	.082*	.064	.163**	.080*	.035	.132**	-.042	.030
29.Desirable ES with strong ties	.076*	-.067	.056	.198**	-.021	.059	.075*	.068	-.007	.057	.017	.000	.006	.063	-.059	-.008
30.Desirable ES with weak ties	-.027	-.019	.028	.006	.090*	.086*	.029	.100**	.047	-.027	-.002	-.026	.001	-.013	-.022	-.025
31.Desirable ES-all	-.076*	-.130**	-.088*	.070	.093*	.144**	.130**	.052	.109**	.141**	.116**	.094*	.037	.113**	-.001	.080*
32.Undesirable ES with strong ties	.079*	-.056	.029	.092*	-.053	.001	.072	.039	-.002	.031	.115**	.074*	.029	.042	-.015	.037
33.Undesirable ES- with weak ties	-.028	.041	.014	-.021	.008	-.002	-.026	.023	.021	-.004	.037	-.026	.055	-.016	-.054	-.007
34.Undesirable ES-all	-.024	-.079*	-.022	.041	.034	.008	.041	.032	.098**	.062	.127**	.061	.015	.142**	-.032	.017
35.EnPLE-D	.040	.029	.013	.137**	.002	.029	.032	.093*	.028	-.026	.000	-.003	.074*	-.012	-.081*	.042

*<.05 **<.01

(Cont.) Table 2-6

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
36. EnPLE-U	.065	-.022	.027	.015	-.036	-.083*	.048	.045	.009	.013	.086*	.067	.039	.025	.003	.044
37.ExNLE-D	-.041	.028	-.032	-.090*	.032	.053	.044	.006	.087*	.122**	.102**	.083*	-.079*	.011	.040	-.015
38.ExNLE-U	.056	.046	.001	.058	.008	.099**	.093*	.039	.103**	.112**	.164**	.136**	-.040	.066	-.057	-.029
39.ExNLE-DS	.027	.100**	.012	-.050	-.120*	-.026	-.012	-.075*	-.065	-.046	-.065	.000	-.104*	-.064	.027	-.042
40.ExNLE-DW	-.005	.053	.037	-.013	.062	.026	-.058	.031	.088*	.046	.046	.004	-.017	.019	-.002	-.023
41.ExNLE-DSW	-.075*	-.073	-.083*	-.083*	.087*	.076*	.116**	.040	.107**	.176**	.160**	.117**	-.026	.048	.040	.025
42.ExNLE-US	.132**	.044	.031	.094*	-.032	.067	.093*	.021	.032	.000	.027	.015	-.044	-.042	-.050	-.009
43.ExNLE-UW	.019	.057	.019	.029	.010	.060	.021	.040	.090*	.092*	.141**	.122**	-.023	.085*	-.038	-.024
44.ExNLE-USW	-.038	-.013	-.043	-.010	.033	.055	.059	.011	.067	.109**	.129**	.109**	-.009	.073	-.018	-.021
45.Stress	.154**	-.152*	-.042	-.105*	-.074*	-.204*	-.042	-.070	.033	-.019	.047	-.012	-.030	.010	-.021	.058
46. BJW-self	-.120*	.050	.053	.048	.111**	.198**	.101**	.081*	.024	.067	-.024	-.010	-.031	-.045	.057	.017
47. BJW-other	-.106*	.003	.067	.133**	-.053	.166**	.079*	.011	-.004	.041	-.051	-.040	-.012	-.078*	.016	.058
Mean	0.52	35.06	0.88	0.54	14.71	4.68	3.69	3.77	49.47	4.42	31.76	19.94	7.03	14.76	16.59	11.58
Sd		10.95			1.94	2.06	1.69	1.52	38.77	1.87	36.66	29.10	14.69	26.40	30.55	26.07

*<.05 **<.01

(Cont.) Table 2-6

	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
17.Overall AoNLE	.012															
18.Overall PE	.079*	.585**														
19. AoNLE-D	.030	.938**	.552**													
20. AoNLE-U	-.010	.928**	.541**	.743**												
21. Desirable PE	.084*	.540**	.881**	.563**	.444**											
22.Undesirable PE	.047	.450**	.822**	.362**	.483**	.455**										
23. AoNLE-DS	.045	.857**	.609**	.921**	.672**	.625**	.393**									
24. AoNLE-DW	.047	.862**	.501**	.893**	.710**	.512**	.327**	.781**								
25.AoNLE-US	.001	.822**	.591**	.644**	.902**	.474**	.542**	.661**	.597**							
26. AoNLE-UW	-.015	.862**	.485**	.735**	.881**	.424**	.403**	.660**	.796**	.716**						
27.Desirable ES	.067	.675**	.825**	.707**	.550**	.903**	.466**	.765**	.662**	.563**	.563**					
28.Undesirable ES	.030	.623**	.783**	.500**	.670**	.520**	.848**	.527**	.480**	.715**	.599**	.596**				
29.Desirable ES with strong ties	-.008	.072	.343**	.104**	.026	.376**	.192**	.171**	-.189*	.087*	-.115*	.354**	.176**			
30.Desirable ES with weak ties	-.025	.140**	.108**	.137**	.121**	.145**	.028	.003	.152**	.032	.116**	.147**	.035	-.020		
31.Desirable ES-all	.080*	.677**	.721**	.698**	.566**	.785**	.413**	.749**	.780**	.565**	.644**	.900**	.560**	-.069	.029	
32.Undesirable ES with strong ties	.037	.178**	.402**	.095*	.239**	.197**	.519**	.114**	-.020	.311**	-.025	.176**	.533**	.345**	.034	.029
33.Undesirable ES with weak ties	-.007	.237**	.243**	.212*	.235**	.159**	.266**	.142**	.214**	.091*	.247**	.157**	.289**	-.016	.075*	.166**
34.Undesirable ES-all	.017	.618**	.685**	.519**	.641**	.496**	.692**	.556**	.560**	.684**	.703**	.602**	.867**	.021	.009	.640**

*<.05 **<.01

(Cont.) Table 2-6

	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
35.EnPLE-D	.042	-.270*	.177*	-.290*	-.211*	.275**	.001	-.275*	-.305*	-.173*	-.286*	-.164*	-.140*	.073	.005	-.211*
36.EnPLE-U	.044	-.099*	.358*	-.078*	-.109*	.066	.594**	-.060	-.114*	-.066	-.150*	-.029	.078*	.094*	.000	-.073
37.ExLLE-D	-.015	.739**	.071	.798**	.572**	.019	.111**	.638**	.687**	.422**	.550**	.139**	.193**	-.155*	.067	.211**
38.ExLIE-U	-.029	.844**	.256*	.674**	.910**	.280**	.146**	.568**	.644**	.759**	.797**	.373**	.302**	-.065	.136*	.414**
39.ExNLE-DS	-.042	.136**	-.115*	.197**	.051	-.141*	-.046	.246**	-.190*	.054	-.109*	-.145*	-.081*	.109**	-.031	-.202*
40.ExNLE-DW	-.023	.416**	-.015	.428**	.342**	-.035	.014	.050	.478**	.121**	.351**	.015	.059	-.130*	.153*	.054
41.ExNLE-DSW	.025	.654**	.197*	.686**	.531**	.157**	.183**	.703**	.771**	.479**	.610**	.294**	.293**	-.206*	.004	.410**
42.ExNLE-US	-.009	.318**	.070	.177**	.425**	.070	.048	.157**	.020	.508**	-.004	.037	.076*	.145**	.027	-.030
43.ExNLE-UW	-.024	.570**	.096*	.479**	.586**	.109**	.050	.289**	.494**	.186**	.662**	.186**	.155**	-.105*	.213*	.219**
44.ExNLE-USW	-.021	.653**	.294*	.567**	.656**	.323**	.164**	.579**	.641**	.694**	.771**	.442**	.312**	-.145*	.012	.542**
45.Stress	.058	.059	.150*	.002	.111**	-.071	.369**	-.021	-.001	.141**	.052	-.054	.236**	.001	-.041	-.053
46. BJW-self	.017	.069	-.052	.126**	.000	.079*	-.193*	.114**	.107**	-.050	.034	.063	-.144*	-.016	.001	.075*
47. BJW-other	.058	-.070	-.012	-.029	-.103*	.091*	-.132*	.001	-.037	-.127*	-.074*	.052	-.086*	.013	.038	.046
Mean	11.58	14.35	7.15	8.21	6.20	4.41	2.74	6.71	5.57	4.61	3.67	3.20	1.61	0.87	0.11	2.22
Sd	26.07	9.21	4.94	5.06	4.85	3.16	2.62	4.57	5.11	3.96	4.30	3.08	2.11	1.29	0.40	2.85

*<.05 **<.01

(Cont.) Table 2-6

	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
33.Undesirable ES-oneself and weak ties	.028															
34.Undesirable ES-oneself-all	.074*	.135**														
35.EnPLE-D	.059	.013	-.210**													
36.EnPLE-U	.168**	.062	-.013	.216**												
37.ExLLE-D	-.016	.163**	.214**	-.267**	-.084*											
38.ExLIE-U	.009	.140**	.338**	-.192**	-.184**	.627**										
39.ExNLE-DS	.078*	-.002	-.145**	-.001	.037	.399**	.111**									
40.ExNLE-DW	-.026	.211**	.045	-.114**	-.063	.586**	.406**	-.059								
41.ExNLE-DSW	-.060	.079*	.380**	-.298**	-.101**	.711**	.518**	-.109**	.139**							
42.ExNLE-US	.144**	.024	.006	.078*	-.025	.217**	.503**	.331**	.089*	.004						
43.ExNLE-UW	-.040	.210**	.172**	-.167**	-.142**	.512**	.666**	.017	.543**	.319**	.018					
44.ExNLE-USW	-.074*	.026	.423**	-.248**	-.165**	.418**	.668**	-.119**	.119**	.600**	-.033	.207**				
45.Stress	.222**	.067	.149**	-.043	.336**	.048	.011	.006	.065	.017	.050	-.021	-.006			
46. BJW-self	-.181**	-.016	-.070	.042	-.145**	.123**	.080*	.059	.062	.087*	.016	.099**	.032	-.444**		
47. BJW-other	-.077*	-.019	-.058	.091*	-.118**	-.085*	-.085*	.015	-.088*	-.068	-.055	.005	-.103**	-.270**	.412**	
Mean	.63	.10	.89	1.21	1.13	5.01	4.59	1.78	1.39	1.85	1.90	1.49	1.19	25.59	4.66	3.49
Sd	.99	.35	1.71	1.38	1.39	3.62	3.77	1.83	1.88	2.51	1.93	2.03	2.16	8.01	.68	.93

*<.05 **<.01

Main Analysis. I conducted three sets of analyses using SPSS v23. For the first

analysis, a series of OLS regression analyses was performed to specify a path model that

incorporates direct and indirect relationships between uses of communication

technologies, AoNLE, and two dependent variables: stress and belief in a just world (See

Figure 1-1 for details). Socio-demographic characteristics were included as control

variables to predict every path in this model. Since the causality between personal events

and AoNLE are not clear in the current data, personal events were added as control

variables only when the dependent variables were predicted. As for the second set of

analysis, I also performed a series of OLS regressions modeling the relationship between

stress/BJW and other predictors pertaining to use of communication technology, AoNLE

and personal experiences. In this model, personal experience variables were treated as a

moderator of the relationship between AoNLE and stress/BJW. This analysis provided

opportunity to evaluate conditional indirect relationship between use of communication

technology and psychological outcomes, which vary depending on the interaction

between AoNLE and personal experience (see Figure 1-2 for details). Unlike the previous

analyses, the third analysis was based on experiential similarity and dissimilarity

variables instead of AoNLE and personal event variables. Specifically, I conducted a

series of OLS regressions to examine the relationships between dependent variables and

predictors pertaining to experiential similarity and dissimilarity and use of

communication technology. To test indirect relationships related to mediation and

moderated mediation in three sets of analyses, I employed a bootstrapping method,

utilizing SPSS macro process 3.0 (Hayes, 2017). The bootstrapping approach provides

the most accurate inference for the indirect effects among other path analysis methods,

because no assumption is made about the shape of sampling (Hayes, 2017). I used 5,000 bootstrapped, bias-corrected re-samples. Unlike the normal theory approach (i.e., the Sobel test), the bootstrapping method provides a confidence interval. If a confidence interval does not contain a zero, an indirect effect is statistically significant.

Qualitative Approach: In-depth Interviews

The second study investigated the ways in which users of communication technologies are aware of network life events and the process through which this awareness becomes a source of psychological discomfort. In the context of information acquisition studies, quantitative approaches have not been considered to an effective method to capture the underlying process through which people obtain information (Erdelez, 1999). For example, in a controlled environment such as an experiment, researchers cannot examine the process through which people are incidentally exposed to the information. Although some studies of news consumption have used a survey method to examine the process of incidental exposure, most measures are based on abstract and one-sided questions that cannot quantify the whole process regarding information acquisition (Tewksbury et al., 2008). On the other hand, qualitative methods such as in-depth interviews or telephone diaries are widely acknowledged as a well-suited approach to gathering detailed data about information acquisition process (Williamson, 1998; Yadamsuren & Heinström, 2011). A researcher can directly observe and inquire about how and why subjects acquire the information in certain ways and their feelings about these acquisitions using a qualitative approach. I selected an in-depth interview because it offered a context where people can tell their personal stories revealing specific intentions and reactions toward awareness of network life events (Lindlof & Taylor, 2017). By

reflecting on participants' stories, I was able to explore the practices of using communication technologies relevant to awareness of network life events. Further, the personal stories gathered in interviews allowed me to identify the negativity of AoNLE that comes with common daily life.

Recruitment Procedure

Along with the quantitative survey conducted in the first study, I recruited interview participants using Mturk. Mturk was selected as the sampling pool for two reasons. First, as discussed in the previous section, Mturk users are avid technology users. Most are skilled users of the Internet and other online communication applications compared to the general population (Redmiles, Kross, Pradhan, & Mazurek, 2017). Therefore, Mturk gave me access to the specific population that achieve awareness of network life events mostly through mobile and social media. In addition, Mturk provides relatively diverse samples compared to other convenient sampling methods (Berinsky et al., 2012). Network awareness is affected by an individual's socio-demographic characteristics such as sex and age, as they mirror one's socio-cultural backgrounds. By recruiting the interview participants through Mturk, I attempted to explore a wide range of participants' experience on network awareness.

I posted four identical HITs in different days (weekdays and weekends) and times (11am, 3m and 10pm, EST) between June to September 2017. Any Mturk users were eligible to participate in the interview if they met the following criteria: (1) 18 years old or older, (2) live in the United States, (3) able to speak English, (4) use at least one communication technology among the three: mobile text messages, email, or SNS like Facebook, Twitter, and Instagram, and (5) know someone who experienced major life

events within six months. Prior to the in-depth interviews, those who accepted the HITs took an online screening survey; they were directed to a URL which included questionnaires regarding basic demographics (e.g., sex, age and education), technology use (e.g., mobile text, email, and frequency of SNS), AoNLE and personal experiences. For the AoNLE and personal experience, I used the checklist approach in the first study, but a shorter version of the list was utilized here given time constraints in the interview. Based on the reviews on results of the desirability and frequency of network life events in the first study, I particularly asked prospective interviewees to report whether they themselves, their family, their friends, and their acquaintances experienced the listed 25 network events (see Table 2-7 for details). To incentivize the screening survey submissions, I offered 1 U.S dollar to the 400 people who completed the screening survey.

Upon the review of responses from the completed screening survey, I was able to identify eligible participants for the in-depth interview. For the selection of participants, I used a maximum variation sampling strategy (Lindlof & Taylor, 2017) focusing on age and gender. I chose these two factors because they were often associated with people's awareness of network life events in literature (Kessler & McLeod, 1984; Turner et al., 1995). If prospective participants passed the screening process, I sent an email to invite them to the in-depth interviews. All participants were informed that the interviews were confidential, and their participation was voluntary. They received an additional 20 U.S dollar as a compensation for completing the interview. Table 2-7 presents the list of twenty-five participants with their demographic characteristics. All pseudonyms were randomly chosen among the most common names in the United States. Besides age and

gender, Mturk allowed me to diversify the sample population; participants were recruited from 17 different states in the U.S. All participants simultaneously used mobile messages, email, and SNS in their daily lives.

Semi-Structured In-Depth Interviews

All participants were interviewed one on one by phone or online video at a mutually agreed upon time. Based on the reviews of responses on the screening survey, I structured the interview questionnaires that specified key network life events that the participants provided in the online screening survey. For example, if a participant indicated that he or she knew someone who experienced the listed event in the online survey, I specifically asked how they learned and reacted to this network life event. In addition, each interviewee reported how they used mobile messages, emails, and SNS in everyday lives. These interviews were pre-structured (see the Appendix C for the details). I occasionally expanded questions in a particular area or included additional questions during the interview, depending on each participant's responses. Each interview lasted approximately 60 minutes on average. All interviews were audio-recorded after obtaining an explicit agreement from each participant. The interviews were transcribed verbatim. A total of 438 single-spaced pages of text were generated for analysis. The transcripts were imported into Nvivo 12.0, a qualitative software program. Using NVivo, I was able to read the texts of the interviews thoroughly, code them interactively, and extract key quotes according to each code.

Table 2-7

List of Interview Participants

Participants	Age	Gender	Race	Location	No. of Text messages sent and received per week	Monthly Visits on SNS[a] (I visit SNS)
James	28	Male	Hispanic	Texas	80	Several times a day
Emily	39	Female	White	Kansas	6	Several times a day
Hannah	41	Female	White	Arizona	6	Several times a day
Samantha	56	Female	White	North Carolina	10	Several times a day
John	42	Male	White	South Carolina	18	Once a day
Sarah	57	Female	White	New York	10	Once a day
Grace	33	Female	White	Washinton	22	Several times a day
Robert	41	Male	White	North Carolina	60	Less often
Michael	25	Male	White	Michigan	40	Several times a day
Anna	42	Female	White	Ohio	15	Several times a day
William	25	Male	White	Texas	200	Several times a day
Ashely	28	Male	Asian	New Jersey	15	Several times a day
David	32	Male	White	California	40	Several times a day
Lauren	26	Female	White	California	100	Once a day
Lisa	33	Female	White	Pennsylvania	20	Several times a day
Julia	34	Female	Black	Virginia	18	3 to 5 days a week
Kaitlyn	45	Female	White	Illinois	6	Once a day
Rachel	29	Female	White	Nebraska	20	Several times a day
Richard	39	Male	Asian	California	35	Several times a day
Daniel	42	Male	White	New Jersey	25	Several times a day
Paul	43	Male	White	New York	30	Several times a day
Mark	38	Male	Mixed	Michigan	50	Several times a day
Brian	31	Male	Native American	Pennsylvania	20	Several times a day
Jennifer	52	Female	White	Hawaii	10	Several times a day
Matthew	25	Male	White	Michigan	2	3 to 5 days a week

[a] The responses were based on the SNS that each participant visited most frequently.

Analysis of Interviews

After the audio files were transcribed and imported into Nvivo 12.0, I read through the interview texts multiple times to familiarize myself with the data. To analyze this interview data, I used a thematic analysis based on a combination of inductive and deductive approaches. This analysis allowed me to look for emergent common themes that were guided by theories on AoNLE. Each network life event reported by participants was considered as one thematic unit. Even though multiple questions were made for one network life event, all conversations relevant to this event were regarded as a single unit. For example, I asked three different questions in the following conversation, but it was considered as a unit because only one coherent network life event was discussed in the conversation:

> I: According to the survey, you answered that you knew someone who had an argument with their spouse. Who is this person? Can you describe their relationship with you?
> Participant: One of my acquaintances who lives in a different state (…)
> I: How did you find this information then?
> Participant: through Facebook [laugh]. (…)
> I: How did you feel when you found out their argument?
> Participant: I felt bad because they were arguing, but at the same time, I was kind of embarrassed for (…)

Twenty-five participants provided their experiences related to 49 major life events happening to themselves and 214 network life events experienced by their network members. Table 2-8 shows individual personal and network life events and the number of events reported by participants. However, not all thematic units were directly related to the use of communication technology. Some personal and network life events were communicated only through face to face conversations or phone calls. To narrow down boundary of my analysis, I analyzed only 119 thematic units that involved the use of

mobile messages, email and/or SNS For the initial phase, open coding was done across the thematic units; types of life events (e.g., desirable, undesirable, traumatic, shocking, etc.), the relationship with the person who experienced the events (immediate family, extended relatives, best friends, coworkers, etc.), ways of using communication technology (sending and/or receiving mobile texts, visiting Facebook personal pages, looking at the Facebook newsfeed, etc.), feelings, attitudes, and reactions towards network life events (stressed, upset, embarrassed, etc.) were coded without any limitations. In total, 45 initial codes were generated in the initial analysis.

By looking at the list of initial codes and examining their associations, I found that the initial codes were sorted out into two broad areas. One area emerged from the interviewees' responses related to the process of acquiring information about network life events. The other area was relevant to participants' reactions to the network life events, including emotional distress, feeling of loss of control, guilt, and jealousy. Given these areas, I formed sub-categories based on theoretical focus and research questions. I specifically followed the constant comparison method (Corbin & Strauss, 2008) to integrate the initial codes into broader sub-categories. This analysis was an iterative process, where I went back and forth between codes until I felt that I had the right number of coherent themes to explain my data. For example, I integrated the initial codes into 20 sub-categories reflecting specific behaviors to acquire information about network life events. Reviewing the degree of intentions and incidents of information acquisition across the sub-categories, I finally integrated the categories into 3 key themes – *encountering, browsing, and searching.* In terms of participants' affective reactions to network life events, the initial codes were merged/renamed related to 20 sub-categories.

These sub-categories were later integrated into 10 broader core themes. Table 2-9 and

Table 2-10 present detailed information on the important codes and themes with the

number of network life events reported by participants.

Table 2-8

Number of Network life events and Personal Experiences Reported by Participants

Desirability	List of Major life events	Network Life events	Personal events
Undesirable	Argument with Spouse	4	3
	Financial Trouble	6	3
	Credit Difficulties	6	5
	Broken romantic relationships or divorce	11	1
	Serious illness, injury and hospitalization	9	2
	loss of loved ones	14	1
	Loss of pet	8	1
	Damage or loss of property	2	0
	Mental illness	5	4
	Out of work over one month	2	0
	Serious argument with neighbors	15	3
	Trouble with boss or coworkers	8	1
	Trouble with in-laws	1	1
	Married without parental approval	1	0
	Unwanted pregnancy[a]	3	0
	Violating the law	4	1
Desirable	Engagement	10	0
	Financial Improvement	2	3
	Having a child	16	3
	Marriage	30	0
	Movement to better neighborhood	3	4
	New job	14	5
	Wanted pregnancy	10	0
	Religious changes [a]	1	0
	Retirement	7	0
	Start a significant relationship	12	4
	Personal achievement or success at work	10	4

[a] These network life events were not included in the screening survey, but participants additional additionally reported them during interviews.

Table 2-9

Key Themes on Process of AoNLE with Number of Network Life Events and of

Participates who Reported Codes

Area	Common theme; description	Subcategories	No. of NLE	No. of people
Process of AoNLE	**Searching**; the behavior of looking for specific NLE	Searching NLE after experiencing personal events	2	2
		Searching NLE further after finding it on SNS	7	6
		Searching NLE further after receiving messages	4	2
	Encountering; the behavior of receiving message about NLW from others in networks	AoNLE after receiving Mobile text/photo messages led to AoNLE	18	13
		AoNLE after receiving SNS private messages	7	4
		AoNLE after receiving email	7	6
		AoNLE after receiving messages from multiple media	6	5
		AoNLE from browsing SNS first and then receiving messages	5	4
		AoNLE from receiving messages first and then finding it on SNS	31	12
	Browsing; the behaviors of skimming through a wide range of NLW within one source	AoNLE after browsing Facebook newsfeed	37	17
		AoNLE after browsing Instagram newsfeed	6	5
		AoNLE after browsing Twitter newsfeed	1	1

Note. NLE=network life event

Network life events achieved through other technologies besides mobile messages, emails, and SNS were excluded from analysis

Table 2-10

Key Themes on Reactions to AoNLE with Number of Network life events and of

Participates Who Reported Code

Area	Common theme; description	Subcategories	No. of NLE	No. of people
Negative outcomes of AoNLE; cost of Awareness	**Cost of caring**;	Helping is emotionally draining	5	4
		Helping is burdening	4	3
		Hard to see someone in difficulties	4	3
	Sense of vulnerability	Life is out of control	4	3
		Life is meaningless	5	3
		Life is insecure	4	4
	Dirty laundry	embarrassed by private issues	8	5
		Judging others' posting activities	6	4
		Overload by private information	4	4
		Entertained by seeing private stuff	2	2
	Upward social comparison	Fell jealously and envy	1	1
		Life isn't fair to me	1	1
	Empathy to shared events	I know how hard NLE is because I've gone through similar things	3	3
	General Sympathy; displaying general negative reactions to positive NLE[a]		35	25
No impact	**Indifference**	I'm used to being exposed to undesirable NLE	2	2
		I'm not close to the person who experienced NLE	6	5
Positive outcome of Reactions	**Downward comparison**	NLE make me appreciate what I have right now	2	2
		NLE stress positive aspects of my life	1	1
	Navigation	NLE teach how to handle my situation	2	1
	General positive emotions; Displaying general positive reactions to positive NLE[a]		45	25

Note. NLE=Network Life Event

[a] These themes were not reported in this dissertation, as they did not fit to the overall research goal regarding cost of awareness.

Notes.

[1] In addition to variables of interest, I inserted a couple of questions with obvious answers in the survey to in filtering out participants who were not focused and answering questions dishonestly. If the user does not read these questions and simply answers by default, these incorrect responses were omitted from the study data. Some examples were "If you live in the U.S, select Strongly Agree" and "Did you have a birthday within the past 12 months? If so, select 'yes'". These questions were mixed randomly within the matrix of questions. In additional attention check questions, I cross-checked consistency of participants' responses, using different measures for marital status and loss of loved ones. Participants were specifically asked to report their marital status twice in the survey. If a participant answered these two questions inconsistently, their data was dropped from the analysis. Participants also answered two different questions regarding loss of loved ones; one asked if it happened within the past 12 months and the other asked if it happened within their lifetime. If a participant responded that their loved ones passed away within 12 months but did not indicate that they lost their loved ones during their lifetime, their responses were removed from the analysis.

[2] Although the scales on the interpersonal just world were included in the survey, I did not use them as an analysis variable because the 'self' and 'other' aspects were intertwined in this measure. It specifically asked one's judgement on interpersonal norms such as marriage, job-interviews, and friendship. However, it had a very low Cronbach's alpha (Cronbach's $\alpha=.45$), which did not assure internal consistency. This is probably because of ambiguity in the interpersonal context; although 'people in general' were phrased in the questionnaires, participants seemed to consider this dimension as a part of personal world, as they faced the situations proposed by the statement in everyday lives (Begue & Bastounis, 2003). Given this unclear self-other distinction, I did not use this scale in the analysis.

[3] Some variables were calculated based on participants' answers on the same questionnaires. For example, overall AoNLE variable were same as the sum of desirable and undesirable AoNLE, thereby having high correlations with desirable ($r=.938$) and undesirable AoNLE ($r=.928$). Since these types of variables were not included in the same regression model, these high correlations did not bring multicollinearity issues in the main analysis.

Chapter 3. Communication Technology and Network Awareness

This chapter presents the findings regarding the affordances of mobile messages, email and SNS for pervasive awareness of network life events. As discussed in the previous chapter, these communication technologies alter trend in the sharing of people's life experiences (Hampton, 2016). In the past, individuals disclosed their experience of life events to a small number of social ties using synchronous communication channels, such as face-to-face conversations or telephone calls. However, today's communication technology consists largely of mobile messages, email, and SNS, which allows people to contact one another and convey their personal experiences without being constrained by time or location. In addition, with group messages, mass emails and broadcasted posts using social media, individuals can simultaneously distribute their personal stories to a wide range of social ties including, family, friends, and acquaintances. This change implies that people are continuously exposed to information about the lives of their social ties- whether they want it or not. In other words, constant, asynchronous and broadcasted communication through these channels heightens one's awareness of network life events.

In this regard, this dissertation first hypothesized that frequent use of mobile messages, emails, and SNS is associated with increased awareness of network life events occurring for various types of social ties within one's networks (H1). Since different psychological needs can be satisfied by sharing desirable and undesirable personal experiences with others (Gable et al., 2004; Stroebe & Stroebe, 1996), these positive relationships should be consistent across desirability of network life events (H1a-H1c). However, as suggested by media multiplexity theory (Haythornthwaite, 2002), usage patterns of technology differ by tie-strength; strong ties generally utilize a variety of

communication channels ranging from face-to-face interactions to mobile messages and SNS, whereas weak ties rely on one or two channels, such as emails and SNS, to communicate with each other. Given this argument, I assume that mobile messages, emails, and SNS are specifically related to AoNLE, depending on the type of social ties involved in network life events. To examine this variation, AoNLE were further divided into four indexes based on desirability of network life events and relational strength with the people who experienced the events. I offered specific hypotheses as to which individual communication technology is associated with each of the four types of AoNLE (H2-H9). Also, this chapter presents a qualitative analysis of semi-structured interviews. This qualitative approach provides an in-depth account of the ways that pervasive awareness occurs through technologies (RQ1). By delineating people's intentions for AoNLE, I reveal that AoNLE is broadly driven through three usage practices of communication technologies. In line with the quantitative findings, these practices are closely tied to topics of network life events and relationships with people who experienced these events.

This chapter is organized into two sections. The first section discusses the results of regression analyses which address the hypotheses in detail. In the second section, I focus more on the process through which users of technologies develop AoNLE. Findings ultimately reveal the mechanisms of pervasive awareness achieved through communication technology.

Communication Technology and AoNLE

For my quantitative analyses, I conducted three sets of OLS regression analysis to test the relationship between use of communication technologies and AoNLE (H1-H9).

First, I performed an OLS regression analysis predicting the overall AoNLE, including network life events in the lives of both strong and weak ties from use of mobile messages, email, and SNS. For the second analysis, two separate regressions were designed to predict awareness of desirable network life events (AoNLE-D) and awareness of undesirable network life events (AoNLE-U). As with the first analysis, mobile messages, emails and SNS usages were individually examined as the main predictors. In the final analysis, AoNLE were modeled as a series of indexes: AoNLE-DS (awareness of desirable network life events in the lives of strong ties), AoNLE-DW (awareness of undesirable network life events in the lives of weak ties), AoNLE-US (awareness of undesirable network life events in the lives of strong ties), and AoNLE-UW (awareness of undesirable network life events in the lives of weak ties). Four separate regressions were used to test the relationship between use of communication technology and each type of AoNLE. One of the independent variables in these final regression models, use of Facebook, was specified further based on activities such as liking, commenting, private messaging, and status updating. I controlled for socio-demographic variables including age, gender, race, marital status, years of formal education, and household income levels across all three sets of analyses. Although personal experiences of major life events correlated moderately or highly with AoNLE (see Table 2-4 in Chapter 2 for details), I did not include them as control variables because causality between AoNLE and personal experiences is unclear. Instead, I treated personal experiences as moderating variables in a later analysis. The findings of personal experiences of major life events will be discussed in later chapters (see Chapter 4 and Chapter 5 for details).

Communication Technology and Overall AoNLE

Table 3-1 presents the results of OLS regressions predicting overall AoNLE from use of communication technologies, controlling for socio-demographic variables including sex, age, race, marital status, years of formal education and household income levels. Only one socio-demographics variable, household income, predicted overall AoNLE; those who had higher household incomes were more aware of network life events happening to both strong and weak ties (b=.443, p<.05).

As anticipated in H1, use of communication technology was associated with increased AoNLE. Specifically, there was a positive relationship between use of mobile messages and the overall AoNLE. Mobile message usage was log-transformed due to its skewedness. Thus, the estimated relationship between the number of mobile messages and PSS is no longer linear. The regression coefficient given by the equation indicated that 1% change in the number of mobile messages led to 4.79 (.479×[ln (1.1)≈ 0.1]) unit changes in the overall AoNLE[1]. This result suggests a ceiling effect for mobile messaging; an increase of mobile messages from 1 to 100 had a stronger effect than an increase from 101 messages to 200 messages. In addition to use of mobile messages, frequent use of Facebook had a positive relationship to the overall AoNLE. Those who visited Facebook on a daily basis scored .90 units higher on overall AoNLE (p<.01). However, there was no evidence to support a relationship between use of emails and overall AoNLE.

Table 3-1

A Regression Predicting Overall AoNLE (N=712)

	b	se	beta	Sig.
Constant	9.478	3.217		**
Demographic characteristics				
Female	-.735	.716	-.040	
Age	-.015	.034	-.017	
White	-.833	1.071	-.029	
Married	.136	.760	.007	
Education	.093	.188	.020	
Income	.443	.193	.099	*
Use of communication technologies				
Use of mobile messages (ln)	.479	.228	.088	*
Use of email (ln)	.009	.247	.001	
Use of Facebook	.030	.009	.127	**
Use of Twitter	-.011	.012	-.038	
Use of Instagram	-.010	.014	-.027	
R-square	.043			

Note. ***<.001, **<.01, *<.05; b=unstandardized coefficient; beta= standardized coefficient

Communication Technology and AoNLE Based on Desirability

Table 3-2 presents the result of a series of regressions that predicted AoNLE-D and AoNLE-U based on use of communication technology. As with the first analysis, socio-demographic characteristics were included as control variables in these regression models. Respondents' sex and household income level predicted AoNLE-D; those who were males and those who had higher income were more likely to be aware of desirable network events. This result partly reflects inequality in individual social conditions. Evidence shows that these types of people are affiliated with advantaged personal networks – larger and more diverse networks and ties higher in socially privileged positions (Lin, 2000). However, this did not mean that men with higher income reported lower undesirable AoNLE. No socio-demographic variables predicted AoNLE-U. Although socially disadvantaged groups such as women with lower incomes, are more

likely to be surrounded by similar unfortunate people (Dohrenwend, 1973; Kessler & McLeod, 1984), they tend to have smaller networks than men with higher income (Moore, 1990). Therefore, the absolute number of undesirable network life events for both groups may not significantly differ.

The log transformed number of mobile messages was a significant predictor, consistently associated with AoNLE-D and AoNLE-U. As anticipated in H1a, those who frequently use mobile messages tended to be aware of greater numbers of desirable network life events (b=.256, p<.05) and undesirable network life events (b=.238, p<.05). Consistent with H1c, those who frequently visited Facebook tend to be aware of greater numbers of desirable (b=.017, p<.01) and undesirable network life events (b=.013, p<.01). However, I did not find any evidence to support H1b; use of email did not have a significant relationship to either desirable or undesirable AoNLE.

Table 3-2

Regressions Predicting AoNLE-D/U (N=712)

	AoNLE-D				AoNLE-U			
	b	se	beta	Sig.	b	se	beta	Sig.
Constant	5.288	1.755		**	4.231	1.702		*
Demographic characteristics								
Female	-.833	.391	-.082	*	.130	.379	(.013)	
Age	-.019	.019	-.041		.004	.018	(.008)	
White	-.751	.584	-.048		-.062	.566	(-.004)	
Married	-.180	.415	-.018		.324	.402	(.033)	
Education	.116	.102	.045		-.026	.099	(-.010)	
Income	.305	.106	.124	**	.143	.102	(.061)	
Use of communication technologies								
no. of mobile messages (ln)	.256	(.125)	.086	*	.238	.121	(.083)	*
no. of email (ln)	-.019	(.134)	-.006		.019	.130	(.006)	
Frequency of Facebook	.017	(.005)	.133	***	.013	.005	(.102)	**
Frequency of Twitter	-.002	(.006)	-.014		-.009	.006	(-.057)	
Frequency of Instagram	-.004	(.008)	-.021		-.006	.008	(-.032)	
R-square	.052				.032			

Note. ***<.001, **<.01, *<.05 Note. ***<.001, **<.01, *<.05; b=unstandardized coefficient; beta= standardized coefficient

Communication Technology and AoNLE Based on Desirability and Tie-strength

Table 3-3 presents the results of a series of OLS regressions that predicted four different types of AoNLE from use of communication technologies, controlling for demographics variables. For desirable network life events, an individual's sex and income level predicted both AoNLE-DS and AoNLE-DW; those who were men and had higher household incomes reported higher awareness of desirable network life events in the lives of both strong and weak ties. Race was associated only with AoNLE-DS, not AoNLE-DW. Surprisingly, white people had lower levels of desirable AoNLE-S than non-white people (b=-.919, p<.05). This result was possibly due to strong kinship bonds among non-whites. Previous studies suggest that non-white people in the U.S are more likely to live together or nearby than white people (Hill, 2003; Sabogal, Marín, Otero-Sabogal, Marín, & Perez-Stable, 1987; Sanders & Nee, 1996). Their active information sharing within extended kinship networks may result in higher awareness of desirable network life events in the lives of strong ties. In contrast, years of formal education predicted desirable AoNLE-W. Each additional year of formal education was associated with an increase of .274 units in desirable AoNLE-W (p<.01). This result indicates the importance of education in information sharing among weak ties, but not strong ties, possibly because education offers a social place where people can meet new acquaintances that they may not easily encounter within their family network or in their neighborhoods (Stanton-Salazar, 1997). In terms of undesirable network life events, no type of AoNLE were explained by demographics variables.

As anticipated in H2a, the number of messages exchanged via mobile phone was positively associated with higher AoNLE-DS (b=.256, p<.05). Because the number of mobile messages was log-transformed, this positive relationship indicated

that use of mobile messages was generally associated with higher AoNLE-DS, but the rate of AoNLE-DS diminishes for those who heavily use mobile messages. This finding, however, did not extend to the context of undesirable network life events. There was no relationship between mobile messages and AoNLE-US and, thus, no evidence to support H2b.

With respect to the use of Facebook, I found that its specific relationships to AoNLE varied depending on what activities participants engaged in on Facebook. Consistent with H4a and H4b, the number of Facebook friends was positively related to higher levels of AoNLE-DS (b=.248, p<.01) and AoNLE-DW (b=.264, p<.05). Because the number of Facebook friends was log-transformed, its positive effect on AoNLE might not be stronger than those who already had a large number of Facebook friends. Yet, I did not find any significant relationship between the number of Facebook friends and undesirable AoNLE. The number of Facebook friends had a significant relationship with AoNLE only in the context of desirable network events. Therefore, H4c and H4d were rejected in this analysis.

In H5 and H6, I hypothesized that commenting on Facebook would be associated with AoNLE in the lives of strong ties, whereas liking on Facebook would be related to AoNLE in the lives of both strong and weak ties. Consistent with H5a, those who frequently commented on others' Facebook contents were more aware of desirable events occurring for strong ties (b=.248, p<.01), but this did not extend to undesirable AoNLE-S. In contrast, liking on Facebook had a relatively consistent relationship to AoNLE; those who frequently liked others' Facebook contents reported higher scores on desirable AoNLE-W (b=.021, p<.01), undesirable AoNLE-S (b=.018, p<.01) and undesirable AoNLE-W (b=.021, p<.01). However, liking on Facebook did not have a significant relationship to desirable AoNLE-S. These

findings partially supported H6, which proposed positive impacts of Facebook on AoNLE across tie-strength. In terms of Facebook messages, there was no significant relationship to any type of AoNLE. Thus, H7 was not supported.

There was strong evidence to support the hypotheses regarding the negative relationship between Facebook status updates and AoNLE (H8). Those who frequently updated their own Facebook status reported lower scores on AoNLE-DS (b=-.042, p<.01), AoNLE-DW (b=-.033, p<.05), AoNLE-US (b=-.027, p<.05), and AoNLE-UW (b=-.033, p<.01). This result might be explained by the broadcastability of Facebook status updates. By focusing on distributing "me now" contents to one's entire Facebook network (Burke & Kraut, 2014), those who frequently update their Facebook status may not be attentive to what is happening in other people's lives. Compared to Facebook, only certain subsets of the population such as teenagers and young adults (Anderson & Jiang, 2018; Statista, n.d.) actively use other SNS such as Twitter and Instagram. Indeed, less than 60 % of my respondents utilize either of them. Probably as a result of their less universal adoption, Twitter and Instagram had no significant relationship with any type of AoNLE, thus H9 was rejected.

Table 3-3

Regressions Predicting Four Types of AoNLE (N=712)

	AoNLE-DS				AoNLE-DW				AoNLE-US^2				AoNLE-UW^2			
	b	se	beta	Sig.	b	se	bet	Sig.	b	se	beta	Sig.	b	se	beta	Sig.
Constant	4.768	1.591		**	.720	1.778			3.498	1.413		*	1.453	1.526		
Demographic characteristics																
Female	-.879	.347	-.096	*	-1.259	.388	-.123	**	.058	.308	.007		-.599	.333	-.070	
Age	-.030	.017	-.072		-.031	.019	-.067		-.016	.015	-.043		-.006	.017	-.014	
White	-1.054	.518	-.075	*	-.919	.579	-.058		-.146	.460	-.012		-.270	.497	-.020	
Married	.010	.367	.001		-.437	.410	-.043		.400	.326	.050		-.076	.352	-.009	
Education	.069	.091	.029		.280	.102	.106	**	.002	.081	.001		.081	.087	.037	
Income	.271	.094	.122	**	.274	.105	.111	**	.092	.084	.048		.117	.090	.056	
Use of Mobile and Email																
No of mobile messages (ln)	.227	.113	.084	*	.071	.126	.024		.166	.100	.071		.007	.108	.003	
No. of email (ln)	-.053	.120	-.018		.049	.134	.015		.022	.107	.009		.058	.115	.020	
Use of Facebook (FB)																
No. of FB friends (ln)	.248	.103	.102	*	.264	.115	.097	*	.007	.091	.003		.109	.099	.048	
FB comments	.019	.009	.124	*	.010	.010	.055		.002	.008	.016		.006	.009	.038	
FB likes	.009	.007	.072		.021	.008	.151	**	.018	.006	.170	**	.021	.007	.180	**
FB private messages	.004	.007	.022		.005	.008	.025		.006	.006	.039		.012	.007	.073	
FB status updating	-.042	.013	-.136	**	-.033	.015	-.094	*	-.027	.012	-.099	*	-.033	.012	-.112	**
Use of other SNS (0-90)																
Twitter	-.002	.006	-.011		-.003	.006	-.018		-.006	.005	-.044		-.007	.006	-.047	
Instagram	-.005	.007	-.026		-.002	.008	-.010		-.006	.006	-.041		-.007	.007	-.042	
R-square	.098				.101				.055				.065			

Note. ***<.001, **<.01, *<.05; b=Unstandardized coefficient; beta=Standardized coefficient

Process of AoNLE Acquisition Through Communication Technology

The quantitative results from the previous section indicate that mobile messages and SNS provide a variety of social contacts through which people develop AoNLE. To contextualize this finding further, I sought to investigate how individuals acquired information about AoNLE through communication technologies. Based on a qualitative analysis of in-depth interviews, (Katz & Aakhus, 2002), I identified three usage practices of technology regarding AoNLE: *encountering, browsing,* and s*earching*. These practices were characterized by different degrees of motivation to obtain information about network life events. For example, encountering was based on passive and unintentional exposure to network life events. In this practice, participants did not have the specific intention of information discovery (Erdelez, 1999). They merely became aware of network life events because they join communication initiated by others. Browsing also emphasized less active and goal-oriented use of communication technology, such as habitual use of SNS (Kim, Chen, & Gil de Zúñiga, 2013; Rubin, 1984). Yet, this practice involved certain levels of motivation to discover network life events. Tewksbury et al. (2008) argued that browsing is driven by "a general need for the new and unknown" (p259). Last, participants occasionally looked for specific network life events to satisfy their interests and needs. These goal-oriented activities are termed searching. Searching is applicable to utilitarian purposes of media use (Atkin, 1973), which suggest that people use media to reduce their uncertainty about others, events, and the social worlds they live in. Each practice is summarized by sample quotes and the number of cases reported by participants in Table 3-4

I used these three practices as the framework to examine the mechanism through which users of communication technology develop awareness. The results

revealed that each usage practice is generally associated with specific network life events that happened to certain social ties. This pattern might be the result of complex social processes where affordances of communication technology, topics of network life events, and structures of personal networks are intertwined. Detailed explanation of these findings will be presented in the sections below.

Table 3-4

Three Usage Practices of the Technology for Network Awareness

Usage practices	Definition	Sample Quotes	No. of Case
Encountering	The behavior of joining exchange of messages initiated by others through mobiles, SNS messengers, and emails	"My best friend texted me when her boyfriend proposed her." (Rachel, 29, Nevada) "My uncle texted to me about it [his new job] because we have a close relationship and he wants me to be proud of him." (Grace, 33. Washington).	74
Browsing	The behavior of skimming through a wide range of information within one source like SNS newsfeed	"Most of my friends are on Facebook, so I just go on Facebook and find out what's going on with other people." (William, 25, Texas)	44
Searching	The goal-oriented behaviors of looking for specific information (e.g., directly contacting someone or visiting someone's personal SNS pages).	"My husband had told me before about his friend who was good at stock market. I wanted to learn how to do it. So, I texted and invited him to our breakfast." (Kaitlyn,45, Illinois). "Then after I saw that, I went to his page and saw more pictures. So, I'm like, "Well it doesn't say he's in a relationship but he's spending a lot of time with this female". (Hannah, 41, Arizona)	13

Encountering

Participants often came to know about network life events because they directly received messages and information from others. In this case, they had no specific intention or expectation of awareness. Rather, communication initiated by others led them to be aware of network life events. Such passive communication practices were categorized as *encountering* in this dissertation. Combined with mobile devices, a variety of communication technologies enable individuals to encounter network life events at any time and any place. Indeed, participants reported that mobile messages, SNS private messages, and emails were commonly involved in the *encountering* practice. However, types of social ties engaged in the *encountering* practice varied depending on which communication channels were used. In order to identify this variation further, I divided *encountering* into three sub-categories based on media used for this practice - mobile messages, SNS private message, and email.

Mobile messages. Most participants acknowledged that they were made aware of network life events by receiving mobile messages from social ties. Consistent with previous findings on mobile use (Katz & Aakhus, 2002; Ling, 2008), network events communicated via mobile messages were focused on the lives of strong ties such as family, extended relatives, and close friends. For example, Emily was made aware of her cousin's childbirth after receiving text messages from her. She described the relationship with her cousin as "like sisters". Another participant, James, also mentioned that his best friend usually texted to deliver his news: "My best friend doesn't call me, usually messages me. Recently, he just sent me texts that he got a new job in town."

As James's remarks suggest, mobile messaging was not the sole channel for awareness of network events in the lives of strong ties. Besides mobile messaging,

participants reported that they acquired information about strong ties through phone

calls or face to face conversations. In fact, some preferred these traditional

synchronous methods over mobile messages. This tendency was particularly

noticeable when closer, duty-bound relationships, such as family-ties were involved.

For example, one participant was made aware of her son's engagement through

mobile messages from him but wished that her son would have called her to deliver

this news.

> My son didn't give me a phone call when he was engaged. He actually texted
> me [laughter]. (…) He was like, 'Guess what?' I was like, 'What?', then he
> said, 'I put a ring on my girlfriend.' And I'm like, 'Okay. Well, I'm glad that
> you texted me before you posted it on Facebook'. (Hannah, 41, Arizona).

Hannah's description above suggests the social norm among family ties, which

influences their media use. More specifically, individuals tend to view the traditional

interpersonal channels (i.e., phone call or face to face conversation) as signs of

relational commitment. Accordingly, like in Hannah's case, if family share their

major life events through asynchronous media such as text messages, people feel that

they are treated with less consideration.

Nevertheless, mobile messages offer advantages over traditional interpersonal

channels. Many participants use mobile messages when they and their communication

partners were unavailable to make a phone call. Grace's best friend recently got a new

job near her town. Grace was informed of this news through mobile messages because

her friend was too busy to call her at that time. "She's a retail person. So, she had not

told me too much more about it, but she said that she was going to start a new job

when she gets here." A participant named Rachel explained an episode which

illustrates how mobile messaging affords increased accessibility with her best friends:

> Jane and I are best friends since middle school. We live close and try to meet
> regularly, but she texted me when her boyfriend proposed to her. (…) I didn't

feel bad at all. She knows I always have kids in the background. It's just hard to talk on the phone. (Rachel, 29, Nevada).

In sum, traditional interpersonal channels such as face to face conversations and phone calls are viewed as acceptable methods for sharing major life events. However, mobile messages offer an alternative way to learn life events of one's strong ties. The asynchronous nature of messaging allows individuals to communicate with family or friends in situations where synchronous conversation is not possible or appropriate. Consequently, mobile messages supplement the awareness of network life events, especially in the lives of strong ties.

SNS private messages. Four participants reported that they became aware of some network life events by receiving SNS private messages. Although the number of cases was relatively small compared to mobile messages, the participants used SNS private massages, in a similar way to mobile messages. Accordingly, people with strong ties generally use SNS private messages to share their major life events. A participant, Michael, mentioned that one of his close friends contacted him through Facebook Messenger to deliver news about a car accident. Michael was not sure why his friend selected Facebook messages over other communication channels. "I don't really know why we used Facebook Messenger. We could text each other or talk, but he just chose to use Facebook."

Occasionally, SNS private messaging goes beyond the connections among strong ties. Specifically, Facebook, the most widely adopted SNS, enables individuals to contact others without knowing their phone numbers. As a result, a few participants received private messages from weak or latent ties such as unknown friends of friends via Facebook. The comments below describe how Facebook Messenger led one participant to encounter news from unexpected social ties:

> My ex-husband's wife, well, his new wife, reached out to me. You want to know how she did? She sent me messages through Facebook. (…) Her contacting me is just weird in the first place, because we are not friends on Facebook. That means that she had to look for my name. She was kind of stalking me through Facebook. (Hannah, 41, Arizona).

Altogether, like mobile messages, SNS private messaging contributes to awareness of network life events, especially in the lives of strong ties, yet its connection is not just limited to the inner realm of one's personal networks. As Hannah described above, SNS private messages provide extensive connectivity (Edunov, Diuk, Filiz, Bhagat, & Burke, 2016), which increases the possibility of confronting diverse people and information. However, Hannah's remark, "It's not something that I look for, but she keeps on messaging me on Facebook," summarizes the paradoxical nature of pervasive awareness–the knowledge can be a burden if you don't want to be involved.

Email. Despite its universal adoption, only seven participants reported that they *encountered* network life events through email. Most perceived awareness driven through email as a by-product of workplace communication. For example, one participant was made aware of her coworker's childbirth through email. She said that an email from her co-worker was similar to staff meetings at work:

> She [my coworker] sent me a picture of the baby boy and a picture of her with her husband. It was a mass email that went out to everybody at the work basically. (…) It was like an announcement in a staff meeting or writing on the interactive whiteboards. (Jennifer, 33, Pennsylvania).

Some participants received emails reflecting network life events of their personal ties. In these cases, emails merely served as supplements for additional information. For example, Emily received text messages from her close friend about his engagement. Shortly after, she received a save-the-date email from him. Other participants agreed that emails are generally used for time arrangements regarding life event ceremonies such as weddings, graduations, and funerals. However, detailed

stories of network life events were usually conveyed by other communication channels, such as phone calls or mobile messages. For example, Jennifer was recently invited to the wedding of her close friend's daughter. Although her friend sent an invitation email to ask Jennifer's RSVP, her friend also contacted her beforehand and afterward through other channels:

> I was invited to the wedding. They [my friend and her daughter] had contacted me so many different ways because they wanted me to know she was getting married and make sure I'd be there (…) They first sent me texts and Facebook messages and called me to tell she was getting married. They also emailed me the invitation to ask my RSVP and then confirmed it through text messages afterward too (Jennifer, 52, Hawaii)

In this case, email partially supported Jennifer's awareness of her friend's network life event. It was selected because of its particular functionality. Emails related to network life events in the lives of personal ties were likely to be accompanied by another contact or messages. Participants did not describe email as the sole channel for encountering. This finding was consistent with the results of the quantitative analysis, which suggested the limited role of emails in increasing AoNLE.

Overall, most participants acknowledged mobile and SNS messages as having similar functionality. Both play key roles in conveying major news about strong ties. In fact, participants considered them as desired encountering modes to get to know life events happening to strong ties. However, SNS private messaging sometimes occurs even among latent ties – connections that are "technically possible but not yet activated socially" (Haythornthwaite, 2002, p. 137). This is probably because SNS allows their users to reach out to any other users on the same platform merely by searching their name. As previously shown in Hannah's case, people can encounter unexpected acquaintances through SNS private messages.

Browsing

Browsing refers to an information acquisition activity of skimming through a wide range of information within one source (Tewksbury et al., 2008). All participants reported that browsing occurs in SNS contexts because this activity is closely tied to broadcasting messages; SNS users can efficiently distribute their personal news to their entire networks including family, friends, and acquaintances. These broadcasted contents are aggregated on each user's newsfeed. By habitually visiting SNS newsfeeds, participants were able to learn about various social ties. In contrast to encountering based on one-to-one communication, those who engaged in browsing did not look for particular network life events happening to specific ties. Rather, they displayed a general expectation of witnessing network life events experienced by any social ties. One participant's remark, "most of my friends are on Facebook, so I just go on Facebook and find out what's going on with other people" reflects how the browsing practice is used for general and broad intentions to monitor their social environment. In addition to monitoring, browsing is considered to be entertainment or a time killing practice. Some participants reported browsing as a way of finding enjoyable information without needing to actively search it. Indeed, one participant reported that he enjoyed the voyeuristic appeal of SNS browsing. Relating it to television reality shows, David described how he was entertained by others' personal events on SNS:

> Some people, they share everything on Facebook. They talk about their boy/girlfriends and the problems such as [getting in] fights with people. (…) I thought it was funny because then I could call my friends and be like 'did you see what this person wrote?' (…) It just becomes fuel for entertainment. It's sort of like a TV show, a reality show or the news. (David, 32, California)

As the aforementioned cases described, participants realized that there is high visibility of messages within SNS contexts while engaging in the browsing practice.

Although Ashely did not post something on Facebook, she perceived that "instead of calling, it [Facebook]'s better just to post on Facebook so that everyone will know". Almost all participants shared a similar perception toward Facebook: it is the easiest way to communicate with a huge audience at one time. Accordingly, many participants described SNS as a place where 'announce-able' content should be shared. Comparing SNS with newspapers, Grace mentioned her own rule for SNS posting: "There is the old saying 'A person should never be in the newspaper except for three times: when they're born, when they get married, and when they die.' Well, that's sort of the way I think about Facebook." Consistent with Grace's argument, other participants were generally aware of common life events such as marriage, childbirth, loss of loved ones, or new jobs through SNS browsing. Posting private and undesirable events on SNS, on the other hand, were perceived as an inappropriate activity. For example, one participant recently read a Facebook post about her acquaintance's argument with their spouse. Her comments below show how she felt uncomfortable with this post:

> I was kind of embarrassed for that post just because I don't think that has any business being out there. That's a private situation that they should be dealing with, and I don't think putting it out on Facebook is appropriate (Anna, 42, Ohio).

Few participants, however, argued that SNS is changing the trend for sharing life events. As Daniel put it, "because of social media, people's lives are much more out in the open than they used to be". Such a tendency implies that people now learn various network life events, whether it is positive or negative by browsing SNS newsfeeds. In line with the quantitative findings, participants acknowledged that SNS browsing allowed higher AoNLE regardless of the relationship with network members who experienced the events. However, SNS browsing plays a more significant role in updating lives of weak ties than those of strong ties. For weak ties,

SNS is almost the only source for awareness. Participants rarely have any other

communication methods to interact with weak ties besides SNS browsing. For

example, Richard said, "If social media didn't exist, then we would hear less of

acquaintances' news because we wouldn't hear it from phone calls, texts, or things

like that." Kaitlyn's comments below also show how Facebook browsing kept her

updated with her previous co-worker's life even after her co-worker retired:

> When my co-worker retired, I was like 'congratulations, what's the first trip
> you're going to take?' She said, 'Well, I'll think of you when I'm in the
> Galapagos Islands. I'll post a picture on Facebook, so you can see.' (…) She
> actually posted a picture of the trip she went on Facebook later (Kaitlyn, 45,
> Illinois).

On the other hand, most participants were made aware of lives of strong ties

through multiple ways reflecting both *encountering* and *browsing.* For example,

Jennifer saw a Facebook post about her niece's engagement on her Newsfeed, but

she was already made aware of this news from a text message received in advance.

Jennifer reported mobile messaging as "the actual way" she found out the news

about her niece. Although the Facebook post reminded Jennifer of her niece's

happiness, she noticed that her niece did not make her post just for her family to see:

> She [my niece] probably made this post because she wanted many people to
> know about it. She will have a big wedding. It [Facebook posting] was just kind
> of an easy way to tell everybody besides family. (Jennifer, 52, Hawaii)

If a participant heard news about strong ties merely through browsing, he or she

expressed strong disappointment. For example, Anna found her stepson's engagement

only through her Facebook newsfeed. Neither she nor her husband received any

private contact from her son. Anna saw her son's way of informing as a sign of

disrespect:

> Finding out about other people while being on Facebook is fine. But for my
> stepson and his fiancé, that wasn't cool at all. They had come and stayed with
> us before, and we kind of felt that we deserved an actual phone call before
> something like that was posted in public. We were okay with his engagement

because we like his fiancé. But we were disappointed that we were not considered important enough to receive a phone call beforehand (Anna,42, Ohio).

Like Hannah's case in the previous section, Anna's episode suggests the social norm, which dictates patterns of media use among family-ties. Many participants considered *encountering* as the preferred process of awareness, especially within the family. In this context, family perceive traditional interpersonal modes such as communication in person or through phone calls as the most acceptable ways of sharing. However, Anna's son violated this norm by choosing a public and non-intimate channel like SNS updates.

To summarize, SNS browsing helps participants keep track of the latest network events, especially ones happening to weak ties. Participants obtained news about their strong ties through browsing as well, but this information was likely acquired through encountering in advance. Due to the public nature of SNS, the awareness developed through browsing mostly includes positive and common life events such as marriages, childbirths, and new careers. Nevertheless, some users post private and negative life events to vent their feelings on SNS. SNS browsing serves as a single way of accessing information about the lives of weak ties.

Searching

Unlike *encountering* and *browsing* where people do not have specific objectives in mind, *searching* is based on goal-oriented information seeking behavior (Belkin, Oddy, & Brooks, 1982). Participants often contact other individuals or visit their SNS personal pages to collect information about network events. I consider such intentional activities to be *searching*. When participants search for network life events, they are generally aware of what or whose network life events they are looking for.

Participants broadly acknowledged two reasons for searching. First, they search for network life events to learn how to cope with their own difficulties. For example, Kaitlyn recently went through a financial difficulty. In this situation, she purposely contacted a friend of her husband to recruit information on financial improvement.

> I was stressed out with the current financial situation and wanted to improve it. My husband had told me before about his friend who was good at stock market. I wanted to learn how to do it. So, I texted and invited him [her husband's friend] to our breakfast (Kaitlyn, 45, Illinois).

Unlike Kaitlyn, who personally reached out to someone in her network, another participant, Rachel, used a SNS support group when she had trouble with her financial credit rating. By sharing her problem on the online support group, she was able to obtain "good advices from others who had experienced similar things." Both Kaitlyn and Rachel's searching practices were driven by their own experiences of major life events. Their urgent problems associated with financial issues led them to search relevant experiences of others. These cases ultimately implied the importance of experiential similarity between oneself and network members. Especially when people are in need, like Rachel and Kaitlyn were, others' similar experiences inform them of how to handle their own difficulties. Therefore, people in these types of situations are more likely to engage in searching network life events (see Chapter 5 for details).

The goal-oriented activities reported by Rachel and Kaitlyn were insightful but rare. When undesirable life events occurred, most participants focused on recruiting supportive resources (e.g., reassurance and financial assistance) rather than learning from others' similar experiences. Instead, many participants reported that their *searching* practices were initiated from fragmented information about social ties. More specifically, they often unexpectedly acquire a piece of information about their social ties from a third person or while browsing their SNS newsfeed. These

serendipitous discoveries often stimulated participants' curiosity toward their social ties. For example, Daniel had recently seen a Facebook post about someone's romantic relationship. According to his comment, the person who made the post was "a cross between an acquaintance and a close friend" to him. Nonetheless, he called this person immediately to hear further details:

> I could be wrong, but I believe he posted on Facebook that he was in a relationship. (….) My first thought was, 'Cool.' I know this person had been looking for a while. So, I hit the like button, I commented 'congrats', and then I called him and said, "Provide me details. (Daniel, 42, New Jersey)

Such a searching activity was likely to occur when participants heard shocking news. One participant unexpectedly saw a Facebook post on a divorce between her cousin and his wife who had been married over 20 years. The occurrence of this event was shocking to her because "they were a couple that I never thought were going to get divorced". After finding this post, she called him immediately and asked what happened to him:

> He posted on Facebook that he and his wife divorced. My gosh, they've been married 20 years. They were a couple that we never thought were going to get divorced. So, I just fell off my bed and I called him immediately. I said, 'What's going on?' And he said, 'I didn't want to really talk to anybody about it, that's why I put it on Facebook.' (Samantha, 56, North Carolina)

In addition to direct contact, some participants used SNS personal pages as sources of deeper information. For example, Hannah, gained a piece of information about her ex-brother in law's romantic relationship while browsing her Facebook newsfeed. She was able to confirm this network event by visiting his Facebook page.

> It was kind of weird, the way that I found out his [my ex-brother in law's] relationship. I'd see him with one woman on Facebook- Well, he didn't put that he was in a relationship with this woman. I kept on seeing his pictures on my newsfeed. Then after I saw that, I went to his page and saw more pictures. So, I'm like, "Well it doesn't say he's in a relationship but he's spending a lot of time with this female. (Hannah, 41, Arizona)

Another participant, David, also went to Facebook when one of his relatives sent him a text message wanting to know if his aunt's husband passed way. Although his initial awareness started from mobile messages, he confirmed the actual occurrence by searching information on Facebook. He described his experience as follows:

> One day, I wake up and saw that my sister-in-law had sent me a text message at 5:00 in the morning. She was like, 'Hey, did our aunt's husband die? I just saw on Facebook.' And I was like, 'What?' So, I went to Facebook and looked for my aunt. And I found that she had posted a picture of her husband. She didn't put that he died, but I knew from the comments that people left. (David, 32, California)

In sum, participants identified the *searching* as one of the processes through which they learned about network life events. Unlike *encountering* and *browsing*, *searching* is an intentional and goal-oriented information seeking activity. Ironically, searching starts from passive contacting behaviors; a piece of information about network life events achieved through practices of browsing or encountering led participants to take an interest in social ties, which often encouraged them to investigate further. In this context, SNS plays a key role. Many participants reported SNS as the first place they developed initial awareness about network life events, while at the same time using this platform to learn more about social ties.

Summary and Conclusion

In this chapter, I explored how use of communication technologies is related to pervasive awareness of network life events. Using survey data, I first tested hypotheses regarding the relationship between mobile messages, email and SNS, and AoNLE (H1-H9). The quantitative findings were contextualized with integration of results from the qualitative analysis. The summary of results is presented in Table 3-5.

Consistent with H1a and H1c, mobile messages and Facebook were associated with higher levels of desirable and undesirable awareness. This result indicates that

through mobile messages and/or Facebook, people receive a variety of information presenting both positive and negative experiences of others. Indeed, the magnitudes of the effects of use of mobile messages and Facebook on AoNLE were larger than those of any other socio-demographic variables. This finding suggests that the level of AoNLE is more likely to vary depending on what communication technology are used for interactions with social ties rather than individual characteristics such as age, gender, and race.

I also found evidence to support H2 and H4, which proposed variation in the relationship between mobile messages/Facebook and AoNLE according to tie-strength (strong vs. weak ties). Consistent with studies of strong ties and mobile phones (Ling, 2004), those who frequently used mobile messages were aware of a greater number of network life events occurring to strong ties than weak ties. On the other hand, the relationship between Facebook and AoNLE differ according to the specific activities carried out, such as commenting, liking, and updating. For example, the more Facebook friends an individual has, the more they are likely to be aware of desirable network life events in the lives of strong and weak ties. However, merely having many Facebook friends does not ensure awareness of undesirable network life events. I also found that commenting on Facebook was related only to AoNLE-D instead of AoNLE-U. Yet, commenting requires more amount of effort than adding Facebook friends because commenting involves composing and elaborating messages (Burke & Kraut, 2016). Reflecting this fact, I found that people took the time to leave comments on Facebook posts made by immediate family or close friends who they view more important and influential to their lives. Compared to commenting, clicking the like button allows individuals to respond to others' contents with minimal expense (Kabadayi & Price, 2014). As a result, those who frequently liked others' Facebook

posts reported higher awareness of various types of network life events. This finding

suggests that simple but responsive actions contribute to pervasive awareness the

most.

By contrast, those who frequently updated their own Facebook status reported

lower levels of AoNLE regardless of its desirability and the tie-strength involved. One

may argue that this result supports findings that the use of Facebook is associated with

self-aggrandizement (Bazarova & Choi, 2014): excessive Facebook posting about

oneself leads to the loss of interest in other people and Facebook may be used for

gaining attention and validation about oneself. However, this data did not provide any

conclusive evidence for such narcissistic mechanisms inherent in Facebook usage.

Rather, in-depth interviews suggested that individuals became compulsive Facebook

users due to their personal situation. For example, one participant, Paul recently lost

his fiancé to a serious illness. While his fiancé was in critical condition, he actively

updated his Facebook status because it was the most efficient way to deliver the news

about his fiancé and recruit relevant resources from his entire network. As in Paul's

case, it is possible that people focus more on updating their Facebook statuses to

overcome their overwhelming situations and not to enhance their narcissistic needs.

In addition to testing proposed relationships, I unraveled how mobile

messages, email, and SNS enabled pervasive awareness by deliberating an

individual's intention and motivation for awareness (RQ1). Based on in-depth

interviews, I found that AoNLE was driven by three different usage practices of

communication technologies - encountering, browsing, and searching.

I found that each practice was routinized for specific types of AoNLE.

Participants viewed traditional synchronous channels such as face to face or phone

call conversations as the most appropriate for *encountering* network life events

occurring for strong ties. Nevertheless, due to its asynchronous nature, mobile messaging was considered an acceptable mode for encountering network life events in the lives of strong ties. Browsing, on the other hand, was associated with both AoNLE in the lives of both strong ties and weak ties. However, as suggested by media multiplexity theory (Haythornthwaite, 2005), the participants were more likely to receive the same information about strong ties through other private communication modes. On the other hand, browsing is almost the only way that people are made aware of network life events in the lives of weak ties. Occasionally, browsing leads to searching further information about weak ties by directly messaging them or visiting their private accounts. This finding implies that SNS reminds individuals that extensive weak ties exist in their networks and are available to reach out to, if necessary. Most cases of *searching* were associated with either *browsing* or *encountering*. Participants engaged in searching because they found pieces of information about social ties coincidentally. Only those who were confronting urgent problems engaged in pure *searching* activity to find coping strategies from others' similar experiences.

Overall, the findings reported in this chapter underline the significance of mobile messages and Facebook for pervasive awareness of network life events. Using these communication technologies, people can be informed about a wide range of social ties. Depending on what types of AoNLE individuals developed through the technologies, one may experience different psychological outcomes, which can be positive or negative to his or her psychological well-being. The detailed account of psychological effects of AoNLE will be discussed in next chapter, drawing on both quantitative and qualitative findings.

Table 3-5

Results of Hypotheses and Research Questions

	Hypotheses and Research Questions	
H1	Use of communication technology is associated with overall AoNLE	PS
	a) Use of mobile messages is associated with higher AoNLE-D and AoNLE-U	S
	b) Use of email is associated with higher AoNLE-D and AoNLE-U	NS
	c) Use of SNS is associated with higher AoNLE-D and AoNLE-U	S
H2	a) Use of mobile messages is associated with higher AoNLE-DS	S
	b) Use of mobile messages is associated with higher AoNLE-US	NS
H3	a) Use of email is associated with higher AoNLE-DW	NS
	b) Use of email is associated with higher AoNLE-UW	NS
H4	a) Number of Facebook friends is associated with higher AoNLE-DS	S
	b) Number of Facebook friends is associated with higher AoNLE-DW	S
	a) Number of Facebook friends is associated with higher AoNLE-US	NS
	b) Number of Facebook friends is associated with higher AoNLE-UW	NS
H5	a) Frequent commenting on Facebook is associated with higher AoNLE-DS	S
	b) Frequent commenting on Facebook is associated with higher AoNLE-US	NS
H6	a) Frequent liking on Facebook is associated with higher AoNLE-DS	NS
	b) Frequent liking on Facebook is associated with higher AoNLE-DW	S
	c) Frequent liking on Facebook is associated with higher AoNLE-US	S
	d) Frequent liking on Facebook is associated with higher AoNLE-UW	S
H7	a) Frequent private messaging on Facebook is associated with higher AoNLE-DS	NS
	b) Frequent private messaging on Facebook is associated with higher AoNLE-DW	NS
	c) Frequent private messaging on Facebook is associated with higher AoNLE-US	NS
	d) Frequent private messaging on Facebook is associated with higher AoNLE-UW	NS

Note. S=Supported; NS=Not supported; PS= Partially supported

(con.) Table 3.5

Hypotheses and Research Questions		
H8	a) Frequent status updating on Facebook is associated with lower AoNLE-DS	S
	b) Frequent status updating on Facebook is associated with lower AoNLE-DW	S
	c) Frequent status updating on Facebook is associated with lower AoNLE-US	S
	d) Frequent status updating on Facebook is associated with lower AoNLE-UW	S
H9	a) Frequent use of other SNS (i.e., twitter and Instagram) is associated with higher AoNLE-DS	NS
	b) Frequent use of other SNS is associated with higher AoNLE-DW	NS
	a) Frequent use of other SNS is associated with higher AoNLE-US	NS
	b) Frequent use of other SNS is associated with higher AoNLE-UW	NS
RQ1	What is the process in which people become aware of network life events using mobile messages, email and/or SNS? **a)** What types of motivation lead users to acquire information about network life events? **b)** What external factors (e.g., the technology used, the desirability of network life events, and the relationship with the person who experienced the events) influence the process in which people are made aware of network life events?	

Note. S=Supported; NS=Not supported; PS= Partially supported

Note.

[1] Given the equation below,

$$Overall\ AoNLE = b_0 + b_1 \times female\ + (...) + b_{11} \times \ln(mobile\ mesages)$$
$$= 9.478 + -.735 \times Female + (...)$$
$$+\ .479\ \times \ln(mobile\ messages)$$

the expected mean difference in the overall AoNLE score at x_1 and x_2, holding the other predictor variables constant, is Overall AoNLE(x_1)-Overall AoNLE(x_2)=.479$\times$[ln(x_1) − ln(x_2)]=.479×[ln(x_1 /x_2)]. This means that as long as the percent increase in the number of mobile messages (the predictor variable) is fixed, we can see the same difference in overall AoNLE score, regardless of where the baseline is. For example, for a 10% increase in the number of mobile messages, the difference in the expected mean AoNLE is always b_{11}(1.10) =.479× ln(1.1)≈4.79.

[2] Because 2, distributions of AoNLE-US and AoNLE UW are highly skewed, I additionally conducted negative binomial regressions, a special version of the Poisson model. However, the results of the negative binomial regressions were very similar to those from OLS regressions. In this context, I decided to report the results of OLS regressions to maintain consistency with the previous analyses.

Chapter 4. Cost of Pervasive Awareness

In this chapter, I investigate how and why heightened AoNLE through the use of communication technologies can become a source of psychological discomfort. As discussed in the previous chapters, use of mobile messages, emails and SNS share the technological affordances of helping to raise an individual's awareness of network life events happening to diverse social ties. Such pervasive awareness entails both benefits and drawbacks to people's lives; individuals are readily updated with the latest events of various network members (Naaman et al., 2010; Thompson, 2008), while, at the same time, they are likely to encounter unfavorable people or events (Hampton et al., 2015). Negative feelings such as anger, frustration, embarrassment, and envy can accompany pervasive awareness.

In this regard, this chapter presents findings pertaining to positive and negative impacts of pervasive awareness on one's psychological wellbeing. Utilizing a quantitative approach, the first part of this chapter addresses a question of whether AoNLE enhanced by the use of communication technologies is associated with two well-being outcomes - psychological perceived stress and belief in a just world (BJW). As suggested by the literature on network life events, I hypothesize that the direction of relationships between AoNLE and stress/belief in a s just world (BJW) are determined by the desirability of network life events (H10, H13, and H14). Considering different roles of strong and weak ties in one's psychological wellbeing (Thoits, 2011), I also posit that strength of these relationships varied depending what type of social ties are involved in AoNLE (H11, H15, and H16). Examination of these hypotheses ultimately allow me to explore mediating effects in the relationship between the use of communication technologies and Stress/BJW (H12, H17, and

H18). The latter part of this chapter focuses on identifying negative feelings, attitudes, and perceptions individuals have toward pervasive awareness and explores the reason of these negative reactions (RQ2). I specifically discuss three types of negative responses to AoNLE identified through data analysis. This discussion contextualizes the findings of the quantitative analysis by categorizing topics of network life events and the relationships with people who experienced the events in greater detail.

Pervasive Awareness and Stress/BJW

AoNLE was operationalized in three different manners, depending on the desirability of network life events and relational strength with people who experienced the events. Since each operationalization represents discrete features of AoNLE, I conducted separate OLS regression analyses predicting stress/BJW which included a different set of AoNLE indexes. Next, I conducted path analyses that examined relationships between use of communication technologies, AoNLE, and stress/BJW within the same models. Using a bootstrapping method (Hayes, 2017), I ultimately tested if use of communication technology and psychological outcomes have an indirect relationship through AoNLE.

Stress and Overall AoNLE

Table 4-1 presents the results of the OLS regressions modeling the relationship between overall AoNLE and PSS. In this analysis, AoNLE was operationalized based on the sum of individual network life events, both desirable and undesirable happening to any social ties. Demographic characteristics, use of communication technologies, and personal experiences of major life events were included as control variables in this analysis. Consistent with literature on mental health (Aneshensel, 1992; Dohrenwend & Dohrenwend, 1974; Thoits, 1992), there were social stratification in one's perceived psychological stress; those who were female,

younger, and had lower income tended to report higher levels of stress. As anticipated, there was no direct positive relationship between use of communication technologies and perceived stress. However, the log transformed number of mobile messages exchanged per week was directly related to lower levels of stress (b=-.479, p<.05). This result indicated an increase of mobile messages from 1 to 100 would generate a stronger negative effect on stress than an increase from 101 to 200. My current dataset does not explain why use of mobile messages was associated with lower levels of stress. However, findings reported in the previous chapter suggest mobile messages had the technological affordances of strengthening relationships with family and/or close friends. As other researchers have pointed out (Krackhardt et al., 2003; Thoits, 2011; Wellman & Wortley, 1990), strong ties are a main source of social supports. Altogether, it is possible that mobile messages provide more access to social supports, which buffer one's stress levels (Cohen & Wills, 1985).

Consistent with the AoNLE variable, overall personal experiences was operationalized without separating desirable and undesirable events. Many scholars suggest that desirable personal events have contradicting impacts from undesirable ones (Cohen & Hoberman, 1983; Dohrenwend et al., 1978; Taylor, 1991). Given their argument, overall personal experiences was not expected to have a significant relationship to one's level of stress. Countering my anticipation, however, overall personal experiences was significantly related to higher levels of stress (b=.287, p<.001). It was indeed the strongest predictor among the independent variables (beta=.177). This probably resulted from an asymmetric effect of undesirable and desirable life events. Negative life events tend to have a stronger impact on one's mental health than positive ones (Taylor & Brown, 1988). Overall personal experiences. Which includes both desirable and undesirable personal events, may

have a net harmful effect from undesirable life events which are not canceled out by the positive effect of desirable events.

Unlike personal experience of life events, overall AoNLE was not significantly associated with one's stress levels. However, it could be premature to conclude that AoNLE have insignificant relationship to stress. Since desirable and undesirable network life events were combined into one index, stress increasing and decreasing effects of AoNLE-U and AoNLE-D on stress may be conflicted in this analysis. To accurately estimate the relationship between AoNLE and stress, desirable and undesirable indexes of AoNLE should be separated.

Table 4-1

Regression Predicting PSS from Overall AoNLE (N=712)

	b	se	beta	Sig.
Constant	32.647	2.704		***
Demographic characteristics				
Female	2.760	.597	.172	***
Age	-.103	.029	-.141	***
White	-.416	.893	-.017	
Married	-.997	.645	-.062	
Education	-.080	.156	-.019	
Income	-.653	.162	-.168	***
Use of communication technologies				
No. of mobile messages (ln)	-.476	.191	-.101	*
No. of emails (ln)	.026	.206	.005	
Frequency of Facebook	-.002	.008	-.011	
Frequency of Twitter	.000	.010	-.001	
Frequency of Instagram	.011	.012	.036	
Personal experience and AoNLE				
Overall personal events	.287	.074	.177	***
Overall AoNLE	-.011	.039	-.012	
R-square	.122			

Note. ***<.001, **<.01, *<.05; b=unstandardized coefficient; beta= standardized coefficient

Stress and AoNLE Based on Desirability

A second OLS regression was performed to examine differentiated impacts of AoNLE-D (awareness of desirable network life events) and AoNLE-U (awareness of undesirable network life events) on PSS. As with AoNLE, personal experiences were divided into desirable and undesirable indexes. Socio-demographic characteristics and use of communication technologies were also controlled for in this model. Table 4-2 reports the results of this analysis. The R-square of the current model was significantly higher than that of the previous model ($\Delta R^2=.157$, p<.001). This indicates that the current regression model better explained stress than the previous one.

Consistent with the previous regression, those who were women, younger, had lower income, and did not frequently use mobile messages reported higher PSS. Both desirable and undesirable personal experiences were significantly associated with stress in the expected directions; those who experienced a larger number of desirable personal events tended to have lower levels of stress, whereas undesirable AoNLE was related to higher levels of stress. Countering my expectation (H10), however, there was no significant relationship between AoNLE and stress even after the separation of desirable and undesirable AoNLE.

In addition to desirability of network life events, AoNLE can be distinguished based on the relational strength between respondents and their network members who experienced the events. Previous studies on tie-strength suggests that strong ties and weak ties play different roles in one's psychological wellbeing. Strong ties composed of family and close friends serve as the primary source of emotional and tangible supports (Wellman & Wortley, 1990). At the same time, they exert more pressures on individuals, in the form of obligation and reciprocity, than those who are weakly tied

(Bian, 1997; Krackhardt, 1990). Although weak ties are less personally invested in one's well-being, they provide other forms of support and information that strong ties cannot provide (Thoits, 2011). Closer examination on tie-strength would be necessary for accurate estimation of the relationship between AoNLE and stress. Indeed, the survey respondents indicated whether the network events happened to those who were close (strong ties) or not close to them (weak ties). Based on their answers, I created a different version of the AoNLE indexes, which distinguished network life events of strong ties from those of weak ties, and performed an additional regression analysis.

Table 4-2

Regression Predicting PSS from AoNLE-D/U (N=712)[1]

	b	se	beta	Sig.
Constant	32.148	2.465		***
Demographic characteristics				
Female	2.141	.549	.134	***
Age	-.121	.026	-.165	***
White	-.976	.815	-.040	
Married	-.427	.592	-.027	
Education	-.001	.143	.000	
Household Income	-.414	.149	-.107	**
Use of communication technologies				
No. of mobile messages (ln)	-.398	.174	-.084	*
No. of email (ln)	.014	.188	.003	
Frequency of Facebook	.001	.007	.004	
Frequency of Twitter	-.006	.009	-.021	
Frequency of Instagram	.013	.011	.043	
Personal experience				
Desirable personal experiences	-.700	.111	-.276	***
Undesirable personal experiences	1.430	.121	.468	***
AoNLE				
AoNLE- D	-.030	.086	-.019	
AoNLE-U	.055	.087	.033	
R-square	.274			

Note. ***<.001, **<.01, *<.05; b=unstandardized coefficient; beta= standardized coefficient

Stress and AoNLE Based on Desirability and Tie-strength

Table 4.3 presents the results of a regression predicting perceived psychological stress from four types of AoNLE–AoNLE-DS (desirable-strong ties), AoNLE- DW (desirable-weak ties), AoNLE-US (undesirable-strong ties), and AoNLE-UW (undesirable-weak ties) – controlling for demographics, use of communication technology, and personal experiences. In this analysis, Facebook usage was also specified according to discreate activities, such as Facebook liking, commenting, etc. Unlike the results of prior regressions, I did not identify any direct relationships between use of communication technologies and stress in this analysis. Although previous models suggested a negative direct relationship between use of mobile messages and stress, this relationship appeared marginally significant in this model (p=.058)

In terms of life event variables, undesirable personal experiences was the strongest predictor of perceived stress (beta=.467), followed by desirable personal events(beta=-.248). However, no type of AoNLE was associated with stress; thus, I reject H11a, H11b, H11c, and H11d, which proposed that AoNLE has a consistent relationship to stress regardless of tie-strength. In H11e, I hypothesized that effects of AoNLE-S on stress would be stronger than those of AoNLE-W. However, a comparison between them was able to be made because all AoNLE variables were insignificant to stress. Therefore, H11e was also rejected in this analysis.

Overall, AoNLE itself had a limited impact on stress, despite the distinction between desirability of network life events and tie-strength. On the other hand, personal experiences, especially experiences of undesirable life events, appeared as the strongest predictor of stress. This result suggested that vicarious experiences of AoNLE does not overwhelm the direct experience information.

Table 4-3

Regression Predicting PSS from Four Indexes of AoNLE(N=712)[1]

	b	se	beta	Sig.
Constant	33.215	2.536		***
Demographic characteristics				
Female	2.251	.553	.141	***
Age	-.119	.028	-.163	***
White	-1.023	.817	-.041	
Married	-.478	.593	-.030	
Education	-.032	.144	-.008	
Household Income	-.442	.150	-.114	**
Use of Communication Technology				
No. mobile messages (ln)	-.338	.178	-.071	
No. emails (ln)	.005	.190	.001	
No. of FB friends (ln)	-.092	.163	-.022	
FB Comments	-.003	.014	-.010	
FB Likes	.002	.011	.011	
FB Private messages	-.006	.012	-.019	
FB Status Update	-.030	.021	-.056	
Frequency of Twitter	-.005	.009	-.018	
Frequency of Instagram	.013	.011	.044	
Personal experience				
Desirable personal experiences	-.630	.117	-.248	***
Undesirable personal experiences	1.427	.125	.467	***
AoNLE				
AoNLE-DS	-.179	.109	-.102	
AoNLE-DW	.129	.106	.082	
AoNLE-US	.162	.110	.080	
AoNLE-UW	-.130	.118	-.070	
R-square	.283			

Note. ***<.001, **<.01, *<.05; b=unstandardized coefficient; beta= standardized coefficient

BJW and Overall AoNLE

In addition to stress, I extended the context of psychological well-being to BJW. The literature suggests that BJW is composed of two distinctive sub-constructs: BJW-self and BJW-other. BJW-self is based on one's perception of the extent which they were treated fairly, BJW-other is grounded on one's judgement of justice in the socio-political system that people in general experience. Given this self-other distinction of BJW, I conducted two different OLS regressions predicting each sub-construct. In the same way I examined stress, the overall AoNLE combining desirable and undesirable network life events was first included as the main independent variable in this analysis. The results of this regression analysis are reported in Table 4.4.

The results revealed that socially disadvantaged groups tend to have lower scores in BJW; those who were women and had lower income had more pessimistic views on their personal world. With respect to BJW-others, those who were women, not married, and had lower income reported negative views on the socio-political system. Countering this trend, the number of years of education an individual received was associated with lower scores on BJW-others. This indicated that the more people are educated, the more people are critical of the socio-political system.

Use of communication technologies, as anticipated, had no direct *negative* relationship to BJW. However, use of mobile messages was unexpectedly associated with *higher* scores on BJW-self (b=.042, p<.05), and BJW-other (b=. -46, p<.05). Since use of mobile messages was log-transformed, this positive relationship was not linear; the incremental rate in the BJW scores decreased if individuals exchanged greater numbers of mobile messages per week. My data do not provide a conclusive explanation of why use of mobile messages had a positive relationship to BJW. However, previous studies showed that this technology is widely used for

communication with strong ties who share similar social values and views (Gergen, 2003, 2008). Frequent text-messaging with strong ties probably bolsters people's pre-existing positive worldviews (Lerner, 1980).

There were mixed findings on the relationship between personal experiences and BJW. Personal experiences occurring in one's own life was associated with lower scores on BJW-self (b=-.020, p<.01), whereas I did not find any significant relationship between personal experiences and BJW-other. However, these results may not be accurate. In this analysis, the personal experiences variable was not separated into desirable and undesirable experiences. The literature suggests that undesirable and desirable life events have opposite impacts, therefore, the results here might neutralize the actual impacts of personal experience on BJW. Likewise, this analysis might mute the relationship between the AoNLE and BJW as well, because I expected contradicting effects of AoNLE-D and AoNLE-U. Therefore, it would be useful to perform additional regression analyses that include separate desirable and undesirable indexes for personal events and AoNLE.

Table 4-4

Regressions Predicting BJW from Overall AoNLE (N=712)

	BJW-self				BJW-other			
	b	se	beta	Sig.	b	se	beta	Sig.
Constant	3.749	.234		***	3.720	.322		***
Demographic characteristics								
Female	-.175	.052	-.129	***	-.229	.071	-.123	**
Age	.004	.002	.065		.002	.003	.019	
White	.112	.077	.053		.145	.106	.051	
Married	.000	.056	.000		.163	.077	.087	*
Education	.023	.014	.067		-.046	.019	-.097	*
Income	.051	.014	.155	***	.078	.019	.174	***
Use of communication technologies								
No. mobile messages (ln)	.042	.017	.104	*	.046	.023	.085	*
No. email (ln)	.000	.018	.000		-.032	.025	-.052	
Use of Facebook	.001	.001	.038		-.0001	.001	-.003	
Use of Twitter	.001	.001	.023		-.001	.001	-.017	
Use of Instagram	.000	.001	.010		.002	.001	.045	
Personal experience and AoNLE								
Overall personal experience	-.020	.006	-.148	**	.004	.009	.019	
Overall AoNLE	.009	.003	.121	**	-.011	.005	-.108	*
R-square	.089				.078			

Note. ***<.001, **<.01, *<.05; b=unstandardized coefficient; beta= standardized coefficient

BJW and AoNLE Based on Desirability

Table 4.5 presents the results of OLS regressions that predicted BJW-self and

BJW-other based on desirable and undesirable AoNLE. Personal experiences were

also divided into desirable and undesirable personal events. As anticipated, these

regression models better explained BJW than previous ones. Their R-squares were

significantly higher than those of the previous models in Table 4.4 (ΔR^2:.053, p<.05

for BJW-other, BJW-other; ΔR^2: .04, p<.05 for BJW-other).

Similar to the results of previous regressions, those who were female, had lower

income, or used mobile messages less frequently tended to perceive their personal

world as an unjust place. Age also appeared as a significant predictor of BJW-self;

younger people reported relatively negative views of their personal world. For BJW-

other, those who were female, had higher education years, and lower income revealed more negative views of the socio-political world. Use of mobile messages appeared to be marginally significant with BJW-other (p=.058).

As suggested by Janoff-Bulman (1989), personal experiences, especially undesirable personal events have a substantive impact on both BJW-self and BJW-other. The personal experiences variables had higher standardized coefficients than any other variables, yet they predicted BJWs differently depending on their desirability. Those who personally experienced a greater number of undesirable events saw their personal and socio-political worlds as unjust (b=-.263, p<001 for BJW-self; b=-.054, p<.001 for BJW-other). Likewise, the greater number of desirable events people personally experienced, the more positively they viewed their personal (b=.021, p<.05) and socio-political worlds (b=.054, p<.001).

There was clear evidence to support the hypotheses that AoNLE is associated with BJWs. Unlike personal experiences, however, the pattern of relationship between AoNLE and BJW appeared differently depending on the social dimensions of BJW. As anticipated in H14, only desirable AoNLE was related to higher levels of BJW-self (b=.025, p<.01) while undesirable AoNLE had no significant relationship to BJW-self. Consistent with H13, undesirable AoNLE was associated with lower scores on BJW-other (b=-.023, p<.05), whereas desirable AoNLE was not significantly related to BJW-other. These results can be explained by people's biased optimism toward themselves (Dalbert, 1999). When people are aware of desirable network events, they may expect similar positive events to happen in their own personal world. On the other hand, people might underestimate the likelihood of negative events happening to themselves. Therefore, they are more likely to use these undesirable events only for judging the socio-political world of others.

Table 4-5

Regressions Predicting BJW from AoNLE-D/U (N=712)[1]

	BJW-self				BJW-other			
	b	se	beta	Sig.	b	se	beta	Sig.
Constant	3.757	.227		***	3.738	.317		***
Demographic characteristics								
Female	-.134	.051	-.099	**	-.189	.071	-.102	**
Age	.005	.002	.082	*	.003	.003	.032	
White	.145	.075	.069		.180	.105	.063	
Married	-.016	.055	-.012		.139	.076	.074	
Education	.018	.013	.051		-.051	.018	-.108	**
Income	.039	.014	.117	**	.065	.019	.144	***
Use of communication technologies								
No. mobile messages (ln)	.038	.016	.095	*	.043	.022	.077	
No. email (ln)	.001	.017	.003		-.031	.024	-.050	
Use of Facebook	.000	.001	.027		.000	.001	-.011	
Use of Twitter	.001	.001	.027		.000	.001	-.010	
Use of Instagram	.000	.001	.005		.001	.001	.041	
Personal experience								
Desirable experiences	.021	.010	.096	*	.054	.014	.182	***
Undesirable experiences	-.068	.011	-.263	***	-.054	.016	-.153	***
AoNLE								
AoNLE-D	.025	.008	.187	**	-.001	.011	-.006	
AoNLE-S	-.010	.008	-.070		-.023	.011	-.121	*
R-square	.142				.122			

Note. ***<.001, **<.01, *<.05; b=unstandardized coefficient; beta= standardized coefficient

BJW and AoNLE Based on its Desirability and Tie-Strength

In the same way that I examined one's perceived stress, I created four types of AoNLE based on desirability and tie-strength. Table 4-6 presents the results of OLS regressions predicting BJW-self and BJW-others based on these types of AoNLE. Although the current regression models do not show significantly higher R-squares than the previous ones, they provided detailed accounts of the different roles of strong and weak ties in AoNLE.

Consistent with H15a, desirable AoNLE-S was associated with higher scores on BJW-self (b=.022, p<.05). However, there was no significant relationship between desirable AoNLE-W and BJW-self. H15b was thus rejected. This meant H15c was supported, which hypothesized a stronger effect of desirable AoNLE-S than that of desirable AoNLE-W.

In H16, I hypothesized that both AoNLE-US and AoNLE-UW would be associated with BJW-other. However, evidence to support this hypothesis was mixed As expected in H16a, those who were aware of undesirable AoNLE happening to strong ties perceived the socio-political world as an unfair place to people in general. In contrast, undesirable AoNLE-W was not significantly associated with BJW-others. Altogether, the results reported in this section suggested that AoNLE involving strong ties a had stronger impact on BJW-other than AoNLE involving weak ties.

Table 4-6

Regression Predicting BJW from Four Indexes of AoNLE (N=712)[1]

	BJW-self				BJW-other			
	b	se	beta	Sig.	b	se	beta	Sig.
Constant	3.742	.235		***	3.634	.325		***
Demographic characteristics								
Female	-.127	.051	-.093	*	-.183	.071	-.098	*
Age	.006	.003	.090	*	.004	.004	.043	
White	.153	.076	.073	*	.180	.105	.063	
Married	-.015	.055	-.011		.135	.076	.072	
Education	.018	.013	.051		-.052	.019	-.108	**
Household Income	.038	.014	.114	**	.062	.019	.136	**
Use of Communication Technology								
No. mobile messages (ln)	.037	.017	.092	*	.045	.023	.081	
No. emails (ln)	-.001	.018	-.001		-.039	.024	-.063	
No. of FB friends (ln)	.017	.015	.046		.027	.021	.055	
FB Comments	.000	.001	-.010		-.001	.002	-.026	
FB Likes	.000	.001	.014		.000	.001	-.015	
FB Private messages	-.001	.001	-.029		-.003	.001	-.071	
FB Status Update	.000	.002	-.007		.002	.003	.024	
Use of Twitter	.001	.001	.029		.000	.001	-.009	
Use of Instagram	.0001	.001	.003		.001	.001	.039	
Personal experience								
Desirable experience	.021	.011	.098		.055	.015	.186	***
Undesirable experience	-.065	.012	-.250	***	-.044	.016	-.125	**
AoNLE								
AoNLE-DS	.022	.010	.150	*	.013	.014	.065	
AoNLE-DW	.003	.010	.302		-.015	.014	-.084	
AoNLE-US	-.020	.010	-1.932		-.044	.014	-.189	**
AoNLE-UW	.007	.011	.629		.013	.015	.058	
R-square	.145				.126			

Note. ***<.001, **<.01, *<.05; b=unstandardized coefficient; beta= standardized coefficient

Path Analyses Including Stress/BJW, AoNLE and Communication Technology

In H12, H17, and H18, I proposed that AoNLE mediates the relationship between the use of communication technologies and stress/BJW. To test these hypotheses, I conducted path analyses that combined regression models reported in the previous and current chapters. I performed two path analyses based on different indexes of AoNLE. The first model included five exogenous variables for use of communication technologies (use of mobile messages, email, Facebook, Twitter and Instagram), two mediators (desirable and undesirable AoNLE), and three endogenous variables (stress, BJW-self and BJW-others) (Figure 4-1). For the second model, there were nine exogenous variables (use of mobile messages, and emails, the number of Facebook friends, Facebook commuting, Facebook liking, Facebook status updating, Facebook private messaging, and use of Twitter and Instagram), four mediators (desirable/undesirable AoNLE-strong ties, desirable/undesirable AoNLE-weak ties), and three endogenous variables (stress, BJW-self and BJW-others) (Figure 4-2). Demographic characteristics and personal experiences were consistently controlled for in both path models.

As seen in Figure 4-1, levels of AoNLE-D were highest among those who frequently used mobile messages and Facebook. Based on the bootstrapping method of assessing significance of indirect effect (Hayes, 2017), I verified that the use of mobile messages was indirectly, through AoNLE-D, associated with higher scores on BJW-self (b=.0064, se=.0037, 95% Lower CI=.0005 95% Upper CI=.0149). The frequency of Facebook was also related to higher scores on BJW-self, through AoNLE-D (b=.0004, se=.0002, 95% Lower CI=.0001 Upper CI=.0008). Use of Facebook also had a negative indirect relationship to levels of BJW-other, through AoNLE-U (b=-.0003, se=.0002, 95% Lower CI=-.0007 Upper CI=-.0001)

In terms of the second model, which specified Facebook usages and desirable and undesirable AoNLE based on tie-strength, I found that AoNLE-DS mediated the relationship between the number of Facebook friends/Facebook status updating and BJW-self; using a bootstrapping method, I verified that the number of Facebook friends was related to higher levels of BJW-self as an indirect result of AoNLE-DS (b=.0055, se= .0033, 95% Lower CI=.0001, 95% Upper CI=.0127). Frequency of Facebook status updates had a negative indirect relationship to levels of BJW-self; through AoNLE-DS, frequency of Facebook status updates was indirectly associated with lower levels of BJW-self (b=-.0009, se=.0005, 95% Lower CI=-.0021, 95% Upper CI=-.0001). On the other hand, undesirable AoNLE-S mediates the relationship between Facebook liking/Facebook status updating, and BJW-others. Those who frequently liked others Facebook contents were more likely to have a negative view of socio-political world, as they perceived a greater number of undesirable network life events occurring to their strong ties (b=-.0008, se=.0004, 95% Lower CI=-.0018, 95% Upper CI=-.0001). The opposite direction of the indirect relationship was found for Facebook status updating and BJW-other. Through undesirable AoNLE-S, Facebook status updating was indirectly associated with higher levels of BJW-other (b= .0012, se= .0006, 95% Lower CI= .0002, 95% Upper CI= .0027).
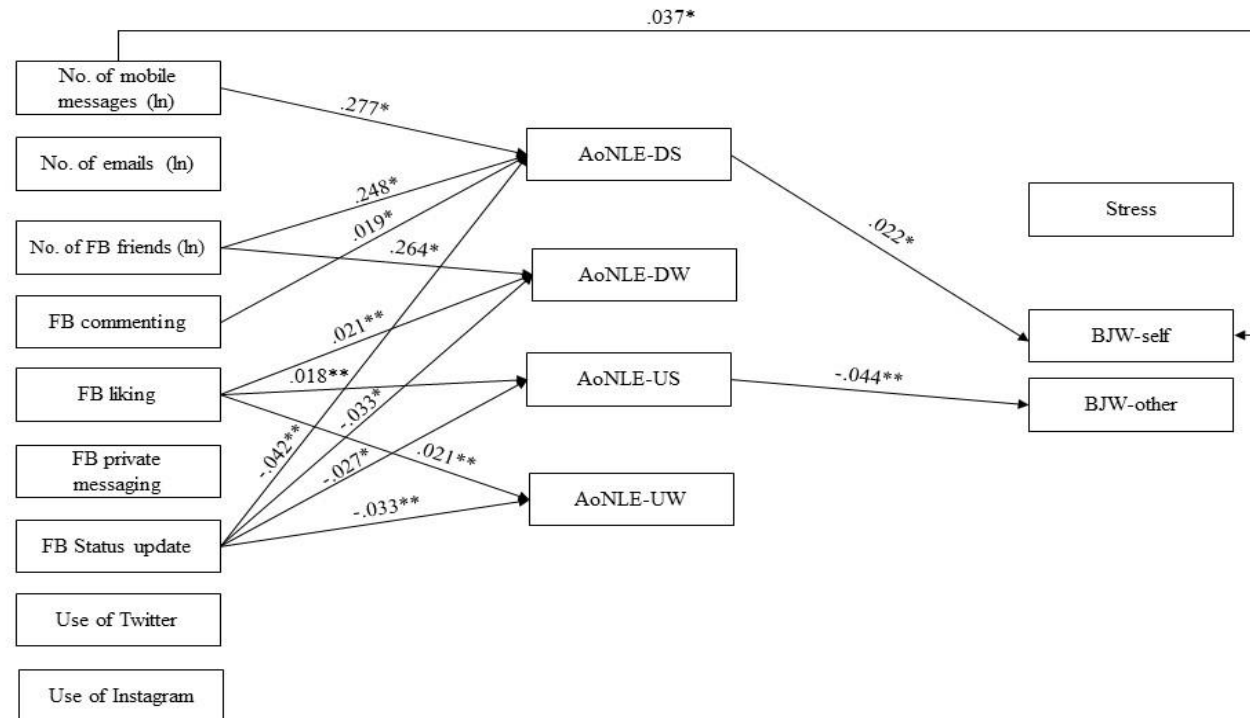
Figure 4-1

Path Model for Use of Communication Technologies and Psychological Outcomes Based on AoNLE-D/U
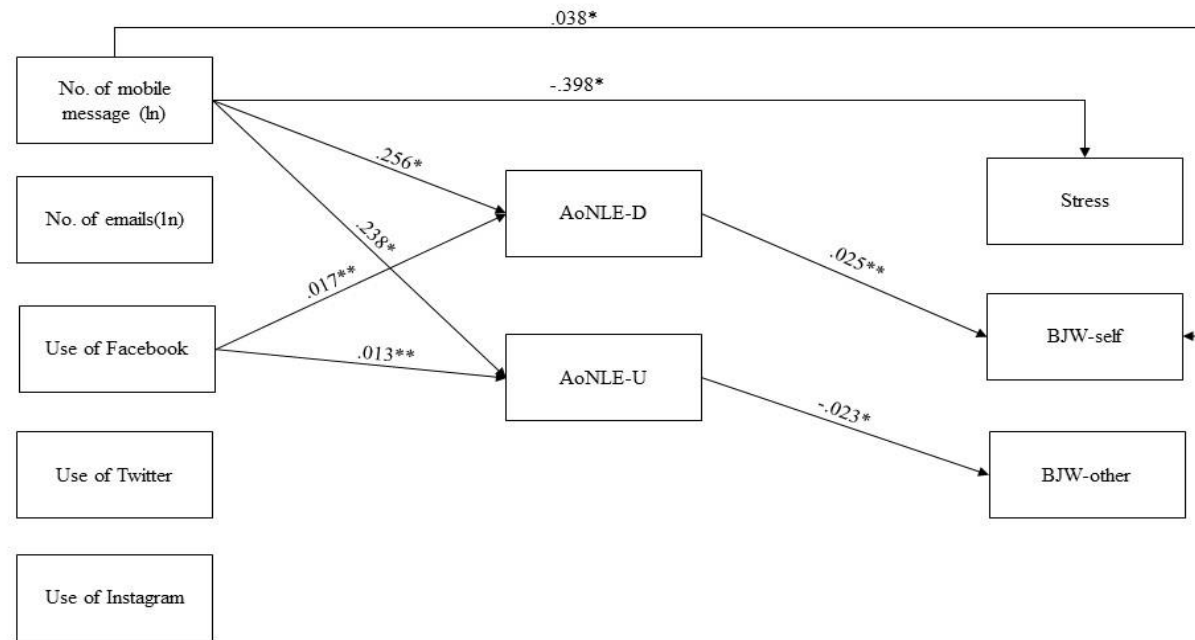
***<.001, **<01, *<05; N=712; Only significant paths shown

Figure 4-2

Path Model for Use of Communication Technologies and Psychological Outcomes Based on Four Indexes of AoNLE

***<.001, **<01, *<05; N=712; Only significant paths shown

The results of this section revealed that AoNLE was related to one's BJW but not one's psychological stress. As already explored in the previous chapter, specific use path analysis verified the mediating role of AoNLE in the relationship between the use of Facebook and BJW. However, this mediation was applicable only to AoNLE-S. Network life events which occurred within the peripheral realm of one's networks seemed to have limited impacts. These findings suggested that the psychological impacts of AoNLE were made up of three factors: use of communication technology, desirability of network life events, and tie-strength with the people who experienced the events. However, the quantitative data used here do not provide a conclusive explanation for why these three factors were intertwined in the AoNLE dynamic. Detailed accounts of this dynamic will be discussed in the next section, drawn from the qualitative analysis.

The Mechanism of Cost of Awareness

Although I found a statistical relationship between AoNLE and pessimistic views of the world, it does not explain why people react to AoNLE in the way they do. I sought to identify which negative feelings, attitudes, and perceptions individuals display due to AoNLE and explore the reasons for these negative reactions (RQ2). In what follows, I categorized three types of negativity from AoNLE that emerged through in-depth interviews. These findings are presented in Table 4-7 with sample quotes and frequency of cases reported by the participants. I also discuss how these negativities varied depending on the topics of network life events and the relationship with people who experienced these events. The findings ultimately elaborate how consequences of awareness are associated with the usage practices of technology, identified in the previous chapter (RQ3).

Table 4-7

Cost of Awareness in Three Different Areas

Cost of Awareness	Definition	Sample Quotes	No. of Cases
Cost of caring	Emotional stress originated from a supporting role of social ties .	"Most of our family has given up on him just because he keeps making bad decisions. (…) That's kind of burdening because then one of us has to bail him out." (James, 28, Texas).	16
Sense of vulnerability	Feeling pertaining to insecurity, uncontrollability, and uncertainty toward one's own life	"When you learn that someone you know has cancer, it goes through your mind that, 'it could happen to anyone, me or someone I know, someone I love'." (Sarah, 57, New York)	15
Exposure to dirty laundry	Being embarrassed and overloaded by negative information and personal events which should be shared in private contexts	"It's a little too much for me because sometimes you don't need to share how you feel about certain people, especially people in their workplace" (Richard, 39, California) "Whenever I go on Facebook, I am always shocked by the level of details that people post (…) I feel overloaded with unnecessary information" (Matthew, 25, Michigan)	20

Cost of Caring

Awareness of network life events, especially undesirable ones, encourages recognition of the needs and struggles of others. Participants reported that they offered emotional support or tangible aid when they became aware of someone in need. However, the provision of social support was not always pleasurable. Many participants directly or indirectly referred to how helping their network members was challenging. These negative experiences are related to existing literature on the cost of caring (Kessler & McLeod, 1984), which addresses the distressing effect of providing social support. One type of cost of caring acknowledged by participants was emotional involvement. While aiding others in need, almost all participants empathized with the undesirable situations experienced by others. One participant's statement below shows how he felt the same negative emotion as his friend while listening to and supporting his friend's undesirable events:

> One day, one of my close friends sent me Facebook messages about his argument with his neighbors because he wanted to vent his frustrations out. We usually message each other when these things happen. So, I let him vent which helped him feel better and move on from the argument. (…) While talking to him, I also felt pretty frustrated with his situation. It just sucks. Pardon my language, but I really felt annoyed for him about the whole situation. (Michael, 25, Michigan)

As Michael described, individuals can help their family or friends just by listening to their problems (Jones, Bodie, & Hughes, 2016). Michael's friend was able to ease out his negative emotions while communicating with Michael, although Michael did not offer any solution to his friend's challenge. However, from Michael's perspective, listening itself was emotionally draining; knowing his friend's distress influenced his mood as well. Beside Michael, other participants also reported that they felt mild or intense negative emotions after listening to others' problems. This shows

that providers of social support can pay an emotional toll just through the simple act

listening.

In addition to experiencing similar negative emotions with others in need,

emotional cost of caring occurred when participants perceived their limitations as a

supporter. Most participants felt pressure to provide appropriate aid especially when

their strong ties were in need. If they realized that their support was not useful,

negative emotions such as helplessness, guilt, and frustration were triggered. For

example, Kaitlyn knew one friend who recently lost her child. She really wished to

help her friend but did not know how. Her comment below described how distressing

it was being an incompetent assistant:

> Recently, my friend experienced a difficult situation. Her three-month-old
> died. (…) I tried to reach out and call her often but it's really hard because I
> don't know what to say and how to help her. I think she needs to go to a grief
> counselor or a professional, but she won't do that. So, I tried to listen to her
> and give her advice, but I really have no idea what I'm doing. I don't have any
> experience on the kind of guilt she is dealing with. So, it's been very stressful,
> and I'm not sure what my role as a friend is. (Kaitlyn, 45, Illinois)

Compared to the cases above, which showed negative experiences derived from

the provision of emotional support, some participants offered actual material goods

and financial aid to help their social ties. Many of them, however, mentioned that

providing such tangible resources was burdening. For instance, James recently

received a Facebook message about his brother's trouble with the law. His remark

below reflects the exhaustion he felt from helping his brother:

> Most of our family has given up on him because he keeps making bad decisions.
> We try to help him, but he doesn't accept our help. That's kind of burdening
> because then one of us has to bail him out. I am going to help him out just this
> one time, but I won't do it again (James, 28, Texas).

Consistent with the findings of Kessler et al. (1985), almost all cases related to

cost of caring stemmed from helping strong ties who experienced undesirable life

events. However, this did not mean that providing social support with strong ties

always demanded the cost of caring. Helping non-kinship ties, such as friends, was

not taxing in the same way as supporting family. Participants rarely reported cases

where supporting their network members outside of family required too much effort.

According to their description, non- familial ties were satisfied with one-time simple

support such as listening, rather than tangible resources. When Michael was aware of

his friend's car accident, he attempted to help his friend financially, but his friend did

not accept it: "I offered some financial help to my friend when he had a car accident,

but he didn't take it and just wanted to vent his feelings". In contrast, many

participants acknowledged that needs and struggles of family ties exerted more

pressure than those of friendship ties. Rachel's episode below illustrates the complex

dynamics in supporting family ties:

> My older sister has financial problems. It's not like she just told me once. It's
> been an accumulation of times she's told me that she's struggling. On the
> phone, texts, Facebook message, or in person. (…) I get annoyed but still feel
> like I have to help her, because she's my family (Rachel, 29, Nevada).

As already explored in the previous section, *encountering* – directly receiving

contacts or messages from others – was generally considered to be a desirable way to

hear news about their strong ties. Taken together, the cost of caring is more likely to

occur in the context of encountering than the other two practices, *browsing* and

searching. To verify this, I conducted a cross tab analysis between cost of caring and

the three types of practice usage. As shown in Table 4-8, almost all participants

reported that they experienced cost of caring when they engaged in encountering. By

contrast, browsing was not related to cost of caring at all because this usage practice

was associated mostly with awareness of network life events in the lives of weak ties.

Overall, these findings are consistent with the results of the quantitative

analysis, which suggested the limited impact of AoNLE on stress. Interview

participants reported that severe cost of caring occurred only when helping others in

their core network, such as immediate family. Even though participants were often

aware of network life events happening to weak ties, especially through SNS

browsing, they did not directly involve themselves as supporters. For example, while

browsing Facebook, Julia discovered that her former coworker had not found a job

after quitting his previous one. She felt pity for her former coworker but did not

personally contact or help him because they were not close: "I didn't feel any way in

particular and I'm used to it because I see this kind of news all the time". Another

participant's comments below imply why undesirable AoNLE-W achieved through

SNS browsing is not enough to disturb one's emotional wellbeing:

> With social media being how it is now, everyone can share everything. And
> now you see more and more people sharing things about the negative things in
> their lives. (…) Now I find out, and I know that acquaintances have lost loved
> ones, gotten divorced, or things like that. But it doesn't really impact my own
> life because I just feel like it's a part of everyone's life (Richard, 39,
> California).

Table 4-8

Crosstab Results Comparing Negativities of Awareness with Usage Practice of

Technologies

Practices	Encountering	Browsing	Searching
Cost of caring	81.2% (13)	12.5% (2)	6.3% (1)
Sense of vulnerability	31.2% (5)	37.5% (6)	24% (4)
Dirty laundry	0% (0)	100% (20)	0% (0)

Sense of Vulnerability

People are generally optimistic about their lives (Taylor & Brown, 1988). They

tend to overlook the likelihood of experiencing traumatic life events such as the loss

of a loved one, car accidents, serious illness, or divorce (Weinstein, 1980). Such a

positive view of life, however, can be threatened by indirect experience. For example,

Gerbner and his colleagues (Gerbner, 1998; Gerbner & Gross, 1976; Gerbner et al., 1977) argued that TV news reports on violence and crime caused people to see their world as a dangerous and risky place where undesirable events easily occur. The in-depth interviews conducted for this research extend "mean word" effects of indirect experience to AoNLE. According to participants' descriptions, undesirable AoNLE, especially which reflected traumatic life events, allowed them to realize possible risks that exist in their own lives. They mentioned feelings pertaining to insecurity, uncontrollability, and uncertainty toward their own lives after becoming aware of someone who recently experienced a devastating event. For example, while browsing her Facebook newsfeed, Sarah found that one of her friends was diagnosed with breast cancer. Even though she was not directly involved with her friend's situation, she said, "it was scary in general". She described her concern as follows: "When you learn that someone you know has cancer, it goes through your mind that, 'it could happen to anyone, me or someone I know, someone I love'." Another participant unexpectedly found out that his aunt's husband passed away. As he explained below, the event which happened to his aunt made him feel a lack of control in life:

> It's a very shocking story because he never drank, smoked or did anything unhealthy from what I know. So, it just makes me think why? You never know. It makes me think about life and how, even if you think you have control, you don't have control. (David,32, California)

When participants were made aware of a traumatic network event, they could not believe that such a rare event occurred to someone in their networks. A few of them searched for more information to confirm its occurrence. When Samantha read a Facebook post about a divorce between her cousin and his wife, she immediately contacted her cousin. After verbal confirmation of the divorce, she felt uncertain about her life: "My only stability in life was knowing that those two were going to be married forever, but now I lost all my stability".

Although traumatic life events occurred in the lives of weak ties, they was sufficiently impactful in shaping participants' sense of vulnerability. The unpredictable and uncontrollable nature of those events made them reevaluate the meaning of life. For example, Jennifer found that one of her elderly acquaintances, Carol, recently lost her husband by reading a Facebook post made by Carol. Jennifer did not personally contact Carol afterward because they were not "close enough to call". Nevertheless, she described her feeling as follows:

> I worry about my parents dying (…). I worry a lot if I get a late-night phone call kind of thing. I think, 'Oh, something happened to my dad', stuff like that. I'm definitely starting to get into that time of my life (Jennifer, 33, Pennsylvania).

I also found that such a negative experience was associated with a certain type of usage practices that I identified in the previous chapter. As seen in Table 4-8, most cases regarding sense of vulnerability were based on passive use of communication technologies, such as encountering and browsing. Some cases were related to searching, but in these cases, participants were initially aware of traumatic network life events either through encountering or browsing. They searched for additional information afterwards because the events were so shocking, and they wanted further details.

Exposure to Dirty Laundry

SNS allows people to broadcast messages to a wide range of social ties with varying degrees of relational strength. In other words, its users can easily and effortlessly learn information about someone else. Scholars describe such a unique nature of SNS, using the term *visibility* (Treem & Leonardi, 2013). Due to its high visibility, most participants equate posting on SNS with disclosing themselves in front of the public. They considered negative and personal disclosures, i.e., personal problems or disputes, as inappropriate contents shared on SNS. This dissertation calls

such negative and private life events *dirty laundry* drawn from one participant's explanation.

> On Facebook, we kind of consume a lot of people's lives and I'm always surprised by the things I see, things that people post. Maybe I'm just old fashioned in my beliefs, but there's an old saying, 'don't air your dirty laundry in public'. I'm surprised that so many people are completely okay with putting things like that out there. I think something should just be kept private and handled definitely outside a public arena (Grace, 33, Washington).

Like Grace, other participants also mentioned that posting contents reflecting *dirty laundry* violates the norms for SNS use. As suggested by expectancy violation theory (Burgoon, 1993), participants showed negative reactions such as embarrassment and irritation, to such norm-violating behaviors. For example, Richard knew "a casual acquaintance" who frequently posted about her work on Facebook. These posts made him uncomfortable: "I feel like it's her way of venting and just letting her thoughts and feelings out, but as a reader, it's a little too much for me because sometimes you don't need to share how you feel about certain people and especially about work."

In addition to emotional discomfort, exposure to *dirty laundry* can alter participants' attitudes toward network members. Lauren accidentally became aware of her mentor's financial credit problem through Twitter. Her comments below reflect how she came to view her mentor as irresponsible:

> When I was doing college applications, I had a mentor to help the process. (…) One day, he posted a link on Twitter about Credit Karma. (…) At first, I thought it was one of those malware things, a phishing scam, and maybe they posted it on his page, but then I clicked on it and realized it was actually made by him. It was kind of surprising because he was my mentor, and I was supposed to look up to him. Now I kind of look down on him. So, I felt a little weird. If he can't really manage his credit, how can he help me manage my life? (Lauren, 26, California)

As already explored in the previous chapter, SNS browsing is a key process of awareness for weak ties. Consistent with this finding, most negative reactions

associated with dirty laundry were triggered by SNS posts made by weak ties.

Although participants could be annoyed by undesirable events discussed by strong

ties, the reason for this negativity was related to the provision of social support rather

than the exposure to dirty laundry. Altogether, the exposure to dirty laundry

implicates a negative side effect of SNS browsing; social information continually

flows into individuals' lives, while at the same time, people feel "overloaded with

unnecessary information". One participant's comments below indicate how *dirty*

laundry distracts him from valuable information:

> Whenever I go on Facebook, I am always shocked by the level of details that
> people put on Facebook. For example, last week, I saw someone talking
> negatively about her marriage and her husband. That kind of stuff should not
> belong on Facebook. I prefer people just share major events or something
> important. I don't want to scroll down for 10 minutes before I find out
> something important, otherwise I miss it completely so. (Matthew, 25,
> Michigan)

Summary and Conclusion

In this chapter. I first examined the relationship between AoNLE and

psychological outcomes, such as stress and BJW, and verified mediating effects of

AoNLE between the use of communication technologies and stress/BJW. Results of

the hypothesis testing are summarized in Table 4-9. Countering my hypotheses, the

quantitative findings revealed that AoNLE had a limited impact on one's stress level

and BJW. For stress, AoNLE did not have a significant relationship to one's stress

levels, as it did with personal life events. In terms of BJW, there was also no

significant relationships between AoNLE-U and BJW-self. Consistent with just world

theory (Lerner & Miller, 1978), even though people were aware of undesirable

network life events, they still held the belief of a personal just world. However, their

perception of the broader socio-political world could be affected by undesirable

network life events. I found that AoNLE-US were negatively associated with BJW-

other. This indicated that the heightened awareness of undesirable network events, especially occurring for strong ties, can cause "mean world syndrome" (Gerbner, 1998) when individuals judge their socio-political world.

Combining the discovery regarding AoNLE and BJW-other, I verified an indirect relationship between use of mobile message/Facebook and a negative perception of the socio-political world. The results revealed that those who frequently used mobile messages or Facebook tended to negatively judge their social and political systems as a result of being aware of many undesirable network life events. Closer examination of Facebook use highlighted its contradictory effects: those who frequently liked other's posts on Facebook were more likely to see their socio-political systems as unfair because they were made aware of many undesirable events occurring for strong ties through Facebook. On the other hand, those who frequently updated their status on Facebook reported relatively positive views toward their societal systems as they were aware of less undesirable network life events occurring to strong ties.

Moreover, the qualitative findings generated a granular understanding of conditions where people's psychological states were disturbed by AoNLE. The first condition associated with the cost of caring (Kessler & McLeod, 1984) demonstrated emotional strains derived from the provision of social support. Participants reported intensive stress when they helped their immediate family who experienced undesirable network life events. Another negative aspect of awareness was relevant to traumatic network life events, such as a sudden death of loved one or a serious illness. The uncontrollable and unpredictable nature of such events lead people to think "it could happen to anyone" and, in turn, see themselves and others as weak and vulnerable. Of course, the exposure to such negative events were rare. However,

many scholars argue that traumatic life events have potent effects on one's well-being because detrimental emotions and consequences are saliently persistent than positive ones (Baumeister et al., 2001). Along with this argument, I found that the awareness of a traumatic event starting from a post on SNS had enough impact to make people feel vulnerable. Lastly, I found an unexpected negative consequence of awareness, referred to as exposure to dirty laundry. Participants expressed embarrassment and irritation when they saw others' posts on SNS about negative and private life events such arguments with their spouse or issues with their boss. This finding suggests that the social norm for posting on SNS is shared among individuals and people react similarly to the violation of this norms.

All in all, the findings presented in this chapter show the significance of incidental exposure in network awareness. Most participants obtained information about network life events through passive usage practices such as receiving messages, liking Facebook posts, or browsing SNS newsfeeds. Although people sometimes acquired information about social ties through active use of technologies, such as status updating on Facebook, they were more likely to report positive feedback from this awareness. On the other hand, passive usage practices allowed participants to discover the unfavorable and unexpected sides of others' lives. Such incidental exposure often caused a violation of the pre-existing perceptions about others, events, and the social world (Goel et al., 2010). Given these findings, I concluded that cost of awareness is based on passive use of communication technology rather, than active use.

Table 4-9

Results of Hypotheses and Research Questions

	Hypotheses and Research Questions	
H10	a) *AoNLE-U* is associated with *higher* levels of *psychological stress*	NS
	b) *AoNLE-D* is associated with *lower* levels of *psychological stress*	NS
H11	a) *AoNLE-US* is associated with higher levels of *psychological stress*	NS
	b) *AoNLE-UW* is associated with higher levels of *psychological stress*	NS
	c) *AoNLE-DS* is associated with lower levels of *psychological stress*	NS
	d) *AoNLE-DW* is associated with lower levels of *psychological stress*	NS
	e) The relationship between *AoNLE-DS/US* and stress is *stronger* than between AoNLE-DW/UW and psychological stress	NS
H12	AoNLE mediates the relationship between the use of communication technology and one's stress.	NS
H13	*AoNLE-U* is associated with *lower* levels of *BJW-other*	S
H14	*AoNLE-D* is associated with *higher* levels of *BJW-self*	S
H15	a) *AoNLE-DS* is associated with *higher* levels of *BJW-self*	S
	b) *AoNLE-DW* is associated with *higher* levels of *BJW-self*	NS
	c) The relationship between *AoNLE-DS/US and BJW-self* is *stronger* than between AoNLE-DW/UW and BJW-self	S
H16	*AoNLE-US* is associated with *lower* levels of *BJW-other*	S
	AoNLE-WS is associated with *lower* levels of *BJW-other*	NS
H17	*AoNLE-D* mediates the relationship between the use of communication technologies and *BJW-self*.	PS
H18	*AoNLE-U* mediates the relationship between the use of communication technologies and *BJW-others*.	PS
RQ2	How do people shape negative feelings, attitudes and perceptions toward network life events? **a)** How do the negative responses to network life events differ by topics of network life events? **b)** How do the negative responses to network life events differ by the relationship with people who experienced the events?	
RQ3	How do these negativities of network life events differ by the process by which users acquire relevant information?	

Note. S=Supported; NS=Not supported; PS= Partially supported

Note.

[1.]In addition to OLS regressions, I used ridge regressions to assess the extent of multicollinearity among AoNLE variables and its impact on OLS estimates. Ridge regression places a particular form of constraint on the parameters to shrink uncomfortably large variances caused by high correlation among variables. (Hoerl & Kennard, 1970). The results of the Ridge regression showed similar patterns to those of OLS regressions. Because of the complexity of the interpretation, I decided to report the results of OLS regression instead.

Chapter 5. Network Life Events and Personal Experiences

This chapter examines how network life events and personal experiences are intertwined with the psychological wellbeing. Numerous studies have already suggested complex interconnections between network life events and personal experiences. However, they are grounded in different frameworks, such as social support (Pillemer & Suitor, 1996; Thoits, 1986), cultivation theory (Gerbner et al., 1980) or social comparison (Festinger, 1954; Wills, 1981). There is little agreement on how and why people's reactions to network life events differ according to their personal experiences. Focusing on this challenge, this chapter attempts to extend previous research regarding the interplay of network life events and personal experiences affecting psychological wellbeing. Using a mix-methods approach, I test different theories in two ways: moderation and experiential (dis)similarity.

First, I explored personal experiences as a moderator of the relationship between AoNLE and stress/BJW. Psychological effects of AoNLE may not be uniform across individuals. Rather, they vary depending on one's personal experiences. For example, people's ability to understand and help others in need are determined by their personal situations (Davis et al., 1999). If they confront serious difficulties, they regulate their empathy to others in order to concentrate more on their own problems. Individuals also perceive informativeness of network life events differently based on what events they are going through (Shrum & Bischak, 2001). In this vein, I sought to answer the question of whether one's personal situation alters directions or strength of effects of AoNLE on stress/BJW (RQ4). Along with this question, I explored how the indirect relationship between use of communication technology and stress/BJW, through AoNLE, was moderated by personal experiences (RQ5).

Next, I investigated the role of experiential (dis)similarity (i.e. having dis/similar life experience with social ties) on one's psychological wellbeing. There is evidence of both positive and negative psychological and social outcomes of experiential (dis)similarly. For example, research regarding social support has emphasized experientially similar others as a key source of coping strategies for the distressed individuals (Thoits, 1986). Cultivation theory has argued that mean world effects of television become intensified when an individual viewer shares experiential similarity with TV contents (Gerbner et al., 1980). Drawing on these findings, I attempted to examine how experiential similarities and dissimilarities were related to with one' stress levels and BJW (RQ6) and how use of communication technologies was associated with awareness of experiential similarities and dissimilarities (RQ7).

The rest of this chapter is organized as follows: The first section discusses results which address moderating effects or personal experiences in the relationship between AoNLE and stress/BJW. In the second section, I examine the relationship between experiential (dis)similarities in one's stress/BJW by considering concurrence of each life event to oneself and others. Findings ultimately elaborate how a person's use of communication technology is closely intertwined with his/her personal and relational situations.

Moderated Relationship between AoNLE and Stress/BJW

To answer RQ4, which inquiries about the moderating effects of personal experiences in the relationship between AoNLE and stress/BJW, I extended the previous regression by adding interaction terms between levels of AoNLE and personal experiences. This analysis allowed me to test moderating effects of personal experiences, which change strengths or directions of the relationship between AoNLE and stress/BJW. Beyond this analysis, I conducted a moderated mediation analysis to

address RQ5. This analysis specifically tested whether the significance of the

relationships between use of communication technology and psychological outcomes,

mediated through AoNLE, varied depending on the number of personal events. Last, I

analyzed interview data, which clarified the results from the quantitative findings.

Personal Experience as Moderator

Table 5-1 reports the results of regressions examining the moderating effects

of personal experiences in the relationship between AoNLE and three outcome

variables (i.e. stress, BJW-self and BJW-other). Given the previous findings that

desirable life events have opposite effects from undesirable life events, these

regression models included awareness of desirable network life events (AoNLE-D)

and awareness of undesirable network life events (AoNLE-U) separately. Results

showed that there was only one significant interaction effect in predicting perceived

psychological stress. The interaction between undesirable personal experiences and

AoNLE-U had significantly negative coefficient in predicting stress ($b=-.066$,

$p<.001$). It indicated that AoNLE-U was conditionally associated with one's

psychological stress depending on the number of personal undesirable life events.

Using the process macro, developed by Hayes (2017), I further decomposed this

interaction effect. To make the analysis clear, the associations between AoNLE-U and

stress was probed at three different points of undesirable personal experiences (the

mean and +, -1 standard deviation). As illustrated in Figure 5-1, AoNLE-U had a

significantly positive relationship to stress, only when the number of personal

undesirable events was relatively low ($b=.269$, $p<.05$) but not when it was moderate

($b=.096$, $p>.10$) or high ($b=-.07$, $p>.10$). This implies that undesirable personal

experiences nullify the distressing effects of undesirable network life events when

individuals are preoccupied by their personal issues.

Figure 5-1

Interaction between Personal Experiences of Undesirable Life Eventsand AoNLE-U
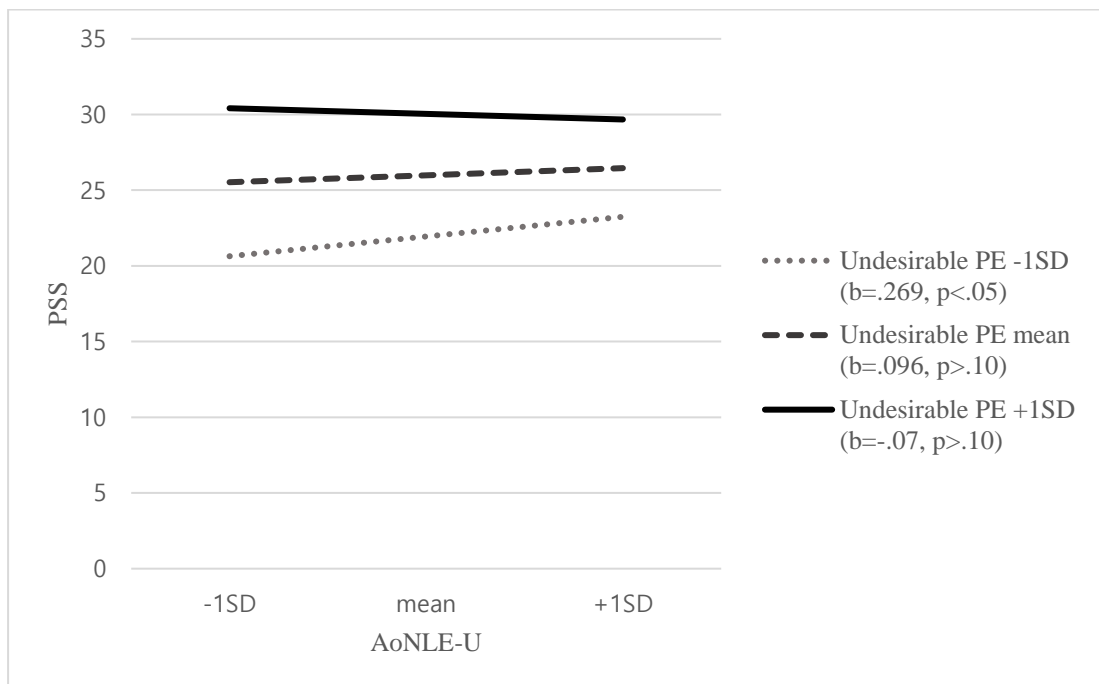
Note. PE=Personal experiences

Table 5-1

Regressions Predicting PSS and BJW based on Interactions between Personal Experiences and AoNLE (N=712)

	PSS			BJW-self			BJW-other		
	b	se	Sig.	b	se	Sig.	b	se	Sig.
Constant	31.663	2.489	***	3.764	.231	***	3.801	.322	***
Demographic characteristics									
Female	2.011	.548	***	-.128	.051	*	-0.181	.071	*
Age	-.125	.026	***	.005	.002	*	0.003	.003	
White	-.975	.811		.144	.075		0.183	.105	
Married	-.391	.588		-.017	.055		0.136	.076	
Education	.005	.142		.018	.013		-0.052	.018	**
Income	-.419	.148	**	.039	.014	**	0.066	.019	***
Use of communication technologies									
No. mobile messages (ln)	-.412	.174	*	.038	.016	*	0.045	.022	*
No. email (ln)	-.014	.187		.002	.017		-0.028	.024	
Frequency of Facebook	.001	.007		.0001	.001		0	.001	
Frequency of Twitter	-.007	.009		.001	.001		0	.001	
Frequency of Instagram	.013	.011		.0001	.001		0.002	.001	
Personal experience and AoNLE									
Desirable personal experiences	-.819	.21	***	.031	.02		0.051	.027	
Undesirable personal experiences	1.956	.195	***	-.09	.018	***	-0.093	.025	***
AoNLE-D	-.124	.109		.031	.01	**	0.002	.014	
AoNLE-U	.277	.108	*	-.019	.01		-0.04	.014	**
Personal experience*AoNLE									
Desirable personal experiences*AoNLE-D	.017	.016		-.001	.002		.0001	.002	
Undesirable personal experiences*AoNLE-U	-.066	.019	***	.003	.002		.005	.003	
R-square	.286			.145			.177		

Note. ***<.001, **<.01, *<.05; b=unstandardized coefficient; beta= standardized coefficient

In order to answer RQ4a, whether awareness for strong ties and weak ties is moderated differently by personal experience, I specified further AoNLE indexes based on tie-strength as well as desirability. Additional regression models including four interaction terms – 1) awareness of desirable network life events in the lives of strong ties (AoNLE-DS) *desirable personal experiences, 2) awareness of desirable network life events in the lives of weak ties (AoNLE-DW) *desirable personal experiences, 3) awareness of undesirable network life events in the lives of strong ties (AoNLE-US) *undesirable personal experiences, and 4) awareness of undesirable network life events in the lives of strong ties (AoNLE-UW) *undesirable personal events – were conducted. The results of these regression analyses are presented in Table 5-2. Consistent with previous results reported in Table 5-1, psychological stress was the only outcome variable, which was affected by one significant interaction. More specifically, only the interaction between AoNLE-US and undesirable personal experiences significantly predicted one's stress (b=-.078, p<.05). As illustrated in Figure 5-2, AoNLE-US were significantly associated with higher levels of stress, only when individuals experienced a relatively small number of undesirable life events (b=.402, p<.01). No positive relationship, however, was detected among those who experienced a relatively large number of undesirable life events. These results suggest that AoNLE is only important for those who rarely experience undesirable life events, but whose social ties, especially strong ties, experience undesirable events.

Table 5-2

Regressions Predicting PSS and BJW Based on Interactions between Personal

Experiences and Four Indexes of AoNLE (N=712)

	PSS			BJW-self			BJW-other		
	b	se	Sig.	b	se	Sig.	b	se	Sig.
Constant	32.747	2.550	***	3.748	.238	***	3.717	.328	***
Demographic characteristics									
Female	2.143	.552	***	-.119	.051	*	-.178	.071	*
Age	-.126	.028	***	.006	.003	*	.004	.004	
White	-1.031	.818		.152	.076	*	.178	.105	
Married	-.416	.590		-.018	.055		.128	.076	
Education	-.019	.144		.017	.013		-.053	.018	**
Income	-.449	.149	**	.038	.014	**	.063	.019	**
Use of communication technologies									
No. of mobile messages (ln)	-.353	.179	*	.036	.017	*	.049	.023	*
No. of email (ln)	-.019	.189		.000	.018		-.036	.024	
No. of FB friends (ln)	-.109	.162		.017	.015		.030	.021	
FB Comments	-.007	.014		-.001	.001		.000	.002	
FB Likes	.004	.011		.000	.001		.000	.001	
FB Private messages	-.002	.012		-.001	.001		-.003	.001	*
FB Status Update	-.031	.021		.000	.002		.002	.003	
Frequency of Twitter	-.006	.009		.001	.001		.000	.001	
Frequency of Instagram	.014	.011		.001	.001		.001	.001	
Personal experience and AoNLE									
Desirable personal experiences	-.733	.198	***	.035	.018		.048	.025	
Undesirable personal experiences	1.902	.188	***	-.090	.018	***	-.083	.024	***
AoNLE-DS	-.286	.163		.029	.015		.022	.021	
AoNLE-DW	.136	.163		.006	.015		-.024	.021	
AoNLE-US	.402	.152	**	-.032	.014	*	-.060	.019	**
AoNLE-UW	-.062	.160		.003	.015		-.002	.021	
Desirable personal experience*AoNLE-D									
Personal experiences* AoNLE-DS	.027	.028		-.002	.003		-.002	.004	
Personal experiences* AoNLE-DW	-.012	.027		.000	.003		.003	.003	
Undesirable personal experience* AoNLE-U									
Personal experiences* AoNLE-US	-.078	.035	*	.004	.003		.005	.005	
Personal experiences* AoNLE-UW	.000	.031		.000	.003		.002	.004	
R-square	.295			.150			.136		

Note. ***<.001, **<.01, *<.05; b=unstandardized coefficient;

Figure 5-2

Interaction between Personal Experiences of Undesirable Life Events and AoNLE-US
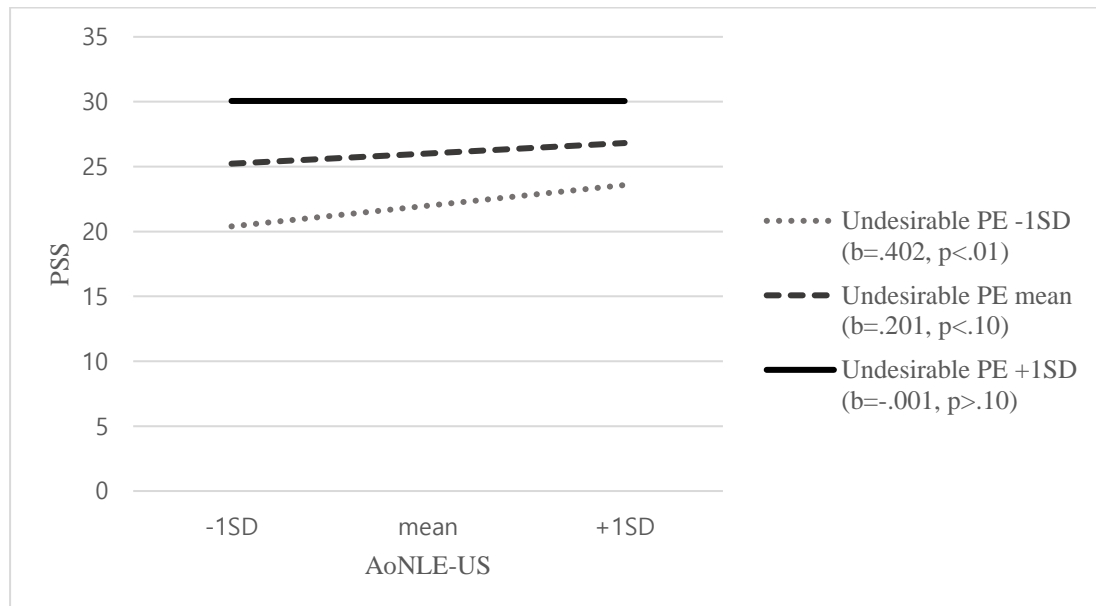
Note. PE=Personal experiences

Conditional Indirect Effects of Communication Technology Usage on Psychological Well-being

The results of the moderated relationships above suggest the possibility of a conditional indirect relationship between use of communication technology and stress, often termed moderated mediation (Preacher et al., 2007). This means that AoNLE can mediate the relationship between use of communication technology and stress, only at specific levels of personal experience. A conceptual model of moderated mediation was illustrated in Chapter 1 (see Figure 1-2 for details). Using a bootstrap technique provided by Process macro 3.0 (Hayes, 2017), I tested the significance of conditional indirect relationships between use of communication technology and stress. Figure 5-3 presents the results of path analysis including moderated mediation. This analysis included both AoNLE-D and AoNLE-U as mediators and desirable and undesirable personal experiences as moderators. Although AoNLE-U itself was not associated with stress, AoNLE-U interacted with undesirable personal events. As had

already been explored, AoNLE-U was highest among those who frequently used mobile messages and Facebook. As seen in Table 5-3, the moderated mediation analysis revealed that AoNLE-U significantly mediated the relationship between use of mobile messages and stress, only when individuals had personally experienced a relatively small number of undesirable life events (b=.064, se=.041, 95% Lower CI=.002, Upper CI=.149). If individuals had experienced a large number of undesirable life events, the indirect relationship between use of mobile messages and stress disappeared. Use of Facebook also had a conditional indirect relationship with stress in the same manner; only when individuals experienced fewer undesirable life events was their Facebook usage indirectly associated with higher stress, through AoNLE-U (b=.003, se=.002, 95% Lower CI=.0004, Upper CI=.004).

Table 5-3

Conditional Indirect Relationship between Use of Communication Technology and Stress through AoNLE-U

Indirect relationship	Levels of undesirable personal experiences	b(se)	95% Bootstrap CI	
			LL	UL
no. of Mobile messages (ln) → AoNLE-U→PSS	at - 1 SD of the mean	.0638(.0406)	.0018	.1493
	at the mean	.0028(.0243)	-.0158	.0800
	at +1 SD	-.0182(.0248)	-.0736	.0259
Frequency of Facebook → AoNLE-U→PSS	at - 1 SD of the mean	.0034(.0018)	.0004	.0075
	at the mean	.0012(.0012)	-.0009	.0037
	at +1 SD	-.0010(.0013)	-.0042	.0012

Figure 5-3

Path Model Including Moderated Mediation based on AoNLE-D/U

***<.001, **<01, *<05; N=712; Significant paths indicated as bold lines. Insignificant paths indicated as dashed lines.

To differentiate the roles of strong and weak ties in AoNLE, I conducted an additional moderated mediation analysis, which integrated the four indexes of AoNLE as mediators and desirable/undesirable personal experiences as moderators. Facebook usage was itemized into five different activities in this analysis. As shown in Figure 5-4, those who frequently liked Facebook posts made by others tended to be aware of a greater number of undesirable network life events occurring to strong ties. This higher awareness was conditionally associated with stress depending on the number of undesirable personal experiences. Using the bootstrapping method (Hayes, 2017), I verified that liking on Facebook was indirectly, through AoNLE-US, associated with higher levels of stress, only when respondents personally experienced relatively few undesirable events (b=.007, se=.004, 95% Lower CI=.001, Upper CI=.016, See Table 5-4 for details). If individuals rarely experienced negative personal life events and frequently liked others' contents on Facebook, they tended to be aware of a greater number of network life events occurring to strong ties. This higher awareness was associated with higher levels of stress. By contrast, the levels of AoNLE-US were lower among those who frequently updated their Facebook status. This relationship implies that Facebook status updating is indirectly, through AoNLE-US, associated with lower levels of stress. Yet, using the bootstrapping method (Hayes, 2017), I found that the indirect relationship between Facebook status updating and stress was also significant only when the number of undesirable personal experiences was relatively low (b=-.011, se=.006, 95% Lower CI=-.023, Upper CI=-.001). Those who frequently updated Facebook had lower levels of AoNLE, even when occurring among strong ties. As a result, they were less likely to have higher levels of stress unless they personally experienced undesirable life events.

Figure 5-4

Path Model Including Moderated Mediation based on Four Indexes of AoNLE
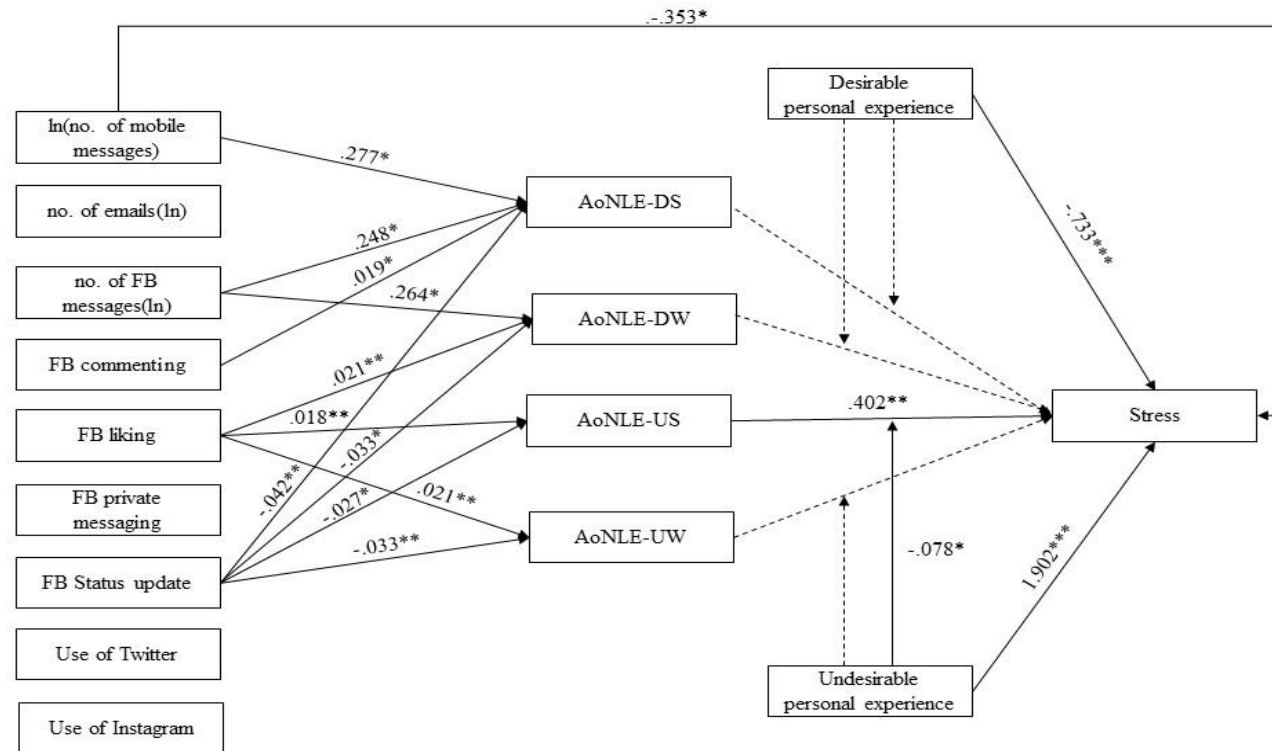
***<.001, **<01, *<05; N=712; Significant paths indicated as bold lines. Insignificant paths indicated as dashed lines.
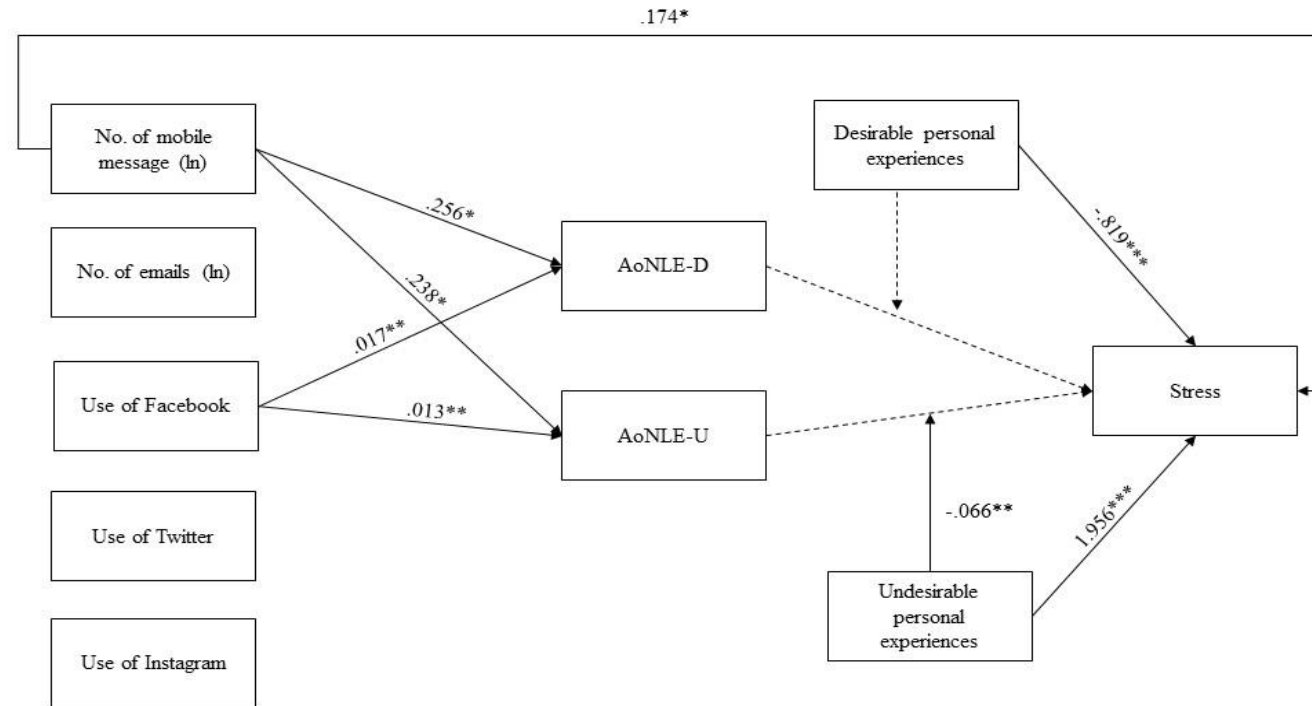
Table 5-4

Conditional Indirect Relationship between Use of Communication Technology and Stress through AoNLE-US

Indirect relationship	Levels of undesirable personal experiences	b(se)	95% Bootstrap CI	
			LL	UL
FB liking → AoNLE-US→PSS	at - 1 SD of the mean	.0072(.0038)	.0010	.0156
	at the mean	.0035(.0023)	-.0003	.0088
	at +1 SD	-.0003(.0025)	-.0059	.0050
FB status updating→ AoNLE-US→PSS	at - 1 SD of the mean	-.0105(.0056)	-.0228	-.0013
	at the mean	.0050(.0035)	-.0129	.0005
	at +1 SD	.0004(.0037)	-.0068	.0080

Variation of Cost of Caring Depending on Personal Situation

In line with the quantitative findings, several participants directly or indirectly stated how the distress of undesirable AoNLE varied depending on their circumstances. For example, Daniel mentioned that his mood usually dictated how he responded to the negativity of other people's life events:

> If I'm in a bad mood, I take something negative much differently than if I'm in a happier mood. For example, my best friend lost his father a year ago. Although it's sad that he [my friend's father] passed away and I also knew he was in a lot of pain, that news was especially depressing to me too, because I personally went through a difficult situation at that time." (Daniel, 42, New Jersey)

As Daniel expresses above, when combined with personal situations, exposure to undesirable network life events can bring additional stress to individuals. Another participant, Julia, knew that she would have to pay a price if she helped someone in need: "I'm okay to learn about their lives and events as long as I don't have a lot going on in my life, but if I have too much going on in my life, I can't handle their life. So, I usually try not to internalize it and make it a part of my life". Accordingly, Julia did not seem to be interested in

learning about the lives of acquaintances, especially through Facebook or Instagram. She visited social media 3 to 5 times a week solely for her professional career. "I sometimes use Facebook to see what's going on other's lives, but not frequently. I'm not comfortable seeing some stuff on Facebook. I don't really like that"

Indeed, participants who are suffering extreme difficulties did not show strong interest in other people's lives. They spent most of their time and effort dealing with their own problems. For example, Paul recently went through dealing with the death of his fiancé. However, he did not report any negative experiences related to AoNLE because he was not exposed to many undesirable network life events. Even his use of communication technologies, such as mobile messages and Facebook, was mostly for informing others of his and his fiancé's situation and recruiting possible support from them, rather than learning about them. His comment below illustrates how his use of Facebook was different from those of other participants:

> It's surprising because of what all happened, I didn't use Facebook before, but it's really in the last, like, two or three months, I started using it again to let our friends know what was happening to me and my fiancé. When she had the last set of strokes and she wasn't taking care of herself as much as she should have, many friends weren't aware of this. So, I felt kind of responsible to keep everybody informed. Because of Facebook, I recently talked with friends that I haven't talked to in years." (Paul, 43, New York)

Nevertheless, it is almost impossible for individuals to completely control information flows in personal networks. Regardless of their intentions, distressed participants were often aware of difficulties of others. In this case, downward social comparisons (Wills, 1981) could occur as an attempt at self-defense. Those under threat tried not to see awareness of undesirable network life events as extra burdens to their lives. Instead, they felt better about their situations because this awareness

indicated misfortune of others who were worse off than themselves. One participant, Kaitlyn, said that she noticed so many life events were happening around her. Personally, she had a financial issue to deal with and some of her friends had recently went through very difficult situations, such as divorce or loss of a child. Although the events were negative, she gained solace by looking at others whose problems were "super hard to overcome":

> I was recently stressed out [by my personal problem], but those people make me think how good my life is. My husband is nice. If something did go wrong, I have parents that could afford to help me out, and it makes me feel kind of grateful that I have these things. (…) I feel like 'all right, this is bad, but it's not the end of the world'. (Kaitlyn, 45, Illinois)

To summarize, both the quantitative and qualitative results reported in this section suggest that the negativity of AoNLE pertaining to cost of caring depends on one's personal situation. The statistical tests of moderation revealed that undesirable AoNLE was significant to one's stress only when an individual had not gone through many undesirable life events. Personal life events appeared to decrease effects of AoNLE because handling personal life events took priority over supporting others' network life events. Qualitative analysis explored this issue in greater detail. Many participants were aware of the cost of caring i.e., cost associated with being involved in others' problems. Accordingly, those who were going through personal problems tended to avoid learning about network members' problems and offering help. Even if this type of person was aware of the distress of others, they stood to benefit from the awareness of undesirable network life events by making downward social comparisons. These findings explain why the harmful effects of undesirable network life events disappear when individuals experience personal difficulties.

Experiential (Dis)similarity

Unlike AoNLE, which reflects a person's general knowledge of others' life experiences regardless of his/her personal experiences, experiential (dis)similarity acknowledges the importance of concurrence of life events between oneself and social ties. To address RQ6 and RQ7, I created a new series of indexes for experiential (dis)similarity, which conceptualizes network life events and personal experiences as a single variable, rather than using two separate variables for AoNLE and personal experiences. More specifically, eight indexes of experiential similarity were generated based on life events that occurred concurrently to both oneself and social ties. Experiential dissimilarity was separated into two different constructs: endogenous personal life events (EnPLE) and exogenous network life events (ExNLE). Two indexes of EnPLE were created based on desirable/undesirable life events that occurred to only oneself. Life events that happened only to social ties were divided in to eight indexes of ExNLE based on desirability of events and strength of social ties (see Table 2-6 for details). Using these indexes, I conducted OLS regressions to model the relationships among stress/BJW, experiential similarity, EnPLE, ExNLE, and use of communication technologies.

Stress/BJW and Experiential (Dis)Similarity

Table 5-5 reports the results of regressions predicting stress and BJW from experiential similarity, EnPLE, and ExNLE controlling for socio-demographic characteristics and use of communication technologies. In these regression models, experiential similarity, EnPLE, and ExNLE were separated into desirable and undesirable indexes.

The results for stress revealed a substantive effect of experiential similarity (i.e., life events occurring to both oneself and social ties), especially regarding undesirable

life events. To be specific, undesirable experiential similarity had the highest

standardized coefficient (beta=.330), followed by endogenous undesirable personal

life events (EnPLE-U)- undesirable life events experienced only by oneself

(beta=.320). This result indicates that the distressing effect of undesirable life events

is amplified when an individual's social ties also experience similar events. On the

other hand, exogenous undesirable network life events (ExNLE-U) – undesirable life

events experienced only by social ties – had no significant relationship to stress. An

identical pattern was found in the relationships between desirable experiential

(dis)similarities and stress. The influence of desirable experiential similarity on stress

had the highest magnitude (beta=-.277, p<.001), followed by endogenous desirable

personal life events (EnPLE-D)- desirable life events experienced only by oneself

(beta=-.091, p<.05). This suggests that the stress reducing effect of desirable life

events becomes strengthened when an individual's social ties are experiencing similar

events. Yet, exogenous desirable network life events (ExNLE-D) – desirable life

events occurring only for social ties – was not significantly associated with stress.

Consistent with the results for stress, desirable and undesirable experiential

similarities played important roles in predicting BJW-self. Their effects on BJW-self

were more substantive than those of EnPLE; undesirable life events happening to both

oneself and social ties (beta= -.253, p<.001) had higher magnitude in its coefficient

than the undesirable events occurring only to oneself (beta= -.121, p<.01); desirable

life events happening to both oneself and social ties (beta=.190) also had a stronger

effect on BJW-self than the events occurring only for oneself (beta=.098, p<.05).

Interestingly, ExNLE-D was positively associated with levels of BJW-self. Its

influence (beta=.166, p<.001) was stronger than EnPLE-D (beta=.098). This implies

that positive information, such as desirable network life events, has a compelling

impact on a person's judgement of their world, even when life events do not happen firsthand.

In predicting BJW-other, desirable experiential similarity appeared to be the strongest predictor of BJW-other (beta=.155, p<.01), followed by EnPLE-D (beta=-.095, p<.05). ExNLE-D did not predict BJW-other significantly. In terms of undesirable experiential (dis)similarities, ExNLE-U had the strongest effect on BJW-other (beta=-.144, p<.01), although its magnitude was similar to those of undesirable EnPLE-U (beta=-.141, p<.001). Undesirable experiential similarity, which indicated the events happening to both oneself and social ties, had a relatively small impact on BJW-other (beta=-.119, p<.01). These results suggest the importance of experiential dissimilarity in one's judgement of the outside world. When judging socio-political systems, people seem to give more weight undesirable life events that they have yet to experience. They may think that these exogenous events tell much about the outside worlds than those that they already experienced.

Table 5-5

Regressions Predicting PSS/BJW from Experiential (Dis)Similarities (N=712)

	PSS			BJW-self			BJW-other		
	beta	se	Sig.	b	se	Sig.	b	se	Sig.
Constant	-	2.467	***	-	.229	***	-	.318	***
Demographic characteristics									
Female	.127	.548	***	-.101	.051	**	-.097	.071	*
Age	-.174	.026	***	.075	.002		.034	.003	
White	-.041	.811		.069	.075		.064	.105	
Married	-.028	.589		-.012	.055		.075	.076	
Education	.002	.142		.053	.013		-.109	.018	**
Income	-.105	.148	**	.119	.014	**	.145	.019	***
Use of communication technologies									
No. of mobile messages (ln)	-.092	.174	*	.093	.016	*	.083	.022	*
No. of email (ln)	-.001	.187		-.001	.017		-.050	.024	
Frequency of Facebook	.003	.007		.025	.001		-.012	.001	
Frequency of Twitter	-.019	.009		.030	.001		-.010	.001	
Frequency of Instagram	.041	.011		.003	.001		.041	.001	
Desirable life events									
Experiential similarity	-.277	.115	***	.190	.011	***	.155	.015	**
EnPLE-D	-.091	.205	*	.098	.019	*	.095	.026	*
ExNLE-D	-.009	.097		.166	.009	***	.019	.012	
Undesirable life events									
Experiential similarity	.330	.157	***	-.253	.014	***	-.119	.020	**
EnPLE-U	.320	.197	***	-.121	.018	**	-.141	.025	***
ExNLE-U	.083	.098		-.040	.009		-.144	.013	**
R-square	.283			.147			.117		

Note. ***<.001, **<.01, *<.05; beta= standardized coefficient

For RQ6b, I asked how the influences of experiential (dis)similarities differed with whom people shared those similarities. To address this question, experiential similarity was re-opertaionlized into 6 indexes: desirable/undesirable experienital simlarity shared with strong ties/weak ties/both strong and weak ties. In the same way, EnNLE was seperated into 6 indxes: desirable/deisrable network life events expereinced by strong ties/weak ties/both strong and weak ties. Table 5-6 presents the results of regression analyses including these experiential (dis)similarities indexes as

the main independent variables. To interpret these results, I compared standardized coeffeceints of each varaible.

Socio-demographic characteristics and use of communication technologies were controlled, as with previous anlayses. As had already been explored, desirable and undesirable pure personal expereiences predicted one's stress in a negative and positive direction respectively. Experiential similarities appeared to have a significant relationship to stress, but its magnitude varied for strong and weak ties. For desirable life events, expereintial simlarity shared with strong ties (beta=.-101, p<.01), and shared with both strong and weak ties (beta=-.250, p<.001) were associated with lower levels of stress. Indeed, these two variables had stonger impacts than EnPLE-D (beta=-.098,p<.01). Yet, the similarity between oneself and weak ties had no sinigifcant relationship to stress. This suggests that the stress buffering effect of desirable life events becomes stronger when individuals share experiential similarity with both strong and weak ties. In terms of undesirable life events, undesirable experiences shared with strong ties (beta=.187,p<.001) and shared with both strong and weak ties (beta=.242,p<.001) were associated with higher levels of stress. Yet, standardized coeffecients of these variables had lower values than that of EnPLE-U (beta=.316, p<.001). This implies that the damaging mental effect of one's undeisrable life events may be mitigated if his/her strong ties expeirence similar life events.

The results for BJW-self, on the other hand, supported the significance of experiential similarities shared by both strong and weak ties. For desirable life events, events occuring to the individual and both strong and weak ties (beta=.183,p<.001) had the most substantive impact (beta=.105,p<.01). Desirable experiential similarity shared with strong ties also had a significant relationship to BJW-self, but its effect

was the weakest (beta=.078, p<.05). Furthermore, I identified that the effect of exogenous desirable network life events occuring to both strong and weak ties (ExNLE- DSW) (beta=.113, p<.05) has a stronger effect than EnPLE-D (beta=.105, p<.05). Exogenous desirable network life events occuring only for strong ties (ExNLE-DS) also had a significant relationship to BJW-self, although its effect was less substantive (beta=.097). However, exogenous desirable network life events occuring only for weak ties (ExNLE-DW) was not significatly associated with BJW-self. When it came to undesirable life events, expereintial simlarity shared with strong ties (beta=-.180, p<.001) had a stronger effect on BJW-self than the similalirty shared with both strong and weak ties (beta=-.155, p<.01). This result suggests that people's negative perceptions of their personal worlds are more affected by experiential similarity shared only with strong ties than various ties.

As for BJW-other, desirable experiential similarity shared with both strong and weak ties (beta=.181, p<.001) had a stronger posiitve relatioship to BJW- other than and EnPLE-D (beta=.097, p<.05). There is no realationship between any type of ExNLE-D and BJW-other. In terms of undesirable life events, exogenouse network life events occuring for both strong and weak ties (ExNLE-USW) was the strongest predictor of BJW-other (beta=-.184,p<.001), followed by EnPLE-U (beta=-.138,-<.001). Although less substantive, exogenous desirable network life events occuring only for strong ties (ExNLE-DS) (beta=-.086) and undesirable experiential similarly between oneself and strong ties (beta=-.082) had a significant relationship to BJW-other. Overall, these results for BJW-other suggest that negative effects of undesirable life events can be stronger when individuals have not yet experienced them, but have solely witnessed those events experienced by both strong and weak ties. The results reported in this section are summrized in Table 5-7.

Table 5-6

Regressions Predicting PSS/BJW from Detailed Experiential (Dis)Similarities

(N=712)

	Stress			BJW-self			BJW-other		
	beta	se	Sig.	beta	se	Sig.	beta	se	Sig.
Constant		2.506	***		.232	***		.321	***
Demographic characteristics									
Female	.122	.553	***	-.099	.051	**	-.092	.071	*
Age	-.169	.026	***	.07	.002		.027	.003	
White	-.045	.816		.072	.075	*	.068	.105	
Married	-.035	.597		-.012	.055		.084	.076	*
Education	.001	.144		.057	.013		-.105	.018	**
Income	-.104	.149	**	.122	.014	**	.139	.019	**
Use of communication technologies									
No. of mobile messages (ln)	-.088	.176	*	.093	.016	*	.08	.022	*
No. of email (ln)	-.003	.189		.002	.017		-.048	.024	
Use of Facebook	.004	.007		.024	.001		-.015	.001	
Use of Twitter	-.021	.009		.032	.001		-.009	.001	
Use of Instagram	.041	.011		.001	.001		.038	.001	
Desirable Experiential Similarities									
Similarity -strong ties	-.101	.226	**	.078	.021	*	.013	.029	
Similarity-weak ties	-.046	.68		-.027	.063		.044	.087	
Similarity-both ties	-.250	.137	***	.183	.013	***	.181	.018	***
Desirable Experiential Dissimilarities									
EnPLE-D	-.098	.209	**	.103	.019	**	.097	.027	*
ExNLE-DS	-.025	.158		.099	.015	*	.049	.02	
ExNLE-DW	.067	.172		.052	.016		-.075	.022	
ExNLE-DSW	-.031	.143		.113	.013	*	.015	.018	
Undesirable Experiential Similarities									
Similarity- strong ties	.187	.285	***	-.180	.026	***	-.082	.036	*
Similarity -weak ties	.048	.778		-.040	.072		-.017	.10	
Similarity- both ties	.242	.204	***	-.155	.019	**	-.071	.026	
Undesirable Experiential Dissimilarities									
EnPLE-U	.316	.198	***	-.114	.018	**	-.138	.025	***
ExNLE-US	.06	.149		-.019	.014		-.086	.019	*
ExNLE-UW	-.008	.167		.039	.015		.032	.021	
ExNLE-USW	.077	.168		-.081	.016		-.184	.022	***
R-square	.291			.158			.138		

Note. ***<.001, **<.01, *<.05; beta= standardized coefficient

Table 5-7

Comparison of Standardized Coefficients of Experiential (Dis)Similarity

Dependent variables	Comparison
Stress	**Desirable life events (positive direction)**
	Experiential similarity -SW > Experiential similarity -S > EnPLE
	Undesirable life events (negative direction)
	EnPLE> Experiential similarity - SW > Experiential similarity - S
BJW-self	**Desirable life events (positive direction)**
	Experiential similarity - SW > ExNLE-SW > EnPLE > ExNLE-S > Experiential similarity - S > EnPLE
	Undesirable life events (negative direction)
	Experiential similarity - S > Experiential similarity - SW > EnPLE
BJW-other	**Desirable life events (positive direction)**
	Experiential similarity - SW > EnPLE
	Undesirable life events (negative direction)
	ExNLE-SW > EnPLE > ExNLE-US > Experiential similarity - S

Note. Only significant variable indicated; S=strong tie; W=weak ties; SW=both strong and weak ties

Experiential (Dis)Similarity and Use of Communication Technologies

While using mobile messages, emails, and/or SNS, individuals learn about life

events occurring in the lives of others and spontaneously realize experiential

similarities or dissimilarities with network members. In RQ8, I asked how use of

communication technologies are associated with awareness of experiential similarity

and ExNLE. To answer this research question, I first conducted four regressions

predicting desirable/undesirable experiential similarities and ExNLE. EnPLE was not

included as dependent variable because it seems unlikely that those who use

communication technology experience more undesirable life events than other people.

The results of the regressions are reported in Table 5-8.

Age and marital status were significantly related to both desirable and

undesirable experiential similarities. Those who were younger or married were likely

to have more associates who had experienced similar desirable and undesirable life events. These findings are likely explained by the size of these people's personal networks. According to Wrzus, Hänel, Wagner, and Neyer (2013), younger adults prefer to construct more extensive networks of social ties than older adults and marriage is one major event that expands the networks of family-ties. As Thoits (2011) point out, the bigger one's personal networks are, the more experientially similar others are likely to exist in one's networks. Moreover, young people tend to experience more major life events than older people due to their unstable life conditions (Hatch & Dohrenwend, 2007). Combined with homophily (McPherson et al., 2001), young people may easily find experientially similar others within their networks.

On the other hand, sex and income predicted only desirable experiential similarity; those who were male or had higher income reported a greater number of desirable life events occurring to both themselves and their social ties. Along with the findings pertaining to awareness of desirable network life events, this result reflects gender and income-based structural constraints (Lin, 2000). Men with higher income tend to experience positive life events personally, but also be surrounded by similar privileged others (Green, Tigges, & Browne, 1995; Moore, 1990). Due to such an advantageous social condition, this group is likely to have more associates with similar experiences, which, in turn, enhances reproduction of gender/income inequality (Bourdieu, 1973)

In terms of use of communication technology, only frequent use of Facebook was associated with a greater number of desirable life events occurring to both oneself and one's social ties (b=.007, p<.05). However, Facebook was not significantly associated with undesirable experiential similarities. This result may be because of

difference in the likelihood of desirable and undesirable events occurring. Desirable

life events are more likely to happen to people in general as they include common and

normative events such as getting engaged, having a child, and finding a job.

Furthermore, individuals prefer disclosing these positive and meaningful life events

on Facebook to enhance the significance of the events (Bazarova, Choi, Sosik,

Cosley, & Whitlock, 2015). As a result, those who frequently visit Facebook are more

likely to encounter others who have experienced similar desirable life events than

undesirable events.

The results regarding ExNLE revealed that one's household income was the

only sociodemographic variable that predicted both ExNLE-D and ExNLE-U. Those

who had higher income reported higher awareness of desirable and undesirable

network life events, happening only to social ties (b=.166, p<.05 for desirable ones;

b=.182, p<.05 for undesirable ones). Combined with the findings pertaining to

experiential similarity, this result indicates that those with higher incomes have

extensive and diverse personal networks, including both experientially homogenous

and heterogenous others. In addition, those who were unmarried or did not live with a

partner reported higher awareness of network life events experienced only by social

ties, but this relationship was limited to desirable ones (b=-.993, p<.001). This result

perhaps reflects the differences in lifestyle between unmarried and married people.

Although many desirable life events such as weddings, wanted pregnancies or

purchasing a house are quite common, these events are less likely to happen to

unmarried people. They are likely exposed to these events through others'

experiences, rather than firsthand.

Apart from socio-demographic variables, use of Facebook had a positive

relationship to both ExNLE-D and ExNLE-U. Those who frequently used Facebook

reported higher levels of awareness of desirable (b=.011, p<.05) and undesirable

network life events experienced only by social ties (b=.009, p<.05). This suggests that

through Facebook, people are often made aware of "new" life events that they have

not experienced yet. Use of mobile messages also had a positive association with

higher awareness of ExNLE, but this relationship was limited to undesirable events.

There was no relationship between use of mobile messages and ExNLE-D. This result

may be explained by the private nature of mobile communication. People prefer

sharing negative information, such as undesirable life events, in private context where

only a small number of audiences exist (Weenig, Groenenboom, & Wilke, 2001). This

implies that people are likely to receive information about others' hardships through

mobile messages.

Table 5-8

Regressions Predicting Experiential Similarities and ExNLE (N=712)

| | Experiential Similarities | | | | | | | | Experiential Dissimilarities-social ties | | | | | | | |
| | Desirable Similarities | | | | Undesirable Similarities | | | | ExNLE-D | | | | ExNLE-U | | | |
	b	se	beta	Sig.	b	se	beta	Sig.	b	se	beta	Sig.	b	se	beta	Sig.
Constant	2.000	1.045			1.636	.744		*	3.288	1.266		**	2.959	.1322		
Demographic characteristics																
Female	-.493	.233	-.080	*	-.059	.166	-.014		-.340	.282	-.047		.189	.294	.025	
Age	-.041	.011	-.147	***	-.017	.008	-.090	*	.023	.013	.068		.021	.014	.061	
White	-.465	.348	-.049		-.029	.248	-.004		-.287	.422	-.026		-.033	.440	-.003	
Married	.812	.247	.132	**	.370	.176	.087	*	.993	.299	-.137	***	-.046	.312	-.006	
Education	.085	.061	.054		.012	.043	.011		.031	.074	.017		-.038	.077	-.019	
Income	.139	.063	.093	*	-.039	.045	-.038		.166	.076	.095	*	.182	.080	.100	*
Use of communication technologies																
No. of mobile messages (ln)	.139	.074	.076		.019	.053	.015		.117	.090	.055		.219	.094	.098	*
No. of emails (ln)	.053	.080	.026		.065	.057	.046		-.072	.097	-.030		-.045	.101	-.018	
Use of Facebook	.007	.003	.085	*	.004	.002	.066		.011	.004	.113	***	.009	.004	.094	*
Use of Twitter	-.006	.004	-.056		-.003	.003	-.048		.003	.005	.028		-.006	.005	-.047	
Use of Instagram	.002	.005	.016		.001	.003	.013		-.006	.006	-.043		-.007	.006	-.048	
R-square	.094				.024				.036				.036			

Note. ***<.001, **<.01, *<.05; b=unstandardized coefficient; beta= standardized coefficient

Experiential similarity and ExNLE were separated into more specific indexes, which simultaneously reflected both tie-strength and desirability involved in network life events. As with other analyses, I performed a series of OLS regressions predicting each index from use of communication technologies[1,2]. The results are presented in Table 5-9.

Closer examination revealed that use of Facebook was especially important for experiential similarities and dissimilarities where both strong and weak ties were involved. To be specific, I found positive relationships between frequent use of Facebook and desirable/undesirable experiential similarities with both ties (b=.008, p<.01 for desirable; b=.004, p<.05 for undesirable). These results indicated that those who recently experienced desirable and/or undesirable life events were likely to be aware of similar events experienced by both strong and weak ties if they frequently visited Facebook. However, these findings were not generalizable to other contexts of experiential similarities; there was no relationship found with the other four experiential similarity variables: 1) desirable experiential similarities shared with strong ties, 2) undesirable experiential similarities shared with strong ties, 3) desirable experiential similarities shared with weak ties, and 4) undesirable experiential similarities shared with weak ties. This result is likely explained by the technological affordances of Facebook, which promotes the flow of information within established networks. As suggested by studies of homophily (Smith, McPherson, & Smith-Lovin, 2014), one's personal networks mostly consists of friends and acquaintances who share similar life stages. The current measure of experiential similarities reflects one's experiences of transitional life course events such as marriage, childbirth, and first job. These events are common, but significant to individuals. By sharing these events

on Facebook, people may realize similar transitions not only with close friends, but also with other acquaintances, such as previous classmates or co-workers.

Consistent with the results for experiential similarity, Facebook played a significant role in predicting experiential dissimilarities. In particular, it had positive relationships to four variables of experiential dissimilarities: ExNLE-DW (b=.006, p<.01), ExNLE-DSW (b=.008, p<.01), ExNLE-UW(b=.005, p<.05), ExNLE-USW (b=.004, p<.05). However, use of Facebook was not significantly related to desirable/undesirable network life events only occurring to strong ties. This indicated that Facebook makes one's entire network visible rather than its core realm, where only strong ties exist. It is possible that, Facebook information broadcasted from *person-to-networks* (Hampton, 2016) enables individuals to be aware of network life events occurring within their entire network, even though they have not yet experienced these events.

Similarly, use of mobile messages was associated with awareness of greater number of exogenous desirable network life events happening only to both strong and weak ties (ExNLE-SW) (b=.139, p<.05). However, in terms of undesirable network life events, mobile messages allowed people to be aware of exogenous network life events occurring only to strong ties (b=119, p<.05). These results suggest the relatively limited role of mobile messages in pervasive awareness. Mobile messages seem to only promote flows of positive information such as desirable network events, within one's entire network. When it comes to undesirable life events, research in line with these findings proposes that negative information is usually shared within strong ties, not weak ties (Gilbert & Whiteneck, 1976). This may extend to use of mobile messages: through mobile messages, people tend to encounter negative information only involved with strong ties rather than with weak ties.

The results reported in this section demonstrate that people were aware of experiential similarities and ExNLE by using communication technologies, such as Facebook and mobile messages. This awareness was, in turn, associated with various psychological outcomes like stress and BJW. For stress and BJW-self, experiential similarities, especially shared with both strong and weak ties intensified the negative effects of undesirable life events. On the other hand, BJW-other was more likely to be affected by ExNLE, those only occurring to social ties, than experiential similarities. Altogether, these findings suggest that mobile messages and Facebook indirectly affect stress/BJW by increasing awareness of experiential (dis)similarities with social ties. In order to verify the indirect effects of Facebook/mobile messages, a formal statistical test called as mediation analysis (Hayes, 2017) are necessary. However, I was not able to conduct this analysis because the data of experiential (dis)similarities had highly skewed distributions with an excess number of zeroes, which often results in biased estimation and misleading inferences (Shrout & Bolger, 2002). Therefore, I instead performed a qualitative analysis, which explains the complex dynamics of experiential (dis)similarities and psychological outcomes in terms of use of communication technologies.

Table 5-9

Regression Predicting Detailed Experiential Similarities and ExNLE (N=712)

	Desirable Experiential Similarities											
	Similarities with strong ties				Similarities with weak ties				Similarities with both strong and weak ties			
	b	se	beta	Sig.	b	se	beta	Sig.	b	se	beta	Sig.
Constant	1.044	.446		*	-.205	.139			1.161	.977		
Demographic characteristics												
Female	.169	.099	.065		-.025	.031	-.031		-.638	.218	-.112	**
Age	-.013	.005	-.113	**	-.001	.001	-.031		-.027	.010	-.103	**
White	.178	.149	.045		.039	.046	.032		-.683	.325	-.078	*
Married	.544	.105	.210	***	-.022	.033	-.027		.290	.231	.051	
Education	-.023	.026	-.035		.014	.008	.070		.094	.057	.064	
Income	-.008	.027	-.013		.011	.008	.060		.135	.059	.098	*
Use of communication technologies												
No. of mobile messages (ln)	.025	.032	.033		-.002	.010	-.008		.115	.069	.069	
No. of email (ln)	.042	.034	.050		.018	.011	.071		-.008	.075	-.004	
Frequency of Facebook	-.002	.001	-.052		.001	.000	.064		.008	.003	.106	**
Frequency of Twitter	-.001	.002	-.031		.000	.001	-.023		-.004	.004	-.043	
Frequency of Instagram	-.001	.002	-.023		.000	.001	-.030		.004	.004	.032	
R-Square	.065				.025				.075			

Note. ***<.001, **<.01, *<.05; b=unstandardized coefficient; beta= standardized coefficient

(cont.) Table 5-9

	Undesirable Experiential Similarities											
	Similarities with strong ties				Similarities with weak ties				Similarities with both strong and weak ties			
	b	se	beta	Sig.	b	se	beta	Sig.	b	se	beta	Sig.
Constant	.931	.348		**	.931	.348		**	.675	.603		
Demographic characteristics												
Female	.150	.077	.076		.150	.077	.076		-.180	.134	-.053	
Age	-.006	.004	-.065		-.006	.004	-.065		-.013	.006	-.083	*
White	.072	.116	.024		.072	.116	.024		-.112	.201	-.021	
Married	.210	.082	.106	*	.210	.082	.106	*	.186	.143	.054	
Education	-.028	.020	-.055		-.028	.020	-.055		.039	.035	.044	
Income	-.015	.021	-.032		-.015	.021	-.032		-.023	.036	-.028	
Use of communication technologies												
No. of mobile messages (ln)	.024	.025	.041		.024	.025	.041		-.001	.043	-.001	
No. of email (ln)	.026	.027	.040		.026	.027	.040		.032	.046	.029	
Frequency of Facebook	-.001	.001	-.046		-.001	.001	-.046		.004	.002	.101	*
Frequency of Twitter	.000	.001	-.005		.000	.001	-.005		-.002	.002	-.042	
Frequency of Instagram	.001	.002	.023		.001	.002	.023		.000	.003	-.002	
R-Square	.029				.009				.024			

Note. ***<.001, **<.01, *<.05; b=unstandardized coefficient; beta= standardized coefficient

(cont.) Table 5-9

	Desirable Experiential Dissimilarities											
	ExNLE-S				ExNLE-W				ExNLE-SW			
	b	se	beta	Sig.	b	se	beta	Sig.	b	se	beta	Sig.
Constant	2.950	.638		***	.001	.662			.337	.869		
Demographic characteristics												
Female	.169	.142	.046		-.054	.147	-.014		-.456	.193	-.091	*
Age	.021	.007	.124	**	.006	.007	.035		-.004	.009	-.017	
White	.012	.212	.002		.228	.220	.039		-.527	.289	-.068	
Married	-.260	.151	-.071		-.165	.156	-.044		-.567	.205	-.113	**
Education	-.121	.037	-.129	**	.060	.039	.062		.092	.051	.071	
Income	.043	.038	.048		.022	.040	.024		.101	.052	.083	
Use of communication technologies												
No. of mobile messages (ln)	.062	.045	.057		-.084	.047	-.076		.139	.062	.094	*
No. of email (ln)	-.094	.049	-.078		.039	.051	.031		-.017	.067	-.010	
Frequency of Facebook	-.003	.002	-.070		.006	.002	.118	**	.008	.002	.127	**
Frequency of Twitter	.003	.002	.042		.000	.002	.004		.000	.003	.006	
Frequency of Instagram	-.002	.003	-.035		-.001	.003	-.017		-.002	.004	-.024	
R-Square	.044				.024				.059			

Note. ***<.001, **<.01, *<.05; b=unstandardized coefficient; beta= standardized coefficient

(cont.) Table 5.9

	Undesirable Experiential Dissimilarities											
	ExNLE-S				ExNLE-W				ExNLE-SW			
	b	se	beta	Sig.	b	se	beta	Sig.	b	se	beta	Sig.
Constant	1.390	.677		*	.553	.719			.653	.765		
Demographic characteristics												
Female	.453	.151	.117	**	-.016	.160	-.004		-.247	.170	-.057	
Age	.008	.007	.048		.011	.008	.059		.002	.008	.008	
White	.160	.225	.027		.083	.239	.013		-.276	.255	-.041	
Married	.180	.160	.046		-.076	.170	-.019		-.150	.181	-.034	
Education	-.053	.039	-.054		-.007	.042	-.007		.023	.045	.020	
Income	.058	.041	.062		.061	.043	.062		.063	.046	.060	
Use of communication technologies												
No. of mobile messages (ln)	.119	.048	.104	*	.021	.051	.017		.079	.054	.062	
No. of email (ln)	-.029	.052	-.023		.020	.055	.015		-.036	.059	-.025	
Frequency of Facebook	.000	.002	-.009		.005	.002	.098	*	.004	.002	.080	*
Frequency of Twitter	-.002	.003	-.028		-.002	.003	-.032		-.002	.003	-.027	
Frequency of Instagram	-.002	.003	-.022		-.002	.003	-.024		-.003	.003	-.042	
R-Square	.039				.018				.018			

Note. ***<.001, **<.01, *<.05; b=unstandardized coefficient; beta= standardized coefficient

Experiential (dis)Similarity and Cost of Caring/Sense of Vulnerability

Interviews highlight that the negativities associated with network awareness were intensified or attenuated depending on experiential similarities and dissimilarities. More specifically, the interview participants mentioned that experiential similarity with social ties affected their attitudes towards provision of social supports, associated with the cost of caring. On the other hand, ExNLE appeared to be related to participants' sense of vulnerability, as it impacted participants' fear of exogenous risk that they had not experienced yet. Furthermore, I explored how experiential similarity and ExNLE were associated with three usage practices of communication technology indicated in the previous chapter – encountering, browsing, and searching. This allowed me to examine a specific process through which individual participants became aware of experiential (dis)similarities, which ultimately elaborated how active and passive uses of communication technology influenced the roles of experiential (dis)similarities in one's psychological well-being.

Experiential Similarity and Cost of Caring. As suggested by Suitor et al. (1995), the participants described experiential similarity with their social ties as a drive for their helping behaviors. All episodes relevant to experiential similarity were associated with the exchange of social support. Consistent with studies of social support and experiential similarities (Pillemer & Suitor, 1996; Suitor & Pillemer, 1993; Thoits, 1986), participants readily responded to the needs of others who experienced undesirable life events similar to their past experiences, as well as empathizing with these people's difficult situations and negative emotions. If participants provided appropriate supports and coping strategies to their network members, they did not see this act of helping as a burden. Rather, some positive

outcomes were reported which came from "knowing that other's lives may be better because of me" (Shumaker & Brownell, 1984, p. 29). For example, David recently received a text message from his close friend, Noah, who had a problem with financial credit scores. Noah contacted David since David also had the same issue before. Based on his experience, David was able to provide good advice to Noah. David's comment below showed how helping his friend's situation made him feel empowered:

> He [Noah] just texted me like 'have you checked your credit score?' (…) He contacted me to ask how to clear up his credit problem. So, I called him back and tried to give him advice. (…) I like those kinds of things. It was nice that he was asking for help. I let him know what he could do to make the situation better. Whenever you can actually help somebody or let somebody know the right way to do things, it will make you feel good." (David, 32, California)

Similarly, Grace's best friend, Rose, recently had a premature baby. After the birth, Rose called Grace because Grace also gave birth to a premature baby a few months ago. "Her baby was a preemie like mine and she [Rose] needed some comfort and advice from me on what to do for a baby or how to talk to NICU nurses." Grace went to the hospital right away and consoled Rose. Like David, Grace did not report any negative aspects of caring for her friend. She said, "It was the easiest thing in the world because I had all that experience".

However, experiential similarity did not always function in a positive way. Experiential similarity can also increase "empathetic distress" (Smith & Rose, 2011) - the emotional cost of caring which stems from strong emotional involvement in network life events. For example, Sarah had a close friend whose mother was dying from cancer. Her friend kept her updated with the situation using a variety of communication channels, such as phone calls, texts, and emails. Sarah was able to empathize with her friend's situation because she also lost her father to cancer a few years ago:

> I knew what she [my friend] is going through because I went through the same thing. When my father was diagnosed with cancer, it was horrible and really bad to be there. I find it easy to tell her that I'm sorry for her and that I'm there for her. But I know that I cannot do much for her or change her reality. It is very hard for me too. (Sarah, 57, New York)

In addition to emotional distress from empathy, participants felt intensive cost of caring depending on the ways that their network members reacted to their supports. For example, Hannah recently helped her best friend who went through a divorce. Although her prosocial behavior was based on experiential similarity with her friend, later on, Hannah was annoyed by her friend's attitude of dealing with her divorce. She used to be close to this friend but now wants to keep distance from her:

> When she [Hannah's friend] was divorcing, I told her everything because I had gone through a divorce myself, but she didn't want to listen. She did not make sure she was financially stable. She didn't get enough money to support her children. (…) When she texted me the day of the divorce, I was just like "oh okay". I couldn't share her joy. I don't want to be close to her anymore. (Hannah, 41, Arizona)

In the aforementioned episodes, all participants initially realized experiential similarities with their social ties through *encountering* – receiving contact directly from others. Consistent with previous findings on *encountering,* social ties reported by the participants were strong ties. Accordingly, their interactions were not limited to one specific communication channel. If necessary, the participants switched their initial communication mode to other modes and actively helped their close friends based on their past experiences.

Apart from experiential similarities with strong ties, a couple of participants revealed their stories of how they were aware of experiential similarities with acquaintances such as online friends. In these cases, participants intentionally made relationships with these acquaintances because they wanted to learn how to handle their own problems from others' similar experiences. For instance, one participant,

Samantha, joined one of the support groups on Facebook when she had a problem

with her daughter-in-law. She found a couple of people who had similar issues in this

online group. She said, "Those friends are always supportive when it comes to my

problems." Likewise, Rachel also used a SNS support group when she had trouble

with her financial credit rating. She was able to obtain "good advice from others who

experienced similar things". She felt more comfortable sharing her problem in the

online group than to her family because these people did not judge her like her family

did. Compared to the experiential similarities achieved through *encountering*,

participants tended to consider experiential similarities achieved through s*earching* as

beneficial information. Through this searching activity, the participants were able to

recruit diverse resources to make their situations better. However, these cases were

relatively rare. Participants seemed to be aware of the experiential similarities,

especially with strong ties, mostly through incidental exposure, rather than active

searching. Experiential similarity with weak ties was achieved when participants put

effort into discovering desired information relevant to their situation.

ExNLE and Sense of Vulnerability. Unlike experiential similarity, mainly

inherent in exchanges of social support, participants explicitly or implicitly associated

ExNLE with their sense of vulnerability. As discussed in the previous chapter,

awareness of traumatic life events made participants insecure and uncertain in their

lives, even though they did not experience them firsthand. This negative impacts of

ExNLE became intensified if individuals were repeatedly exposed to the same types

of traumatic network life event in a short period. For example, Jennifer recently

witnessed many cases of death of loved ones, which occurred to her relatives, friends,

and neighbors. Her comments below show how frequent exposure to exogenous

traumatic life events affected Jennifer's perspective toward her life:

I had lost so many people within a six-month period. Watching people around me go through this, I really think about the meaning of my life. I never know when my time is quite up. Now, I try to live every day to the fullest. I don't want to sweat over the small stuff anymore. You can't tell what's going to happen in your life.(Jennifer, 52, Hawaii)

Another participant, Daniel, described that he became more concerned about his own personal situation after being exposed to a series of undesirable network life events although the events occurred to the people were "not relatively close" to him:

I know a few people whose pet had died, and they post it on social media. As someone who has a pet, I always feel bad when I read those kinds of posts. Although my dog is healthy and still young, I can totally imagine how sad I would be if she dies. These Facebook posts remind me that she can't be here with me forever (Daniel,42, New Jersey)

In the case above, the participant became sensitive to the unexperienced life event, the death of a pet, because his acquaintances were experiencing the same events. Like Daniel's case, if participants were situated in a pertinent condition and exposed to similar network life events multiple times, they tended to overestimate the likelihood that they might personally experience the negative occurrence later on.

In addition to undesirable and traumatic network life events, desirable network life events only occurring to social ties can cause unpleasant emotions, such as envy and jealously, as described in upward social comparison (Collins, 1996). However, not all participants reported severe discomfort induced by upward social comparison. Only a couple of participants expressed strong negative feelings toward a certain desirable network life event because they also "really desired" to experience the same event. For instance, Emily recently heard the news that her cousin had a child. She expressed "mixed feelings" when discussing her cousin's childbirth. Emily was happy for her cousin, but said "to be honest, I was a little bit jealous because my husband and I, we've struggled to have a child, and this is her [my cousin's] fourth kid and she

got pregnant even on birth control". Emily felt this way because her cousin's news aroused her resentful longing for pregnancy.

Moreover, another participant, Kaitlyn showed that upward social comparison eventually altered one's attitude toward life. When she was experiencing financial difficulty as her husband closed his business, Kaitlyn received mobile messages from her close friend about her close friend's husband receiving a job offer in another state. The good news from her friend made her feel like "life isn't fair":

> One of my friends moved to another state. (…) I bet her husband got a job that paid $250,000 a year. I kind of wish my husband was bringing in a lot of money too. But, of course, I couldn't say that to him because he'd feel bad. I know he's trying, so I would never want to hurt his feelings. (…) I think my husband works harder than anybody and has nothing to show for it. So, it's really disheartening. Positive people feel, "If you work hard, you'll get ahead." But that's not how it's been for us. (Kaitlyn, 45, Illinois)

Besides the episode above where the participant acquired the information unintentionally, Kaitlyn also found one of her acquaintances who recently achieved financial success through searching. However, she did not report any negative reactions associated with upward social comparison. Rather, she viewed such an intended contact as a strategy to solve her personal problem. Her remark below suggests how she reacted to the network event driven through searching, which was different from encountering or browsing:

> I talked to Tom [her acquaintance] about different stocks and what his philosophy is and what he thinks for the future and I enjoyed having someone to talk to because there's nobody else I can talk to about this stuff. (…) it made me feel positive and I felt like 'Okay, I may not be perfect, but I can master this and next year, it'll be me'. (Kaitlyn, 45, Illinois)

In sum, participants were often aware of exogenous undesirable traumatic network life events, experienced only by their social ties through diverse communication channels. Frequent exposure to such negative events within a short period could be detrimental to one's psychological wellbeing, especially if he or she is

situated in relevant circumstances. Although not many, some participants under pressure negatively reacted to a desirable life event that they really wanted to experience. However, not all experiential dissimilarity was associated with negative consequences. Like the findings on experiential similarity, experiential dissimilarity occasionally served as a coping strategy to improve one's own plight. In this case, experiential dissimilarity was likely to be achieved through active use of communication technology, such as searching, rather than the passive use like encountering and browsing.

Summary and Conclusion

In this Chapter, I explored the effects of network life events on ones' stress and judgements of social worlds varied depending on one's life experiences. Based on a review of relevant literature, I decided to examine this variation in two different ways. First, I tested the general moderating effects of personal experiences by adding the interaction terms between levels of AoNLE and personal experiences in the regression models used in the previous analysis. Next, I examined the relationship between experiential (dis)similarities and one's psychological wellbeing. For this analysis, I constructed new indexes of experiential similarities, endogenous personal life events (EnPLE), and exogenous network life events (ExNLE) based on whether individual life events occurred concurrently, to both oneself and social ties, or respectively. Findings from these two analyses are discussed below:

Moderating effects of Personal Experience (RQ4 and RQ5)

As already discussed in the previous section, evidence of the direct relationships between AoNLE and stress was more limited than anticipated. I found no significant relationships between AoNLE and stress. However, a moderation analysis in this chapter revealed that AoNLE-U were significantly associated with higher levels of

stress when individuals rarely experienced undesirable life events themselves. Further examination showed that such a conditional effect of AoNLE was significant in the context of strong ties, but not weak ties. This finding indicates that undesirable network life events, especially occurring for strong ties, becomes a source of stress unless individuals confront their own difficulties. A qualitative analysis explored this result in more detail. The findings showed that the interview participants who were going through serious problems attempted to circumvent external threats like AoNLE by avoiding interactions with others in need or making a downward social comparison with them. The distressed individuals viewed others' difficulties as extra burdens, so that they tried to reduce the possibility that the cost of caring occurs as much as possible.

Given the findings pertaining to moderating effects of personal experiences, I identified a conditional indirect relationship between use of communication technology and stress. Based on moderated mediation analysis (Preacher et al., 2007), I found that use of mobile messages and/or Facebook were indirectly associated with higher levels of stress through AoNLE-U only when individuals rarely experienced undesirable life events. However, as already discussed, Facebook affords different levels of awareness depending on what types of activities users engage in. Indeed, detailed analysis showed that liking, and status updating on Facebook had opposing relationships to stress. Facebook liking was conditionally associated with higher levels of stress, as it was related to higher AoNLE-U. Facebook status updating, one the other hand, had a conditional negative relationship to stress by reducing the possibility of being aware of undesirable network life events.

Experiential Similarity and Dissimilarity (RQ6 and RQ7).

In addition to moderating effects of personal experiences, I examined the relative impacts of experiential similarity, EnPLE, and ExNLE on psychological wellbeing. The findings stress suggested the importance of experiential similarity in one's mental health. I specifically found that a stress-buffering effect of desirable life events became stronger when individuals were aware of experiential similarity with social ties. On the other hand, a harmful effect of undesirable life events became smaller if individuals shared experiential similarity with others, especially strong ties. Such positive outcomes involved in experiential similarity were contextualized through the qualitative analysis. The participants expressed more willingness to help others who experienced similar difficulties. Through this act of helping, they not only felt being empowered, but also built an emotional bond with the experientially similar others. Overall, these findings support reflect the old idiom: *shared joy is a double and shared sorrow is half*.

In terms of one's judgement of social worlds (i.e., BJW), I found that experiential similarity, EnPLE, and ExNLE were differently associated with BJW-self and BJW-other. When judging their personal world (BJW-self), individuals reacted positively to all types of desirable life events, regardless of experiential (dis)similarity. This finding is likely explained by one's tendency to maintain a positive view of their personal world (Lerner, 1980). Even if only social ties experience positive life events, individuals may hold onto their optimistic perspective because they believe that similar positive events may occur in their lives as well. On the other hand, undesirable network life events became significantly associated with lower BJW-self only when individuals and their social ties experienced similar events. This result was consistent with *resonance* in cultivation theory (Gerbner et al., 1980),

which predicts that 'mean world' effects of television became stronger when an individual's life experiences were similar to the news reports. When predicting BJW-other, however, experiential similarity became less important than ExNLE. ExNLE, especially regarding undesirable life events had the stronger relationship to BJW-other than any types of life events. Further examination, which specified tie-strength, showed that this tendency became stronger when various social ties, including strong and weak ties, experienced the same network events. This finding implies that when judging their outside world, people rely more on undesirable life events that they have not experienced yet than their own experiences.

In line with these quantitative findings, the qualitative results revealed that the repeated exposure to ExNLE could increase sense of vulnerability, especially when an individual was situated in a relevant context. For example, frequent exposure to others' SNS posts about death of pets made a pet owner more concerned about their future because they had a higher chance to experience a similar event. I also found unexpected emotional strains associated with upward social comparison (Taylor & Lobel, 1989). Participants reported envy and jealousy only when they were aware of their social ties experiencing desirable life events which they also highly "desire". This finding suggests that desirable experiential dissimilarity can cause negative feelings and reactions, but only in a particular context.

Beyond the findings pertaining to effects of experiential (dis)similarities on stress/BJW, I further examined how use of communication technologies were related to experiential similarity and ExNLE. The results showed that mobile messages and Facebook were differently associated with experiential similarity and ExNLE. Mobile messages were found to have a significant relationship with ExNLE, but not experientially similarity. The detailed analysis revealed that mobile messages were

associated with higher awareness of ExNLE occurring to strong ties and desirable experiential similarity with both strong and weak ties. This finding suggests the limited role of mobile messages in pervasive awareness. It promotes flows of information within entire networks, when it comes to desirable life events. However, in terms of undesirable life events, people tend to contact only their strong ties, but these ties are less likely to share experiential similarity (Thoits, 2011).

On the other hand, those who frequently used Facebook reported higher awareness of both experiential similarity and ExNLE. Closer examination revealed that frequent use of Facebook was associated with two types of experiential similarity and four types of ExNLE: desirable/undesirable experiential similarity with both strong and weak ties, ExNLE-DW/USW, and ExNLE-UW/USW. This finding suggests that people can encounter experientially similar and dissimilar others simultaneously, while using Facebook. As already discussed, Facebook keeps people updated with diverse network life events especially occurring to weak ties. Due to the massive amount of network information exchanged within Facebook, use of Facebook may increase awareness of both experiential similarity and dissimilarity simultaneously. The qualitative analysis also supports the importance of Facebook in awareness of experiential (dis)similarities. Most participants achieved awareness of (dis)similarity through passive usage practices like receiving mobile messages or browsing Facebook. When participants did not find experientially similar or dissimilar others within their strong ties, they went on Facebook and actively looked for acquaintances or new people by visiting their profiles or joining relevant Facebook self-help groups.

Note.

[1] Because of specific operationalization, normality in the 12 indexes of experiential (dis)similarities were weakened. Their distributions were closer to those of count variables – data were positively skewed with excessive frequency of values equalizing zero. Generally, this type of data is better suited for a negative binomial regression, a special version of the Poisson model. Therefore, negative binomial regressions were additionally conducted. However, the results of the negative binomial regressions were very similar to those from OLS regressions. In this context, I decided to report the results of OLS regressions to maintain consistency with the previous analyses.

[2] As with the findings for AoNLE, I suspected that Facebook would be the salient source of awareness of experiential (dis)similarities. However, I did not differentiate its specific use, such as Facebook commenting, liking, and status updating in these analyses. Indeed, there was no established knowledge regarding the relationship between use of communication technology and experiential (dis)similarities. At this early stage, separation of Facebook features may complicate the analysis further. I included only one Facebook variable - Facebook monthly visits, in the regression models predicting experiential (dis)similarities

Chapter 6. Discussion

The goal of this dissertation was to examine the role of social networks in one's psychological well-being by focusing on the pervasive nature of communication technologies. I posited that communication technologies such as mobile messages, emails and SNS expose individuals to a greater amount of personal information about various social ties, including family, friends, and other acquaintances. Such heightened exposure is, however, paradoxical to an individual's psychological wellbeing; it enables people to sustain a large number of enduring connections with others, while at the same time increases the probability of encountering unfavored others and/or information. In this context, this research investigated the relative impacts of positive and negative outcomes of this heightened exposure. I specifically conceptualized network awareness, one's level of knowledge about network members' lives, and explored how the use of communication technology increased awareness of network life events. Furthermore, I examined how the increased awareness affected various psychological outcomes, such as stress and belief in a just world (BJW). Although this study focused primarily on quantitative methods, I leveraged the strengths of qualitative interviews to add depth and detail to my findings. The findings illuminated the intended and unintended consequences of network awareness, yielding theoretical, methodological and practical advancements in the studies of communication technologies.

Summary of Results

This dissertation proposed nineteen hypotheses and seven research questions based on the review of literature regarding communication technology, social networks and psychological wellbeing.

In the first part of my findings (Chapter 3), I examined how use of communication technologies was associated with awareness of network life events (AoNLE). As anticipated, the quantitative finding demonstrated that use of mobile messages and Facebook was related to both higher awareness of desirable (AoNLE-D) and undesirable network life events (AoNLE-U). However, their specific relationship to AoNLE varied for strong and weak ties. Consistent with studies of strong ties and mobile phones usage (Ling, 2008), those who frequently used mobile messages were more likely to be aware of network life events occurring to strong ties than weak ties. On the other hand, Facebook was associated with different types of AoNLE, depending on specific activities such as commenting, liking, and status updating; a simple, but responsive activity like Facebook liking contributed to various types of awareness, including undesirable life events occurring to weak ties. Yet, broadcasting one's status to a wide audience on Facebook was associated with lower levels of awareness across tie-strength, as its affordance focuses on distributing personal news rather than learning about others.

The qualitative findings in this chapter unraveled the processes through which users of the technologies develop AoNLE. Based on in-depth interviews, I identified three different usage practices of communication technologies, which contribute to one's AoNLE: *encountering*, *browsing, and searching*. Each of them was characterized by a varying degree of intention and motivation for awareness. The findings demonstrated that each usage practice was patterned for a specific type of AoNLE. For example, people generally expect to receive the news about life events of his family and close friends (i.e., strong ties) through encountering - unexpected information gathering, such as receiving messages directly from another person. If an individual gets to know about life events of strong ties through other practices like

browsing and searching, he or she may think that strong ties violated their expectations and, in turn, may react negatively to them. On the other hand, browsing, which generally occurs in the context of SNS newsfeeds, significantly contributes to AoNLE occurring for weak ties. By habitually browsing SNS newsfeeds, people keep updated with the latest network life events in the lives of various weak ties. Although many people obtained information about strong ties through browsing as well, this information is likely acquired through encountering in advance. Last, searching includes goal-oriented usage of communication technologies such as contacting someone in one's network or visiting SNS to look for specific information. My findings show that searching is closely tied to browsing and encountering. When people unintentionally discover a piece of information about social ties, they likely to search further details for clear understanding.

In the second section of my findings (see Chapter 4), I investigated relationships between AoNLE, one's stress and BJW and the use of communication technologies. The results demonstrated limited impacts of AoNLE on stress and BJW; there was no significant relationship between AoNLE and stress; in terms of BJW, only awareness of undesirable network life events occurring to strong ties (AoNLE-US) was associated with a negative perception of socio-political just world (i.e. BJW-other). The negative effect of undesirable AoNLE did not extend to one's belief in a personal just world (i.e. BJW-self). Accordingly, the indirect relationships between communication technology and psychological outcomes were only significant to BJW-other. Frequent use of mobile messages/Facebook were indirectly associated with lower levels of BJW-others through higher AoNLE-U. Closer examination showed that the indirect effects of Facebook differed according to activities carried out: status updating and liking. Those who frequently liked other's Facebook posts

were more likely to see their socio-political system as unjust because they became aware of many undesirable events, especially occurring to strong ties. On the other hand, those who frequently updated their status on Facebook reported relatively positive views toward their societal systems as they encountered little information about undesirable network life events.

Such limited relationships regarding AoNLE, stress/BJW and the use of communication technology were further examined and validated by the qualitative analysis. Using in-depth interviews, I identified three types of discomforts: *cost of caring*, *sense of vulnerability*, and *exposure to dirty laundry*. Each type of discomfort was tied to specific network life events that happened to certain social ties, driven by a particular usage practice. For example, the cost of caring – psychological stress caused by the provision of social support – occurred only when family ties were involved. As explored earlier, people achieved awareness for events experienced by family largely through encountering. Taken together, people experienced cost of caring when they encountered undesirable life events occurring for family. The second type of discomfort, sense of vulnerability, was related to traumatic network life events such as sudden death, serious illness, or divorce. The unpredicted and uncontrolled nature of such life events led people to think 'it could happen to anyone'. People often experienced this negativity of traumatic network life events while browsing SNS, as it was sufficiently impactful, even though it was weak ties experiencing the events. The last type of discomfort was closely tied to people's self-disclosure on SNS. Due to context collapses of SNS (Marwick & boyd, 2011), many people thought that only 'announceable' life events should be shared on SNS. SNS posts indicating negative and private life events were seen as inappropriate and described as dirty laundry. When people were exposed to posts reflecting dirty

laundry, they expressed embarrassment and irritation. Those who were frequently exposed to dirty laundry eventually had a negative attitude on general use of SNS. All in all, these quantitative and qualitative findings suggest that the passive and incidental use of communication technology, such as Facebook liking, browsing, and encountering, rather than strategic use, lead people to discover unfavorable and unfamiliar sides of others' lives, which may eventually disturb one's state of mind.

In the last part of the findings (See Chapter 5), I attempted to answer the research questions regarding the interplay between personal experiences and network life events in two different ways. First, I tested how personal experiences affect the direction or strength of the relationship between AoNLE and stress/BJW. The findings demonstrated that AoNLE-US was significantly associated with higher levels of stress only when individuals rarely experienced undesirable life events. This indicated that undesirable network life events occurring for strong ties become a source of stress unless individuals confront their personal difficulties. This finding was further explained by qualitative findings; participants experiencing many personal problems tended to see others' difficulties as extra burdens, and thereby tried to avoid empathizing with them. Although not frequent, some distressed individuals made a *downward social comparison* with others who looked worse-off than themselves to maintain positive views of their lives. As a result, the cost of caring was less likely to occur when individuals confronted many undesirable life events.

The findings on the interaction between personal experiences and AoNLE were extended to the indirect relationship between use of communication technology and stress. Based on a moderated mediation analysis (Preacher et al., 2007), I found that that use of mobile messages and/or Facebook was indirectly associated with higher levels of stress through AoNLE-U only when individuals rarely experience

undesirable life events. However, as already discussed, Facebook affords different levels of awareness, depending on what types of activities its users engage in. If individuals rarely experienced negative personal life events and frequently liked others' Facebook contents, they tended to be aware of a greater number of undesirable network events. This increased awareness was associated with higher levels of stress. On the other hand, those who frequently updated Facebook reported lower levels of AoNLE, even occurring to strong ties. Thus, they were less likely to have higher levels of stress unless they personally experienced undesirable life events.

In addition to the interaction effects of AoNLE and personal experiences, I examined the relative impacts of *experiential similarity (i.e., sharing similar life experiences with others), exogenous network life events (ExNLE) (i.e. life events happening only to social ties, but not oneself), and endogenous personal life events (EnPLE) (i.e., life events happening only to oneself, but not social ties)* on psychological wellbeing. For stress, experiential similarity appeared to mitigate the harmful effects of personal network life events. Undesirable experiential similarity had a smaller distressing effect than undesirable endogenous personal life events. On the other hand, desirable experiential similarity had a stronger stress-reducing effect than desirable endogenous personal life events. The in-depth interviews validated the quantitative findings by demonstrating multiple positive outcomes associated with experiential similarity. The participants became more willing to help social ties who experienced similar difficulties. By helping the distressed others, they felt empowered and emotionally bonded with experientially similar others.

In terms of BJW, people tended to interpret experiential similarity, ExNLE, EnPLE differently depending on what types of justice they judge. When judging justice in their personal worlds (BJW-self), individuals reacted positively to all types

of desirable network life events, regardless of experiential (dis)similarity. For undesirable network life events, however, experiential similarity played an important role in predicting BJW-self. The results revealed that undesirable experiential similarity shared with both strong and weak ties had a stronger effect on BJW-self than any other types of undesirable life events. When it came to the socio-political world, people seemed to give weight more on ExNLE than experiential similarity. When individuals were repeatedly exposed to the same undesirable ExNLE occurring to both strong and weak ties, they tended to believe that their socio-political systems treat people in general unfairly. In line with the quantitative findings, the qualitative analysis revealed that frequent exposure to exogenous undesirable network life events could increase the sense of vulnerability, especially when individuals were situated in relevant contexts.

Given the findings that experiential (dis)similarities produce different psychological outcomes, I further examined the relationship between use of communication technology and experiential similarity/ExNLE. The results showed that use of mobile messages was associated with higher awareness of ExNLE, whereas Facebook was related to higher awareness of both experiential similarity and ExNLE. This finding suggests different roles of mobile messages and Facebook in network awareness. People usually use mobile messages to communicate with their strong ties (Ling, 2008). However, there is a low possibility of encountering experientially similar others through mobile messages, as strong ties only reflect a small subset of one's personal networks. Facebook, on the other hand, is built around a user's extensive networks of acquaintances (Hampton, Goulet, et al., 2011). As with Granovetter (1977)'s point about the "strength of weak ties", Facebook provides more opportunities for its users to meet both experientially similar and dissimilar others.

Indeed, the qualitative analysis supported such benefits of Facebook. The interviewees mentioned that they often encountered other people with past similar experiences by browsing SNS newsfeeds or visiting Facebook support groups. Altogether, the findings reported in Chapter 5 confirmed the limited role of communication technology in one's psychological wellbeing. It seems unlikely that those who use communication technology experience more undesirable life events than other people. Communication technology merely serves as conduits for information about other's network life events. People respond to this information differently depending on their own personal situation.

<div align="center">**Implications of Findings**</div>

Theoretical Implications

Studying the role of communication technologies in an individual's well-being is not entirely new. A cumulative body of research on this topic has been conducted since the advent of the Internet. Multiple mental health outcomes of using communication technology, whether positive or negative, have been addressed in the existing literature (see reveiws by Tokunaga, 2017; Walther & Parks, 2002). Despite a great deal of empirical evidence, it is difficult to explain why communication technology is related to beneficial or harmful health outcomes. This is not because explanatory processes are missing in the literature; researchers have proposed a wide range of mechanisms that may be at work. Nevertheless, there is a lack of scholarly endeavors to compare and systemize the theoretical mechanisms. This dissertation, therefore, sought to test various theories regarding communication technology and psychological wellbeing within a single research context and integrate them into one elaborate mechanism of network awareness. The findings of this dissertation can be discussed in the light of several theoretical concepts and frameworks.

First, my findings suggest that media multiplexity within strong ties can be incorporated with normative use of media (McLaughlin & Vitak, 2012). According to media multiplexity theory (Haythornthwaite, 2001), strong and weak ties are distinguishable in terms of the number of media used among them. My findings extend this theory to variations in awareness of network life events; awareness for strong ties were facilitated by a wide range of communication technologies, including phone calls and SNS, whereas SNS serves as almost the only channel to support awareness for weak ties. Beyond the varying number of media uses, I also found that people's preferential media selection varied across tie-strength. For example, face to face contact or phone calls were considered as proper etiquette and the norms for conveying major life events to immediate family. When it came to the news about their extended relatives or close friends, people were satisfied with less intrusive communication, such as mobile messaging or SNS private messaging. Impersonal broadcasted messages like SNS status updates were accepted as a tool for awareness of weak ties. People tend to expect their social ties, especially strong ties to follow such normative media selection. If individuals heard news about life events of their family only through SNS or mobile messages, they formed a negative attitude in communicating and helping these family members. In this sense, awareness itself can be a source of psychological discomfort if social ties, especially family ties, violate the prescribed norm of media selection. To better understand the complex dynamics in social ties, researchers need to consider their media multiplexity with perspective gained from expectation violation theory (Burgoon, 1993).

I also attempted to explore a generalizable trend of cost of caring between men and women by focusing on the pervasive awareness of network life events. The original research on the cost of caring was conducted to explain women's

vulnerability in mental health (Kessler et al., 1985): women are more aware than men of undesirable network life events and involved as supporters for the victims of the events, thereby experiencing more stressors than men. However, my data does not reveal significant difference between men and women in awareness of undesirable network life events. Regardless of gender, those who frequently used mobile messages and Facebook were more likely to be aware of many network life events. This finding implies that communication technology is making others' undesirable experiences more visible and salient in both women's and men's personal networks. In this sense, experience of cost of caring is determined by the relationship with victims of undesirable network life events rather than gender difference. More specifically, both men and women consider their immediate family members as the main source for cost of caring due to their excessive requests for social supports. Combined with constant contact through multiple communication technologies, the life events occurring within family exert more pressure to individuals. This finding can be connected with Wellman and Wortley (1990)'s study, which emphasizes supportive roles of immediate kin. As a result of "normative obligation, structural connectedness, and genetic forces (Wellman & Wortley, 1990, p. 581)", the distressed individuals may reach out to their family members first, even though they have larger and more diverse personal networks. It is often thought that new communication technologies lure people away from families. Countering this conventional view, my findings implicate that bond and obligation shared among family are still thriving through communication technologies. The cost of caring is probably a side effect of such strong connectedness among family.

Moreover, the findings of this dissertation add to the literature of cultivation theory by demonstrating "mean world" effects of network life events. Cultivation

theory proposes that heavy users of television hold more negative world views than light users, as television magnifies negative incidents such as crime, violence, and corruption (Gerbner, 1998). In addition to television, people often hear tragedies occurring to social ties through various communication technologies such as mobile messages and SNS (Hampton et al., 2016). The network information could be more powerful than television that delivers news about complete strangers. Consistent with my anticipation, awareness of network life events, especially traumatic ones, led people to feel vulnerable about themselves, others, and their social world. Its impact became stronger if victims of the events were closer to an individual. However, these findings do not suggest that mobile messages and SNS have a uniformed cultivation effect in the same way that television does. Unlike television news, which consistently depict the outside world as an unjust place (Gerbner & Gross, 1976), these technologies spread news about triumphs as well as tragedies. As already explored, awareness of desirable network life events enhances people's positive views of their social environments. Considering the current media environment which encourage people to broadcast positive experiences to a large audience, the cultivation effect of traumatic network life events could be mitigated by the effect of desirable life events.

Another unique contribution of this dissertation lies in its theorizing of relationship between the concept of experiential (dis)similarity and psychological wellbeing. Despite its significant role in one's psychological wellbeing, there are few empirical findings on experiential (dis)similarity. Only a few scholars have examined how distressed individuals (e.g., those who lost loved ones or becomes a primary caregiver to the elderly parents) receive effective social supports as empathetic understanding and coping strategies from experiential similar others (Pillemer & Suitor, 1996; Suitor & Pillemer, 2000; Thoits, 1986). Beyond the previous research

contexts, this dissertation applied experiential (dis)similarity to a wide range of life experiences, ranging from those relatively frequently occurring (e.g., argument with a spouse) to those that are expected to be rarer (e.g., loss of child) and examined both positive and negative impacts of experiential (dis)similarity on one's psychological wellbeing. Consistent with previous findings, I found beneficial effects of experiential similarity as a stress buffer; the relationship between undesirable life events and stress became smaller when individuals got to know that other social ties also experienced the similar events. However, individuals may not always benefit from experiential similarity. By relating experiential (dis)similarity to BJW, I addressed neglected negative outcomes of experiential (dis)similarity. My findings specifically show that the cultivation effects of undesirable network life events are amplified depending on (dis)similarity with one's life experiences. In terms of BJW-self, people's mean world perceptions are more affected by the life events occurring to both oneself and social ties than the life events only occurring to oneself. For BJW-others, undesirable network life events that individuals have not experienced yet contribute to the fear of a mean and scary world more than any other undesirable network life events. This result implies that people treat dissimilar network life events as exogenous risks that are only applicable to the outside world. Altogether, the findings regarding experiential (dis)similarity shed light on theoretical predictions of cultivation theory regarding *mainstreaming* and *resonance*, which suggest variation of the cultivation effect of television depending on (dis)similarity between people's experiences and television messages (Gerbner et al., 1980). Critics of cultivation theory argue that predictions of mainstreaming and resonance contradict each other (Potter, 1993; Shrum & Bischak, 2001). According to mainstreaming, the cultivation effect of television is amplified among those whose experiences are different from television

message. On the other hand, resonance suggests those people whose life experiences are congruent with the experiences of television world would be the most affected by television messages, counter to what as mainstreaming predicts. However, my findings showed mainstreaming and resonances are not contradicting concepts. Rather, they occur differently depending on levels of judgements on social worlds. The findings regarding experiential similarity and BJW imply that resonance occurs in personal level judgement (i.e., BJW-self), while mainstreaming matters for societal level judgement (i.e., BJW-other). Depending on what life events an individual experience and what types of social world they judge, experiential similarity brings about multiple psychological outcomes, positive and/or negative, to an individual's wellbeing.

Lastly, my findings counters concerns that social media causes "new" mental health problems such as fear of missing out (FOMO) or excessive upward social comparison. More specifically, Przybylski, Murayama, DeHaan, and Gladwell (2013) argued that social media intensifies people's compulsive concerns about missing an opportunity for social integration, popularly referred to as FOMO. Along with this argument, I found that people habitually browsed their SNS newsfeed to keep updated with what others are doing and remain connected with them. However, at the same time, individuals who felt overloaded by too much information about others sometimes took avoiding actions such as unfollowing others' broadcasted messages or leaving SNS. These findings are consistent with the relational dialectical theory (Baxter, 1990), which suggests a tension between one's desire for integration with others and the need for separation from others. The current communication technology is shortening social distances between individuals. Media multiplexity among strong ties made it almost impossible to miss out on information about family

and close friends. Broadcasted messages via various communication technologies allow people to be aware of the lives of weak ties, whether they want it or not. In this context, people may find it more difficult keeping decent distances from others rather than being concerned about missing out on information.

Another line of research on social media and mental health addresses the issue regarding an emotional disorder resulting from upward social comparison (Jang et al., 2016; Lee, 2014; Lin & Utz, 2015). As SNS inflates the joys of others rather than their distresses, some scholars argue that SNS increases the possibility of experiencing negative emotions such as jealousy and envy. However, my findings do not support that social media creates excessive upward social comparison. People do not always respond negatively to positive events in the lives of others. They feel envy and jealousy only when they become unexpectedly aware of life events that they desire to experience themselves. Even though emotional pains occur after upward social comparison, these negative emotions likely turn into other positive emotions. As Tesser (1988) pointed out, upward social comparison often evokes one's inspiration to improve. In the long term, upward social comparison becomes a driving force for better quality of life. In addition to upward social comparison, there is possibility that people make a downward social comparison through SNS. Recent research has showed that people publicly disclose their extremely negative experience on SNS such as depression (Bazarova et al., 2017) and illness (Gage-Bouchard et al., 2017), and loss of loved ones (Marwick & Ellison, 2012). Such a trend allows people to be aware of others who seem worse-off than themselves. Individuals, especially those who are suffering from their own problems, feel better about their own lives after this this awareness. However, this positive emotion elicited by downward social comparison should be distinguished from schadenfreude (i.e., taking a delight in

misfortune of others). Researchers suggests competition and envy as driving forces behind schadenfreude (Smith, Powell, Combs & Schurtz, 2009), whereas downward social comparison has been studied as a coping strategy that distressed individuals maintain their self-esteem (Taylor & Lobel,1989).

Altogether, my findings present a challenge to those who directly relate communication technology to negative psychological outcomes. While using communication technology, people sometimes feel some discomfort associated with cost of caring, sense of vulnerability, information overloading, and/or upward social comparison. However, these feelings are not caused by the use of communication technology itself but result from interactions among diverse social factors such as one's social status, experience of stressful life events, and awareness of network life events. In this sense, it may be difficult to problematize mundane uses of communication technology. Use of communication technology will interact with one's social conditions that embody access to important resources and affect one's psychological wellbeing (Hampton, 2019).

Methodological Implications

In addition to the theoretical contributions, there are a few methodological contributions that this dissertation also made. This dissertation is an early attempt to separate the concept of network awareness from communication technology. Several researchers have proposed similar concepts with network awareness, such as social awareness stream (Naaman et al., 2010), and ambient awareness (Leonardi, 2015). They assumed that network awareness is inextricably linked to a specific function of technology, especially related to SNS. Accordingly, most studies on this topic operationalize network awareness based on a person' specific use of technologies such as reading comments or browsing online profiles on SNS (Leonardi & Meyer,

2015; Levordashka & Utz, 2016). However, network awareness has been around well before the advent of SNS. As a part of daily life and through multiple contact channels, phone calls, greeting cards, or invitations, people have had subtle levels of network awareness focusing on some network members. Today's communication technology, represented by mobile and social media, merely extends the context in which people develop and become exposed to the lives of others. Therefore, this dissertation argues that communication technology serves as an enhancer of network awareness, but not its inventor. Along with this argument, I developed a measure of network awareness separated from the use of communication technology. This methodological approach allowed me to accurately attribute social conditions within one's networks to a source of psychological discomfort but not to the use of communication technology itself.

Furthermore, the measure of network awareness sheds light on social network analysis by suggesting a new approach to quantify the degree of information exchanged within one's networks. Over the past few decades, various methods of measuring properties of personal networks (e.g., strength, reciprocity, multiplexity, etc.) have been proposed. Despite these efforts, relatively few ways have been established to assess communicative aspects of social ties beyond frequency of contact or the amount of time spent with network members. However, content is one of the most important criteria in characterizing social ties. Social ties have different impacts on individuals depending on what information they mainly share (Garton, Haythornthwaite, & Wellman, 1997). A body of evidence suggests that a network life event – a major life event experienced by another individual– is one of the common topics shared through one's personal network (Goldsmith & Baxter, 1996). I therefore established a new measure, AoNLE, representing one's knowledge on network life

events derived from information received through one's networks. By relating AoNLE to various outcomes such as stress and BJW, my findings confirm its validity as one of the major network attributes that create possibilities and constraints to individual well-being. However, as I already discussed, network awareness is multidimensional and context dependent. Further research can revise, refine, and expand the measure of awareness according to its own research contexts.

Practical Implications

The findings of this dissertation also made several practical contributions in ways that enable the crafting of effective health interventions through communication technology. Specifically, the distinction between passive and strategic usage practices of communication technology illuminates how individuals utilize communication technology in distressing situations. My findings suggest that a distressed individual can strategically take advantage of their use of technology, such as broadcasting personal news to a large audience. As other studies have pointed out (Bazarova et al., 2017; Jordán-Conde, Mennecke, & Townsend, 2014), updating SNS status is one of the most efficient ways to vent feelings and recruit needed resources when handling difficulties. Along with this benefit, my findings imply that Facebook status updating can help distressed individuals find those with similar past experiences. As already discussed, experientially similar others provide multiple types of social supports, such as coping strategies or empathy based on their direct experience (Thoits, 2011). However, those who experienced more rare events (e.g., suffering from illness, victimization of crime, etc.) may have a harder time finding others who are similar in their core networks consisting of small number of network members. On the other hand, SNS, especially Facebook, provide extensive connectivity including a wide range of social ties, and thus increases the possibility for these people to encounter

experientially similar others. Disclosing personal problems on Facebook help the distressed individuals finding appropriate people who provide effective social supports as well as easing their emotional states. Beyond these benefits, I found that status updating on Facebook made people less attentive to additional stress caused by difficulties others were going through. Using Facebook in this way will allow distressed individuals to focus more on dealing with their own problems.

Compared to strategic usage, the passive usage of communication technologies, such as replying to text messages and liking and browsing on Facebook, has value for those who are not experiencing urgent problems. For example, habitually visiting Facebook and liking others' posts make people aware of a variety of network life events occurring to diverse social ties, which spontaneously leads to learning about available resources that each network member holds. At the moment, this awareness may look trivial and sometimes cause negative side effects such as cost of caring, sense of vulnerability, or exposure to dirty laundry. However, passive usage provides opportunities to capitalize potential resources embedded in social networks. A number of studies have long regarded as a facilitator of social goods, such as the exchange of social support (e.g., Lu & Hampton, 2017) and social capital (e.g., Chen, 2013; Hampton, Lee, et al., 2011). The higher awareness achieved through the passive usage may facilitate a resource seeking process later on, when individuals go through difficulties themselves. In addition to liking and browsing, some social media such as Facebook is developing new ways to respond to other users' contents through things like emoticon buttons. My findings suggest that simple but responsible activity with minimal effort are the most effective for network awareness. People may easily recall others' posts on SNS after clicking emoticon buttons on them, which may return benefits in future.

The findings reported in my dissertation also gave several implications useful for developers of SNS and other communication technology. Despite the many advantages of communication through SNS, people in general felt uncomfortable communicating with a large audience due to privacy concerns and self-presentation impressions. For those people, SNS can provide privacy features to ensure safety when revealing personal information. Also, it may design a technical functionality that promotes status updating, aka ephemeral posts, which disappear after a certain number of hours. Furthermore, the findings regarding experiential similarity suggests some directions for developing SNS algorithms which select contents for each user's SNS newsfeed based on how likely the user will react positively toward it. Given a user's indications in a personal profile or a post about personal experiences, a developer can design an algorithm that displays reflections of contents on others' similar experiences. Also, they can add a recommendation system to inform users about SNS groups relevant to their recent life events.

Limitations and Future Direction

I acknowledge that this dissertation had several limitations. My finding regarding Facebook browsing and network life events implies that algorithms utilized by Facebook are inevitably involved in the process of awareness (Hampton, 2016). To make matters less complicated, however, I did not exploit the role of algorithm in network awareness. Individuals may not be exposed to all posts made by their Facebook friends. Algorithms take advantages of pre-existing tendencies of individual users, such as their routinized interaction patterns on Facebook (Cotter, 2018). A certain subset of social ties with whom an individual user frequently responds is probably more salient than other social ties. Furthermore, a growing body of research suggests that individuals react to others' posts on Facebook differently depending on

whether they are aware of the presence of an algorithm. For example, those who are unaware of the algorithms used by Facebook tend to misattribute "the composition of their feeds to the habits or intent of their friends and family" (Eslami et al., 2015, p. 9). By contrast, some users are aware that they are not seeing every post created by their Facebook friends (Rader & Gray, 2015). These people are likely to actively search network life events rather than browsing their Facebook newsfeed. Future research may need to explore detailed processes through which algorithms affect the structuring of one's awareness.

Moreover, I used a non-random sampling to recruit the study participants. Although younger and more educated adults were overrepresented in my samples from Mturk, it allowed me to recruit proficient users of communication technologies and thus enabled me to test theoretical pathways through which communication technology affect psychological wellbeing (Davis & Love, 2019). Nevertheless, the findings cannot be used to estimate generalizable trends such as the average amount of communication technology usage or average levels of network awareness in the general population. There are societal concerns regarding social isolation such as lack of empathy or intensive narcissism among the U.S population (Konrath, O'Brien, & Hsing, 2011). Although my findings demonstrated that communication technology strengthens social integration rather than weakening it, they cannot directly challenge such concerns because of the lack of empirical generalizability. To better understand this issue, future research should be conducted using a representative sample.

Next, the cross-sectional design of this study did not guarantee the causality in my findings. Of course, I cannot rule out the possibility that mental health problems, such as higher levels of stress or lower levels of BJW, cause higher awareness especially associated with undesirable network life events. The alternate interpretation

here is that those who suffer from mental health problems somehow obtain more information about undesirable network life events than desirable ones. In general, however, flows of information within social networks goes beyond one's control (Rowley, 1997). The qualitative finding also suggest that people generally feel discomfort after the awareness of network life events. Therefore, it seemed reasonable to argue that network awareness, especially undesirable ones, cause negative psychological outcomes rather than vice versa. Yet, psychological well-being, especially associated with BJW, is (re)shaped over the course of a long period of time (Lerner, 1980). For a better understanding of the long-term effects of communication technology and network awareness, future research should be conducted using longitudinal data.

Another limitation in my dissertation pertains to multicollinearity between AoNLE based on strong and weak ties. This issue was probably explained by the way of computing AoNLE indexes. Based on previous existing batteries of major life networks, I constructed a list of network life events anyone can be exposed to in their daily lives and asked respondents whether each event had occurred to any of their social ties or not. To make matters less complicated, AoNLE was operationalized as an additive index of life events that either strong ties or weak ties experienced. In most cases, the network life events occurred in both for respondents' strong and weak ties. It was very rare that only one type of social ties experienced a network life event. For this reason, AoNLE for strong ties was highly correlated with AoNLE for weak ties, which in turn, underestimated the effects of weak ties in one's psychological well-being. Given the evidence that people have more extensive networks of weak ties than strong ties (Killworth et al., 1990), AoNLE occurring to weak ties can be differentiated from strong ties in terms of frequency of exposure to network life

events. In order to accurately estimate the effects of weak ties, it is necessary to develop a mortified version of the current AoNLE measure reflecting the frequency or intensity of each event.

Lastly, the results regarding the use of communication technologies and experiential (dis)similarities suggest that use of communication technologies are indirectly associated with stress or BJW. However, I did not conduct a formal statistical test, which is known as the mediation analysis (Hayes, 2017), to verify this indirect relationship due to the limitations of the indexes of experiential (dis)similarity. Compared to network life events, personal experiences of life events, especially undesirable ones are relatively rare. As a result, the possible scores for most people on indexes of experiential similarities were highly skewed with excessive zero values. To capture accurate impacts of experiential (dis)similarity, a more sophisticated measure, tailored to assess awareness of experiential (dis)similarities rather than general awareness of network life events would be necessary. Following the tradition found in studies of experiential similarity (Suitor et al., 1995; Thoits, 1986), studying certain types of distressed individuals who experienced a particular life event could be a solution for further exploration. For example, my findings suggest that those who are going through finical problems such as credit rating issue actively search others' similar experiences to learn how to handle their own experience. By focusing on this type of life event, researchers would develop a more sophisticated measure for experiential similarity and accurately estimate its relationship to use of communication technology.

Conclusion

This dissertation examined negative relationships between the use of communication technology and individual wellbeing by rejecting the conventional

view, which suggests that communication technology weakens the quantity and quality of interactions with pre-existing social ties. Evidence shows that new communication technology offers more opportunities to expand one's personal networks and exchange diverse social resources and information with a wide ranges of network members (Hampton, Lee, et al., 2011; Lu & Hampton, 2017; Wellman et al., 2001). Therefore, this dissertation assumed that psychological discomforts associated with communication technology are derived from having too many contacts and too much network information. To address these network strains, I drew on a number of previous theories and research on networks and one's psychological wellbeing such as such as media multiplexity (Haythornthwaite, 2001), the cost of caring (Kessler & McLeod, 1984), cultivation theory (Gerbner & Gross, 1976), experiential similarity (Suitor et al., 1995), and upward and downward social comparison (Wills, 1981). By extending these various theories to the context of network awareness, this dissertation offered a clear theoretical mechanism through which use of communication technology becomes a source of psychological discomfort. My findings suggest that the effects of communication technology are naturally mixed: people experience different social strains depending on how a technology is used, what types of social relationship are involved in the use of the technology, and what kind of information is exchanged. In other words, the use of communication technology is socially embedded, and its implications are socially determined. As technology introduces new ways of connecting, utopian or dystopian narratives about its changes become prevalent. However, such a black and white view stems from superficial observations of communication technology. Before getting excited or anxious about the new change, we need to consider our current

interpersonal environments, where diverse technologies are converged, contexts

between online and offline are collapsed, and strong and weak ties are mixed.

Appendix A. Survey Questionnaire

1. The following statements inquire about your thoughts and feelings in a variety of situation. On a scale of 1 to 5, where 1 means "it does not describe me well at all" and 5 means "it describes me very well", please indicate how much each statement describes you.

	1	2	3	4	5
I have been upset because of something that happened unexpectedly					
I have felt unable to control the important things in my life					
I have felt nervous and "stressed"					
I have felt confident about my ability to handle any personal problems					
I have felt that things were going my way					
I have found that I could not cope with all the things that I had to					
I have been able to control irritations in my life					
I have felt that I was on top of things					
I have been angered by things that were outside of my control					
I have felt difficulties were piling up so high that I could not overcome them					
I have been upset because of something that happened unexpectedly					
I have felt unable to control the important things in my life					
I have felt nervous and "stressed"					
I have felt confident about my ability to handle any personal problems					

2. The following statements inquire about your thoughts and feeling in a variety of situations. On a scale of 1 to 7, where 1 means 'YOU STRONGLY DISAGREE' and 7 means 'YOU STRONGLY AGREE', please indicate to what extent you disagree or agree with each statement

	1	2	3	4	5	6	7
I think that I deserve the reputation I have among the people who know me							
When I get lucky breaks, it is usually because I have earned them							
When I take examinations I rarely seem to get the grade I deserve							
As a child, I was often punished for things that I had not done							
I am less likely to get hurt in traffic accidents if I drive with caution							
I have found that people who work the hardest at their job are not always the ones to get promoted							
If I watch what I eat, I will live longer							
If I suffer a misfortune, I have usually brought it on myself in some way							
Being nice to people will not necessarily bring me lots of friends							
If I get mugged or raped, I am just plain unfortunate							
In a job selection interview, the best applicant hardly ever gets the job							
People who think of others before themselves seem to loose out in life							

Parents who form good relationships with their offspring bring up more successful children						
Friendly people have the best marriages						
People who make the efforts to invite people into their homes deserve lots of friends						
People who offer help in times of crisis rarely find their help is reciprocated when they are the ones in need						
Lonely people are just no good at making friends						
People who divorce have only themselves to blame for the unhappiness they may suffer						
The group leader who prefers to solve group problems in a democratic fashion is less successful						
Outward-going, sociable people deserve a happy life						
The political candidate who sticks up for his principles rarely gets elected						
It is rare for an innocent man to be wrongly sent to jail						
Although evil men may hold political power for a while, in the general course of history good wins out						
Crime does not pay						
It is often impossible for a person to receive a fair trial in this country						
In a free market economy, the only excuse for poverty can be laziness and lack of enterprise						
Political representatives are more interested in getting into power than representing their constituency						
The federal government has ensured that every citizen has an acceptable standard of living						
The forces of law and order discriminate against black people in this country						
Harsh as it may sound, mass unemployment has ensured that the people in work are the ones most deserving of employment						

3. In an average WEEK, about how many text messages do you send and receive on your cell phone? Just your best guess is fine. Specify the number of text messages you send and receive. (If you send texts to a group of people, this counts as sending ONE text)

4. Some people attach photos to text messages. In an average WEEK, about how many PHOTOS do you send and receive by TEXT with other people using your cell phone? (If you texted photos to a group of people, this counts as texting ONE photo)

5. In an average WEEK, about how many EMAILS do you send and receive, including personal and work emails, and emails you send and receive for any other reason?

6. Thinking about the social networking sites you use… About how often do you visit or use the following social network sites?

	Several times a day	About once a day	3 to 5 days a week	1 to 2 days a week	Every few weeks	Less often	Never /No use

Twitter							
Instagram							
Facebook							

7. Thinking just about your Facebook profile... How many friends do you currently have in your network? Just your best guess is fine. Specify the number of friends in your network.

8. Thinking about your Facebook activities… How often do you …?

How often do you …?	Several times a day	About once a day	3-5days a week	1-2 days a week	Every few weeks	Less often	Never
Change or update your status on Facebook							
Click the "like" button next to other people's status, photos, links or other posts on Facebook							
Comment on other people's status, photos, links or other posts on Facebook							
Send private Facebook messages							

9. Listed below are a number of events which sometimes bring about change in the lives of those who experience them. Please select those events which you, someone close to you, or someone else you know have experienced in the past 12 months. Indicate the time period during which you or they experienced each event. Also, for each item checked, please indicate the extent to which you viewed the event as having either a positive or negative impact on your life. That is, the extent of impact on your life, even if the event only happened to someone you know. If the event happened to both you and someone you know, complete all that apply.

		Not happened	Somewhat negative	no impact	somewhat Positive
Birth of child	Self				
	Someone close to you				
	Acquaintance				
Adoption of a child	Self				
	Someone close to you				
	Acquaintance				
Child left home for college	Self				
	Someone close to you				
	Acquaintance				
Child left home for other reasons	Self				
	Someone close to you				
	Acquaintance				
	Self				

Other family member left home	Someone close to you				
	Acquaintance				
Child married with parental approval	Self				
	Someone close to you				
	Acquaintance				
Child married without parental approval	Self				
	Someone close to you				
	Acquaintance				
Married (other than child married)	Self				
	Someone close to you				
	Acquaintance				
New person entered household	Self				
	Someone close to you				
	Acquaintance				
Family member entered armed forces	Self				
	Someone close to you				
	Acquaintance				
Trouble with in-laws	Self				
	Someone close to you				
	Acquaintance				
Death of parent(s)	Self				
	Someone close to you				
	Acquaintance				
Death of a child	Self				
	Someone close to you				
	Acquaintance				
Death of a brother or sister	Self				
	Someone close to you				
	Acquaintance				
Death of a spouse	Self				
	Someone close to you				
	Acquaintance				
Death of other close family member	Self				
	Someone close to you				
	Acquaintance				
Improvement in health of family member	Self				
	Someone close to you				
	Acquaintance				

Major dental work	Self					
	Someone close to you					
	Acquaintance					
Wanted Pregnancy	Self					
	Someone close to you					
	Acquaintance					
Unwanted Pregnancy	Self					
	Someone close to you					
	Acquaintance					
Abortion	Self					
	Someone close to you					
	Acquaintance					
Miscarriage	Self					
	Someone close to you					
	Acquaintance					
Mental illness	Self					
	Someone close to you					
	Acquaintance					
Sexual difficulties	Self					
	Someone close to you					
	Acquaintance					
Frequent minor illness	Self					
	Someone close to you					
	Acquaintance					
Serious injury or accident	Self					
	Someone close to you					
	Acquaintance					
Death of a pet	Self					
	Someone close to you					
	Acquaintance					
Move within town	Self					
	Someone close to you					
	Acquaintance					
Move to a new town	Self					
	Someone close to you					
	Acquaintance					
Move to same or better type of neighborhood	Self					
	Someone close to you					
	Acquaintance					

Built new house	Self				
	Someone close to you				
	Acquaintance				
Remodeled the house	Self				
	Someone close to you				
	Acquaintance				
Loss of driver's license	Self				
	Someone close to you				
	Acquaintance				
Loss, robbery, or damage of property	Self				
	Someone close to you				
	Acquaintance				
Arrested	Self				
	Someone close to you				
	Acquaintance				
In jail	Self				
	Someone close to you				
	Acquaintance				
Minor violation of the law	Self				
	Someone close to you				
	Acquaintance				
Began serious relationship	Self				
	Someone close to you				
	Acquaintance				
Engaged	Self				
	Someone close to you				
	Acquaintance				
Improved relations with spouse	Self				
	Someone close to you				
	Acquaintance				
Increased arguments with spouse	Self				
	Someone close to you				
	Acquaintance				
Improved relations with neighbor or friend	Self				
	Someone close to you				
	Acquaintance				
Began extramarital affair	Self				
	Someone close to you				
	Acquaintance				

Marital reconciliation	Self				
	Someone close to you				
	Acquaintance				
Broke engagement	Self				
	Someone close to you				
	Acquaintance				
Community crisis (fire, crime etc.)	Self				
	Someone close to you				
	Acquaintance				
Birthday	Self				
	Someone close to you				
	Acquaintance				
Change in religious beliefs	Self				
	Someone close to you				
	Acquaintance				
Major decision regarding the future	Self				
	Someone close to you				
	Acquaintance				
Started to work first time	Self				
	Someone close to you				
	Acquaintance				
Started a new job other than first job	Self				
	Someone close to you				
	Acquaintance				
Changed to same type of job	Self				
	Someone close to you				
	Acquaintance				
Promotion or expanded business	Self				
	Someone close to you				
	Acquaintance				
Significant success at work	Self				
	Someone close to you				
	Acquaintance				
Vacation	Self				
	Someone close to you				
	Acquaintance				
More responsibilities at work	Self				
	Someone close to you				
	Acquaintance				

Fewer responsibility at work	Self					
	Someone close to you					
	Acquaintance					
Transfer at work	Self					
	Someone close to you					
	Acquaintance					
Retirement	Self					
	Someone close to you					
	Acquaintance					
Laid off	Self					
	Someone close to you					
	Acquaintance					
Trouble with boss	Self					
	Someone close to you					
	Acquaintance					
Trouble with persons under supervision	Self					
	Someone close to you					
	Acquaintance					
Trouble with other co-workers	Self					
	Someone close to you					
	Acquaintance					
Other work troubles	Self					
	Someone close to you					
	Acquaintance					
Out of work over a month	Self					
	Someone close to you					
	Acquaintance					
Outstanding personal achievement	Self					
	Someone close to you					
	Acquaintance					
Home study to improve work or skill	Self					
	Someone close to you					
	Acquaintance					
Moderate purchase	Self					
	Someone close to you					
	Acquaintance					
Major purchase or mortgage	Self					
	Someone close to you					
	Acquaintance					

Major improvement in finance	Self				
	Someone close to you				
	Acquaintance				
Financial status a lot worse than usual	Self				
	Someone close to you				
	Acquaintance				
Credit rating difficulties	Self				
	Someone close to you				
	Acquaintance				

10. What is your age?

11. What is your sex?
   · Male
   · Female

12. What is the highest level of school you have completed or the highest degree you have received?
   ·Less than high school (Grades 1-8 or no formal schooling)
   ·High school incomplete (Grades 9-11 or Grade 12 with NO diploma)
   ·High school graduate (Grade 12 with diploma or GED certificate)
   ·Some college, no degree (includes some community college)
   ·Two year associate degree from a college or university
   · Four year college or university degree/Bachelor's degree (e.g., BS, BA, AB)
   · Some postgraduate or professional schooling, no postgraduate degree
   · Postgraduate or professional degree, including master's, doctorate, medical or law degree (e.g., MA, MS, PhD, MD, JD)

13. Are you currently married, living with a partner, divorced, separated, widowed, or have you never been married?
   ·Married
   ·Living with a partner
   · Divorced
   · Separated
   ·Widowed
   ·Never married

14. Are you, yourself, of Hispanic or Latino origin or descent, such as Mexican, Puerto Rican, Cuban, or some other Latin American background?
   ·Yes
   ·No

15. Do you consider yourself a WHITE (Hispanic/Latino) or a BLACK (Hispanic/Latino)?
   ·White
   ·Black

16. What is your race?

·White
·Black or African-American
·Asian or Pacific Islander
·Mixed race
·Native American/American Indian
·Other (SPECIFY)

17. Last year, what was your total family income from all sources, before taxes?
·Less than $10,000
·$10,000 to under $20,000
·$20,000 to under $30,000
·$30,000 to under $40,000
·$40,000 to under $50,000
·$50,000 to under $75,000
·$75,000 to under $100,000
·$100,000 to under $150,000
·$150,000 or more
·Don't know

Appendix B. Pre-interview Questionnaires

1. In an average day, about how many text messages and photos do you send or receive on your cell phone? Just your best guess is fine. Specify the number of text messages you send and receive. (If you send texts to a group of people, this counts as sending ONE text)

2. Thinking about the social networking sites you use… About how often do you visit the following social network sites?

	Several times a day	About once a day	3 to 5 days a week	1 to 2 days a week	Every few weeks	Less often	Never /No use	Don't know
Twitter								
Instagram								
Facebook								

3. Listed below are a number of events which sometimes bring about change in the lives of those who experience them. Please select those events which you, your family, or someone close to you, or someone else you know have experienced in the past 6 months.

	You	Family	Someone close to you	Someone else you know
Married (other than child married)				
Engaged				
Child married with parental approval				
Began serious relationship				
Birth of a child				
Wanted Pregnancy				
Major purchase or mortgage (e.g., car or house)				
Significant success at work or Outstanding personal achievement				
Started a new job				
Moved to a different/better town				
Major improvement in finance				
Retirement				

Divorce or broken serious relationship				
Serious arguments with neighbor, friend, relative				
Serious argument with spouse				
Trouble with in-laws				
Being Hospitalized or serious accident or injury				
Mental illness				
Death of parents, children, spouse or other close family members				
Death of pet				
Trouble with boss or coworkers				
Out of work over month				
Loss, robbery, or damage of property				
Financial status a lot worse than usual				
Credit rating difficulties				

4. If topics related to the listed events come up at conversation, are you open to discuss your thought and feelings on your life and those of others in your network?
   · Yes, I'm open to discuss
   · No, I have some reservation that make feel me uncomfortable

5. What is your age?
   · _____ years

6. What is your sex?
   · Male
   · Female

7. What is the highest level of school you have completed or the highest degree you have received? SEP
   · Less than high school (Grades 1-8 or no formal schooling)
   · High school incomplete (Grades 9-11 or Grade 12 with NO diploma)
   · High school graduate (Grade 12 with diploma or GED certificate)
   · Some college, no degree (includes some community college)
   · Two year associate degree from a college or university
   · Four year college or university degree/Bachelor's degree (e.g., BS, BA, AB)
   · Some postgraduate or professional schooling, no postgraduate degree
   · Postgraduate or professional degree, including master's, doctorate, medical or law degree (e.g., MA, MS, PhD, MD, JD)

8. Are you currently married, living with a partner, divorced, separated, widowed, or have you never been married?

· Married
· Living with a partner
· Divorced
· Separated
· Widowed
· Never married

9. Are you, yourself, of Hispanic or Latino origin or descent, such as Mexican, Puerto Rican, Cuban, or some other Latin American background?
· Yes
· No

10. What is your race?
· White
· Black or African-American
· Asian or Pacific Islander
· Mixed race
· Native American/American Indian
· Other (SPECIFY)

11. Last year, what was your total family income from all sources, before taxes?
· Less than $10,000
· $10,000 to under $20,000
· $20,000 to under $30,000
· $30,000 to under $40,000
· $40,000 to under $50,000
· $50,000 to under $75,000
· $75,000 to under $100,000
· $100,000 to under $150,000
· $150,000 or more

12. The researchers plan to conduct a follow-up in-depth interview regarding awareness of life events. In the interview, we will discuss your feeling and through in your life events and those of others in your network. Are you willing to participate in this interview? Interview will be conducted by phone call or online video chatting (e.g., Skype or google chat) at a time you agree on. If you participate in, you will be paid about 20 dollars for your time.
· Yes (If yes, provide your email address for future contact _____)
· No

Appendix C. Interview Protocol

1. According to the survey, you mentioned that you know some people who recently experienced "_____". How many of people experienced this event? (allow for estimation) Provide estimate if you can. Can you explain your relationship to each person?

2. How did you learn the fact that s/he experienced _____? Can you tell me more about the way you found out about this event? (follow up questions will depend on the circumstance of awareness)
    a. [Direct contact] In thinking about how your family/friends/acquaintance shared this information, what's your opinion on why they shared this event with you?
    b. [Direct contact] Why do you think s/he used [modes of communication technology] to share this event or information?
    c. [Indirect passive contact] (for interviewer: verbally restate the indirect passive contact given by interviewee such as browsing newsfeed or looking at feed) why do you think s/he posted this event on _____?
    d. [Indirect active contact] (for interviewer: verbally restate the indirect active contact given by interviewee such as active searching or surveillance), can you tell me more about why it was important for you to learn more about the event experienced by your family/friend/acquaintance?

3. How did you feel when you found out about the event?
4. How did you respond to him/her after hearing/reading about the event?
5. In addition to these people, did you ever know someone else who experienced a similar event?

6. According to the survey, you recently experienced _____. Can you tell me about your experience?

7. Did you share your experience with others? How many people do you think know that you experienced this event? Can you tell me who knows about this event?
    [if yes]
    a. How did you share this experience with _____? Can you tell me about the moment when you shared this event?
    b. Why did you share this event with _____?
    c. Can you describe why you shared this event by using texts/ post on SNS?
    d. How did _____ respond to you when you shared this event?
    e. How did you feel after sharing your event?
    [if no]
    f. Why did you not share?

8. In addition to the events you talked about, are there any other personal events that you experienced or know of someone else who experienced? If so, can you tell me about how you found out?

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