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Intimate Strangers and Estranged Intimates: An Investigation of the Impact of Instant Messaging and Short Message Service on the Size and Strength of Social Networks in Kuwait

Bashaiar Al-Sanaa
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INTIMATE STRANGERS AND ESTRANGED INTIMATES: AN
INVESTIGATION OF THE IMPACT OF INSTANT MESSAGING AND SHORT
MESSAGE SERVICE ON THE SIZE AND STRENGTH OF SOCIAL
NETWORKS IN KUWAIT

by

Bashaiar Al-Sanaa

Abstract of a Dissertation
Submitted to the Graduate Studies Office
of The University of Southern Mississippi
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy

May 2009

ABSTRACT

INTIMATE STRANGERS AND ESTRANGED INTIMATES: AN INVESTIGATION OF THE IMPACT OF INSTANT MESSAGING AND SHORT MESSAGE SERVICE ON THE SIZE AND STRENGTH OF SOCIAL NETWORKS IN KUWAIT

by Bashaia Al-Sanaa

May 2009

Information and communication technologies (ICT) have revolutionized how people experience spatial proximity, reality, and connectivity. These technologies provide inexpensive access to anything and anyone in the world. They also replicate face-to-face interaction in cyber-space and allow for participation in numerous modes of social exchange.

People use Information and communication technologies to write web logs (blogs), send electronic mail (email), socialize through networking sites (such as Facebook and MySpace), text each other through mobile phone Short Message Service (SMS) and chat via online instant messaging (IM). With all these applications, a debate has ignited that actual physical communication is decreasing in favor of online connectivity, thus leading to more but weaker social ties.

Previous research within the field of communication technologies has produced incongruent and contrasting results regarding the effects of ICT on human behavior and social connectivity. Additionally, only a humble body of research avails systematic representative studies tracking the sociological impact of media technologies. Such systematic research is non-existent in developing countries. Given the rarity of research in this realm and the incessant change in technology, this study aimed to examine the

effects of two types of ICT, text and instant messaging, on the strength and size of three circles of social networks (family, friends and acquaintances) in Kuwait. The study also explored the potential impact of demographic characteristics on these circles.

This examination was theoretically framed by uses and gratifications. Using a self-administered questionnaire, the study surveyed a nationally representative sample of 406 IM and/or SMS users, reflecting Kuwaiti adults between the ages of 18 to 65 years. The survey was distributed to respondents in government offices, private companies, educational institutions and malls in the State of Kuwait. Statistical analyses performed to analyze data included t-tests, analysis of variance (ANOVA), Chi Square, Scheffe test, Pearson correlation, crosstabs, frequencies and percentage distributions. The study formulated five research questions and tested 12 hypotheses, only one of which was rejected.

Except for the size of the family circle for social ties which was found to be insignificantly correlated to instant message usage; both the strength and size of social networks in all three examined circles were found to be significantly negatively and positively correlated, respectively, to technology usage, whether instant or text messaging. Furthermore, certain demographic factors, such as gender and marital status, played a modest role with regards to social ties.

The findings of this research effort are validated by previous academic studies and different research institutions. As reflected by the results, new communication technologies have both numerous advantages and inadvertent disadvantages. Hence, given their sheer weight as a social force, ICT should be further examined as technologies continue to advance and change social connectivity.

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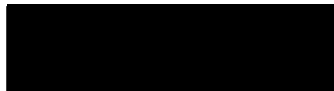
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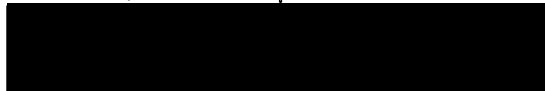
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in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy

Approved:



Director



University Director, Graduate Studies

May 2009

DEDICATION

To my parents with love; and to those close to my heart for helping me get through the day.

ACKNOWLEDGMENTS

My heartfelt gratitude goes to Dr. Gene Wiggins, Dr. Fei Xue, Dr. Christopher Campbell, Dr. Steve Yuen, and Dr. Jae-Hwa Shin. For their support, guidance, patience and advice, I am eternally grateful.

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CHAPTER I

INTRODUCTION

The Purpose of the Study

Information and communication technologies are the backbone of socio-economic progression. Their massive effects on people's lives and behaviors are notable. ICT alter how people perceive time, spatial proximity, society, and connectivity. New communication technologies do not merely replicate face-to-face interaction in cyberspace; they provide instant and astonishingly inexpensive access to everyone and everything in the world. They allow people to exist simultaneously in two realms; the one which they physically occupy, as well as that in which individuals virtually experiment. Therefore, new media technologies allow for simultaneous participation in multiple modes of social conversation.

Whether people are communicating via email, shopping online, or checking-in electronically at the curb-side airline ticket counter; actual physical communication is decreasing in favor of synchronous and asynchronous electronic social connectivity. Other examples include chatting with cyber-pals, texting through mobile phone Short Message Service, enrolling in virtual classes, communicating via instant messaging, sharing photos and files on online social networking sites such as flickr and Facebook, and using Voice-Over-Internet-Protocol (VOIP) to make free international calls. Essentially, people are increasingly choosing to cyber-deal with each other through ICT, and to live in their own individual technological bubbles.

The struggle to balance differing functionalities of ICT stirs a controversy about the impact of these technologies on social networks. Such heated debate is ignited

because, albeit new media technologies provide greater flexibility and choice, many believe that ICT also decrease social interaction and alter perceptions of reality. Social ties may also be affected in size and strength as a direct result of ICT usage.

Overall, every technology has both unintended negative and intended positive consequences (Nie & Erbring, 2002). Therefore, it is essential to investigate and assess the social impact of this revolution and all its facets. It is important to note here that this research investigation did not assume the extinction of physical social connectivity due to new communication technologies, nor did it suggest the neutrality of ICT usage on the lives and behaviors of technology users.

Significance of the Study

The debate over the effects of technology on humanity has existed for centuries. As old technologies evolve and new ones emerge, their impact becomes important to assess. Communication researchers, sociologists, psychologists as well as scholars from other academic disciplines have consistently investigated the effects of different media on social behavior. Research within the field of new media technologies has produced disparate results regarding the impact of ICT on human behavior and social connectivity.

Furthermore, only a modest body of research avails systematic representative studies tracking the sociological effects of new media technologies (Hampton, 2003; Nie & Erbring, 2002; Nie & Hillygus, 2002). According to the Stanford Institute for the Quantitative Study of Society (SIQSS), which specializes in empirical social science research, more studies need to be conducted to examine any unintended and potentially negative consequences of new communication technologies (Nie & Erbring, 2002).

Also, Nie, co-founder of the Statistical Package for the Social Sciences (SPSS) and director of SIQSS, notes that current research needs to look beyond commercial repercussions of the Internet and people's buying behavior, and to focus more on social ramifications, which can also guide public and private policy makers to better decisions (Nie, 2001).

Additionally, most available literature approaches the topic of investigation in this dissertation from three angles: the Internet as medium, teens as users, and the Western developed world as context. For example, the social impact of various applications of mobile phone and their contributions to social capita is relatively untouched (Ling, Yttri, Anderson, & DiDuca, 2003). More specifically, the rising usage of mobile technology in developing countries merits the examination of its sociological effects (Wei, 2007). Research related to new communication technologies in that part of the world is usually conducted by business establishments for commercial purposes and concentrates on economic gains (Wei, 2007).

Research on Kuwait, which is the developing country under investigation in this study, offers no exception to the above mentioned information. Not only is research there mostly conducted for commercial objectives, outcomes are not available for public consumption. Also, some communication technologies, such as IM and SMS in particular, are still relatively novel in Kuwait, even though they are widely adopted and heavily used. This invites scholars to explore the fertile area of the sociological effects of ICT. Therefore, this project attempts to pull together areas in which research overall is lacking.

Given the general paucity of research in this area, both in Kuwait and worldwide, and the continuous pattern change in technology access and usage, this study aimed to build on, and add to, previous literature by investigating the impact of information and communication technologies on social networks. Also, no previous research has examined the impact of different types of ICT in one study. Hence, this was the first comprehensive study to combine findings for the social effects of various information and communication technologies.

Yet, in order to limit the scope of this research, the study focused on two important types of ICT: Short Messaging Service or text-messaging, which was a form of asynchronous communication; and instant messaging which reflected synchronous connectivity. Furthermore, the specific dimensions of exploration with respect to social networks were size and strength. Networks also encompassed three circles of social ties: family, friends, and acquaintances. Using a self-administered questionnaire, the study surveyed a national representative sample of 500 adult Kuwaiti citizens, in order to assess the effects of ICT on their social networks.

An Investigation of Kuwait

A peninsula on the Western coast of the Arabian Gulf, Kuwait is home to about 2,630,775 people, according to the International Telecommunication Union (ITU), which is the leading United Nations agency for information and communication technologies (ITU, 2006). However, it is important to point out that only less than half the population reflects citizens. This country, at the heart of the Middle East region, is a constitutional hereditary monarchy with an appointed Cabinet (Council of Ministers) and a National Assembly (parliament), which is elected every four years. The state of Kuwait gained its

independence from Britain in 1961 and developed a constitution in 1962 (Freedom House, 2008).

Slightly smaller than the state of New Jersey, the total land area of Kuwait is 17,818 square kilometers (Freedom House, 2008). Despite its small size, it has a high-income economy with a well-developed communications infrastructure. According to the United Nations Economic and Social Commission for Western Asia (ESCWA, 2005), Kuwait comes third in ICT penetration rates among the Arab states following Bahrain and the United Arab Emirates.

However, Kuwait lacks a unified and comprehensive national ICT strategy (ESCWA, 2005). As for Mobile phone usage, the total number of subscribers in Kuwait reached 2.8 million in 2007 with a penetration rate of 81.6% (World Factbook, 2008). Mobile phone subscribers are expected to grow at an annual growth rate of 9.4% from 2008 to 2012, reaching 4.4 million and a penetration rate of 97.2% according to a report published by the Arab Advisors Group (2008).

In 1998, Kuwait hosted the Information Super-Highway Conference, the first professional conference to consider the development and impact of the Internet in Kuwait and the Islamic World in general (Wheeler, 2003). Also, according to ITU (2006), Kuwait had roughly 600,000 Internet users by September 2005, which was 22.8% of the total population of citizens and expatriates. Three independent surveys conducted in 1997, 1998, and 2001 on college students in Kuwait found that nearly three-quarters of surveyed individuals were active Internet users (Wheeler, 2003).

As rapid technological progress sweeps the world, Kuwait stands as no exception. Citizens have incorporated digitally emergent technologies into their existing ecology of

communications. New media technologies have become ubiquitous connectivity tools and essential fashion accessories. Also, Kuwait is somewhat a socially conservative nation which does not fully encourage mixing of the sexes, hence ICT offer Kuwaitis an opportunity to experiment with non-traditional forms of communications buffered by leashed identity exposure (Wheeler, 2001).

Moreover, ICT applications such as IM and SMS provide Kuwaitis with options and sovereignty with regards to the choice of a spouse (Wheeler, 2003). However, the potential detrimental effects of ICT usage on physical social connectivity, whether intimate or distant, worries intellects in Kuwait as they watch the fabric and dynamics of society change rapidly (Al-Mazeedi & Ibrahim, 1998).

Studies on the impact of ICT conducted in Kuwait, and developing countries overall, contrast sharply with those done in the developed world as the former mainly focus on commercial aspects of technology (Wei, 2007). Therefore, the prevalent use of communication technologies in Kuwait merits the investigation of the sociological effects of these technologies. The application of this research to the state of Kuwait can yield interesting results on the impact of ICT on social networks in this small country. Except for the tightness of social ties, Kuwait does not possess unique cultural features which may obstruct the realization of this investigation.

CHAPTER II
LITERATURE REVIEW
Theoretical Framework

Uses and Gratifications

The research in this dissertation transpires from a theoretical tradition in the mass communication literature. Uses and gratifications theory aids in investigating the reasons people use certain media outlets, as well as the types of satisfaction attained from such usage (Blumler, 1979; Lasswell, 1948; Wright, 1960). The theory came into prominence during the late 1950's as an effort to assess short-term effects of media exposure.

This theory posits that the motives and satisfaction behind media usage are as important as the amount of usage and the type of medium selected (Baran & Davis, 2006). The theory also has several elements: 1) people are active and goal-oriented in their media usage; 2) people form certain expectations and intentions to use media; 3) people select certain media to satisfy their motives; 4) media compete with other sources for satisfaction of needs; and 5) motives explain media exposure and interest (Blumler, 1979; Katz, Blumler & Gurevitch, 1974; Katz & Lazarsfeld, 1955).

Overall, uses and gratifications theory postulates several foci depending on the scheme of examination followed by researchers. The latter can focus on levels of study (content or medium), material (program types), or culture (Katz, Blumler & Gurevitch, 1973). When applying theoretical research to ICT usage, it is apparent how this conceptual framework is useful for this kind of investigation.

The elements of this conceptual framework apply to the characteristics of individuals now living in the age of technological revolution. Almost everybody is

actively using a form of ICT, whether it is as simple as a personal computer (PC), or as intricate as a WAP-enabled smart mobile phone. Nie (2001) clarifies how individuals are interactive with these ICT devices. He maintains that people communicate back and forth and initiate interaction with others all the time using media technologies. Also, Brynin and Kraut (2006) indicate that people are goal-oriented with respect to using ICT, because they are actively seeking to achieve certain tasks, such as reaching others, searching for information, conducting business and entertaining themselves.

People use ICT consciously to accomplish all these goals. They follow a rational approach to new media functionalities in order to satisfy needs and gratifications (Trepte, Ranne & Becker, 2003). Moreover, people expect information and communication technologies to deliver their promised dream of connectivity, knowledge, commercialism, and entertainment (Bradley, 2000). It is for this revolutionary dream that people intentionally use ICT. Yet, individuals choose specific types of ICT that best fit their needs, intentions, motives, and expectations (Nie, 2001).

In application to new communication technologies, people gratify certain motivations, such as increasing the size of their social networks and strengthening their social ties, through ICT usage (Bradley, 2000). With the explosion of instant and inexpensive access to everyone and everything, people have the opportunity to meet new acquaintances, and to strengthen their relationships with family and friends (Nie, 2001).

Various studies have examined the theory of uses and gratifications in relation to usage of traditional communication technologies and media. Lasswell (1948) and Wright (1960) proposed four general functions for media on a micro-sociological level: surveillance of the environment, correlation of social heritage, entertainment, and

socialization. McQuail, Blumler and Brown (1972) further identified diversion, personal identity, and personal relationships.

Application to New Communication Technologies

Previous research on traditional media can be applied to ICT. Maignan and Lukas (1997) identify socialization as a motive for using the Internet. They also name four main categories in which people gain social gratification from the use of technology. Maignan et al. explain that new communication technologies are used for information, consumption, communication, and as a social system.

This research effort aims to specifically explore the last two categories as it proposes that such intended motivations and sought gratifications may not necessarily be the end results of ICT usage. Moreover, Hu, Wood, Smith and Westbrook (2004) assert that the existing body of academic research examining the social implications of instant messaging investigates the topic within a uses and gratifications context.

Therefore, the application of this theory provides a framework for understanding the reasons people use ICT, and the consequences of such usage. The theory also helps explain the specific social gratifications people get by using new communication technologies, and whether these technologies are truly replacing physical social interaction with electronic communication (Mundorf & Laird, 2002).

According to Windahl (1981), uses and gratifications theory focuses on media users' intrinsic motivation and extrinsic gain. He maintains that technology is only important if people are motivated to use it, and are acquiring some sort of gratification from it based on human perception. For example, some use the Internet as a substitute to physical communication, or even a crutch, because it allows them to build and maintain

relationships without dealing with the anxieties that face-to-face communication may bring (Bradley, 2000). Another example draws attention to how email has the quality of providing non-intrusive and coordinated communication. According to Pew Internet and American Life Project, email is also used to avoid conflicts and to substitute for time-consuming personal meetings (Nie, 2001).

Moreover, a study examining mobile technology in Turkey reported a significant increase in usage when the latter was related to motivations of sociability and security (Wei, 2007). Also, in examining the motives and consequences of using Personal Digital Assistants (PDAs), a uses-and-gratifications-based survey was used in a study covering German respondents. The research found several gratification categories including socialization, status and exploration (Trepte, Ranne, & Becker, 2003). Usage consequences encompassed a differentiation of media type and an increase in people's connection to each other through technology (Trepte, Ranne, & Becker, 2003).

Therefore, people intentionally and actively use communication technologies seeking the fusion of multiple realms and the integration of various social spheres (Wei, 2007). Thus, research based on uses and gratifications theory provides an important understanding of social motives and satisfaction behind ICT usage, which are the bases for examining the impact of new media technologies on social networks.

The Evolution of Social Networks

The notion of social networks was first introduced by Barnes in 1954 reflecting a conceptual ramification of social relations in social situations (Mitchell, 1974). The metaphor of social networks reflects the social links that bond constituents within a society, and ramify that society in a way that influences the behavior of the same

individuals in the network (Mitchell, 1974). Research conducted by the Stanford Institute for the Quantitative Study of Society indicates that literature interchangeably uses terms like "social networks, social relationships, social support, social ties, and social activities to refer to essentially the same phenomenon—the existence, number, and frequency of social relationships" (Nie, 2001, p. 428).

Moreover, a social network is defined as a group of individuals, or other social entities, linked by a set of relations, such as kinship, friendship, co-working or information exchange (Garton, Haythornthwaite, & Wellman, 1997). Parallel to how a computer network connects machines through a set of cables; a social network connects people through a set of relations, such as familial ties, friendships, or work associations (Garton, Haythornthwaite & Wellman, 1997).

Various studies use assorted classifications of social networks depending on the purpose of research conducted. For Nie and Erbring (2002), social networks are better reflected by a single major cluster of family and friends. On the other hand, Boase, Horrigan, Wellman and Rainie (2006) categorize social networks into core ties, which encompass those with whom people discuss important matters and form very close relationships; as well as significant ties, which reflect individuals with whom people are in less contact and maintain weaker relations.

Yet, Bryant, Sanders-Jackson and Smallwood (2006) classify networks into two types of ties: strong, which include close friends and family members; and weak, which refer to acquaintances. Regardless of how previous literature defines the scope of social ties, these networks essentially reflect the same aggregations of individuals that constitute a society. Therefore, this research addresses each major aggregation (family, friends, and

acquaintances) on its own instead of clumping them together. Hence, a better analysis can be reached of how each social circle is affected by technology. Overall, with the emergence and brisk growth of ICT, traditional social networks changed, in nature and scope, to an electronic new form (Haythornthwaite & Wellman, 2002).

Traditional Social Networks

Wellman and Hampton (1999) note that prior to the emergence of information and communication technologies, people lived in their private circles of social relations. They describe how living in traditional social networks was similar to living in "little box societies," where members communicated only with family, friends and fellow members of kinship and voluntary groups (p. 648). Therefore, as Haythornthwaite & Wellman (2002) indicate, social connectivity preemotive of ICT composed of meeting face-to-face, phoning others, as well as using "snail" mail and other traditional communicative media. They explain that such communication and social relations were constrained by money, time and spatial proximity.

With the advent of computer-mediated communication, people became networked online and offline. Hence, the use of ICT merges both the physical and virtual worlds, which creates a new hybrid space that is neither wholly physical nor virtual (Ward, 1999). Additionally, Wellman and Hampton (1999) maintain that new communication technologies provide average people with the opportunity to step out of their "little boxes" for both information and connectivity. Wellman et al. also indicate that the Internet is but a reflection of how the world has become networked, and of how people are doing away with traditional groups and ties. Therefore, Wellman et al. point out that

the scope and nature of social networks have changed; hence reflecting a change in the strength and size of these networks.

Electronic Social Networks

Boase, Horrigan, Wellman and Rainie (2006) maintain that current social networks are dispersed, with individuals maneuvering between networks rather than being bound to only one. According to them, this increases the size of social links and networks for all individuals. Also, the emergence of new communication technologies accelerated the progression to a Computer-mediated form of social networks as ICT facilitated connectivity even to strangers; hence varying the type of members in traditional networks (Boase et al., 2006). Furthermore, Garton, Haythornthwaite and Wellman (1997) assert that current social networks must be coined as computer-supported to acknowledge that these networks now use ICT to sustain relations and ties.

New communication technologies allow people to be electronically and simultaneously present at different times and in different places (Palen, 2002). Not only are people now electronically connected, different aspects of their lives are also bridged through these technologies (Hampton, 2003). Therefore, ICT allow individuals to integrate multiple social roles (Palen, 2002). People are able to manage multiple tasks and engage in various activities simultaneously. They can reach anyone, and be reached anywhere whether at home, coffee shops, airports, or even airplanes. According to Nie (2001), such availability and presence reduce the need to meet in person. He warns that people no longer have the urge to communicate physically since they had already done so electronically.

Moreover, Wellman and Hampton (1999) indicate that ICT support the unique quality of transitivity, which allows messages to be forwarded from one person to many. They note that this provides individuals with the opportunity to electronically build and maintain large social networks. Whether through blog, e-mail, SMS or any other ICT-facilitated activity, Wellman et al. note that the ease of communicating with multiple social milieus resolves people from the need to have physical communication, or at least glues them together until the next face-to-face encounters.

For instance, longitudinal research from the Pew Internet and American Life Project shows that the number of visits with immediate social ties, such as family and friends, decreases for Internet users more than for non-users (Shklovski, Kraut & Rainie, 2004; Nie, 2001). Also, according to Lin (2001), online communication creates bridging relationships, which involve less emotional intensity and sharing than bonding relations. Lin notes that bridging relationships are created mainly with individuals outside existing social networks. Studies further indicate that the Internet leads to more but weaker social ties (Bryant, Sanders-Jackson & Smallwood, 2006). Therefore, ICT create a tradeoff between the quantity and quality of social networks.

Information and Communication Technologies

Definition and Background

This epoch in history is characterized by accelerated and revolutionary technological advancements coupled with a resurrection in communicative media. New communication technologies reflect computing and connectivity features and services that support diverse applications and functionalities. They are also linked with elemental "institutional, social and economic restructuring" of the globe (Marcelle, 2000, p. 2). At

one time in recent history, new communication technologies were considered as something unique and available only to the privileged; however, they grew to become an integral part of how individuals communicate with one another (Boase, Horrigan, Wellman & Rainie, 2006). Additionally, ICT represent tools of glocalization, as they connect both distant and nearby individuals (Boase, Horrigan, Wellman, & Rainie, 2006).

In general, information and communication technologies refer to a "complex and heterogeneous set of goods, applications and services used for producing, distributing, processing and transforming information" including the "outputs of industries as diverse as telecommunications, television and radio broadcasting, computer hardware and software, computer services and electronic media" such as email, mobile phones, the Internet, electronic commerce, and computer games (Marcelle, 2000, p. 2).

Over the years, communication technologies diffused at record rates that amazed everyone. For example, the average compound annual growth rates during the period 1990-1998 for mobile subscribers was 52% and 81% for Internet hosts (Marcelle, 2000). Moreover, during the same period encompassing a mere eight years, a vast 190 million Internet users came into existence, which explains the reason that communication technologies are the main part of the knowledge sector; the fastest growing area of the global economy (Marcelle, 2000).

General ICT usage has reached unprecedented levels worldwide and with relatively unknown repercussions. In a strange, yet rational move, some companies around the world recently announced and enforced an email-free work day in order to foster physical interaction (Barnako, 2007). This is but an example of how accustomed, if not addicted, people around the world have become to ICT usage (Coleman, 2000).

Technology users now feel lost without their devices not because the latter are indispensable but because they have grown accustomed to the constant presence of these technologies (Wei, 2007). People would probably have to re-train themselves on how to communicate with others without ICT much like eyeglass wearers readjust their vision after losing their spectacles (Wei, 2007).

In further exploring recent social history, one can not help but come across concerns about the dissolution of social ties and community relations due to ICT usage. Anyone investigating research on modernity finds such concerns to be a central theme (Nie, Hillygus, & Erbring, 2002). The decline of physical social connectivity is related to the rise and development of technological advances in communication, not to mention their convergence (Nie, Hillygus, & Erbring, 2002). Despite the delivery of a wired utopia unrestricted by cost, time or spatial proximity, such convergence has produced a colossal technological force that has the potential to severely affect social relations (Nie, Hillygus, & Erbring, 2002).

Meta-Media

Bradley (2000) notes that ICT convergence is characterized by the integration of three main technologies: computer, telecommunication and media. He also maintains that new communication technologies are converging to deliver different activities, conducted by average communicators, through single devices such as PCs and smart mobile phones. Bradley also indicates that these devices offer people access to media output, telephony services and the Internet. Therefore, ICT usage is complex and indeed multifaceted. Trepte, Ranne & Becker (2003) explain how information and communication technologies are now converged to transmit data, whether text, voice or video, through a

single medium. According to them, particular features and functions of newly developed media may not be dissimilar from those of traditional media; yet their combinations are drastically diverse.

Additionally, Trepte et al. contend that personal computers and mobile phones are considered meta-media because of their ability to simulate functionalities of all other media. Generally, PCs and mobile phones mirror two valuable applications of the communication revolution; the Internet and mobile telephony. Unlike radio, television and traditional telephony, these two applications have only become ubiquitous relatively recently (Ling, Yttri, Anderson, & DiDuca, 2003). Living up to their ubiquitous usage and utility, Personal computers and mobile phones are considered hybrid media that combine a wide array of communication channels, applications, and multi-functional devices (Trepte, Ranne, & Becker, 2003).

For instance, all the following can be carried out through the aforementioned two meta-media: electronic mail, voice telephony, text messaging, podcasting, blogging and social networking. Reflecting both synchronous and asynchronous electronic social connectivity, other possible activities carried out through hybrid media include instant messaging, video calls, online shopping, and distant learning.

Therefore, as Trepte et al. explain, hybrid media combine and bridge interpersonal and mass communication. Also, the convergence of new media technologies has produced access to everything and everyone instantaneously (Nie, 2001). People recognize the unprecedented opportunities presented by converged technologies (Bradley, 2000).

For example, ICT-assisted satellite telephony provided the most famous example of global disaster communication. The urgent calls from the hijacked airplanes on September 11 played an essential role in coordinating rescue efforts and response strategies (Palen, 2002). Furthermore, according to a study conducted by the Pew Internet and American Life Project (2006), 36% of Americans went online in 2002 versus 44% in 2005. Additionally, the study concludes that 45% of Internet users indicated that the net helped them in making big life decisions, such as coping with a major illness and pursuing large financial investments.

Therefore, as Bradley (2000) notes, communication technologies are pervasive, and have become an integral part of life. Bradley further explains that ICT usage is embedded in every daily activity, and serves different purposes in people's lives. He explains that these technologies offer functionalities of knowledge, expression, control and socialization.

Usage of Information and Communication Technologies

Of particular interest is the socialization aspect of ICT usage. Wei (2007) notes that individuals can tuck their mobile phones in their pockets and therefore literally carry their social networks with them anywhere they go. Hence, Wei asserts that people now have the ability to remain constantly plugged into their social networks. Bryant, Sanders-Jackson and Smallwood (2006) describe how mobile phones and personal computers are now essential for social networks, because they support relationships without constraints of geography.

Boundaries once imposed by time and place are now blurred. Communication via ICT ensures membership and availability in social networks by making people readily

accessible at all times (Palen, 2002). For instance, in Rwanda people developed special codes to maintain and communicate with their social networks while overcoming steep charges of mobile phone calls (Wei, 2007). An example is the code for (thinking of you) which entails calling then hanging up before the party intended picks up (Wei, 2007).

In addition to supporting existing social networks in new ways, ICT expand social connectivity to include access to complete strangers. For example, mobile technology is used in Ghana to manage existing social networks by keeping in touch with family, friends and business associates; however, Ghanaians use the Internet to form new ties by connecting with strangers (Wei, 2007).

Moreover, a research study by the Pew Internet and American Life Project (2007) indicates that 55 % of American teens between the ages of 12-17 use online social networking sites, which refer to online pages that allow users to create personal profiles and networks. According to the study, older female teens use sites, such as Facebook and MySpace, primarily to reinforce pre-existing friendships, while male teens use them to flirt and create new friendships.

Also, Brecher (2000) explains how SMS supports the formation of new social networks, including temporary ones linked by mutual interests and access to technology. He illustrates this point by citing the mobilization for the demonstrations at the World Trade Organization protests in 1999, which came about an organized effort through mobile phones and SMS. Hence, consequences of technological advances manipulate how and with whom people communicate.

Moreover, ICT help create new social functions and utilities. For example, in regions of high telephony deployment rates, such as Scandinavia and the United

Kingdom, the number of contacts saved in phone memories is considered a status symbol because it represents quantifiable social networks (Ling & Yttri, 2002). Also, mobile phone text messages, especially bedtime good-night messages, are extensively used by American teens to communicate with peers and friends at all hours of the day and night (Grinter & Eldridge, 2001). Furthermore, SMS tends to be a group activity, as messages are usually read aloud and shown to others (Weilenmann & Larsson, 2001).

Short Message Service

In 1993, the first person-to-person text message was sent in Finland (Ahonen & Moore, 2005). It is interesting to note that mobile phone messaging was only added by mobile operators as an afterthought with minimum expectation of real user adoption (Charlesworth, 2008). Not only did texting set off a dialect of its own, it surpassed all expectations for adoption, success and revenues (Charlesworth, 2008).

In 2005, text messaging was a \$105 billion industry (Ahonen & Moore, 2005). SMS is expected to remain the top revenue generator across all messaging categories with \$177 billion by 2013 (Clement, 2008). The escalation in mobile messaging usage shows no signs of slowing. In the US, 600.5 billion messages were communicated in 2008, compared to 363 billion in 2007 and 57.2 billion in 2005 (CTIA, 2008). Also, by 2007 almost 2 out of 3 mobile phone subscribers were active users (Ahonen & Moore, 2005).

Worldwide, active users of SMS (SMSrs) reached a whopping 2 billion in 2005, almost twice as many Internet users (Ahonen & Moore, 2005). Average daily SMS communication in 2005 was reported to be 5 in Ireland, 6 in the UK, 10 in South Korea, and 12 in Singapore across the total subscriber base (Ahonen & Moore, 2005). In 2005,

The UK reported 20 SMS per day sent by heavy users and 100 daily SMS sent by super-heavy users; which explains repetitive injury pains associated with heavy texting as reported by 5% of British mobile phone users then (Ahonen & Moore, 2005).

Also in 2005, the highest volume to date of SMS communication was reached in the Philippines as over 200,000 text messages were sent per day (Batino, 2005). Three years later, that number escalated in the UK to over 25 million text messages sent per day in 2008 (Grenville, 2009a). On New Year's Day 2009, over 360 million SMS were sent in France, while a record 166 million text messages were sent in the UK with an average of 1,900 messages sent every second (Grenville, 2009b).

Mobile text messaging is ubiquitous due to its tempting functionalities and features like affordability, subtleness, accessibility and mutability which make it suitable to use even in discrete settings such as classrooms or meetings (Grinter & Eldridge, 2001). Other advantages that make texting superior to other technologies include privacy and speed. Whereas an email reply is expected within 24 hours, replies to text messages are expected within five minutes; hence making SMS the fastest communicative tool, especially since some people may not be always connected to IM or using Blackberry wireless eMail (Ahonen & Moore, 2005).

Texting has many social utilities such as expressing cultural hybridity in Hong Kong by mixing English and Chinese in messages (Wei, 2007). Additionally, in recent years, SMS has been used to votes for TV shows (Ahonen & Moore, 2005). Texting has been also notorious for initiating a divorce or a break up between lovers, making religious confessions, firing someone from a job, or even participating in political

revolutions (Wei, 2007). For instance, the political overthrow of President Estrada of the Philippines was organized and coordinated through text messaging (Wei, 2007).

Additionally, Wei (2007) notes that texting was used to coordinate protests at the 2004 Republican and Democratic National Conventions. Thus, SMS allows users to be "part of the anonymous faceless crowd" while still "having an individual voice" (Wei, 2007, p. 94). More recently, supporters of then presidential candidate Barak Obama were the first to find out the identity of his running mate through SMS and email instead of making an announcement at the usual press conference (Grenville, 2008).

Texting is different from any other form of ICT because it is not anonymous; hence, it reinforces preexisting social networks (Bryant, Sanders-Jackson & Smallwood, 2006). Also, SMS has the potential to cement social bonds by having a steady presence via the technology (Wei, 2007). Furthermore, Churchill and Wakeford (2001) explain that in regions where phone calls are more expensive than text messages, such as the United Kingdom, SMS is used to contact friends and acquaintances, while phone calls are reserved for contacting parents. Therefore, they argue that ICT have the ability to control and dictate the growth of social ties.

Furthermore, due to its impersonal and subtle nature, SMS offers individuals emotional security especially when approaching romantic interests (Wei, 2007). In the Philippines, SMS is considered a perfect platform for sending flirty messages to strange numbers chosen randomly and asking them to be *textmates* or intimate text pals (Ellwood-Clayton, 2003). As a result, people can increase the size of their social circles to include new acquaintances, friends, or possibly even new family members.

When it comes to the strength of social ties though, some scholars offer a different version. Confirming concerns mentioned in previous sections, Al-Gehs, a Kuwait University Professor, notes that texting has the potential to harm social networks in Kuwait, because it eradicates the need to meet physically with others, even those with whom people have intimate ties (Al-Fathly, 2008). Al-Gehs explains that people have replaced physical interaction with a more convenient form of communication, such as SMS; hence, resolving them of any societal obligations towards others, and in turn weakening their social ties (Al-Fathly, 2008). Al-Mutawa, an established sociologist in Kuwait, also warns of the dire effects of SMS on the stability and strength of familial and societal ties, as he points out how quickly texting is destroying face-to-face communication (Al-Fathly, 2008).

Instant Messaging

Instant Messaging is a chatting application and a presence-based telecommunication service used with an Internet connection to signify the online presence of contacts (Wei, 2007). In 2001, over sixty million people worldwide used Instant Messaging regularly (LaGeese, 2001). In 2003, over 500 million messages were communicated daily (Pewes, 2003), and that number jumped to over 1.3 billion messages sent per day in 2007 (Wei, 2007). Also in 2003, 54 million Americans reported actively using instant messaging, with a quarter of them using IM more than email (Pew, 2004a).

In that year, America Online announced that their IM service was being used by over 195 million subscribers, with more than 1.6 billion instant messages being sent each day (Quain, 2003). IM revenues in Europe alone are expected to reach \$1.1 billion by

2012 (Grenville, 2007). A new market research study indicates that worldwide revenues for presence-based telecommunication services, including instant messaging and push-to-talk (PTT), is estimated to surpass \$16 billion in 2009 (Berg, 2008). Thus, it is not surprising that IM has proven to be one of the most popular online applications as it has dramatically fostered online connectivity (Hu, Wood, Smith, & Westbrook, 2004).

While e-mail and SMS allow for asynchronous correspondence, instant messaging allows for immediate and synchronous communication (Bryant, Sanders-Jackson, & Smallwood, 2006). It can be administered as an individual or group activity (Hu, Wood, Smith, & Westbrook, 2004). Research conducted by Pew Internet and American Life Project (2004b) indicates that instant messaging is used to expand social circles, and express one-self through the use of customized "away messages", profiles and buddy lists. Moreover, in a study conducted on college students' use of instant messaging, the latter was found to be used to communicate information and to manage personal identities (Kindred & Roper, 2004).

On a parallel dimension and drawing on literature from the theory of uses and gratifications, Leung (2001) explored motives of college students for chatting on an instant message online application called ICQ (I seek you), and reported motives of relaxation, inclusion, sociability and affection. Also, IM is used to stay in touch with friends and family, as well as to coordinate business meetings (Wei, 2007). The controversy over the functionalities and benefits of ICT also extends to instant messaging.

Although opponents of ICT and IM may argue that it leads to isolation, proponents argue that those individuals may be physically secluded from others, yet, they

usually are engaged in multiple social online conversations (Wei, 2007). Therefore, IM leads to the establishment of social connectivity and the preservation of conversational milieu (Wei, 2007). One study examining the relationship between instant messaging and social intimacy found a significant positive correlation (Hu, Wood, Smith, & Westbrook, 2004). Overall, both camps of the debate over the social implication of IM present valid points. However, more academic in-depth examinations must be performed before a final conclusion can be drawn as to whether those who use instant messaging (IMrs) are negatively impacted (Hu, Wood, Smith, & Westbrook, 2004).

The Debate over the Impact of ICT

A debate continues to ignite regarding the effects of ICT on connectivity, relationships and social ties. On the one hand, new media technologies provide access, flexibility, and selection. On the other hand, they have the potential to alter perceptions of reality and to reduce physical social contact.

Although the revolution of ICT is characterized by massive opportunities for knowledge, connectivity, research, development and training; many skeptics draw attention to the other side of these technologies (Bradley, 2000). Overall, it is important to recognize the tradeoff the world faces by embracing the use of technology. Coleman (2000) explains the roots for the controversy over the impact of ICT on social networks. He indicates that new media technologies create the illusion of intimacy, which can undoubtedly foil people; hence turning them into intimate strangers.

Additionally, Boase, Horrigan, Wellman and Rainie (2006) consider this debate vital. They wonder whether the same kinds of social networks, both in nature and scope, which burgeoned in pre-ICT times, can remain in existence with such extensive usage of

new technologies. Boase et al. explain that on the one hand, ICT expand social ties and provide unprecedented opportunities, flexibility and access; yet, these technologies have the potency to alienate individuals from their more authentic physical relations.

Nevertheless, Boase et al. (2006) explain that some research does not reflect a dire situation. They clarify that some studies indicate that the Internet, for example, is not necessarily an anti-social development because it enables individuals to maintain and even strengthen existing networks, in addition to forging new ones. However, other studies show that ICT usage does not create new social networks; instead it just enhances them in cases where they already exist (Ling, Yttri, Anderson, & Deduca, 2003).

In presenting both sides of the heated debate on ICT effects, Bradley (2000) describes how proper use of communication technology can, as indicated by some research, produce healthier social ties. However, he maintains that many users end up interacting solely with their computer screens without meeting others and, therefore, experiencing "electronic solitude" (p. 849).

Generally, advocates of ICT point out the social utility and functionality of media technologies. They believe that such technologies assist in stepping into the future by connecting people above and beyond the physical world and all its constraints (Hampton, 2003). Proponents also believe that ICT rescue people from isolation and depression by opening doors to new waves of communication and social connectivity (Bradley, 2000). Furthermore, advocates maintain that new media technologies support the management of existing social networks and sustain the development of new ones, because for these supporters, social ties are a mixture of online and in-person encounters (Hampton, 2003).

On the other hand, according to Hampton (2003) challengers of ICT assume that with the rapid development of communication technologies, social ties can thrive only online or through the omni-presence these technologies provide. Therefore, people are deprived of the opportunity to have meaningful and deep social ties in the real world (Nie, 2001). Moreover, Nie and Erbring (2002) argue that ICT stunt social connectivity and promote mere electronic involvement or presence rather than actual participation in social circles, which in turn reduces in-person interaction.

According to Nie and Erbring (2002), the first comprehensive study examining the social consequences of the Internet was conducted in 2002 by the Stanford Institute for the Quantitative Study of Society. They explain that the study was based on information provided by both Internet users and non-users, who were part of a large, representative sample of 4,113 adults in 2,689 American households. They also point out that a key finding from the study was an inverse relationship between the amount of time people spent on the Internet and the amount of contact people had with their intimate social networks, such as family and friends.

Moreover, according to Nie and Hillygus (2002), another study with an even larger representative sample of 5,500 adults between the ages of 18 and 65 found support for displacement theory of time utilization, which describes how time can be reallocated or redistributed, but not expanded. They maintain that time spent on the Internet, e-mail or otherwise, was found to be inversely related to daily activities especially discretionary ones, which means it is time spent alone. Specifically, they indicate that Internet usage comes at the expense of time spent on social activities with family and friends.

Additionally, the Internet reduces the density and heterogeneity of social relations in the real world (Nie, Hillygus & Erbring, 2002). Nie (2001) also indicates that similar results were found in research conducted by the National Public Radio, Kaiser Family Foundation and Kennedy School of Government (NKK). On the other hand, he points out that research conducted by PEW and UCLA's Surveying the Digital Future (SDF) challenges these findings, and concludes that email and other web activities enhance social relationships. However, Nie argues that the relationship found in these studies is spurious due to factors such as education, age and income.

Additionally, Bradley (2000) indicates that another challenge presented by ICT is technostress, which is a phenomenon produced by an accelerated tempo. He notes that this is due to increased dependency on technology, and raised expectancy of instant and immediate responses to inquiries. Therefore, people do not have the patience to communicate without the dependence on communication technologies. Bradley further explains that technostress is also produced by an overload of connectivity, a misperception of reality, a disillusion of time and space, as well as requirements of online availability.

Moreover, Nie (2001) contends that the impact of ICT can be compared to the deleterious effects of television on sociability. However, he argues that essential differences exist in this comparison because, unlike new media technologies, TV has the quality of easily retreating to a background noise. On the other hand, Nie notes that ICT provide an interactivity feature that requires immediate and continuous user attention, which takes away from any other activity a user can potentially perform. Therefore, every

minute spent on ICT comes at the expense of another activity because these technologies require user interaction and active participation (Nie, 2001).

Furthermore, current social trends such as telecommuting or working from home, coupled with the fact that the fastest growing type of American household is single-member households, lead to concerns that even unintended social consequences of ICT can be alarming (Nie, Hillygus, & Erbring, 2002). Research shows that such consequences may lead to a decrease in the quantity and quality of face-to-face interactions (Nie, Hillygus, & Erbring, 2002).

Moreover, many believe that technology in general, and the Internet in particular, sucks people away from physical real-world interaction; hence fostering social disintegration (Boase, Horrigan, Wellman, & Rainie, 2006). Further studies show that, with the exception of email which presumably covaries with greater sociability, the frequency of contacting social networks declines as the size of these networks grows (Boase, Horrigan, Wellman, & Rainie, 2006). However, even the assertion that email supplements and cultivates social ties does not go unchallenged (Wei, 2007).

As it seems, the debate over the impact of communication technologies on social ties is far from ending. Overall, ICT create a vision of "networked individualism" where each person is both connected to and disconnected from those around (Haythornthwaite & Wellman, 2002, p. 32). Communication technologies allow people to navigate different realms and negotiate multiple spaces. Therefore, it is essential to examine and assess the social impact of such revolutionary technologies. An investigation of five research questions (RQ) and 12 hypotheses (H), which were derived from the previous studies mentioned in the literature, are presented in the following chapters in order to

offer a better understanding of the impact of information and communication technologies on social networks.

The current investigation is concerned with the nature and scope of social ties, as affected by media technologies. Considering the literature presented in this chapter, the research questions posed are based on the logical assumption that ICT convergence has resulted in an increased use of technology to communicate without the constraints of time and place.

CHAPTER III

METHODOLOGY

Research Design

This study focused on the nature and scope of social ties, as affected by two media technologies, instant messaging and short message service. The study examined the impact of the use of the aforementioned information and communication technologies on the size and strength of three circles of social networks (family, friends and acquaintances) in the state of Kuwait.

Research Questions

The independent variable in this examination was the use of ICT (IM and SMS). Reflecting the nature and scope of social ties, the dependent variables were the size and strength of social networks. Therefore, a research instrument was designed to answer the following questions:

RQ1. How does the use of IM affect the strength of social networks in Kuwait?

H1. The use of IM is negatively associated with the strength of the social network within the family circle.

H2. The use of IM is negatively associated with the strength of the social network within the friends circle.

H3. The use of IM is negatively associated with the strength of the social network within the acquaintances circle.

RQ2. How does the use of IM affect the size of social networks in Kuwait?

H4. The use of IM is positively associated with the size of the social network within the family circle.

H5. The use of IM is positively associated with the size of the social network within the friends circle.

H6. The use of IM is positively associated with the size of the social network within the acquaintances circle.

RQ3. How does the use of SMS affect the strength of social networks in Kuwait?

H7. The use of SMS is negatively associated with the strength of the social network within the family circle.

H8. The use of SMS is negatively associated with the strength of the social network within the friends circle.

H9. The use of SMS is negatively associated with the strength of the social network within the acquaintances circle.

RQ4. How does the use of SMS affect the size of social networks in Kuwait?

H10. The use of SMS is positively associated with the size of the social network within the family circle.

H11. The use of SMS is positively associated with the size of the social network within the friends circle.

H12. The use of SMS is positively associated with the size of the social network within the acquaintances circle.

RQ5. How do demographic characteristics affect the size and strength of the three circles of social networks (family, friends, and acquaintances), based on IM/SMS usage in Kuwait?

Variable Selection

The empirical focus of this investigation was to explore the effects of the use of two types of information and communication technologies (IM and SMS) on the size and strength of social ties. As mentioned in the literature review, researchers classified social networks according to research goals. Due to the importance of each social cluster (family, friends, and acquaintances) investigated by previous studies, this dissertation examined these specific clusters individually to obtain a better understanding of the impact of technology on each social circle. Therefore, this investigation adopted the approach of previous studies and classified social networks into the aforementioned three categories. The latter reflected the family circle which encompassed relatives of all degrees; the friends circle which referred to individuals considered by respondents as close or secret-keepers, and the acquaintances circle which included contacts outside the other two circles.

Additionally, previous research identified three levels of technology users. Nie and Erbring (2002) associated heavy usage with spending 10 or more hours on technology; light usage with spending 5 or less hours on technology; and average usage with those in between. Furthermore, in order to limit the scope of this research, the study focused on two types of ICT: instant messaging, and short message service. These specific types also reflect somewhat contrasting forms of communication, as IM is synchronous, while SMS is asynchronous (Bryant, Sanders-Jackson, & Smallwood, 2006). Also, text-messaging by default denies the anonymous quality that may be associated with instant messaging (Bryant, Sanders-Jackson, & Smallwood, 2006).

Additionally, each type of technology has been mainly associated with a specific kind of meta-media (Trepte, Ranne, & Becker, 2003). Hence, despite the continuous technological convergence, which has blurred service delivery of hybrid ICT, instant messaging remains mainly associated with personal computers, while SMS is primarily used through mobile phones.

Moreover, choosing these specific types of ICT in this study was further justified by the fact that newer technologies, such as video calls, podcasts, blogs, and social networking sites (like Facebook and Hi5) had just fairly recently expanded in terms of usage in USA and Europe. Therefore, these advanced applications of ICT were only recently examined for their effects on social behavior.

Likewise, while used by some individuals in Kuwait, the aforementioned applications did not yet gain nation-wide popularity as they had just started to emerge from their infancy stages. Hence, the two applications of ICT that were investigated in this research (IM and SMS) were still considered in Kuwait fairly *new* technologies at the time the study was conducted, which pushed for the need to evaluate their impact on social networks.

Instrumentation

To present a comprehensive picture of the impact of new media technologies on social ties in Kuwait, a quantitative survey method was used. Surveys offer relatively in-depth information covering a wide range of issues (Berger, 2000). Surveys also allow researchers to gather a large amount of data in realistic settings and at low cost (Berger, 2000). Moreover, surveys provide quantitative information about the attitudes and opinions of a large select group.

Hence, it was imperative to use this particular type of instrument especially since surveys offer extensive feedback and differentiated views. This was particularly important for the topic of examination because, as indicated by the research presented in the literature review, ICT are now imbedded in everyday activities and have the potential to affect people across the globe (Bradley, 2000).

More specifically, self-administered questionnaires were used to survey respondents in governmental offices, private companies, educational institutions, and malls. Self-administered questionnaires ensure anonymity of answers, which can advance the response rate. Also, considering the small size of the Kuwaiti population, acquiring an ideal number of sample respondents for conducting the survey was feasible.

Additionally, this method of surveying was most suitable since other methods were not realistically viable in Kuwait. This is due to the fact that local authorities and phone companies do not allow for the distribution of contact information for private citizens, nor do they sell their databases. Furthermore, it is hard to actually contact Kuwaitis through home phone numbers, as many of these numbers are either disconnected or outdated, and most individuals use their mobile phones instead.

Moreover, people may not welcome calls especially when they are charged by their phone companies. Phone surveys are also considered highly intrusive. As for the mail system, it is exceedingly unreliable in that part of the world. Abdulrahim (1999) further confirms this and describes how these surveying methods "have proven to yield a very low response rate due to the respondents' suspicion about completing a questionnaire over the phone and also due to the poor mail system in the state of Kuwait"

(p. 69). Thus, using self-administered questionnaires was the most appropriate method for realizing this investigation in Kuwait.

Survey Instrument

The survey presented respondents with a total of 16 questions, 13 of which were closed-ended. The questions were adopted from previous research conducted by the Stanford Institute for the Quantitative Study of Society (Nie & Erbring, 2002). However, these questions were modified to fit the purpose of this study, the types of technologies investigated, and the context of surveying individuals from Kuwait.

The instrument included two types of scales: Likert and Nominal. Likert scales provide ranges of answers and measure beliefs, attitudes and feelings (Frey et al., 2000). Nominal checklists allow respondents to choose from mutually exclusive categories (Wimmer & Dominick, 2006). Furthermore, an introduction preceded the questionnaire in order to present respondents with the purpose and sponsorship of the study, details of informed consent, and contact information. The introduction also stressed the social utility of the research, and provided definitions for information and communication technologies as well as social networks.

Following the brief introduction, the design of the survey progressed to present respondents with instructions on how to answer questions. Each type of technology was presented in a separate section with identical questions in each section. This technique served the purpose of stunting any potential confusion that could have hindered the ability of respondents to complete the questionnaire. The instrument used in this study included a battery of questions which measured three variables; instant and text messaging usage, as well as the strength and size of social networks.

The use of IM/SMS was measured by the number of hours per week spent on instant or text messaging (questions 1 and 6). Moreover, the strength of social networks was measured by changes, due to use of each type of technology, in (a) the number of times respondents meet face-to-face with family members, friends and acquaintances; and (b) the duration of time respondents spend face-to-face with family members, friends and acquaintances (questions 2, 3, 7 and 8).

Furthermore, this variable was measured by change as perceived by respondents, due to use of each type of technology, in the strength of social networks with regards to circles of family, friends and acquaintances (questions 4 and 9). These measurements were based on previous research measuring sociability (Ling, Yttri, Anderson, & DiDuca, 2003) and the social impact of new media technologies (Nie & Erbring, 2002). The questions mentioned in this part reflect research questions 1 and 3. Response options for the Likert scale used with these questions ranged from *decreased a lot* = 1 to *increased a lot* = 5.

The same response options were used for the Likert scale utilized to measure the size of social networks. This variable was measured by changes, due to use of each type of ICT, in the number of family members, friends, and acquaintances (questions 5 and 10). These questions correspond with research questions 2 and 4. The last part of the survey introduced questions related to demographic information, such as age, gender, education, income as well as marital and work status (questions 11-16). These questions addressed research question 5. Demographic characteristics are the most widely investigated parameters. The questionnaire used is included in the Appendixes. Table 1

below reflects how each question in the survey corresponded with the hypotheses and research questions presented in this study.

Table 1

Research Questions/Hypotheses Correspondence with Survey Questions

Research Question/Hypothesis	Survey Question
RQ1 (IM-strength)	
Hypothesis 1 (family)	Questions 2/a, 3/a, 4/a
Hypothesis 2 (friends)	Questions 2/b, 3/b, 4/b
Hypothesis 3 (acquaintances)	Questions 2/c, 3/c, 4/c
RQ2 (IM-size)	
Hypothesis 4 (family)	Question 5/a
Hypothesis 5 (friends)	Question 5/b
Hypothesis 6 (acquaintances)	Question 5/c
RQ3 (SMS-strength)	
Hypothesis 7 (family)	Questions 7/a, 8/a, 9/a
Hypothesis 8 (friends)	Questions 7/b, 8/b, 9/b
Hypothesis 9 (acquaintances)	Questions 7/c, 8/c, 9/c
RQ4 (SMS-size)	
Hypothesis 10 (family)	Question 10/a
Hypothesis 11 (friends)	Question 10/b
Hypothesis 12 (acquaintances)	Question 10/c
Amount of Use (IM)	Question 1
Amount of Use (SMS)	Question 6
RQ5 (Demographics)	Questions 11-16

Validity

Three main criteria for measuring validity are face, construct and content validity. To ensure the validity of the instrument used in this research, the survey was translated to Arabic, checked by three translators, and back-translated to English in order to ensure the appropriateness of phrasing and structuring, as well as the accuracy of the linguistic terms used. Additionally, the use of constructs from previous research provided the current study with construct validity. According to Frey, Botan and Kreps (2000), achieving validity refers to the "ability of a measurement technique to tap the referents of the

concepts being investigated" (p.111). Therefore, six experts were asked to review the content of the questionnaire used in this study in order to identify potential problems in comprehension or interpretation.

These experts were professors and graduate students from the Department of Psychology and the Department of Mass Communications at Kuwait University and the Authority of Applied Education in Kuwait. Feedback from these experts was extremely positive and yielded no need for modifications. Hence, content validity was confirmed by these experts. The questionnaire was further distributed to five graduate students who also confirmed the ease of comprehension.

Pilot Test

A pilot test was conducted in order to ensure the precision of the Arabic version of the questionnaire and to reduce the measurement error. The test also assisted in revealing any need for corrections in scale items and overall comprehension. No modifications were required as indicated by pilot respondents. The pilot test was conducted in Kuwait in July 2008. It surveyed twenty individuals between the ages of 18-65 years. The average time to answer the pilot test was approximately 5 minutes.

Survey Administration

To preserve the rights of respondents participating in the study, required permissions were obtained via the Institutional Review Board at the University of Southern Mississippi. Furthermore, incentives for participation were used in order to boost the response rate. They were offered in the form of a draw on gift certificates from Virgin Mega store.

These certificates were each valued at \$15 (equivalent to KD 4), and were presented randomly to ten individuals from the list of respondents who completed the questionnaire and chose to leave their contact numbers in a draw basket. Respondents were assured of anonymity and confidentiality, as their contact numbers could not be associated with their replies in the survey. After all questionnaires were collected, the ten winners were contacted and instructed to pickup their gift certificates at Virgin Mega store.

The survey data was gathered from a nationally representative sample of Kuwaiti IM and/or SMS users, between the ages of 18 to 65 years. Usage of these particular types of ICT was the specified requirement to be considered part of the population of technology users, which was the population of interest in this study. The questionnaires were distributed randomly to individuals who fit the specified criteria.

During the period of August 15- September 15 2008, 500 surveys were distributed in government offices, private companies, educational institutions and malls. Wimmer and Dominick (2006) describe using a sample size of 500 as very good. Completion of the survey took approximately 5 minutes. A collection of questionnaires (94) were unusable. Thus, the response rate was satisfactory at 81%. A total of 406 respondents completed a self-administered questionnaire about the effects of IM and SMS usage of the size and strength of their social networks within the family, friends and acquaintances circles.

Analysis and Reliability

Data entry was performed from September 20-30, 2008. Data analysis was performed during the month of October. The Statistical Package for the Social Sciences

(SPSS) was used to analyze collected data, while a Pearson correlation test was performed to identify the relationship between the variables specified in the study. Also, in order to gain more depth in terms of practical and theoretical applications, the data was analyzed by demographics. Hence, other tests, such as t-tests, chi square, Scheffe test and ANOVA, were applied to analyze data.

The indexes used in the questionnaire were tested for reliability. A measure's reliability reflects its ability to produce consistent results each time the measure is used. For each technology (IM and SMS), two five-point Likert scales reflected the dependent variables (strength and size of social networks) and ranged from *decreased a lot* = 1 to *increased a lot* = 5. With regards to the reliability of the strength index, which included 9 items (for IM: questions 2 a, b, c; 3 a, b, c; 4 a, b, c; and for SMS: questions 7 a, b, c; 8 a, b, c; 9 a, b, c), a high Cronbach's alpha was achieved (for IM $p = 0.92$ and for SMS $p = 0.94$) indicating strong internal consistency. The index encompassed three levels of strength measurement (number of face-to-face meetings, duration of time spent in face-to-face meetings, and overall perceived strength of relationships) with each being applied to the three circles of social networks investigated (family, friends, and acquaintances).

Additionally, reliability was still strong when each item in the index was deleted and Cronbach's alpha for IM and SMS remained high, which indicated that all items within the index targeted the same variable (strength). Comparatively, the size index encompassed the same three circles of social networks (family, friends, and acquaintances). Due to the fact that the index only included 3 items (for IM questions 5 a, b, c; and for SMS questions 10 a, b, c), a reticent Cronbach's alpha was attained in the reliability test for this section (for IM $p = 0.63$ and for SMS $p = 0.55$).

CHAPTER IV

RESULTS

Analysis of Data

The main focus of this investigation was the impact of using information and communication technologies (IM and SMS) on the size and strength of three circles of social networks (family, friends and acquaintances) in Kuwait. The study also explored the effects of demographic characteristics on social ties as a result of ICT usage. A total of 406 self-administered questionnaires were completed by a nationally representative sample of IM and/or SMS users, between the ages of 18 to 65 years. The survey was distributed during the period of August 15 - September 15, 2008, to respondents in government offices, private companies, educational institutions and malls within the State of Kuwait.

Sample Profile

The respondents ranged in age from 18-65 years with an average age of 31 years. Excluding missing data, almost half the sample (47.5%) were under the age of 30 years, while (35.2%) were between the ages of 31 - 40 years. The third accumulation (14.8%) was in the group of 41 - 50 years old, with only (2.2%) ranging in age from 51 - 65 years.

Furthermore, the sample was almost equally split between males (50.5%) and females (49.3%). Slightly more than half the sample (56.9%) had a 4-year college education, followed by (23.6%) who had diploma/junior college education. An accumulation of respondents (12.3%) was at or below high school level, while only (6.7%) had post-graduate degrees. The larger part of respondents (72.9%) was engaged in

government or private employment. Some were college students (22.9%), while others were unemployed or retired (3.5%).

As for monthly income, there was an observable accumulation of answers (36.5%) which reflected those who earned KD 501 - 1000 (equivalent to \$1300 - 2700), with an aggregation of (27.8%) earning less than KD 500. While (20.7%) of respondents earned KD 1001 - 1500 (equivalent to \$2701 - 4200), a minority of (12%) earned above KD 1501 per month. Table 2 below shows the breakdown of the demographic frequencies as indicated by respondents.

Table 2

Frequency Distribution for Demographic Characteristics

Demographic Characteristics	Frequency	Percent	
Age	17 to 30 years	193	47.5 %
	31 to 40 years	143	35.2 %
	41 to 50 years	60	14.8 %
	51 to 65 years	9	2.2 %
	Total	405	99.8 %
	Missing System	1	0.2 %
Gender	Males	205	50.5 %
	Females	200	49.3 %
	Total	405	99.8 %
	Missing System	1	0.2 %
Education	< High School	13	3.2 %
	High School	37	9.1 %
	Diploma/Junior College	96	23.6 %
	4-year College	231	56.9 %
	Post-Graduate	27	6.7 %
	Total	404	99.5 %
	Missing 9	1	0.2 %
	Missing System	1	0.2 %
Work	Student	93	22.9 %
	Unemployed	10	2.5 %
	Government Employee	234	57.6 %
	Private Work	62	15.3 %
	Retired	4	1.0 %
	Total	403	99.3 %
	Missing 9	2	0.5 %

Table 2 (Continued) .

Demographic Characteristics		Frequency	Percent
Marital Status	Missing System	1	0.2 %
	Single	151	37.2 %
	Married	174	42.9 %
	Divorced	51	12.6 %
	Widowed	19	4.7 %
	Other	3	0.7 %
Income	Total	398	98.0 %
	Missing 9	7	1.7 %
	Missing System	1	0.2 %
	< KD 500	113	27.8 %
	KD 501-1000	148	36.5 %
	KD 1001-1500	84	20.7 %
	KD 1501-2500	29	7.1 %
	Over 2501	20	4.9 %
	Total	394	97.0 %
	Missing 9	11	2.7 %
Missing System	1	0.2 %	

Answer Categories for the Dependent and Independent Variables

The answer categories for the dependent variables (strength and size of social networks) ranged on a five-point Likert scale from *decreased a lot* = 1 to *increased a lot* = 5. All items, means (*M*) and standard deviations (*SD*) are shown in table 3 below.

Table 3

Descriptive Statistics

Question	N	M	SD
IM Hours per week you spend on IM	353	18.64	15.344
Q2a Number of F2F meetings with-family	361	2.30	0.988
Q2b Number of F2F meetings with-friends	362	2.47	0.887
Q2c Number of F2F meetings with-acquaintances	360	2.41	0.963
Q3a Duration of F2F meetings with-family	359	2.39	0.877
Q3b Duration of F2F meetings with-friends	360	2.49	0.889
Q3c Duration of F2F meetings with-acquaintances	358	2.43	0.949
Q4a Perceived strength of relation with-family	361	2.42	1.006
Q4b Perceived strength of relation with-friends	362	2.57	1.016

Table 3 (Continued).

Question	N	M	SD
Q4c Perceived strength of relation with-acquaintances	361	2.63	1.011
Q5a Number of family members	359	3.25	0.554
Q5b Number of friends	361	3.74	0.705
Q5c Number of acquaintances	361	4.07	0.879
SMS Hours per week you spend SMS	355	8.68	6.253
Q7a Number of F2F meetings with-family	366	2.38	0.951
Q7b Number of F2F meetings with-friends	367	2.47	0.985
Q7c Number of F2F meetings with-acquaintances	367	2.43	0.980
Q8a Duration of F2F meetings with-family	367	2.46	0.851
Q8b Duration of F2F meetings with-friends	367	2.55	0.844
Q8b Duration of F2F meetings with-acquaintances	364	2.50	0.914
Q9a Perceived strength of relation with-family	365	2.54	1.049
Q9b Perceived strength of relation with-friends	367	2.63	1.091
Q9c Perceived strength of relation with-acquaintances	363	2.59	1.040
Q10a Number of family members	364	3.24	0.534
Q10b Number of friends	365	3.65	0.666
Q10c Number of acquaintances	365	3.83	0.841

The independent variable reflected usage of technology, whether instant or text messaging. A total of 406 respondents completed the questionnaire, of which 323 individuals used both IM and SMS simultaneously, while 39 used only IM and 44 used only SMS. Overall, when asked about the number of hours per week spent on IM, the majority of the sample (62.1%) reflected heavy users who spent over 10 hours ($M = 18.6$, $SD = 15.3$). Light users who spent less than 5 hours using the technology constituted (22.7%) of the sample, while (15.3%) averaged 5-10 hours per week.

On a parallel note, when asked about the number of hours per week spent on SMS, the sample was more spread out between heavy users who spent over 10 hours (36.4%), light users who spent less than 5 hours (34.4%), and users who spent 5-10 hours

on the technology (29.3%) ($M=8.7$, $SD = 6.3$). Table 4 below shows the frequency and percentage breakdown for technology usage.

Table 4

Frequency Distribution for Technology Usage

Usage: Hours per week		Frequency	Percent
IM	Less than 2 hours	35	8.6 %
	2 to 5 hours	45	11.1 %
	5 to 10 hours	54	13.3 %
	10 to 20 hours	80	19.7 %
	More than 20 hours	139	34.2 %
	Total	353	% 86.9
	Missing 0	53	% 13.1
SMS	Less than 2 hours	70	17.2 %
	2 to 5 hours	52	12.8 %
	5 to 10 hours	104	25.6 %
	10 to 20 hours	121	29.8 %
	More than 20 hours	8	2.0 %
	Total	355	87.4 %
	Missing 0	51	12.6 %

The Impact of Instant Messaging on the Strength of Social Networks

The first research question. This question examined the impact of the use of IM on the strength of social networks in Kuwait. RQ1 tackled three circles of social ties (family, friends, and acquaintances) and three levels of measurement for the dependent variable (strength), namely: number of face-to-face meetings with members of the three circles, duration of these face-to-face meetings, and perceived strength of relationships with social ties.

Hypothesis 1. This study hypothesized that the use of IM is negatively associated with the strength of the social network within the family circle. A Pearson correlation test, investigating the relationship between the independent and dependent variables in this study, showed a statistically significant negative association between IM usage and

the strength of social ties within the family circle. Additionally, the three levels of strength measurement were combined to produce a total score, which was then correlated with the use of IM. A statistically significant negative correlation was also found. Table 5 below reflects the correlation figures.

Table 5

Pearson Correlation for IM and Strength of SN – Family

Hours per week spent on IM correlated with	Correlation
(Q2a) Number of face-to-face meetings with family	-.49**
(Q3a) Duration of time spent in face-to-face meetings with family	-.47**
(Q4a) Overall perceived strength of relationship with family	-.47**
(Qa234) Combined questions of strength	-.54**

** p< 0.01 (2-tailed)

Additionally, looking at frequencies, it is interesting to see how respondents reported the effects of IM usage on the three levels of measurement for the strength of social networks. For example, almost half the sample (49.8%) indicated that, with the use of IM, the number of face-to-face meetings with family members had decreased. On the other hand, (30.8%) stated no change, while (8.4%) reflected an increase. The breakdown of the responses is illustrated in table 6 below.

Table 6

Frequency Distribution for Q2a – IM and Number of Face-to-Face Meetings with Family

Members

Answer Categories	Frequency	Percent
Decreased a lot	92	22.7
Somewhat decreased	110	27.1
No change	125	30.8
Somewhat increased	28	6.9
Increased a lot	6	1.5
Total	361	88.9
Missing 9	1	0.2

Table 6 (Continued).

Answer Categories	Frequency	Percent
Missing System	44	10.8
Missing Total	45	11.1
Total	406	100.0

Furthermore, respondents reported the effects of IM usage on the duration of time spent in face-to-face meetings with family members. Almost half the sample (46.8%) noted a decrease in duration, while (35.5%) and (6.1%) expressed no change and an increase respectively. The breakdown of the responses is illustrated in table 7 below.

Table 7

Frequency Distribution for Q3a – IM and Duration of Face-to-Face Meetings with Family Members

Answer Categories	Frequency	Percent
Decreased a lot	60	14.8
Somewhat decreased	130	32.0
No change	144	35.5
Somewhat increased	20	4.9
Increased a lot	5	1.2
Total	359	88.4
Missing 9	3	0.7
Missing System	44	10.8
Missing Total	47	11.6
Total	406	100.0

As for changes in overall perceived strength of relationships with family members due to IM use, the majority (48%) said they experienced a decrease, while (28.6%) expressed no change and (12.3%) indicated an increase. The breakdown of the responses is illustrated in table 8 below. Therefore, based on the information presented above, all the results fail to reject the first hypothesis.

Table 8

Frequency Distribution for Q4a – IM and Perceived Strength of Relationship with Family Members

Answer Categories	Frequency	Percent
Decreased a lot	72	17.7
Somewhat decreased	123	30.3
No change	116	28.6
Somewhat increased	42	10.3
Increased a lot	8	2.0
Total	361	88.9
Missing 9	1	.2
Missing System	44	10.8
Missing Total	45	11.1
Total	406	100.0

Hypothesis 2. This study hypothesized that the use of IM is negatively associated with the strength of the social network within the friends circle. The Pearson correlation test, examining the relationship between IM usage and the strength of social ties within the friends circle, revealed a statistically significant negative association. Table 9 below reflects the correlation figures. Additionally, the three levels of strength measurement were combined and correlated with IM use. A statistically significant correlation was also found.

Moreover, another correlation test showed a statistically significant negative association, due to IM usage, between the size and the strength of social networks within the friends circle ($r = -.24^{**}$). As results in the coming section reveal, the size of social ties was found to be positively associated with IM usage for the different circles.

Table 9

Pearson Correlation for IM and Strength of SN - Friends

Hours per week spent on IM correlated with	Correlation
(Q2b) Number of face-to-face meetings with friends	-.37**
(Q3b) Duration of time spent in face-to-face meetings with friends	-.36**
(Q4b) Overall perceived strength of relationship with friends	-.42**
(Qb234) Combined questions of strength	-.44**

** p< 0.01 (2-tailed)

In considering frequencies, almost half the sample (48.6%) indicated that, with the use of IM, the number of face-to-face meetings with friends had decreased. Those who indicated no change constituted (32%), while (8.6%) reflected an increase. The breakdown of the responses is illustrated in table 10 below.

Table 10

Frequency Distribution for Q2b – IM and Number of Face-to-Face Meetings with Friends

Answer Categories	Frequency	Percent
Decreased a lot	40	9.9
Somewhat decreased	157	38.7
No change	130	32.0
Somewhat increased	24	5.9
Increased a lot	11	2.7
Total	362	89.2
Missing System	44	10.8
Total	406	100.0

Similarly, respondents reported the effects of IM usage on the duration of time spent in face-to-face meetings with friends. A large aggregation of respondents (43.1%) expressed a decrease in duration. On the other hand, (37.9%) noted no change and (7.6%) indicated an increase. The breakdown of the responses is shown in table 11 below.

Table 11

Frequency Distribution for Q3b – IM and Duration of face-to-face meetings with Friends

Answer Categories	Frequency	Percent
Decreased a lot	48	11.8
Somewhat decreased	127	31.3
No change	154	37.9
Somewhat increased	22	5.4
Increased a lot	9	2.2
Total	360	88.7
Missing 9	2	0.5
Missing System	44	10.8
Missing Total	46	11.3
Total	406	100.0

In terms of perceived strength of relationships with friends as affected by the use of IM, (48.5%) of the sample expressed a decrease. On the other hand, (23.4%) of respondents reported no change and (17.2%) noted an increase. The breakdown of the responses is illustrated in table 12 below. Hence, the information presented above fails to reject the second hypothesis.

Table 12

Frequency Distribution for Q4b – IM and Perceived Strength of Relationship with Friends

Answer Categories	Frequency	Percent
Decreased a lot	42	10.3
Somewhat decreased	155	38.2
No change	95	23.4
Somewhat increased	55	13.5
Increased a lot	15	3.7
Total	362	89.2
Missing System	44	10.8
Total	406	100.0

Hypothesis 3. This study hypothesized that the use of IM is negatively associated with the strength of the social network within the acquaintances circle. The Pearson correlation test, investigating the relationship between the use of IM and the strength of social ties within the acquaintances circle, showed a statistically significant negative association. Additionally, the three levels of strength measurement were combined to produce a total score, which was then correlated to the use of IM. A statistically significant negative correlation was also found. Table 13 below illustrates the correlation figures. Furthermore, a statistically significant negative correlation ($r = -.34^{**}$) was found, as a result of IM usage, between the size and the strength of social networks within the Acquaintances circle.

Table 13

Pearson Correlation for IM and Strength of SN - Acquaintances

Hours per week spent on IM correlated with	Correlation
(Q2c) Number of face-to-face meetings with acquaintances	-.43**
(Q3c) Duration of time spent in face-to-face meetings with acquaintances	-.35**
(Q4c) Overall perceived strength of relationship with acquaintances	-.39**
(Qc234) Combined questions of strength	-.44**

** $p < 0.01$ (2-tailed).

Moreover, when asked about how the amount of time spent on IM had affected the number of face-to-face meetings with acquaintances, (47.2%) of the sample indicated a decrease in that number. Conversely, (31.8%) expressed no change, while (9.6%) reflected an increase. The breakdown of the responses is shown in table 14 below.

Table 14

Frequency Distribution for Q2c – IM and Number of Face-to-Face Meetings with Acquaintances

Answer Categories	Frequency	Percent
Decreased a lot	68	16.7
Somewhat decreased	124	30.5
No change	129	31.8
Somewhat increased	31	7.6
Increased a lot	8	2.0
Total	360	88.7
Missing 9	1	.2
Missing System	45	11.1
Missing Total	46	11.3
Total	406	100.0

Additionally, when asked about changes, due to IM use, in the duration of time spent in face-to-face meetings with acquaintances; (42.1%) of respondents noted a decrease in duration, while (38.4%) of them reported no change. Only (7.6%) said they had an increase in duration. The breakdown of the responses is illustrated in table 15 below.

Table 15

Frequency Distribution for Q3c – IM and Duration of Face-to-Face Meetings with Acquaintances

Answer Categories	Frequency	Percent
Decreased a lot	72	17.7
Somewhat decreased	99	24.4
No change	156	38.4
Somewhat increased	24	5.9
Increased a lot	7	1.7
Total	358	88.2
Missing 9	4	1.0
Missing System	44	10.8
Missing Total	48	11.8
Total	406	100.0

With regards to changes in the overall perceived strength of relationship with acquaintances due to IM use, the majority (48%) said they experienced a decrease, while (28.6%) expressed no change and (12.3%) noted an increase. The breakdown of the responses is illustrated in table 16 below. Consequently, the results presented above fail to reject the third hypothesis.

Table 16

Frequency Distribution for Q4c – IM and Perceived Strength of Relationship with Acquaintances

Answer Categories	Frequency	Percent
Decreased a lot	50	12.3
Somewhat decreased	113	27.8
No change	132	32.5
Somewhat increased	53	13.1
Increased a lot	13	3.2
Total	361	88.9
Missing 9	1	.2
Missing System	44	10.8
Missing Total	45	11.1
Total	406	100.0

The Impact of Instant Messaging on the Size of Social Networks

The second research questions. This question examined the impact of the use of IM on the size of social networks in Kuwait. RQ2 dealt with three circles of social ties (family, friends, and acquaintances).

Hypothesis 4. This study hypothesized that the use of IM is positively associated with the size of the social network within the family circle. The Pearson correlation test showed a positive association ($r = .084$) between IM usage and the size of social ties within the family circle; however, this was not statistically significant. This was further confirmed by frequencies. Most of the respondents (65.3%) expressed no change in the

size of their family circle as a result of using IM, with (1.2%) of them reporting a decrease. Only (22%) of the sample reflected an increase. The breakdown of the responses is illustrated in table 17 below. Consequently, the results reject the fourth hypothesis.

Table 17

Frequency Distribution for Q5a – IM and Number of Family Members

Answer Categories	Frequency	Percent
Decreased a lot	3	.7
Somewhat decreased	2	.5
No change	265	65.3
Somewhat increased	79	19.5
Increased a lot	10	2.5
Total	359	88.4
Missing 9	3	.7
Missing System	44	10.8
Missing Total	47	11.6
Total	406	100.0

Hypothesis 5. This study hypothesized that the use of IM is positively associated with the size of the social network within the friends circle. A statistically significant positive correlation ($r = .28$) was found between IM usage and the size of social ties within the friends circle ($p = .01$). This was also confirmed by frequencies. More than half the sample (54.7%) said the number of their friends had increased as a result of using IM, while (33.5%) and (0.7%) reflected a no change and a decrease respectively. The breakdown of the responses is illustrated in table 18 below. Therefore, the results fail to reject the fifth hypothesis.

Table 18

Frequency Distribution for Q5b - IM and Number of Friends

Answer Categories	Frequency	Percent
Decreased a lot	1	0.2
Somewhat decreased	2	0.5
No change	136	33.5
Somewhat increased	172	42.4
Increased a lot	50	2.31
Total	361	88.9
Missing 9	1	0.2
Missing System	44	10.8
Missing Total	45	11.1
Total	406	100.0

Hypothesis 6. This study hypothesized that the use of IM is positively associated with the size of the social network within the acquaintances circle. A statistically significant positive correlation ($r = .34$) was found between IM usage and the size of social networks within the acquaintances circle ($p = .01$). Looking at frequencies, the majority of the sample (63.3%) noted an increase in the number of acquaintances, due to IM use, while (24.1%) said there was no change. Only (1.5%) of respondents reported a decrease. The breakdown of the responses is illustrated in table 19 below. Hence, the results fail to reject the sixth hypothesis.

Table 19

Frequency Distribution for Q5c – IM and Number of Acquaintances

Answer Categories	Frequency	Percent
Decreased a lot	4	1.0
Somewhat decreased	2	.5
No change	98	24.1
Somewhat increased	119	29.3
Increased a lot	138	34.0
Total	361	88.9
Missing 9	1	.2
Missing System	44	10.8

Table 19 (Continued).

Answer Categories	Frequency	Percent
Missing Total	45	11.1
Total	406	100.0

The Impact of Short Message Service on the Strength of Social Networks

The third research question. This question examined the impact of the use of SMS on the strength of social networks in Kuwait. RQ3 tackled three circles of social ties (family, friends, and acquaintances) and three levels of measurement for the dependent variable (strength), namely: number of face-to-face meetings with members of the three circles, duration of these face-to-face meetings, and perceived strength of relationships with social ties.

Hypothesis 7. This study hypothesized that the use of SMS is negatively associated with the strength of the social network within the family circle. The Pearson correlation test, examining the relationship between SMS usage and the strength of social ties within the family circle, showed a statistically significant negative association. Additionally, the three levels of strength measurement were combined and correlated with SMS use. A statistically significant correlation was also found. Table 20 below reflects the correlation figures.

Table 20

Pearson Correlation for SMS and Strength of SN - Family

Hours per week spent on SMS correlated with	Correlation
(Q7a) Number of face-to-face meetings with family	-.44**
(Q8a) Duration of time spent in face-to-face meetings with family	-.40**
(Q9a) Overall perceived strength of relationship with family	-.44**
(Qa789) Combined questions of strength	-.49**

** p < 0.01 (2-tailed).

In addition, looking at frequencies, it is important to note here how respondents reported changes in the three levels of measurement for the strength of social networks, as a result of SMS usage. For instance, (47.3%) indicated that, with the use of SMS, the number of face-to-face meetings with family members had decreased. However, (35%) expressed no change while (8.4%) reported an increase. The breakdown of the responses is illustrated in table 21 below.

Table 21

Frequency Distribution for Q7a – SMS and Number of Face-to-Face Meetings with Family Members

Answer Categories	Frequency	Percent
Decreased a lot	74	18.2
Somewhat decreased	118	29.1
No change	142	35.0
Somewhat increased	24	5.9
Increased a lot	8	2.0
Total	366	90.1
Missing 9	1	.2
Missing System	39	9.6
Missing Total	40	9.9
Total	406	100.0

Furthermore, respondents reported the effects of SMS usage on the duration of time spent in face-to-face meetings with family members. The majority (44.4%) noted a decrease in duration, while (40.6%) and (5.4%) expressed no change and an increase respectively. The breakdown of the responses is shown in table 22 below.

Table 22

Frequency Distribution for Q8a – SMS and Duration of Face-to-Face Meetings with Family Members

Answer Categories	Frequency	Percent
Decreased a lot	49	12.1
Somewhat decreased	131	32.3
No change	165	40.6
Somewhat increased	14	3.4
Increased a lot	8	2.0
Total	367	90.4
Missing System	39	9.6
Total	406	100.0

As for changes in overall perceived strength of relationships with family members as a result of SMS use, (45.3%) of respondents mentioned they had experienced a decrease, while (30%) noted no change and (12.3%) indicated an increase. The breakdown of the responses is illustrated in table 23 below. Therefore, all the results presented above fail to reject the seventh hypothesis.

Table 23

Frequency Distribution for Q9a – SMS and Perceived Strength of Relationship with Family Members

Answer Categories	Frequency	Percent
Decreased a lot	60	14.8
Somewhat decreased	124	30.5
No change	122	30.0
Somewhat increased	41	10.1
Increased a lot	18	4.4
Total	365	89.9
Missing 9	2	.5
Missing System	39	9.6
Missing Total	41	10.1
Total	406	100.0

Hypothesis 8. This study hypothesized that the use of SMS is negatively associated with the strength of the social network within the friends circle. The Pearson correlation test, examining the relationship between the use of SMS and the strength of social ties within the friends circle, showed a statistically significant negative association. Additionally, the three levels of strength measurement were combined to produce a total score, which was then correlated to the use of SMS. A statistically significant negative correlation was also found. Table 24 below reflects the correlation figures.

Table 24

Pearson Correlation for SMS and Strength of SN - Friends

Hours per week spent on SMS correlated with	Correlation
(Q7b) Number of face-to-face meetings with family	-.42**
(Q8b) Duration of time spent in face-to-face meetings with family	-.39**
(Q9b) Overall perceived strength of relationship with family	-.46**
(Qb789) Combined questions of strength	-.48**

** p < 0.01 (2-tailed).

In considering frequencies, almost half the sample (47.8%) said that, due to SMS use, the number of face-to-face meetings with friends had decreased. Those who indicated no change constituted (31.3%), while (11.3%) reflected an increase. The breakdown of the responses is illustrated in table 25 below.

Table 25

Frequency Distribution for Q7b SMS and Number of Face-to-Face Meetings with

Friends

Answer Categories	Frequency	Percent
Decreased a lot	60	14.8
Somewhat decreased	134	33.0
No change	127	31.3
Somewhat increased	33	8.1
Increased a lot	13	3.2

Table 25 (Continued).

Answer Categories	Frequency	Percent
Total	367	90.4
Missing System	39	9.6
Total	406	100.0

Similarly, respondents reported the effects of SMS use on the duration of time spent in face-to-face meetings with friends. Interestingly, (42.1%) of the sample noted no change, while (40.4%) expressed a decrease in duration, and (7.9%) indicated an increase. The breakdown of the responses is shown in table 26 below.

Table 26

Frequency Distribution for Q8b SMS and Duration of Face-to-Face Meetings with Friends

Answer Categories	Frequency	Percent
Decreased a lot	39	9.6
Somewhat decreased	125	30.8
No change	171	42.1
Somewhat increased	25	6.2
Increased a lot	7	1.7
Total	367	90.4
Missing System	39	9.6
Total	406	100.0

In terms of perceived strength of relationships with friends as affected by the use of SMS, (46.6%) of the sample expressed a decrease. On the other hand, (23.6%) of respondents reported no change, and (20.2%) noted an increase. The breakdown of the responses is illustrated in table 27 below. Therefore, the results presented in this section fail to reject the eighth hypothesis.

Table 27

Frequency Distribution for Q9b SMS and Perceived Strength of Relationship with Friends

Answer Categories	Frequency	Percent
Decreased a lot	51	12.6
Somewhat decreased	138	34.0
No change	96	23.6
Somewhat increased	61	15.0
Increased a lot	21	5.2
Total	367	90.4
Missing System	39	9.6
Total	406	100.0

Hypothesis 9. This study hypothesized that the use of SMS is negatively associated with the strength of the social network within the acquaintances circle. The Pearson correlation test, investigating the relationship between SMS usage and the strength of social ties within the acquaintances circle, revealed a statistically significant negative association. Additionally, the three levels of strength measurement were combined to produce a total score, which was then correlated to the use of SMS. A statistically significant negative correlation was also found. Table 28 below reflects the correlation figures. Additionally, a statistically significant negative correlation ($r = -.19^{**}$) was found, due to SMS usage, between the size and the strength of social networks within the acquaintances circle.

Table 28

Pearson Correlation for SMS and Strength of SN - Acquaintances

Hours per week spent on SMS correlated with	Correlation
(Q7c) Number of face-to-face meetings with acquaintances	-.43**
(Q8c) Duration of time spent in face-to-face meetings with acquaintances	-.40**
(Q9c) Overall perceived strength of relationship with acquaintances	-.41**

Table 28 (Continued).

Hours per week spent on SMS correlated with (Qc789) Combined questions of strength	Correlation -.46**
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** p < 0.01 (2-tailed).

Moreover, when asked about how the amount of time spent on SMS had affected the number of face-to-face meetings with acquaintances, (46.6%) of the sample indicated a decrease in that number. Conversely, (33%) expressed no change, while (10.8%) reflected an increase. The breakdown of the responses is shown in table 29 below.

Table 29

Frequency Distribution for Q7c SMS and Number of Face-to-Face Meetings with Acquaintances

Answer Categories	Frequency	Percent
Decreased a lot	73	18.0
Somewhat decreased	116	28.6
No change	134	33.0
Somewhat increased	37	9.1
Increased a lot	7	1.7
Total	367	90.4
Missing System	39	9.6
Total	406	100.0

Likewise, when asked about changes, as a result of SMS use, in the duration of time spent in face-to-face meetings with acquaintances; (41.6%) of respondents indicated no change, while (39.4%) of them noted a decrease in duration. Only (8.6%) reported an increase. The breakdown of the responses is illustrated in table 30 below.

Table 30

Frequency Distribution for Q8c SMS and Duration of Face-to-Face Meetings with Acquaintances

Answer Categories	Frequency	Percent
Decreased a lot	61	15.0
Somewhat decreased	99	24.4
No change	169	41.6
Somewhat increased	30	7.4
Increased a lot	5	1.2
Total	364	89.7
Missing 9	3	.7
Missing System	39	9.6
Missing Total	42	10.3
Total	406	100.0

With regards to changes in the overall perceived strength of relationship with acquaintances due to SMS use, the majority (42.9%) said they experienced a decrease, while (29.8%) expressed no change and (16.7%) noted an increase. The breakdown of the responses is illustrated in table 31 below. Therefore, the results shown fail to reject the ninth hypothesis.

Table 31

Frequency Distribution for Q9c SMS and Perceived Strength of Relationship with Acquaintances

Answer Categories	Frequency	Percent
Decreased a lot	56	13.8
Somewhat decreased	118	29.1
No change	121	29.8
Somewhat increased	54	13.3
Increased a lot	14	3.4
Total	363	89.4
Missing 9	4	1.0
Missing System	39	9.6
Missing Total	43	10.6
Total	406	100.0

The Impact of Short Message Service on the Size of Social Networks

The fourth research question. This question examined the impact of the use of SMS on the size of social networks in Kuwait. RQ4 tackled three circles of social networks (family, friends, and acquaintances).

Hypothesis 10. This study hypothesized that the use of SMS is positively associated with the size of the social network within the family circle. A statistically significant positive correlation ($r = .16$) was found between SMS usage and the size of social ties within the family circle ($p = .01$). However this was modestly confirmed by frequencies, as most of the sample (65.8%) expressed no change in the number of family members as a result of using SMS. Only (22.2%) of respondents reported an increase while (1.7%) reflected a decrease. The breakdown of the responses is illustrated in table 32 below. Overall, the results fail to reject hypothesis 10.

Table 32

Frequency Distribution for Q10a SMS and Number of Family Members

Answer Categories	Frequency	Percent
Decreased a lot	3	.7
Somewhat decreased	4	1.0
No change	267	65.8
Somewhat increased	84	20.7
Increased a lot	6	1.5
Total	364	89.7
Missing 9	3	.7
Missing System	39	9.6
Missing Total	42	10.3
Total	406	100.0

Hypothesis 11. This study hypothesized that the use of SMS is positively associated with the size of the social network within the friends circle. A statistically significant positive correlation ($r = .25$) was found between SMS usage and the size of

social ties within the friends circle ($p = .01$). This was further confirmed by frequencies. The majority of respondents (52.2%) reported an increase in the number of friends they had, as a result of SMS use. On the other hand, (36.2%) said there was no change and only (1.7%) expressed a decrease. The breakdown of the responses is illustrated in table 33 below. Consequently, the results presented above fail to reject hypothesis 11.

Table 33

Frequency Distribution for Q10b SMS and Number of Friends

Answer Categories	Frequency	Percent
Decreased a lot	0	0
Somewhat decreased	7	1.7
No change	147	36.2
Somewhat increased	179	44.1
Increased a lot	32	7.9
Total	365	89.9
Missing 9	2	.5
Missing System	39	9.6
Missing Total	41	10.1
Total	406	100.0

Hypothesis 12. This study hypothesized that the use of SMS is positively associated with the size of the social network within the acquaintances circle. A statistically significant positive correlation ($r = .41$) was found between SMS usage and the size of social ties within the acquaintances circle ($p = .01$). Frequencies also confirmed this correlation. More than half the sample (53.5%) expressed an increase in the number of acquaintances as a result of using SMS, while (34.7%) reported no change. Only (1.7%) noted a decrease. The breakdown of the responses is illustrated in table 34 below. Therefore, the results fail to reject hypothesis 12.

Table 34

Frequency Distribution for Q10c SMS and Number of Acquaintances

Answer Categories	Frequency	Percent
Decreased a lot	1	.2
Somewhat decreased	6	1.5
No change	141	34.7
Somewhat increased	123	30.3
Increased a lot	94	23.2
Total	365	89.9
Missing 9	2	.5
Missing System	39	9.6
Missing Total	41	10.1
Total	406	100.0

The Effects of Demographic Factors on Social Networks

The fifth research question. This question examined the impact of demographic characteristics on the size and strength of social networks based on IM/SMS usage. RQ5 tackled three circles of social ties (family, friends, and acquaintances) and six demographic factors: gender, age, income, education, work and marital status.

Females versus males. A t-test was performed to check for differences across gender with regards to technology use. There was a significant difference, $t = -2.97, p = .003$, in terms of the use of SMS. Results revealed that females ($M = 9.68, SD = 6.68$) used SMS more than males ($M = 7.72, SD = 5.66$). On the other hand, there was no significant difference for IM usage. Table 35 below illustrates the results.

Table 35

Technology Usage T-test Between Female and Males

Question	Gender	N	M	SD	t	df	Sig. (2-tailed)
Hours per Week spent on IM	Male	175	18.98	16.173	0.374	350	0.709
	Female	177	18.36	14.537	0.374	345.22	0.709

Table 35 (Continued).

Question	Gender	N	M	SD	t	df	Sig. (2-tailed)
Hours per Week spent on SMS	Male	178	7.72	5.656	-2.968	352	0.003
	Female	176	9.68	6.681	-2.965	341.38	0.003

A Chi square analysis was further used to examine differences, due to technology usage, between the two groups with regards to the size and strength of social networks. The only significant difference was found in the number of face-to-face meetings with family members. Although both groups indicated a decrease in that number due to IM usage, females had a more significant decrease in this area, $X^2 (df = 4, N = 360) = 10.6, p = .031$.

Other differences among demographic groups. An analysis of variance, examining the differences between demographic groups with regards to technology usage, yielded interesting results. Those whose monthly income is less than KD 500 (equivalent to \$1800) spent more hours per week on IM than other groups. Also, those with diploma/junior college education spent more hours per week on SMS than other groups. The ANOVA test further showed that divorcees spent more hours per week on SMS than other groups.

Tables 36 and 37 below reflect the results from the test. However, in order to further investigate the significance of such differences between groups, a Scheffe test was performed to analyze the data. The test only showed the last result as statistically significant. More specifically, divorcees spent more hours per week on SMS than did singles ($M = 3.51, SD = 1.07, p = .031$) and married individuals ($M = 3.38, SD = 1.05, p = .036$).

Table 36

Oneway ANOVA for Demographic Groups in Terms of Technology Usage

Income	Variance	df	Sum of squares	Mean square	F	Sig
Hours per week spent on IM	Between groups	4	2941.211	735.303	3.190	.014
	Within groups	341	78600.341	230.500		
	Total	345	81541.553			
Education						
Hours per week spent on SMS	Between groups	4	373.028	93.257	2.418	.048
	Within groups	348	13419.158	38.561		
	Total	352	13792.185			
Marital status						
Hours per week spent on SMS	Between groups	4	650.38	162.595	4.324	.002
	Within groups	343	12898.57	37.605		
	Total	347	13548.95			

Table 37

Scheffe Test Reflecting Means and Standard Deviations for Demographic Groups in terms of Technology Use

Income	Hours per week spent on IM		
	N	M	SD
< KD 500	207	22.38	19.11
KD 500-1000	132	18.37	14.54
KD 1001-1500	74	16.24	9.82
KD 1501-1500	22	11.86	12.65
Over KD 2501	11	19.09	13.49
Education	Hours per week spent on SMS		
	N	M	SD
< high school	11	8.00	6.00
High school	29	6.42	4.19
Diploma/junior College	82	9.88	6.59
4-year College	207	8.79	6.38
Post-Graduate	24	6.66	5.35
Marital Status	Hours per week spent on SMS		
	N	M	SD
Single	128	8.12	5.99
Married	155	8.26	6.56
Divorced	44	11.64	5.68
Widowed	18	7.22	4.09

Table 37 (Continued).

Marital Status	Hours per week spent on SMS		
	N	M	SD
Other	3	16.0	3.46

Note. Divorcees spend more hours per week on SMS than singles ($M = 3.51^*$) and married ($M = 3.38^*$).

* $p < 0.05$

IMrs versus SMSrs. In order to contrast the effects of the usage of both technologies on the size and strength of social networks, the answers for those who used IM (IMrs) and those used SMS (SMSrs) were compared for the Likert scale questions (for IM questions 2-5, and for SMS questions 7-10). A t-test comparison between the two groups yielded interesting results. For instance, there was a significant difference in the duration of time for face-to-face meetings with family members, $t(320) = -2.07, p = .039$. That duration was longer for SMSrs ($M = 2.45, SD = 0.87$) than for IMrs ($M = 2.38, SD = 0.89$).

Additionally the perception that SMSrs had of the strength of their relationships with their families ($M = 2.40, SD = 1.08$) was higher, $t(320) = -2.56, p = .011$, than the one that IMrs had ($M = 2.50, SD = 1.02$). However, in terms of acquaintances, that perception was higher, $t(319) = 2.11, p = .036$, for IMrs ($M = 2.62, SD = 1.00$) than for SMSrs ($M = 2.52, SD = 1.04$). Moreover, there was a significant difference in the size of social networks within the acquaintances circle, $t(322) = 4.20, p = .00$. Results showed that due to the use of the technology, IMrs had more acquaintances ($M = 4.06, SD = 0.87$) than SMSrs ($M = 3.85, SD = 0.83$). Table 38 below reflects all relevant figures in this test.

Table 38

T-test between IMrs and SMSrs for Strength and Size of Social Networks

Questions Category		Mean	N	SD	T	df	Sig. (2-tailed)
Number of F2F meetings with family	Q2a IM	2.29	322	.995	-1.43	321	.151
	Q7a SMS	2.35	322	.975			
Number of F2F meetings with friends	Q2b IM	2.48	323	.872	.760	322	.448
	Q7b SMS	2.44	323	.993			
Number of F2F meeting acquaintances	Q2c IM	2.40	321	.950	.931	320	.353
	Q7c SMS	2.36	321	.996			
Duration of F2F meetings with family	Q3a IM	2.38	320	.894	-2.07	319	.039
	Q8a SMS	2.45	320	.870			
Duration of F2F meetings with friends	Q3b IM	2.48	321	.898	-1.24	320	.214
	Q8b SMS	2.53	321	.851			
Duration of F2F meeting acquaintances	Q3c IM	2.39	316	.942	-1.15	315	.249
	Q8c SMS	2.44	316	.915			
Perceived relationship strength with family	Q4a IM	2.40	320	1.015	-2.56	319	.011
	Q9a SMS	2.50	320	1.068			
Perceived relationship strength with friends	Q4b IM	2.57	323	1.002	-.077	322	.938
	Q9b SMS	2.57	323	1.094			
Perceived relationship strength acquaintances	Q4c IM	2.62	319	1.002	2.10	318	.036
	Q9c SMS	2.52	319	1.039			
Number of family members	Q5a IM	3.27	320	.557	.763	319	.446
	Q10aSMS	3.24	320	.533			
Number of friends	Q5b IM	3.73	322	.687	1.93	321	.054
	Q10bSMS	3.64	322	.647			
Number of acquaintances	Q5c IM	4.06	322	.872	4.19	321	.000
	Q10cSMS	3.85	322	.832			

CHAPTER V

DISCUSSION AND CONCLUSION

This study aimed to examine the impact of the use of instant and text messaging on the size and strength of three circles of social networks; family, friends and acquaintances, in Kuwait. The study also explored the effects of demographic characteristics on these circles as a result of technology use. The findings were based on a total of 406 questionnaires completed by a nationally representative sample of Kuwaiti IM and/or SMS users between the ages of 18 to 65 years.

The survey was self-administered by respondents in government offices, private companies, educational institutions and malls in the State of Kuwait. Collected data was analyzed in order to draw conclusions. The statistical analysis reflected various tests, which included t-tests, ANOVA, Chi Square, Scheffe test, Pearson correlation, crosstabs, as well as frequencies and percentage distributions. The study formulated five research questions and tested 12 hypotheses.

Except for the number of family members (size of the family circle), which was found to be not significantly correlated to instant message usage; the strength and size of social networks in all three circles (family, friends and acquaintances) were found to be significantly correlated to technology usage, whether instant messaging or short message service. The strength of social ties was found to be negatively associated with technology use; while size of social networks was found to be positively associated. Additionally, some demographic characteristics, such as gender and marital status, played a moderate role with regards to social ties.

That literature presented in previous chapters demonstrates that people actively use ICT as a reflection of their conscious motivation and sought gratification to strengthen and increase the size of their social networks. The findings from this research and other supporting studies show that motivations related to inflating the size of social ties are realized. However, these ties are weakened in the process which conflicts with people's intended reasons for usage. Nevertheless, these findings may be actually reflecting evolving motivations not fully investigated by researchers, such exclusion from obligatory social participation while maintaining social presence.

Interpretation of the Results

The Impact of Instant Messaging on the Strength of Social Networks

The first research question. This question asked how the use of IM affected the strength of social networks in Kuwait. The research question tackled three circles of social ties (family, friends, and acquaintances) and three levels of measurement for the dependent variable (strength), namely: number of face-to-face meetings with members of the three circles, duration of these face-to-face meetings, and perceived strength of relationships with social networks.

Overall, the findings indicated that IM usage was negatively correlated with the strength of social ties that individuals have with others, within the context of all three circles: family, friends, and acquaintances. In order to dissect this question, three hypotheses were proposed corresponding to each circle. The results failed to reject any of these hypotheses.

Hypothesis 1. This study proposed that IM use was negatively associated with the strength of the social network within the family circle. Based on collected data, almost

half the sample reported that, due to IM use, the number of face-to-face meetings with their family members, as well as the duration of time spent in these face-to-face meetings, had decreased. The majority also said they experienced a decrease in their perceived strength of relationships with family members. Additionally, a statistically significant negative correlation was found between IM usage and the overall strength of social networks within the family circle.

This is in agreement with previous research. For instance, Wheeler (2001) indicates that most Internet chatting occurs between 4 pm and midnight, which is a time traditionally reserved for family gatherings and visits. Additionally, Al-Mazeedi and Ibrahim (1998) argue that Internet conversations are detrimental to face-to-face social ties especially with family members. In describing a typical pre-Internet afternoon in Kuwait, they explain that it is customary for family members to gather in the late afternoons and evenings to sip tea and eat sweets together. Post-Internet however, individuals escape participation in such social rituals to carry out Internet-related activities which they find more enjoyable. Kuwaitis are also unlikely to carry out these activities in the presence of other family members, which Al-Mazeedi and Ibrahim consider as a threat to family ties.

In applying the theoretical framework of uses and gratifications, the findings in this dissertation concur with Windahl's (1981) concept of media users' intrinsic motivation and extrinsic gain. People may internalize the use of IM for specific motivations such as maintaining close ties with their networks, however, the extrinsic gains they acquire from such use may conflict with their intended gratifications.

Hypothesis 2. This study proposed that IM use was negatively associated with the strength of the social network within the friends circle. Results showed that almost half

the respondents indicated that, due to IM use, the number of face-to-face meetings with friends, as well as the duration of time spent in these face-to-face meetings, had decreased. Most of the sample also reported that their perceived strength of relationships with friends had decreased. In addition to frequencies, a statistically significant negative correlation was found between the overall strength of social ties and both IM usage and the size of social networks within the friends circle.

This is validated by Wei (2007) who explains how IM is a preferred method of keeping in touch with friends. However, he indicates that research reflects unintended consequences of ICT usage; specifically a reduction in the number of face-to-face meetings with friends and other individuals within a person's social network. Drawing on literature from the uses and gratifications theory, Leung (2001) reported motives of inclusion, sociability and affection for using online instant messaging. Yet, such findings deviate from intended and sought gratifications by ICT users.

Hypothesis 3. This study proposed that usage of IM was negatively associated with the strength of the social network within the acquaintances circle. Looking at frequencies, almost half the sample reported that, with IM use, the number of face-to-face meetings with acquaintances, as well as the duration of time spent in these face-to-face meetings, had decreased. The majority also indicated that they experienced a decrease in their perceived strength of relationships with acquaintances. Furthermore, a statistically significant negative correlation was found between the overall strength of social ties and both IM usage and the size of social networks within the acquaintances circle.

These results echo the argument made by Boase et al. (2006) that despite their unprecedented flexibility and access; ICT have the potency to alienate individuals from

their more authentic physical relations with people around them. Again, these findings diverge from motivations identified by scholars of uses and gratifications such as Maignan and Lukas (1997) who identify socialization as a motive for using communication technologies. Moreover, Al-Gehs, notes that social networks in Kuwait, whether intimate or distant, have been negatively affected by the replacement of physical communication with cyber interaction through different forms of technologies (Al-Fathly, 2008). He explains that people in Kuwait, following the example of many nations of the world, can now easily maintain their relationships with all their contacts through ICT; yet, the quality of these relationships suffers greatly because it lacks authenticity and actual human interaction (Al-Fathly, 2008).

The Impact of Instant Messaging on the Size of Social Networks

The second research question. This question posed an inquiry as to how the use of IM affected the size of social networks in Kuwait. The research question tackled three circles of social ties (family, friends, and acquaintances). Overall, the findings showed that IM usage was positively correlated with the size of social ties, with regards to all three circles: family, friends, and acquaintances. In order to dissect each circle, three hypotheses were proposed under this question. The results rejected hypothesis 4 and failed to reject the rest.

Hypothesis 4. This study proposed that IM usage was positively associated with the size of the social network within the family circle. This hypothesis built on the concept of augmenting families with new members such as in-laws that could be introduced through romantic interests on IM. However, the positive correlation found in data analysis was not statistically significant. This was further reflected by frequencies,

where most respondents expressed no change in the size of their family circle, as a result of using IM. This could be interpreted as an indication that, contrary to public belief in Kuwait, not as many people actually annex their online dating with marriage proposals.

IM is generally stigmatized for its dating potency in a traditional society. People in Kuwait recognize that instant messaging is a fast and convenient way of online dating and meeting others. For example, Wheeler (2000) notes in her research that more than 30% of Kuwaiti university students admitted regularly to using the Internet to meet members of the opposite sex. Wheeler (2003) also reports on her personal interviews with numerous Kuwaitis, who have either met their spouses through IM or have had siblings who wedded as a direct result of using the technology. Wheeler even describes how one couple designed their wedding cake as a computer, symbolizing the technological tool that brought them together.

However, the results from the current investigation reject this hypothesis, which indicate that not all relationships ignited by IM necessarily lead to marriage or long-term commitments. The explanation can be found in previous research. Regardless of their passion for online experimentation, Kuwaitis tend to fine-tune their Internet behavior to fit pre-existing values and traditions, which are compatible with societal norms (Wheeler, 2003). Personal interviews from that particular literature indicate that many individuals end up preferring rational parental matchmaking over capricious and unpredictable online relationships (Wheeler, 2003).

Another explanation may relate to how females point out in personal interviews that they do not necessarily use IM to find spouses, but rather to seek male companionship which may develop to mere friendship (Wheeler, 2001). According to

Coleman (2000), media technologies create the illusion of intimacy. Hence, whether IM turns that illusion to reality is something that may not be yet fully realized in Kuwait. In application to the theory of uses and gratifications, and as Windahl (1981) suggests in his explanation of the framework, intrinsic motivation and extrinsic gains are what drive media users. Therefore, the findings from this hypothesis indeed reflect sought motivations and attained gratifications of Kuwaiti IMrs.

Hypothesis 5. This study proposed that use of IM was positively associated with the size of the social network within the friends circle. Results showed that More than half the sample indicated that the number of their friends had increased as a result of using instant messaging. In addition to frequencies, a statistically significant positive correlation was found between IM usage and the size of social networks within the friends circle.

Such findings echo the argument Bradley (2000) makes reflecting the theory of uses of gratifications. He notes that people consciously attempt to gratify certain motivations, such as increasing the size of their social networks and strengthening their social ties through usage of different forms of ICT. This can also be reflective of arguments made by previous research, which indicates that IM conversations can entice people to create socially affectionate and intimate relationships that may develop into face-to-face gatherings (Hu, Wood, Smith & Westbrook, 2004); hence, fostering relationships with strangers and pulling them into more intimate and close circles of social networks.

Hypothesis 6. This study proposed that IM usage was positively associated with the size of the social network within the acquaintances circle. Looking at frequencies, the

majority of the sample indicated that the number of their acquaintances had increased as a result of using IM. Furthermore, a statistically significant positive correlation was found between IM usage and the size of social networks within the acquaintances circle.

These results are validated by other studies which show that IM is used to gratify needs related to curiosity of other people, socialization, and perceived enjoyment (Rouibah, 2008). Furthermore, Maignan and Lukas (1997) identify socialization as a motive for using Internet chat. Additionally, Wheeler (2003) reports that Internet chatters use instant messaging to communicate with acquaintances they have come to know through the net. More specifically, IMrs in Kuwait prefer to share their ideas and thoughts with people they do not personally know, such as those they meet in cyberspace (Al-Mazeedi & Ibrahim, 1998).

The Impact of Short Message Service on the Strength of Social Networks

The third research question. This question asked how the use of SMS affected the strength of social networks in Kuwait. The research question tackled three circles of social ties (family, friends, and acquaintances) and three levels of measurement for the dependent variable (strength), namely: number of face-to-face meetings with members of the three circles, duration of these face-to-face meetings, and perceived strength of relationships with social networks. Overall, the findings indicated that SMS usage was negatively correlated with the strength of social ties that individuals have with others, within the context of all three circles: family, friends, and acquaintances. In order to dissect this question, three hypotheses were proposed corresponding to each circle. The results failed to reject any of these hypotheses.

Hypothesis 7. This study proposed that usage of SMS was negatively associated with the strength of the social network within the family circle. Based on collected data, the majority of the sample reported that, due to SMS use, the number of face-to-face meetings with their family members, as well as the duration of time spent in these face-to-face meetings had decreased. The majority also said they experienced a decrease in their perceived strength of relationships with family members. Additionally, a statistically significant negative correlation was found between SMS usage and the overall strength of social networks within the family circle.

Such findings resonate with the case made by Boase et al. (2006) who acknowledges the unparalleled advantages of new communication technologies, yet cautions of the potential alienating impact of ICT, which can disaffect people from their more genuine physical relations. Moreover, social ties can be affected by the unique nature and functionality of SMS, particularly the stretched time in asynchronous forms of communication as well as implied textual meanings (Walther, 1996).

Hence, these functionalities can lead to misinterpretation between SMSers, and in turn to weakened relations. These results also echo cautionary calls in Kuwait. For instance, Al-Mutawa, warns of the negative impact of texting on the stability and strength of familial and societal ties (Al-Fathly, 2008). He notes that SMS has infested the lives of many causing them to shy away from face-to-face communication in favor of textual interaction (Al-Fathly, 2008).

Hypothesis 8. This study proposed that SMS use was negatively associated with the strength of the social network within the friends circle. Results showed that almost half the sample indicated that, as a result of using SMS, the number of face-to-face

meetings with their friends, as well as the duration of time spent in these face-to-face meetings had decreased. Most respondents also reported that their perceived strength of relationships with their friends had decreased. In addition to frequencies, a statistically significant negative correlation was found between SMS usage and the overall strength of social ties within the friends circle.

The literature supports such results. Wei (2007) describes the intimate nature and unique qualities of mobile applications such as text messaging. Wei notes that the constant presence and discreetness of mobile phones, and accompanying applications such as SMS, invite people to indulge in and overuse technology, especially for connecting with personal ties. The negative impact on the strength of these ties can once again be traced to the fading need to physically communicate with others considering constant presence through technology.

As Walther (1996) notes, the stretched time functionality of text messaging as well as potential misunderstandings in implied textual meanings, together with the constant reliance on SMS usage, may lead to the dismantling of social networks. Moreover, Wei (2007) notes that borders between online/offline worlds have disappeared as people have consciously sought to fuse various spheres, and even prefer the digital sphere over the physical. This further validates the application of the central themes of the uses and gratifications theory, which focus on people's conscious usage of media based on specific motivations.

Hypothesis 9. This study proposed that use of SMS was negatively associated with the strength of the social network within the acquaintances circle. Looking at frequencies, the majority of the sample reported that, with SMS use, the number of face-

to-face meetings with acquaintances, as well as the duration of time spent in these face-to-face meetings had decreased. The majority also indicated that they experienced a decrease in their perceived strength of relationships with acquaintances. Furthermore, a statistically significant negative correlation was found between the overall strength of social ties and both SMS usage and the size of social networks within the acquaintances circle.

Further support is found in the argument made by Nie (2001) that constant availability and presence reduce the need to meet in person, which in turn diminishes people's urge to communicate physically since they had already communicated electronically. Wellman et al. (1999) support this argument by indicating that ICT-facilitated activities, such as SMS provide an unparalleled ease of communication with multiple social milieus, which resolves people from the need to have physical communication. Therefore, this explains the findings of this research and the lessening strength of ties with different social circles, whether family, friends or acquaintances.

Moreover, these results confirm the fears of many intellectuals in Kuwait. Al-Gehs, warns of the weakening social ties in Kuwait as a direct result of SMS usage (Al-Fathly, 2008). He indicates that texting eliminates the urge to meet face-to-face with both intimate and formal ties (Al-Fathly, 2008). Al-Gehs further cautions of the replacement of physical interaction with a more convenient communication through SMS; which in turn resolves people of societal obligations towards others, hence, weakening social networks (Al-Fathly, 2008).

The Impact of Short Message Service on the Size of Social Networks

The fourth research question. This question posed an inquiry as to how the use of SMS affected the size of social networks in Kuwait. The research question tackled three circles of social ties (family, friends, and acquaintances). Overall, the findings showed that SMS usage was positively correlated with the size of social ties with regards to all three circles: family, friends, and acquaintances. In order to dissect this question, three hypotheses were proposed for each circle. The results failed to reject any of these hypotheses.

Hypothesis 10. This study proposed that SMS use was positively associated with the size of the social network within the family circle. A statistically significant positive correlation was found in data analysis. However, this was modestly supported by frequencies, where most respondents expressed no change in the size of their family circle, as a result of using SMS. This takes us back to Hypothesis 4, where similar results surfaced with regards to instant messaging.

Parallel to the effects of IM, the findings here could also be interpreted as somewhat of a suggestion that SMS usage may have incongruent effects on the size of the family circle. This may explain the discrepancy between the positive correlation and frequency figures. Again, this hypothesis works with the underlying assumption that the number of family members can increase by means of technology-based dating that leads to marriage and annexing new members to the family circle.

Therefore, the discrepancy in findings maybe attributed to the fact that technology-based dating or marriage in Kuwait may not yet be fully accepted by its own practitioners according to Wheeler (2000). Wheeler notes that Kuwaitis are still

experimenting with this phenomenon, which they have not yet fully incorporated into their realities. Wheeler goes on to explain that research conducted in Kuwait proposes that new media technologies evoke experimentation and challenge traditional societal norms. This is a reminder of Windahl's (1981) argument, which he bases on the theory of uses and gratifications, where the importance of technology only stems from people's motivation for usage that leads to specific gratifications.

Hypothesis 11. This study proposed that SMS usage was positively associated with the size of the social network within the friends circle. Results showed that More than half the sample indicated that the number of their friends had increased as a result of using SMS. In addition to frequencies, a statistically significant positive correlation was found between SMS usage and the size of social networks within the friends circle.

This is in agreement with previous literature, which suggests that different forms of ICT such as text and instant messaging encourage people to meet others and maintain contact by means of providing constant access and availability (Wei, 2007). Additionally, Wellman and Hampton (1999) point out that communication technologies support the inimitable quality of transitivity, which allows messages to be forwarded from one person to many. They note that such feature allows for the electronic creation and maintenance of large networks, thus, increasing the size of social ties. Furthermore, text messaging supports the formation of new social networks, including transitory ones linked by shared interests and access to technology (Brecher, 2000).

Hypothesis 12. This study proposed that SMS use was positively associated with the size of the social network within the acquaintances circle. Looking at frequencies, the majority of the sample indicated that the number of their acquaintances had increased as a

result of using SMS. Furthermore, a statistically significant positive correlation was found between SMS usage and the size of social networks within the acquaintances circle.

Such findings are confirmed by previous literature from the uses and gratifications framework. For example, Bradley (2000) explains that people actively and consciously gratify specific motivations, such as expanding their social networks through the use of ICT. Moreover, text and instant messaging (through mobile phones and computers) provide a sense of social availability and extended presence, thus, allowing people to reach many folks and increase the size of their social networks (Baron, Squires, Tench, & Thompson, 2003). Additionally, Boase et al. (2006) note that due to facilitated connectivity even to strangers, the emergence of media technologies has accelerated the development and expansion of computer-mediated social networks.

The Effects of Demographic Factors on Social Networks

The fifth research question. This question asked how demographic characteristics affected the size and strength of the three circles of social networks in Kuwait, as a result of IM/SMS usage. The research question tackled three circles of social ties (family, friends, and acquaintances) and six demographic factors: gender, age, income, education, work and marital status. Not all factors had a significant effect on the dependent variables.

Females versus males. There was no significant difference between the two groups in terms of IM usage. However females used SMS more than males. This can be explained by the fact that text messaging is asynchronous and not as engaging of an activity as is the case with IM (Nie, 2001). Also, considering the fact that females are

usually multitasking around the house, it only seems logical that they would choose to communicate more via SMS while carrying out other activities. Moreover, females in Kuwait are more likely to perceive and denounce potential immorality in online activities such as IM, which may explain their observed inclination to use SMS (Wheeler, 2003).

Furthermore, Bryne and Findlay (2004) explain that some features of SMS, such as asynchronicity and general leanness, lessen the emotional riskiness of relationship initiation for females, which can explain the reason females use text messaging more than using IM and more than males do. This rings true especially in traditional societies like in Kuwait. Text messaging allows females the needed emotional security to initiate contact especially when considering that women traditionally shy away from being the pursuer of a relationship (Bryne & Findlay, 2004). Therefore, the blanket of emotional security provided by texting allows females to give virtual strangers bounded access to their personal worlds without feeling overly exposed (Bryne & Findlay, 2004).

Another significant difference was found in the number of face-to-face meetings with family members. Although both groups indicated a decrease in that number due to IM usage, females had a more significant decrease in that area. Again, this validates the previous point. In Kuwait, it is customary that individuals live with their families, regardless of age and marital status (Freedom House, 2008). Combined with that is the fact that females usually spend more time with their families because they do not go out as much as males do (Al-Mazeedi & Ibrahim, 1998).

Also as stated earlier, IM is a very engaging activity which requires focus and attention to carry out a conversation online (Nie, 2001). Additionally IM is synchronous. Therefore, females probably feel that time spent on that activity is a time away from their

families, which would explicate their responses. This further explains the reason there was no significant difference in this area with regards to SMS usage. As stated previously, the latter is not as engaging of an activity because it is simply asynchronous and can be used even while spending time with others.

Other differences among demographic groups. No significant differences were present with regards to age, education, income and work. The only significant difference between the various demographic groups was with regards to marital status. Results revealed that divorcees spent more hours per week on SMS than did members of other groups. This is in agreement with the logical assumption that divorcees are usually older, which explains the reason there was a significant difference in usage of SMS and not IM.

The latter is a technology more associated with younger generations. Also, divorcees probably use SMS to unload and vent to their families and friends about their problems or their new lifestyle adjustment. Wei (2007) explains that texting helps people vent and express emotions because it is carried out through a medium that the majority of people carry with them most if not all the time, hence, making texting the perfect platform for sharing emotions.

IMrs versus SMSrs. Various significant differences were revealed by the results when these two groups were contrasted. IMrs perceived their relationships with their acquaintances to be stronger than did SMSrs. Also, IMrs had larger social networks within the acquaintances circle. These two findings can probably be explained by the same logic. Text messaging is asynchronous, bounded by text capacity and chargeable for each use (Wei, 2007).

Therefore, people might hesitate to use it extensively for communication with mere acquaintances. Hence, the perception of the strength of relationships with acquaintances may suffer as well as the number of individuals people know in that circle. On the other hand, IM is synchronous and offers extended online presence (Nie, 2001), which can allow users to be in constant contact with even the outer circle of social ties, such as acquaintances. Furthermore, IM offers enhanced search capabilities that enable people to find individuals with ease and speed (Nie, 2001). Consequently, people have increased access to strangers with IM.

Further significant differences were revealed by the results. For instance, SMSrs spent more time (duration) in face-to-face meetings with family members than did IMrs. SMSrs also perceived their relationships with their families to be stronger. Again, this is not surprising and could be explained by the fact that text messaging is an asynchronous non-engaging activity in which people can take part without having to seclude themselves from others, especially their families with whom they share their living arrangements.

Implications of the Study

This investigative effort starts a new line of inquiry into the social impact of information and communication technologies. It explores the effects of relatively new media on adults in a developing country. Given the paucity of academic research with regards to the topic, population of interest and geographical location, the current examination can be looked at as breaking new grounds in the field of new media technologies in Kuwait and the region. Hence, this project answers the academic calls voiced by many intellects and scholars around the world to examine the social implications of technology.

By doing so, the study contributes to the worldly investigation of the cultural, psychological and social effects of the communication revolution. Furthermore, considering the fact that previous research has produced disparate results regarding the impact of ICT on human behavior and social connectivity, the findings presented here provide enlightenment as well as direction for understanding. Moreover, by applying uses and gratifications theory, the examination further contributes to the general conceptualization of employing this particular framework with a cultural perspective.

This exploration also adds to a base of knowledge that can be used by scholars and future researchers in Kuwait. The study further contributes to the body of literature used by scholars in the Middle East region and worldwide. It lends guidance to students pursuing careers in new media technologies in Kuwait, by enlightening them about investigative research in the field as well as familiarizing them with quantitative measures. Similarly, the study offers a foundation for future empirical research in Kuwait with regards to the specific technologies examined here.

This study also aids consumers and the general public to comprehend the social impact of communication technologies that are being forced on them by marketers and businesses. Additionally, no previous research explored the effects of distinct types of ICT in one study. Therefore, this dissertation introduces the first comprehensive academic attempt to combine findings for the social impact of various media technologies. Furthermore, the current investigation also has implications for technology vendors and developers who are seeking to augment the advancement of ICT in the Middle East region.

The findings additionally provide interesting perspectives considering the paucity in literature that investigates the effects of demographics on individuals within the context of ICT usage, especially with regards to adult users since most studies have focused on teens. The findings are further intriguing as they reveal specific details about users from the developing part of the world. Lastly, given that ICT have become an integral part of daily life for most people around the globe, this project provides valuable insight on the positive and negative impact of the communication revolution.

Limitations

This research effort investigated primarily two technologies. As such, it did not deeply probe into the social effects of other types of ICT. Additional strength to this examination can be rendered by expanding the scope of the study to include differentiated technologies. The findings can be contrasted to produce a more elaborate framework of the social impact of ICT.

Another limitation relates to the specific technologies employed in the research. Relatively newer technological applications, such as blogging and social networking may have produced fairly more up-to-date findings with regards to the social effects of the communication revolution. However, it is consoling that IM and SMS were considered comparatively new technologies in Kuwait at the time the research was conducted; and that there is a rarity in academic research regarding the social impact of these two technologies on adults in general.

Additionally, convenience sampling was used in this research. This was the most appropriate method to reach the target population since subscriber databases were neither sold nor publically distributed by the government or telecommunications companies in

Kuwait. Therefore, questionnaires were randomly distributed to individuals who fit the age criteria and technology requirement.

Moreover, the employment of additional research instruments, such as focus groups and personal interviews might have enriched the findings and shed more light on the answers given by respondents. Yet, due to time constraints and cultural considerations, surveys were found to be the most efficient method of conducting this investigation. Additionally, the current examination only brushed on cultural elements that may have played a role in technology usage within Kuwait. Future studies need to overcome limitations of time and scope in order to explore the topic from a cultural perspective.

Recommendations for Future Research

It is important that scholars recognize the significance of investigating both positive and unintended negative effects of communication and information technologies. This study serves as a foundation for further research dealing with new media technologies in Kuwait. Future studies should focus on aspects not yet explored by current academic research, such as the impact of cultural norms on technology usage and the application of integrated theoretical frameworks.

Academic researchers planning to pursue investigation within the field of ICT must stay abreast of developing technologies, in order to explore their social impact and whether newer technologies affect people differently. Longitudinal research must be carried out to trace changes in social behavior and connectivity patterns as technology evolves. Future researchers need to evaluate not only the short term impact but the long term effects of technological advancements as well.

Also, in-depth and detailed accounts of the social effects of technology can be obtained through focus groups and personal interviews. Therefore, qualitative research should supplement quantitative studies to complete the picture. Furthermore, the effects of demographic characteristics must be explored in depth by future research. This is essential because the emergence and development of new technologies produce polychromatic usage patterns as well as evolving social impact.

Also, because this study was restricted to adults within one country, upcoming research must consider applying the same framework across other Middle Eastern countries, as well as conducting comparative studies about technology usage within different contexts. Future research additionally needs to explore emerging motivations driving current usage of ICT beyond relying on those reported by previous research pertaining to the uses and gratifications theory.

Conclusion

The social impact of information and communication technologies has been a topic of brewing debate, with utopians arguing that ICT enhance social connectivity and dystopians explaining that ICT may contribute to social isolation. The broad purpose of this study was to assess the social impact of the use of instant messaging and short message service, as two types of media technologies, on the size and strength of three circles of social networks; family, friends and acquaintances, in the state of Kuwait. The project also explored the potential effects of demographic characteristics on these circles.

This study provides a foundation for academic investigation of the social impact of new media technologies in a developing country, the surrounding region and perhaps worldwide. The current examination drew upon uses and gratifications theory as a

framework for application on the topic of interest. Previous literature reports that people consciously use media to gratify specific motivations such as socialization and inclusion. In application to new media technologies, seminal work reported similar motivations in addition to gratifications of strengthening and increasing the size of social ties. However, findings from this research indicate that, although motivations related to size maybe gratified, those pertaining to the strength of social networks are not realized.

Therefore, these findings may be actually reflecting motivations not fully examined by scholars, such exclusion from obligatory social participation while maintaining social presence, which seems to be an observably increasing sought gratification. In other words, people want to peek in and out of their technological bubbles by having instantaneous access to everyone and everything while maintaining their seclusion and individuality within a society. Future research must examine changing motivations driving present usage of ICT beyond relying on those reported by previous research pertaining to the uses and gratifications theory.

The results in this project were extracted from self-administered questionnaires completed by a nationally representative sample of 406 IM and/or SMS users. The sample reflected Kuwaiti adults between the ages of 18 to 65 years. The survey was distributed to respondents in government offices, private companies, educational institutions and malls in the State of Kuwait.

Statistical analyses included t-tests, ANOVA, Chi Square, Scheffe test, Pearson correlation, crosstabs, as well as frequencies and percentage distributions. The study formulated five research questions and tested 12 hypotheses, only one of which was rejected. Therefore, results lend support to proposed hypotheses that the use of

technology (IM or SMS) is positively associated with the size of almost all circles of social networks, and negatively correlated with the strength of all circles of social ties.

Except for the size of the family circle of social ties, which was found to be insignificantly correlated to instant message usage; the strength and size of social networks in all three circles (family, friends and acquaintances) were found to be significantly negatively and positively correlated, respectively, to technology usage whether instant messaging or short message service. Furthermore, some demographic characteristics, such as gender and marital status, played a moderate role with regards to perceived strength and size of social ties.

Overall, these findings are validated by a series of academic studies and research institutions. The results reflect the undeniable fact that advancements in communication technologies have both intended positive and unintended negative effects (Nie, 2001). Therefore, as people step into the future which only promises to present more innovative experiences, depleted costs and added convenience; academic research must continue to explore how these revolutionary advancements will affect individuals and societies overall.

APPENDIX A

QUESTIONNAIRE – ENGLISH VERSION

Thank you for taking the time to complete this questionnaire, which is part of a PhD project conducted by Bashaia Al-Sanaa at the School of Mass Communication and Journalism at the University of Southern Mississippi. The focus of this study is to assess the impact of information and communication technologies (ICT) on social networks for individuals in Kuwait. Two types of ICT are investigated in this study:

- Instant messaging (such as MSN, AOL, and Yahoo Messengers), and
- Short Messaging Service (SMS), also known as text messaging on mobile phones.

Additionally, social networks encompass three circles:

- Family (relatives of all degrees),
- Friends (individuals you consider close or your secret-keepers), and
- Acquaintances (contacts you know outside your family or friends circles).

Your answers are indispensable to the completion and success of this research project, and to the development of the field of new media technologies. The survey questions involve no risks to you. Completing the questionnaire should take no longer than 5 minutes. Your participation is voluntary and you can withdraw at any time without penalty. All responses will remain anonymous and only the researcher will have access to them. Lastly, if you are interested in receiving a report on the valuable findings of this study, kindly write your email address at the end of the survey. This project has been reviewed by the Human Subject Protection Review Committee, which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about your rights as a research participant should be directed to the primary researcher, Bashaia Al-Sanaa at (+965) 940-6613, or to the Chair of the Institutional Review Board, University of Southern Mississippi, 118 College Drive #5147, Hattiesburg, MS 39406-0001, (+1601) 266-6820. Once again, thank you for participating in this study.

I. Instant Messaging (IM):

1) How many hours per week do you spend on IM? (If you answer zero, please move on to question 6).	-----
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On a scale from 1 to 5, please answer the following:

2) How has using IM affected the number of times you meet face-to-face with your:	Decreased a lot	Somewhat decreased	No change	Somewhat increased	Increased a lot
a- Family	1	2	3	4	5
b- Friends	1	2	3	4	5
c- Acquaintances	1	2	3	4	5

3) How has using IM affected the duration of time you spend face-to-face with your:	Decreased a lot	Somewhat decreased	No change	Somewhat increased	Increased a lot
a- Family	1	2	3	4	5
b- Friends	1	2	3	4	5
c- Acquaintances	1	2	3	4	5

4) How has using IM affected the strength of your relationship with your:	Decreased a lot	Somewhat decreased	No change	Somewhat increased	Increased a lot
a- Family	1	2	3	4	5
b- Friends	1	2	3	4	5
c- Acquaintances	1	2	3	4	5

5) How has using IM affected the number of your:	Decreased a lot	Somewhat decreased	No change	Somewhat increased	Increased a lot
a- Family members (with marriage for example)	1	2	3	4	5
b- Friends	1	2	3	4	5
c- Acquaintances	1	2	3	4	5

II. Short Message Service (SMS):

6) How many hours per week do you send through SMS? (If you answer zero, please move on to question 11).	-----
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On a scale from 1 to 5, please answer the following:

7) How has using SMS affected the number of times you meet face-to-face with your:	Decreased a lot	Somewhat decreased	No change	Somewhat increased	Increased a lot
a- Family	1	2	3	4	5
b- Friends	1	2	3	4	5
c- Acquaintances	1	2	3	4	5

8) How has using SMS affected the duration of time you spend face-to-face with your:	Decreased a lot	Somewhat decreased	No change	Somewhat increased	Increased a lot
a- Family	1	2	3	4	5
b- Friends	1	2	3	4	5
c- Acquaintances	1	2	3	4	5

9) How has using SMS affected the strength of your relationship with your:	Decreased a lot	Somewhat decreased	No change	Somewhat increased	Increased a lot
a- Family	1	2	3	4	5
b- Friends	1	2	3	4	5
c- Acquaintances	1	2	3	4	5

10) How has using SMS affected the number of your:	Decreased a lot	Somewhat decreased	No change	Somewhat increased	Increased a lot
a- Family members (with marriage for example)	1	2	3	4	5
b- Friends	1	2	3	4	5
c- Acquaintances	1	2	3	4	5

III. Demographics:

11) How old are you?	-----
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12) What is your gender?	Female	Male
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13) What is your highest level of education completed?				
Less than High School	High School	Community, junior, or 2-year college	4-year college or university	Post Graduate (Specify-----)

14) Which of the following best describes your current work status?				
Student	Unemployed	Government employee	Private work	Retired

15) What is your marital status?				
Single	Married	Divorced	Widowed	Other (Specify-----)

16) What is your monthly income?				
Less than KD 500	KD 500-1000	KD 1001-1500	KD 1501-2500	Over KD 2501

** If you are interested in receiving a report on the valuable findings of this study, kindly write your email address _____

Thank you for participating.

APPENDIX B

QUESTIONNAIRE – ARABIC VERSION

الموضوع: تأثير تكنولوجيا المعلومات والاتصالات الحديثة
على العلاقات الاجتماعية للأفراد في دولة الكويت

تهدف هذه الدراسة ، والتي هي جزء من رسالة دكتوراة التي تقوم بها الباحثة في جامعه جنوب الميسيسيبي، إلى تقييم تأثير نوعين من تكنولوجيا المعلومات والاتصالات الحديثة على العلاقات الاجتماعية للأفراد في دولة الكويت . حيث أن أنواع التكنولوجيا المعنية في الدراسة هي :

- رسائل المحادثة السريعة على الإنترنت Instant Messages (مثل تلك المستخدمة في MSN, AOL , Yahoo Messengers).
- الرسائل القصيرة للهاتف النقال Short Message Service .

علما بان العلاقات الاجتماعية للأفراد تشمل : العائلة والأصدقاء والمعارف ، حيث أن المقصود بالعائلة هو الأقارب من جميع الدرجات ، والمقصود بالأصدقاء هو الأفراد الذين تعتبرهم مقربين لك أو حافظي أسرارك خارج نطاق العائلة ، والمقصود بالمعارف هو الأشخاص خارج نطاق العائلة والأصدقاء.

الرجاء التكرم بتعبئة هذه الاستبانة لما لإجاباتك من أهمية كبرى في إثراء هذا البحث وتزويدنا بالمعلومات المطلوبة ، والتي ستسهم في إتمام وإنجاح هذه الدراسة وفي تطوير مجال تكنولوجيا المعلومات والاتصالات الحديثة في دولة الكويت. مع الإحاطة بأن مشاركتك تطوعية وتعبئة الاستبانة لن تستغرق أكثر من خمسة دقائق.

كما يرجى العلم بأن المعلومات الجماعية وليست الفردية هي موضوع اهتمامنا ، وستعامل جميع الأجابات بسرية تامة ولن تنشر أي معلومة في أي جهة رسمية ، وهي خاضعة للدراسة البحتة فقط . هذه الاستبانة قد تم اعتمادها من قبل لجنة مراجعة وحماية حقوق الأفراد المشمولين بالبحث ، المسئولة عن مطابقة التعليمات الفيدرالية الخاصة بالبحوث في الولايات المتحدة الأمريكية .

إذا كان موضوع هذا البحث يندرج تحت اهتماماتك وترغب بالحصول على نسخة من النتائج النهائية ، الرجاء كتابة بريدك الإلكتروني في آخر صفحة ، حتى يتسنى لنا إرسالها لك بعد إتمام الدراسة. كما ندعوك ألا تتردد في الاتصال على الباحثة في حال وجود أي استفسار على الرقم 9406613 .

شكرا لتعاونك معنا،،

بشاير الصانع
معيدة عضو بعثة
قسم الإعلام
كلية الآداب
جامعة الكويت

أولا : رسائل المحادثة الفورية على الإنترنت (IM) Instant Messages

.....	1. كم عدد الساعات التي تقضيها أسبوعيا على (IM) ؟ إذا كانت إجابتك " صفر " من فضلك انتقل إلى السؤال 6 .
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زاد كثيرا	زاد قليلا	لا تغيير	نقص قليلا	نقص كثيرا	2. كيف أثر استخدام (IM) على عدد المرات التي تتقابل فيها وجهها لوجه مع كل من :
5	4	3	2	1	أ . عائلتك
5	4	3	2	1	ب . أصدقاءك
5	4	3	2	1	ج . معارفك

زادت كثيرا	زادت قليلا	لا تغيير	نقصت قليلا	نقصت كثيرا	3. كيف أثر استخدام (IM) على مدة الوقت الذي تقضيه وجهها لوجه مع كل من :
5	4	3	2	1	أ . عائلتك
5	4	3	2	1	ب . أصدقاءك
5	4	3	2	1	ج . معارفك

زادت كثيرا	زادت قليلا	لا تغيير	نقصت قليلا	نقصت كثيرا	4. كيف أثر استخدام (IM) على قوة علاقتك مع كل من :
5	4	3	2	1	أ . عائلتك
5	4	3	2	1	ب . أصدقاءك
5	4	3	2	1	ج . معارفك

زاد كثيرا	زاد قليلا	لا تغيير	نقص قليلا	نقص كثيرا	5. فكر في كل من تتعامل معه بحياتك ، كيف أثر استخدام (IM) على عدد :
5	4	3	2	1	أ . أفراد عائلتك (بالزواج مثلا)
5	4	3	2	1	ب . أصدقاءك
5	4	3	2	1	ج . معارفك

ثانيا : الرسائل القصيرة للهاتف المحمول (SMS)

.....	6. كم عدد الساعات التي تقضيها أسبوعيا على (SMS) ؟ إذا كانت إجابتك " صفر " من فضلك انتقل إلى السؤال 11 .
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زاد كثيرا	زاد قليلا	لا تغيير	نقص قليلا	نقص كثيرا	7. كيف أثر استخدام (SMS) على عدد المرات التي تتقابل فيها وجهها لوجه مع كل من : أ . عائلتك ب . أصدقاءك ج . معارفك
5	4	3	2	1	
5	4	3	2	1	
5	4	3	2	1	

زادت كثيرا	زادت قليلا	لا تغيير	نقصت قليلا	نقصت كثيرا	8. كيف أثر استخدام (SMS) على مدة الوقت الذي تقضيه وجهها لوجه مع كل من : أ . عائلتك ب . أصدقاءك ج . معارفك
5	4	3	2	1	
5	4	3	2	1	
5	4	3	2	1	

زادت كثيرا	زادت قليلا	لا تغيير	نقصت قليلا	نقصت كثيرا	9. كيف أثر استخدام (SMS) على قوة علاقتك مع كل من : أ . عائلتك ب . أصدقاءك ج . معارفك
5	4	3	2	1	
5	4	3	2	1	
5	4	3	2	1	

زاد كثيرا	زاد قليلا	لا تغيير	نقص قليلا	نقص كثيرا	10. فكر في كل من تتعامل معه بحياتك ، كيف أثر استخدام (SMS) على عدد : أ . أفراد عائلتك (بالزواج مثلا) ب . أصدقاءك ج . معارفك
5	4	3	2	1	
5	4	3	2	1	
5	4	3	2	1	

ثالثا : الأسئلة الشخصية

.....					11. سنة الميلاد ؟
أنثى		ذكر			12. النوع ؟
دراسات عليا (الرجاء التحديد)	جامعي	دبلوم	ثانوي	أقل من ثانوي	13. المستوى التعليمي ؟
متقاعد	موظف قطاع خاص	موظف حكومي	عاطل عن العمل	طالب	14. المستوى الوظيفي ؟
حالة أخرى (الرجاء التحديد)	أرمل	مطلق	متزوج	أعزب	15. الحالة الاجتماعية ؟
أكثر من 2501 د.ك.	1501 - 2500 د.ك.	1001 - 1500 د.ك.	500 - 1000 د.ك.	أقل من 500 دينار كويتي	16. الدخل الشهري ؟

إذا كنت ترغب في تلقى تقرير عن نتائج هذه الدراسة ، تفضل بكتابة عنوان بريدك الإلكتروني :

.....

شكرا على وقتك ،،

APPENDIX C

HUMAN SUBJECT REVIEW FORM



 THE UNIVERSITY OF SOUTHERN MISSISSIPPI

Institutional Review Board

 118 College Drive #5147
 Hattiesburg, MS 39406-0001
 Tel: 601.266.6820
 Fax: 601.266.5509
 www.usm.edu/irb

**HUMAN SUBJECTS PROTECTION REVIEW COMMITTEE
 NOTICE OF COMMITTEE ACTION**

The project has been reviewed by The University of Southern Mississippi Human Subjects Protection Review Committee in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months. Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: 28041502

PROJECT TITLE: **Networked Individualism: The Impact of Information & Communication Technologies on the Size and Strength of Social Networks in Kuwait**

PROPOSED PROJECT DATES: 05/01/08 to 03/30/09

PROJECT TYPE: **Dissertation or Thesis**PRINCIPAL INVESTIGATORS: **Bashaiar Alsanaa**COLLEGE/DIVISION: **College of Arts & Letters**DEPARTMENT: **Mass Communication & Journalism**FUNDING AGENCY: **N/A**HSPRC COMMITTEE ACTION: **Expedited Review Approval**

PERIOD OF APPROVAL: 05/05/08 to 05/04/09

Lawrence A. Hosman

 Lawrence A. Hosman, Ph.D.
 HSPRC Chair

5-7-08

 Date

REFERENCES

- Abdulrahim, M. (1999). *Newspaper readership and credibility in Kuwait: An analysis of uses and gratification theory*. Unpublished doctoral dissertation, Southern Illinois University at Carbondale.
- Ahonen, T., & Moore, A. (2005). *Communities dominate brands: Business and marketing challenges for the 21st century*. London: Futuretext.
- Al-Fathly, M. (2008, September 12). SMS have stolen the spirit of Ramadan. *Al-Watan*, p. 1.
- Al-Mazeedi, M., & Ibrahim, A. (1998). *The educational and social effects of the Internet on Kuwait University students*. Paper presented at the Conference on Information Superhighway in Kuwait.
- Arab Advisors Group. (2008). *Kuwait communications projections report 2008*. Retrieved January 3, 2009 from [http://www.arabadvisors.com/publishedreports.htm?filter0\[\]=Telecom&filter1\[\]=Kuwait](http://www.arabadvisors.com/publishedreports.htm?filter0[]=Telecom&filter1[]=Kuwait)
- Babbie, E. (2007). *The practice of social research* (11th ed.). Belmont, CA: Thomson Wadsworth.
- Baran, S., & Davis, D. (2006). *Mass communication theory: Foundations, ferment, and future* (4th ed.). Belmont, CA: Thomson Wadsworth.
- Barnako, F. (2007). Fridays: Casual days without email. *Internet Daily*. Retrieved October 30, 2007 from <http://www.marketwatch.com/News/Story/Story.aspx?guid=%7BC9E56C30-EB68-4522-8ECA-CE3ADD00181F%7D&siteid=google&dist=google>

- Baron, N. S., Squires, L., Tench, S., & Thompson, M. (2003). Tethered or mobile & quest; Use of away messages in instant messaging by American college students. In *Proceedings of the Front Stage---Back Stage: Mobile Communication and the Renegotiation of the Social Sphere Conference*. Grimstad, Norway. Retrieved September 2, 2007 from http://www.ritla.net/index.php?option=com_docman&task=doc_download&gid=435
- Batino, C. (2005). RP still world's text capital. *Philippine Daily Inquirer*. Retrieved October 12, 2008 from http://money.inq7.net/topstories/view_topstories.php?yyyy=2005&mon=07&dd=25&file=2
- Berg, T. (2008). *PTT and IM revenue to top \$16B in 2009*. eNewsChannels. Retrieved January 11, 2009 from http://209.85.129.132/search?q=cache:KaZ9GuowcZ EJ:enewschannels.com/2008/12/05/enc5129_165302.php+instant+messaging+revenues+2008&hl=en&ct=clnk&cd=2
- Berger, A. A. (2000). *Media and communication research methods: An introduction to qualitative and quantitative approaches*. Thousand Oaks, CA: Sage.
- Blumler, J. G. (1979). The role of theory in uses and gratifications studies. *Communication Research*, 6, 9-36.
- Boase, J., Horrigan, J., Wellman, B., & Rainie, L. (2006). The Strength of internet ties. Retrieved July 4, 2007 from http://www.pewinternet.org/pdfs/PIP_Internet_ties.pdf

- Bradley, G. (2000). The information and communication society: How people will live and work in the new millennium. *Ergonomics*, 43, 844-857.
- Brecher, E. (2000, February 10). Power to the people. *Miami Herald*, 1E.
- Bryant, J. A., Sanders-Jackson, A., & Smallwood, A. (2006). IMing, text messaging, and adolescent social networks. *Journal of Computer-Mediated Communication*, 11, 577-592.
- Brynin, M., & Kraut, R. (2006). Social studies of domestic information and communication technologies. In R. Kraut, M. Brynin & S. Kiesler (Eds.), *Computers, phones, and the Internet: Domesticating information technology* (pp. 3-20). New York: Oxford University Press.
- Byrne, R., & Findlay, B. (2004). Preferences for SMS versus telephone calls in initiating romantic relationships. *Australian Journal of Emerging Technologies and Society*, 2(1). Retrieved March 3, 2008 from <http://www.swinburne.edu.au/sbs/ajets/journal/V2N1/V2N1-4-Byrne.htm>
- CTIA. (2008). *Wireless quick facts*. Retrieved January 14, 2009 from http://www.ctia.org/media/industry_info/index.cfm/AID/10323
- Charlesworth, A. (2008). *SMS dominates UK mobile data usage*. Retrieved January 01, 2009 from <http://www.pcmag.co.uk/vnunet/news/2222764/uk-mobile-usage-shows-text-king>
- Churchill, E., & Wakeford, N. (2001). Framing mobile collaborations and mobile technologies. In B. Brown, N. Green & R. Harper (Eds.), *Wireless world: social and interactional aspects of the mobile age* (pp. 154-179). London: Springer.

- Clement, J. (2008). *SMS revenues to reach \$177bn by 2013*. Retrieved January 1, 2009 from <http://www.pcmag.co.uk/vnunet/news/2222550/text-messaging-remain-king>
- Coleman, J. (2000, March 27). Is technology making us intimate strangers. *Newsweek*, 135 (130).
- Deci, E. , & Ryan, R. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum.
- Economic and Social Commission for Western Asia, United Nations. (2005). *A national profile for information society in Kuwait*. Retrieved November 1, 2007 from www.escwa.org.lb/wsis/reports/docs/Kuwait_2005-E.pdf
- Ellwood-Clayton, B. (2003). Virtual strangers: Young love and texting in the Filipino archipelago of cyberspace. In K. Nyiri (Ed.), *Mobile democracy: Essays on society, self and politics* (pp. 225-235). Vienna: Passagen Verlag.
- Freedom House. (2008). *Women's rights in the Middle East and North Africa: Citizenship and justice*. Retrieved October 13, 2008 from <http://www.freedomhouse.org/template.cfm?page=175>.
- Frey, L. R., Botan, C. H., & Kreps, G. L. (2000). *Investing communication: An introduction to research methods*. Boston, MA: Allyn & Bacon.
- Garton, L., Haythornthwaite, C., & Wellman, B. (1997). Studying online social networks. *Journal of Computer-Mediated Communication*, 3(1).
- Grenville, M. (2007). *IM: IM goes live in Asia*. Retrieved January 13, 2009 from <http://www.160characters.org/news.php?action=view&nid=2456>

- Grenville, M. (2008). *Marketing: SMS to announce Obama's running mate*. Retrieved January 13, 2009 from <http://www.160characters.org/news.php?action=view&nid=2644>
- Grenville, M. (2009a). *Continued growth for mobile messaging*. Retrieved January 13, 2009 from <http://www.160characters.org/news.php?action=view&nid=2746>
- Grenville, M. (2009b). *New year: New world records*. Retrieved January 13, 2009 from <http://www.160characters.org/news.php?action=view&nid=2743>
- Grinter, R. E., & Eldridge, M. A. (2001). Y do tngrs luv 2 txt msg? In W. Prinz, M. Jarke, Y. Rogers, K. Schmidt, & V. Wulf (Eds.), *Proceedings of the Seventh European Conference on Computer Supported Cooperative Work (ECSCW), 16-20 September 2001, Bonn, Germany* (pp. 219-238). Dordrecht, Netherlands: Kluwer Academic Publishers.
- Hampton, K. (2002). Place-based and IT mediated "community." *Planning Theory & Practice*, 3(2), 228-231.
- Hampton, K. (2003). Grieving for a lost network: Collective action in a wired suburb. *The Information Society*, 19, 417-428.
- Haythornthwaite, C., & Wellman, B. (2002). Moving the internet out of cyberspace. In B. Wellman & C. Haythornthwaite (Eds.), *The internet in everyday life* (pp. 2-41). Oxford: Blackwell.
- Hu, Y., Wood, J., Smith, V., & Westbrook, N. (2004). Friendships through IM: Examining the relationship between instant messaging and intimacy. *Journal of Computer-Mediated Communication*, 10 (1). Retrieved November 11, 2008 from <http://jcmc.indiana.edu/vol10/issue1/hu.html>

- International Telecommunication Union. (2006). *Internet usage and marketing report*. Retrieved November 1, 2007 from <http://www.itu.int/net/home/index.aspx>
- Katz, E., Blumler, G., & Gurevitch, M. (1974). Utilization of mass communication by the individual. In J. G. Blumler & E. Katz (Eds.), *The uses of mass communications: Current perspectives on gratifications research* (pp. 19-32). Beverly Hills, CA: Sage Publications.
- Katz, E., Blumler, G., & Gurevitch, M. (1973). Uses and gratifications research. *The Public Opinion Quarterly*, 37, 509-523.
- Katz, E., & Lazarsfeld, P. (1955). *Personal influence: The part played by people in the flow of communications*. New York: Free Press.
- Kindred, J., & Roper, S. (2004). Making connections via Instant Messenger (IM): Student use of IM to maintain personal relationships. *Qualitative Research Reports in Communication*, 5, 48-54.
- Kolko, B. (2002). International IT implementation projects: Policy and cultural considerations. In *Proceedings of the 2002 International Professional Communication Conference* (pp. 352-359). Piscataway, NJ: IEEE.
- LaGeese, D. (2001). Instant message phenomenon is, like, way beyond e-mail. *U.S. News and World Report*, 130 (9), 54-56.
- Lasswell, H. D. (1948). The structure and function of communications in society. In L. Bryson (Ed.), *The communication of ideas*. New York, Harper.
- Leung, L. (2001). College student motives for chatting on ICQ. *New Media and Society*, 3, 483-500.

- Lin, N. (2001) *Social capital: A theory of social structure and action*. Cambridge, UK: Cambridge University Press.
- Ling R., & Yttri, B. (2002). Hyper-coordination via mobile phones in Norway. In J. E. Katz & M. A. Aakhus (Eds.), *Perpetual contact: Mobile communication, private talk, public performance* (pp, 139-169). Cambridge: Cambridge University Press.
- Ling, R., Yttri, B., Anderson, B., & DiDuca, D. (2003). Mobile communication and social capital in Europe. In K. Nyri (ed), *Mobile democracy: Essays on society, self and politics*. Vienna: Passagen Verlag.
- Maignan, I., & Lukas, B. (1997). The nature and social uses of the internet: A qualitative investigation. *Journal of Consumer Affairs*, 31(2), 346-371.
- Marcelle, M. (2000). Gender, Justice and Information and Communication Technologies. Paper presented at the 44th Session of the Commission on the Status of Women, United Nations, 28 Feb – 17 March 2000, New York. Retrieved October 30, 2007 from <http://www.un.org/womenwatch/daw/csw/marcelle.htm>
- McQuail, D., Blumler, J. G., & Brown, J. (1972). The television audience: A revised perspective. In D. McQuail (Ed.), *Sociology of mass communications* (pp. 135-65). Middlesex, England: Penguin.
- Mitchell, J. (1974). Social networks. *Annual Review of Anthropology*, 14, 279-299
- Msg2Phone. (2009). *Short message service*. Retrieved January 3, 2009 from <http://www.msg2phone.net/>
- Mundorf, N., & Laird, K. (2002). Social and psychological effects of information technologies and other interactive media. In J. Bryant & D. Zillmann (Eds.),

Media effects: Advances in theory and research (pp. 583-602). Mahwah, NJ: Erlbaum.

Nie, N. H. (2001). Sociability, interpersonal relations, and the Internet: Reconciling conflicting findings. *American Behavioral Scientist*, 45, 420-435.

Nie, N., & Erbring, L. (2002). Internet and society: A preliminary report. *IT & Society*, 1, 275-283.

Nie, N., & Hillygus, S. (2002). Where does internet time come from? A reconnaissance. *IT & Society*, 1(2), 1-20.

Nie, N., Hillygus, S., & Erbring, L. (2002). Internet use, interpersonal relations and sociability: A time diary study. In B. Wellman & C. Haythornthwaite (Eds.), *Internet in everyday life* (pp. 215-243). Malden, MA: Blackwell.

Palen, L. (2002). Mobile telephony in a connected life. *Communications of the ACM*, 45(3), pp. 78-82.

Pew Internet and American Life Project. (2004a). *Pew Internet posts: Surprising, strange, and wonderful data*. Retrieved December 11, 2008 from <http://www.pewinternet.org/PPF/p/1024/pipcomments.asp>

Pew Internet and American Life Project. (2004b). *How Americans use instant messaging*. Retrieved January 9, 2009 from <http://www.pewinternet.org/PPF/p/1024/pipcomments.asp>

Pew Internet and American Life Project. (2006). *The internet's growing role in life's major moments*. Retrieved February 12, 2007 from http://www.pewinternet.org/pdfs/PIP_Major%20Moments_2006.pdf

- Pew Internet and American Life Project. (2007). *Social networking websites and teens: An overview*. Retrieved February 12, 2007 from http://www.pewinternet.org/pdfs/PIP_SNS_Data_Memo_Jan_2007.pdf
- Plewes, A. (2003). *Where the growth of IM will take your business*. Retrieved March 23, 2007 from <http://www.silicon.com/research/specialreports/im/0,39024995,39116561,00.htm>
- Quain, J. (2003, May 15). Instant messaging moves beyond chat to multimedia. *New York Times*. Retrieved January, 02 2009 from <http://query.nytimes.com/gst/fullpage.html?res=9403E0D71F3FF936A25756C0A9659C8B63>
- Reeve, J. (1997). *Understanding motivation and emotion* (2nd ed.). Orlando, FL: Harcourt Brace.
- Rouibah, K. (2008). Social usage of instant messaging by individuals outside the workplace in Kuwait: A structural equation model. *IT & People*, 21(1), 34-68.
- Shklovski, I., Kraut, R., & Rainie, L. (2004). The internet and social participation: Contrasting cross-sectional and longitudinal analyses. *Journal of Computer-Mediated Communication*, 10(1). Retrieved February 15, 2007 from http://jcmc.indiana.edu/vol10/issue1/shklovski_kraut.html
- Trepte, S., Ranne, N., & Becker, M. (2003). Personal digital assistants- Patterns of user gratifications. *Communication*, 28, 457-473.
- Walther, J. B. (1992). Interpersonal effects in computer-mediated interaction: A relational perspective. *Communication Research*, 19(1), 52-90.

- Walther, J. B. (1996). Computer-mediated communication: Impersonal, interpersonal, and hyperpersonal interaction. *Communication Research*, 23(1), 3-43.
- Ward, K. (1999). Cyber-ethnography and the emergence of the virtually new community. *Journal of Information Technology*, 14(1), 95-105.
- Wei, C. (2007). Mobile hybridity: Supporting personal and romantic relationships with mobile phones in digitally emergent spaces. Unpublished doctoral dissertation, University of Washington, Seattle, WA. Retrieved November 20, 2008 from <http://scarlethamster.com/research/dissertation.html>
- Weilenmann, A., & Larsson, C. (2001). Sharing the mobile: Mobile phones in local interactions. In B. Brown, N. Green & R. Harper (Eds.), *Wireless world: social and interactional aspects of the mobile age* (pp. 92-106). London: Springer.
- Wellman, B., & Hampton, K. (1999). Living networked on and offline. *Contemporary Sociology*, 28, 648-654.
- Wheeler, D. (2000). New media, globalization and Kuwaiti national identity. *Middle East Journal*, 54(3), 432 – 444.
- Wheeler, D. (2001). The Internet and public culture in Kuwait. *International Communication Gazette*, 63(2), 187-201.
- Wheeler, D. (2003). The internet and youth subculture in Kuwait. *Journal of Computer Mediated Communication*, 8(2), 148-63.
- Wimmer, R. D., & Dominick, J. R. (2006). *Mass media research: An introduction* (11th ed.). Belmont, CA: Thompson Wadsworth.

Windahl, S. (1981). Uses and gratifications at the crossroads. In G. C. Wilhoit & H. De Bock (Eds.), *Mass communication review yearbook* (pp. 174-185). Beverly Hills, CA: Sage.

World Factbook. (2008). *Kuwait*. Retrieved March 13, 2008 from <https://www.cia.gov/library/publications/the-world-factbook/geos/ku.html>

Wright, C. (1960). Functional analysis and mass communication. *Public Opinion Quarterly*, 24, 605-620.