THE MOBILE PHONE AND SOCIALIZATION:

THE CONSEQUENCES OF MOBILE PHONE USE IN TRANSITIONS FROM

FAMILY TO SCHOOL LIFE OF U.S. COLLEGE STUDENTS

by

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ABSTRACT OF THE DISSERTATION

The mobile phone and socialization: The consequences of mobile phone use in transitions

from family to school life of U.S. college students

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Research on the consequences of information and communication technology

(ICT) use finds that ICTs, such as the mobile phone (e.g., Ling, 2004), the Internet (e.g.,

Katz & Rice, 2002), and the television (e.g., Bandura, 1967), increase people's

socialization skills. Scholars (e.g., Ling, 2004) have explored how younger teens use the

mobile phone to create their external social networks from home. Yet while there have

been many studies of younger teens, a gap remains in understanding how older teens (in

this case, college students) use the mobile phone as a tool for continuing socialization

relative to their friends and family.

This study seeks to understand how mobile phone use fits in to the relationship

between student and parent and especially if mobile phone use might increase college

students' dependency on (or other forms of involvement with) their parents. The data to

inform this analysis are derived from three focus group interviews (that included a total

of 40 undergraduate students), surveys (that included a total of 514 undergraduate

students), and eight in-depth interviews.

A combination of qualitative and quantitative approaches used in this study showed that the mobile phone was an important ICT in connecting college students with their social networks. Another important use was to seek information from within a social network. One-third of the participants in the survey reported that they asked for help from family members while they were at school. In conclusion, at least insofar as the participants this study are concerned, the mobile phone is helpful for students to gain socialization skills, coordinate with their families, and remain vibrant participants in a social network. Perhaps most interestingly, the research shows that contrary to initial expectations that the mobile phone would lead to isolation and independence of young people from their families, it appears to have had the opposite effect, that is, it seems to increase the involvement and socialization of students with their families.

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Katz & Rice, 2002), and the television (e.g., Bandura, 1967), increase people's

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between student and parent and especially if mobile phone use might increase college

students' dependency on (or other forms of involvement with) their parents. The data to

inform this analysis are derived from focus groups, surveys, and in-depth interviews.

Three focus group interviews (that included a total of 40 undergraduate students) were

conducted in February 2006 to gain a preliminary understanding of mobile phone use

patterns among college students. A main finding was that the mobile phone was "a must"

for participants to keep in contact with their families. For many, this contact was made

for its own sake as well as to fulfill family roles. In essence, many of the participants

report that they utilized the mobile phone to share experiences and receive emotional and

physical support from their parents.

Drawing from focus group interview findings, a survey questionnaire was

designed to assess motivations of college students who use the mobile phone to connect

with family and friends. The survey study was conducted in fall 2006. Five hundred and

fourteen participants volunteered for this study and completed the survey. A self-reported scale of "Mobile Phone Dependency" was created, and respondents were found to vary by gender and ethnicity but not by either age or year in college. Male and Asian-American participants had less self-reported Mobile Phone Dependency than other groups. Among the other results are that participants reported positive relationships among (1) Pleasure motives and self-reported Mobile Phone Dependency, (2) Affection motives and self-reported Mobile Phone Dependency, (3) Inclusion motives and self-reported Mobile Phone Dependency, (4) Escape motives and self-reported Mobile Phone Dependency, (5) Relaxation motives and self-reported Mobile Phone Dependency, and (6) Control motives and self-reported Mobile Phone Dependency to connect with both family and friends. Not surprisingly, motivation to communicate with friends was found to be stronger than to family. Moreover, self-reported Mobile Phone Dependency was found to be positively correlated with Friend Moral Support, Friend Information Seeking, Moral Support from Family and Moral Support to Family and negatively correlated with Friend Social Network. Other findings included that some psychological separation variables were positively related to self-reported Mobile Phone Dependency. Participants who reported heavy Mobile Phone Dependency also reported greater psychological dependency to their mothers/fathers/friends.

To gain deeper understanding into the phenomena under examination, eight in-depth interviews were conducted, which focused on communication patterns of college students towards family and friends via the mobile phone. Although one cannot generalize from such a small group, it nonetheless appeared that for several of the interviewees mobile phone calls were a primary way for them to remain connected with

family. All of the interviewees reported that they were enjoying contact with family and friends via the mobile phone. They noted a significant advantage was being able to contact their social networks any time and any place for "everything." The interviewees used mobiles both to give and receive support from their families. In contrast, their mobile phone calls to friends were used more for information seeking and micro-coordination, as predicted by Ling and Yttri (2002).

In sum, a combination of qualitative and quantitative approaches used in this study showed that the mobile phone was an important ICT in connecting college students with their social networks. Another important use was to seek information from within a social network. One-third of the participants in the survey reported that they asked for help from family members while they were at school. In conclusion, at least insofar as the participants this study are concerned, the mobile phone is helpful for students to gain socialization skills, coordinate with their families, and remain vibrant participants in a social network. Perhaps most interestingly, the research shows that contrary to initial expectations that the mobile phone would lead to isolation and independence of young people from their families, it appears to have had the opposite effect, that is, it seems to increase the involvement and socialization of students with their families.

CHAPTER 1

Introduction

Information and communication technologies[1] (ICTs), such as the mobile phone,

use in American campuses are ubiquitous (Aoki & Downes, 2003). College students

used ICTs in their social life (Leung, 2001; Park, 2005). Studies reported that college

students used ICTs to seek information, to build social capital, to escape difficult

situations, to relax their minds, to excite their lives, to entertain themselves, to kill time

(Chou & Hsiao, 2000; Park, 2005), and to establish their identities (Katz & Sugiyama,

2006). In other words, college students had drawn both verbal and non-verbal materials

from ICTs to contribute to their socialization (Arnett, 1995).

Many studies (e.g., Katz, 1997, 2006; Katz & Aakhus, 2002; Ling, 2004)

conducted on the social aspects of the mobile phone, the fastest adopted ICT (Townsend,

2002), have been published. Many of them focused on social aspects of mobile phone

diffusion (e.g., Leung & Wei, 1999; Palen, Salzman, & Youngs, 2000; Rheingold, 2002)

and some of them studied (e.g., Haddon, 2004, Ling, 2004; Taylor & Harper, 2003) the

impact of the mobile phone in human interaction and relationships in everyday life. A

group of mobile phone researchers (e.g., Ito, 2005; Ling, 2004; Ling & Yttri, 2002)

turned their attention to how the mobile phone has become a pivotal technology in early

teens' emancipation from their parental home. The current research was interested in

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[1] The term information and communication technology and the term new media technology are used
interchangeably in this dissertation.

how late teens (i.e., college students) who were away from their parental home used the mobile phone to learn socialization skills.

Research Purpose

Several studies have found ICTs to be potent agents of socialization (Castells, Fernandez-Ardevol, Qiu, & Sey, 2007; Chaffee, Nass, & Yang, 1990; Kang, Perry, & Kang, 1999). ICTs create important implications about how people live, work and play (Pavlik, 1996). Pavlik and McIntosh (2004) mention that ICTs assist in helping people learn society's rules or how to fit into society.

Studies (e.g., Chaffee et al., 1990; Lowrey, 2004) on ICTs (e.g., the television, the radio) have argued that users relied on ICTs for news, political information as well as entertainment to understand society. Scholars also have argued that ICTs brought the outside world into every house, classroom, or church, which was the sphere of influence of traditional socialization structures. Children sometimes learned how to socialize with the world from ICTs (Holmes & Russell, 1999; Meyrowitz, 1985). Other studies (e.g., Castells et al., 2007; Putnam, 2000; Katz & Rice, 2002b; Kraut, Patterson, Lundmark, Kiesler, Mukopadhyay, & Scherlis, 1998b; Ling, 2004; Turkle, 1995) on interactive ICTs (e.g., the Internet, the mobile phone) found that ICT users not only seek information on how to socialize through the ICTs, but they also integrated and practiced their social life with the ICTs.

Why Study the Mobile Phone?

The mobile phone was found to be integrated into its users' everyday life (Haddon, 2004; Katz & Aakhus, 2002; Ling, 2004). Scholars (e.g., Ishii, 2006) also have

argued that the mobile phone has become an essential part of daily social life for its users. For example, Kopomaa (2000) noted "as a tool that modifies everyday life, the mobile phone also replaces earlier social practices" (p. 12). Mobile phone users have been shown to seek synchronous living by sharing their experiences and moments, feelings and observations with their selected friends and family members. The mobile phone increased social interaction and intensified family ties (Kopomaa, 2000).

The mobile phone is so important to its users that some Americans commented that "they cannot live without the mobile phone" (Rainie, 2006) and some UK users said that "they cannot leave home without the mobile phone" (Srivastava, 2005). Mobile phone users utilized the mobile phone to seek information and to interact with others. For example, from a social interaction perspective, Ling and Yttri (2002) found that there were two ways, micro-coordination and hyper-coordination, that mobile phone users used their mobile phones. Micro-coordination was referred to as "nuanced instrumental coordination" (p.139), which meant the mobile phone helped its users to make flexible and immediate arrangements to meet their social groups' needs. On the other hand, hyper-coordination meant that the mobile phone had not only been used in instrumental coordination, but also used in (1) emotional and social communication and (2) in-group discussion and agreement related to group identity. Both micro- and hyper-coordination provide evidence that the mobile phone was used to socialize and affiliate with groups.

Studies on the mobile phone and socialization found that teens used the mobile phone to negotiate their social life with their parents at home (Castells et al., 2007; Ling, 2004, Ito, 2005). As many mobile phone studies mainly showed that early young teens used the mobile phone to be independent from their parents, there was a lack of studies

that investigated relationships with late teens, such as college students, who used the mobile phone to be independent from their family. This study was interested in whether college students, who were expected to be independent from their parents, used the mobile phone to be independent from their family or connected from their family.

Research Background

ICTs and Socialization

Researchers found that ICTs have the potential to increase socialization (Castells et al., 2007; Holmes & Russell, 1999). Scholars (e.g., Loevinger, 1968; Viswanath & Arora, 2000) argued that traditional ICTs (e.g., the television, the radio) reflected and amplified the concerns of power groupings in the social system, thus performing a central integrative function. Traditional ICTs gave examples by drawing attention to what was acceptable and not acceptable within the dominant norms and values of community (Viswanath & Arora, 2000). Some research indicated that social learning, the major educational impact of television viewing, may well be in teaching people about society and about themselves (Ball, Palmer, & Millward, 1986).

Early studies in mass media effects noted that people, especially children, learned through and modeled behavior from the television (Bandura, 1967, 1977, 1986, 1994). Social Cognitive Theory, posed by Bandura (2001), predicted that viewers learned from what was seen on the television, but were likely to only imitate what was perceived to be rewarding (Tan, Fujioka, Bautista, Maldonado, Tan, & Wright, 2000). In addition, Cultivation Theorists (e.g., Gerbner, Gross, Morgan, & Singorielli, 1980, 1982, 1986) asserted that heavy television viewing cultivated people's perceptions of the world that

were consistent with television's portrayals. Gerbner and his colleagues (1986) found

that ICTs (e.g., the television) have become the source of socialization and everyday

information for their users.

Studies (e.g., Dubos, 1988) in intercultural/international communication also

demonstrated that traditional ICTs' activities have been observed to promote adaptation

of immigrants to host cultures. Kim (1988, 2001) and Ting-Toomey (1999) commented

that immigrants were poorly equipped with host communication competence. They may

shy away from participating in direct encounters with natives. Traditional ICTs could

provide alternative, less stressful channels of communication through which immigrants

with inadequate communication competence can absorb some elements of the host

culture. On the other hand, studies on interactive ICTs, such as the Internet, e-mail and

the phone, also showed that the interactive ICTs helped international people to socialize

with family back home (Anderson, 2002).

Studies of Mobile Phone Use Motivations

This study focused on how college students used the mobile phone to socialize

with family and friends. Understanding mobile phone users' motivations could help the

researcher in this study figure out how and why the technology was used. Like many

other ICTs studies, scholars (e.g., Katz, 2006; Katz & Aakhus, 2002; Ling, 2004) in

mobile communication technologies have argued that the mobile phone has touched

every aspect of social life. Various reasons, such as convenience, mobility, safety,

networking, and identity were found to explain why the mobile phone has become one of

the favorite ICTs by its users. Research findings (e.g., Lemish & Cohen, 2005; Palen et

al., 2000; Rakow & Vavarro, 1993) of mobile phone adoption showed that safety and

accessibility were the primary reasons for people to initially adopt the ICT. Current

studies found that networking (e.g., Ling, 2004; Ling & Yttri, 2002), group identity (e.g.,

Katz, 2003; Skog, 2002) and fashion identity (e.g., Fortunati, 2002; Katz & Sugiyama,

2006) seemed to become major reasons why mobile phone users owned or changed the

communication device.

      Some mobile phone users showed a pattern of strong dependency on the device

and expressed difficulty giving it up. A survey conducted by the London School of

Economics and the Carphone Warehouse[2] showed that 92% of the UK mobile phone

users felt that they needed to have the mobile phone in their daily lives (The Carphone

Warehouse, 2006). In an American study[3], the mobile phone ranked as important a

device as the computer and the Internet for users. Likewise, they would find it difficult to

give up (Traugott, Joo, Ling, & Quian, 2006). Studies showed college students in Korea

(e.g., Park, 2005), Taiwan (e.g., Chen, 2006) and the U.S. (e.g., Chen, 2005) reported that

students were addicted to the mobile phone to connect with their social networks.

      People around the world (e.g., Germany, UK, USA) felt emotional about the

information contained in and delivered by the mobile phone and they reported that they

and their relatives and friends depend on the device to keep in touch more frequently

(The Carphone Warehouse, 2006; Vincent, 2005). A survey conducted by PEW

Research Center[4] showed that 26% of American mobile phone users reported that they

cannot live without the mobile phone. When asking a group of mobile phone-only

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[2] The survey included over 16, 500 people from the UK and was conducted in May and June of 2006.
[3] The national telephone survey, conducted by the University of Michigan, included a sample of 849 respondents and was conducted between March 3 and 10, 2005.
[4] The survey included 1, 503 American people and was conducted between May 8 and May 28 of 2006.

owners[5], the percentage increased to almost half of them (i.e., 47%). They agreed with

the statement (Rainie, 2006). Indeed, in the study of the London School of Economics

and the Carphone Warehouse, 9% of 18-24 year olds reported that they were addicted to

their mobile phone in the UK. Further, 19-24 year old UK youth agreed that their mobile

phone was more important than their television (The Carphone Warehouse, 2006).

In the UK, mobile phone users also reported that they were physically attached to

the mobile phone. Many of them reported that they cannot leave home without the

mobile phone (Srivastava, 2005). Studies found that UK mobile phone users were very

fond of their mobile phones. Although they bought new mobile phones on an average of

every 18 months, many of them treasured their old mobile phones (The Carphone

Warehouse, 2006). Indeed, they reported keeping their old mobile phones rather than

giving them away or discarding them (The Carphone Warehouse, 2006; Srivastava,

2005). When UK mobile phone users lost their mobile phones, young users reported that

they felt frustrated, angry and isolated (Fox, 2006). Following mobile phone adoption

patterns, the motivations for the use of the mobile phone changed from purely

communication technology to social communication technology and people seemed to

depend on the device in every aspect of life.

The Mobile Phone and Socialization

Studies reported that the mobile phone seemed to promise social networking. In

addition, the mobile phone insured its users a strong control of their social networks.

Some scholars (e.g., Ling, 2004; Srivastava, 2005) argued that the mobile phone provided

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[5] Mobile phone users who did not have land lines.

a direct and private communication channel between parents and children and between users and close friends. Thus, the mobile phone was often used to enhance social capital, especially by connecting their family members and friends, in spite of the fact that the mobile phone was originally designed for professional and business purposes (de Gournay, 2002; De Vries, 2005).

Moreover, researchers found that the mobile phone was used to explore (e.g., making new friends; creating new communities) and to enhance (e.g., keeping touch with old friends and family members) as well as to isolate (e.g., disconnect themselves from others) people's social network. Baron and her colleagues found that American college students commented that the mobile phone could always allow people to reach them either directly from phone calls or via voice mail. On the other hand, students also reported that they were free to ignore any mobile phone call. By looking at caller ID, students decided if they wanted to take the phone call or let it go to voice mail (Baron, Squires, Tench, & Thompson, 2005). Harper (2005) also noted a similar argument. He argued that a recipient of a mobile phone call could decide whether he or she wished to answer the calls. For most contemporary youth, studies (e.g., Kasesniemi, 2003) found that the mobile phone was more favored than the Internet by teens because teens view the computer as a stationary object, whereas the mobile phone had pervaded all of the space-time paths in everyday life.

Transition to Adulthood

Early studies in transition to adulthood. For many youth in the U.S., moving out of the parental home and moving into a separate residence was a milestone in the transition to adulthood. During their late teens through their twenties, young adults

learned foundational skills for their later adulthood (Arnett, 2000). Relationships with parents moved from being a child/parent relationship into an adult-to-adult relationship. Moreover, parent/adolescent separation was an important process that allowed the adolescent to become an independent adult (Bloom, 1987). In the past, youth transitions into adulthood were standardized in a short time period (Mitchell, 2006). For instance, during the 1950s and 60s, getting married was a major way to move out of the parental home and become independent (Goldscheider & Goldscheider, 1999).

Why college students? To obtain a better career and a better quality of life, attending college has become a common goal for American young people in the twenty-first century (Arnett, 2004). Many Americans (e.g., 9 out of 10) expected to continue their college education after they graduated from high school (Schneider & Stevenson, 1999). About 2/3 of them actually entered college in the year following high school (Arnett, 2000). College years are mentioned to be an important time for students to learn how to be independent from their family and get ready to be responsible adults. Scholars (e.g., Arnett, 2004) of social development paid special attention to how college students transitioned from childhood to adulthood. American college students learned their social skills and created their social capital on college campuses (Arnett, 2004). "Social capital" is defined by Putnam (2000) as the collective value of all social networks and the inclinations to do things for each other that arise from these networks. College campuses were designed to be safe learning environments for students to learn how to socialize with others. In other words, college is a place designed to train adolescents to become adults.

Contemporary transition to adulthood. Youth transitional behaviors have become more dynamic and complex in contemporary society (Arnett, 2000). Goldscheider and Goldscheider (1994) reported that most young American left home when they were 18 or 19 years old. About one-third of them attended colleges and moved out of their parental homes. During this period, these college students began to live with people other than their parents (Goldscheider & Davanzo, 1986). Moreover, during their college years, students also started working in their part time jobs and they eventually worked their way up to their full time jobs (Arnett, 2000). Only a few (i.e., 10% of male and 30% of female) continued living at their parents' home until marriage (Goldscheider & Goldscheider, 1994). Arnett (2000) called the period from 18 and 25 years of age "emerging adulthood" (p. 469) because he argued that emerging adulthood was theoretically and empirically distinct from adolescence and young adulthood. Thus, it can be said that youth in this period were neither adolescents nor adults.

Some studies (e.g., Arnett, 1997, 1998; Greene, Wheatley, & Aldava, 1992) argued that taking responsibility for oneself, making independent decisions, and achieving financial independence were the three essential criteria for the transition to adulthood. Many emerging adults saw themselves as neither adolescents nor adults (Arnett, 2000). Research showed that many of these emerging adults were not certain if they had reached adulthood (Arnett, 2001). In the period of emerging adulthood, young adults were making their demographic transitions. They were trying to finish school, to settle into a career, to get married, and to be parents (Arnett, 2001; Greene et al., 1992). Moreover, the emerging adults were also learning ways to socialize with others.

Developmental theorists (e.g., Lerner & Kauffman, 1985; Scarr, 1993) had strong beliefs that adolescents have some control of the environments that influenced their development. One school of adolescents' peer theorists argued that adolescents choose their friends through a process of selective association instead of "peer influences" (Kandel, 1985). Scarr and McCartney (1983) noted that adolescents became more capable of "creating their own environments" by seeking out experiences that correspond to their own interests and preferences while they were at school. Collins and Madsen (2006) also argued that adolescents chose their own friends who were similar to them in some respects. Their example was that Asian and Caucasian American selected friends who were similar in terms of substance use and academic orientation but dissimilar in terms of ethnic identity. Adolescent' family relationship theorists argued that changing parent-child relationships at adolescence resulted from an active renegotiation of the relationship in response to adolescents' increasing capabilities (Grotevant & Cooper, 1986).

While the emerging adults struggled to achieve independence from their family, scholars (e.g., Mitchell, 2006) also found out that young adults often physically left their parents' homes while still continuing to keep a close contact with their parents and receiving various types of economic support from their parents. Indeed, many of them might move in and out of the parental home in several episodes (Goldscheider & Goldscheider, 1994; Mitchell, 2006). It was thus not necessary for late teenagers and youth in their early twenties to fulfill all the demands of being an adult in contemporary society (Arnett, 2000).

ICTs and youths transition to adulthood. Scholars have provided various reasons to explain the delay of the youths' transition into adulthood, such as delayed marriage and delayed parenthood (e.g., Arnett, 2000), economical difficulty and long education time (e.g., Mitchell, 2006). A few scholars (e.g., Arnett, 1995; Mitchell, 2006) mentioned how developing technologies might also affect the youth transition. Arnett (1995) argued that ICTs' potential role in the socialization of adolescents was especially important because adolescence was a time when important aspects of socialization were taking place, such as the development of a set of values and beliefs. Adolescence was also the time when presence and influence of the family has diminished, relative to childhood (Larson & Richards, 1994). When the sources of childhood socialization (i.e., parents) have diminished and sources of adult socialization were not yet present, adolescents may be more inclined to use ICT materials in their socialization than other age groups.

Ward (2002) argued that ICTs (e.g., the mobile phone, the web cam) could help family members to keep in touch even though they were physically apart. On the other hand, these ICTs could also produce "virtual families" and have an isolating effect on individuals and their family members even though they lived in the same household. As a result, family members may suffer from a lack of face-to-face contact and meaningful social interaction (as cited in Mitchell, 2006).

Anderson (2002) commented that ICTs, such as the television and print media, have impacted youths' transition to adulthood in the past. He argued that ICTs have a deep and broad impact on many contemporary youths. He suggested that mobile ICTs may foster social interaction across national and cultural boundaries. He examined, for

example, how students who attended boarding schools or schools overseas used mobile

ICTs every day to communicate with their parents and friends in their native countries.

The mobile phone provided its users with a social support network of friends and family

members. The entire network was in the individual's own pocket. In some cases, just

holding or touching the mobile phone might provide its users a sense of being protected.

The mobile phone was a concrete link to its users' social network (Fox, 2006).

Significance of Study

Although college education was previously thought to be essential for training

students to be adults, the mobile phone might change this perspective. One Asian ancient

aphorism pointed out, "When you are at home, you depend on parents. When you are out

of home, you depend on friends." The mobile phone blurred this. It allowed college

students to construct their "home" environment, regardless of time and physical location

(Geser, 2005). With the capabilities of the mobile phone, youths can use the mobile

phone to ask for help from their parents even when they were overseas (Anderson, 2002).

Indeed, Sugiyama (2005) reported that American exchange students in Moscow

used the mobile phone to ask their parents for help in finding housing. Their parents

solved their children' problem in Moscow from the U.S. All of this helped us to see how

college aged students virtually never leave the influence of parental homes. Because of

the mobile phone, students relied on their parents' support regardless of time and

location. This study sought to investigate if the mobile phone has affected contemporary

American college students' transition to adulthood. In another words, this research was

trying to attempted to determine if the mobile phone affected American college students'

independence from their parents. If so, what motivated American college students to rely on the mobile phone to seek information and receive support?

CHAPTER 2

Literature Review

To understand the background research and design a better research plan, this

chapter reviews published studies that relate to the knowledge and ideas that have been

established on popular ICTs (e.g., the television, the Internet, the mobile phone) and

socialization. This literature review session is two fold: it looks at how ICT users

employed ICT context to model socialization behavior. Another was to review how ICT

users utilized ICTs as tools to socialize. In addition, the ways in which mobile phone

users used the mobile phone to socialize with their family and friends is a special

emphasis of this literature review session.

Information Communication Technologies and Socialization

ICTs have produced change in people's relationships and communication with

others (Meyrowitz, 1985; Turkle, 1996). Although the family has been regarded as the

primary agent in the socialization process (Grusec & Goodnow, 1994; Kim, 1980), much

research (e.g., Kim, 1988, 2001; Ting-Toomey, 1999) indicated that ICTs played a

critical educational role in learning socialization skills. Unlike early media theorists who

argued that users modeled from ICTs related directly to their real life (i.e., Hypodermic

Needle/ Magic Bullet Theory), later theorists (e.g., Modeling Theory) argued that users

made their own choices as to what media context they would model (Lowery & DeFleur,

1995; Schramm, 1971).

In addition, many other studies (e.g., Baron et al., 2005; de Gournay, 2002) on

interactive ICTs also found that users used interactive ICTs to have control over who they

liked to associate with and with whom they disconnected. When people used ICTs to connect with colleagues, family members and friends around the world, ICTs developed and maintained individual's social capital (Howard, Rainie, & Jones, 2001, 2002; Katz & Rice, 2002b). On the other hand, ICTs could play into social isolation and reduce social capital. ICTs have abilities to isolate people and occupy time that could be spent interacting with their colleagues, family members and friends in face-to-face situations (Putnam, 1995a; 1995b; 2000; Nie, 2001; Nie & Erbring, 2000; Nie, Hillygus, & Erbring, 2002). The three most popular ICTs that were used in the socialization process were discussed as follows:

The Television

Studies in how children and television viewers might learn how to interact with others (e.g., Bandura, 1967, 1977, 1986, 1994, 2001) and how to see the social reality (e.g., Gerbner, Gross, Morgan, & Singorielli, 1980, 1982, 1986) from the television have long been developed. These theorists argued that children or television viewers first observed a model from a television program. Afterwards, they imitated the model's actions. Finally, there was a consequence to their modeling. If their imitation failed, then they would drop the model. If their imitation received a similar result, they might repeat the model (Bandura, 1977, 2001). In addition, Gerbner et al. (1986) argued that religion or education could cultivate people's conception of society. Those theorists also proposed that the television had a cumulative and overarching impact on the way its viewers saw the world in which they lived.

Studies in mass communication demonstrated that the television provided a way to learn about society. Studies in intercultural adoption also showed the importance of

the television in providing newcomers with a quick way to socialize into the host society.

For example, when immigrants arrived in the United States, the television provided those

newcomers with a temporary bridge to learn about the new American culture (Chaffee et

al., 1990).

Gudykunst (2001) demonstrated that immigrants' children were socialized into

cultural practices and traditions by their parents, by the schools they attended, by their

interactions with their peers, and by ICTs to which they were exposed. He also indicated

that Asian immigrants learned the rules of American culture and eventually acculturated

the American culture through the use of American ICTs. Chaffee et al. (1990) studied

new Korean immigrants who may lack the English-language skills to fully utilized print

media and found that the television was clearly the stronger medium for learning about

liberal-conservative differences among political leaders and issue positions than print

media. Chaffee (1992) also found that the television could change people' values.

Chaffee's (1992) study found that Chinese career women exposed to new American

media held more individualistic values, whereas those heavily exposed to Communist

government influences held strongly state-oriented values.

Ting-Toomey (1999) noted that television's influence on immigrants' adaptation

process was broad but not deep. The influence of personal relationship networks, in

comparison, was deep, but not broad. Through the television, immigrants received

limited information concerning a broad range of American national topics but without

much depth. In contrast, through personal network contacts, immigrants learned about

American culture from a smaller sample of individuals, revolving around a narrower

range of topics, but with more depth and specific personal perspectives.

Finally, from a relational perspective, the television was often blamed for deleterious effects on society, such as decreasing social capital (Putnam, 2000; Robinson & Alvarez, 2005). For example, Sherry Turkle (1996) commented that the television reduced Americans' eye contact and conversations with each other. The other example was that Putnam (1995b) examined data from General Society Survey between 1974 and 1994. He found that television viewing reduced social capital because heavy television viewers were more likely to be alone, and had reduced feelings of social trust thus preventing them from interacting with groups. He also noted that heavy television viewing increased pessimism about human nature.

On the other hand, other studies found that the television provided a chance for family to spend time together (e.g., Riley, Cantwell, & Ruttiger, 1949) and provided topics to discuss during interactions (e.g., Paterson, Petrie, & Willis, 1995). Riley et al. (1949) reported findings from a study on the television[6]. They commented that television viewing at home could enhance family members togetherness because it could provide chances for family members to spend time together and the television could help to close the gap between adults and children. They also reported that having a television could make new friends and reconnect old friends. A quarter of the respondents in the study reported that they made more friends after they purchased a television because they had more old and new friends who came to visit them.

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[6] Riley and colleagues' (1949) findings were based on research that was conducted by the Columbia Broadcasting System and Rutgers University (CBS-Rutgers project) in 1948. This research investigated the social consequences of the television. A total of 270 television owners participated in this survey project.

The television could be used for social affiliation by facilitating face-to-face interaction. The television can provide topics for conversation aw well as functioning as a social activity in itself and offer something to do together. In the UK, British Film Institute conducted a "One Day in the Life of Television Project," one preliminary report of a 5-year long "Audience Tracking Study," to understand how the television played into people's everyday life. Over 20,000 UK participants completed and returned three diaries to recall their attitudes and experiences to the television on one day, November 1, 1988 (Paterson et al., 1995). From this data, researchers found that 55% of UK participants reported in their first diary entries that they discussed television programs with friends during the day. In the second diary, almost everyone admitted to talking regularly about television shows with his or her family members and friends.

Pippa Norris (1996) disputed Putnam's argument that the television eroded social capital. By studying secondary research data from the American Citizen Participation Study[7], Norris (1996) found some positive relationships between television viewership and social capital. For example, some of the evidence in the study argued that some television programs, such as television news, Nightline, 60 minutes may have positive effects with regard to social capital because people discussed the topics from those programs with others.

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[7] The American Citizen Participation Study was conducted in 1990. This study gathered a large random sample of a total 15,000 participants.

The Internet

Like the television, the Internet was found to be another potent agent of socialization. Ling, Yttri, Anderson and DiDuca (2003) argued that the Internet could develop social capital as well as social ills. Kraut and his colleagues argued that the Internet has the power to change users' lives, comparable to that of the television. They commented, "Like watching television, using a home computer and the Internet generally implies physical inactivity and limited face-to-face social interaction" (Kraut et al., 1998b, p. 1019). Turkle (1996) additionally argued that Internet communication might be more gratifying for its users than traditional face-to-face communication. For example, Internet users might spend their time and energy in developing placeless virtual communities rather than enhancing their local geographic communities. People used MUDs[8] and other virtual communities as a place of resistance to societies from which they felt alienated.

Robert Kraut (1998a, 1998b) and his research team conducted "The HomeNet Project" to study new Internet users' psychological effects. A longitudinal design observed the same group of new Internet users in the Pittsburgh area. The study recruited 169 individuals in 73 households. All participants were provided with free Internet access. Their study concentrated on the first and second year Internet users' behaviors. Participants answered a pre-test questionnaire before they were given access to the Internet. They completed a follow-up questionnaire after 12 to 24 months of use. The researchers found that heavy use of the Internet decreased communication with family

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[8] MUD was referred to as multi-user computer games, such as TrekMUSE, LambdaMOO.

members, and reduced the size of their social networks. Thus, they concluded that the

Internet could lead to social isolation and depression.

On the other hand, many empirical studies showed that the Internet reduced social capital, was by Nie

and Erbring (2000). In their preliminary findings of the Internet and Society Project[9]

(IAS), they reported similar findings to those that Kraut and others' (1998b) reported.

They commented that Internet use resulted in negative social impacts, such as less time

spent with family and friends, less time spent on the television and the newspaper, and

fewer social events attended outside their homes.

On the other hand, many empirical studies showed that the Internet increased

social relationships rather than isolate individuals. Katz and Rice (2002a, 2002b, 2002c)

reported "The Syntopia Project," a U.S. random national telephone survey, as well as

case studies, in-depth observations, and website analysis in 1995 to 2000. Four surveys

were conducted in 1995 (*N*= 2500), 1996 (*N*= 557), 1997 (*N*= 2148) and 2000 (*N*= 1305)

(Katz & Rice, 2002a; 2002b; Katz, Rice, & Aspden, 2001). The project investigated

social aspects of American- mediated communication (i.e., the Internet, the mobile

phone) behavior. The researchers investigated Internet users as well as non-users. Katz

and his research colleagues found that the Internet was a positive force in the

development of social capital (Katz & Aspden, 1997; Katz & Rice, 2002a, 2002b, 2002c;

Katz et al., 2001). Participants reported that most Internet experiences led to higher

levels of social interaction. In studies from 1995 and 2000, Internet users reported that

they were involved in more social activities than non-users (Katz et al., 2001).

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[9] This project was conducted in the Stanford Institute for the Quantitative Study of Society (SIQSS). 4,113 respondents in 2,689 households were participated in this study. InterSurvey of Menlo Park in California and SIQSS developed a system to collect data with national probability sample of general population.

Katz and his colleagues (Katz & Aspden, 1997; Katz & Rice, 2002a; Katz et al., 2001)

also identified that Internet users reported that they met their friends as well as contacted

their family members more than non-users in 1995 data. The researchers also advocated

that the Internet could create social capital. Katz and Rice explained the issue as:

> Rather than a technology of isolation and loneliness, the Internet is a
> technology through which social capital can be created. Its capability may
> be entirely potential and not used. But in many cases, it draws people into
> contact with others to create shared resources and communal concerns
> (Katz & Rice, 2002b, p. 337).

In addition, the Pew Internet and American Life Project conducted a national

phone survey in 2000. The survey explored the impact of the Internet on families,

communities, work and home, daily life, education, health care, and civic and political

life. More than 12,000 people participated in this study. By using the PEW data,

Howard et al. (2001, 2002) found that Internet (i.e., e-mail) use improved respondents'

connection with their family members and friends. The Internet seemed to act as a

medium to maintain and extend friendships and family relationships. Sixty percent of the

respondents reported that they used the Internet to connect with their family members and

primary friends. Thirty-one percent of the respondents reported that they used the

Internet to connect with family members with whom they had not previously had

frequent contacted.

Franzen (2000, 2003) conducted a longitudinal study on the social impact of

Internet use in 1998 and 2001. The researchers compared an on-line survey of Internet

users with a written survey of a control group of non-users in Switzerland. Findings

showed that the Internet did not have a negative effect on social networks. The Internet

neither decreased the time spent with friends nor reduced respondents' network size.

Compared to non-users, Internet users reported that they spent more time with their social networks and had a larger number of friends. In addition, when asking about participants' e-mail usage, they reported a positive effect on their social activities with their friends. Thus, increased use of e-mail increased the number of close friends.

Kraut and his colleagues stated that their previous 1998 findings were not necessarily generalizable to other groups of people and over time (Kraut, Kiesler, Boneva, Cummings, Hegelson, and Crawford, 2002). As a part of the HomeNet project, Kraut and others performed a follow-up study of their 1998 respondents three years later. They found that most of the Internet's negative effects had disappeared. They also found positive effects of using the Internet on communication, social involvement, and well-being in a longitudinal survey. They reported that Internet use increased interaction with family members and close friends.

In Internet research, scholars also found that users enhanced or created their social capital through E-mail and Instant Message (IM). E-mail and IM were often found to enhance users' social capital with their family members and friends. Respondents reported that the more they used e-mail, the more the respondents reported a larger number of close friends (Franzen, 2000). Moreover, almost half the respondents in the PEW study reported that they exchanged e-mail with their family members and friends (The Pew Internet and American life project, 2000). Boase and Wellman (2006) argued that almost every Internet user e-mailed their close friends and family. Therefore, people used e-mail to strengthen relationships and lead to more contacts offline. Bonka and colleagues found that IM enhanced teens' group identity. IM allowed teens to spend

more time with an off-line group of friends. IM chatting could sustain strong ties with friends (Boneva, Quinn, Kraut, Kiesler, & Shklovski, 2006).

In conclusion, Internet mediated communication brought human interaction and socialization to a different level. Meyrowitz argued, "with a greater proportion of our interactions taking place via electronic media, physical co-presence is diminishing as a determinant of the nature of interactions" (2003, p. 96). According to Meyrowitz (2003), there was no difference when comparing people that (1) sent e-mail to make a memo or write a personal letter, and (2) interacted in face-to-face situations versus chatting on the web. In addition, de Gournay (2002) commented that human relations were no longer maintained by face-to-face situations in physical and social spaces. Based on these discussions, maintaining human relationships did not need to be dependent on physical and social space.

The Mobile Phone

The phone is a prejudiced ICT. The telephone was described as a social communication technology (Fischer, 1992). Before the mobile phone era, Briggs (1977) commented that the telephone seemed to promise the banishment of distance, isolation and prejudice. De Vries (2005) noted that the fixed phone was adapted from professions for business purposes to the average person for contacting their families and friends as soon as the price of fixed phones services had become affordable and the number of providers had increased.

Wellman and Tindall (1993) argued that the telephone supported social network. People most frequently used the telephone to enhance their family network. They sometimes used the telephone to keep their community ties and rarely used the telephone

to contact colleagues from work, especially after work (Wellman & Tindall, 1993). de Gournay and Smoreda (2003) corroborated this point of view. They additionally argued that inter-generational communications almost depended entirely on phone conversations when they were apart from each other. These conversations focused on vocal expression between generations. In the UK, 45% of grandmothers reported that the mobile phone enhanced relationships between grandparents and grandchildren (The Carphone Warehouse, 2006).

Social capital selected by use of the mobile phone. The mobile phone was initially designed for interaction. When mobile phone users made or received calls or did text messages, it required two people who interacted with each other. The mobile phone user has a private phone number and a private device. The mobile phone could seem to be analogous to an extension of the human body (McLuhan, 1969) because its users defined themselves socially through the device (Kopomaa, 2000).

Many researchers found that the mobile phone was used to coordinate daily interactions with family, friends and colleagues to "keep in touch" (de Gournay, 2002; Ling & Yttri, 2002, 2006). In fact, studies found that the mobile phone was important to its user throughout the day. Ling and Yttri (2002) found that Norwegian youths commented that they might be out of touch if they did not have their mobile phones with them. Norwegians reported that they mainly used their mobile phones to coordinate with others. Moreover, the study found that text messaging also was used to maintain and enhance mobile phone users' social networks.

Based on EU e-living project[10], Rich Ling and his colleagues reported that there was a significant covariance between mobile phone use and social interaction (Ling et al., 2003). Ling et al. (2003) found that people, especially young adults and teens, used their mobile phones to arrange an array of informational social activities (e.g., meeting friends).

Along with mobile phone development, studies found that the mobile phone supported highly social roles in special groups (Geser, 2005). In many respects, the mobile phone was like the fixed phone. It allowed people to maintain social capital (Ling, 2004). Moreover, the mobile phone was argued to deregulate time and space controls and to transfer from location-based social system to person-based social system (Glotz, Bertschi, & Locke, 2005; Grser, 2005). As per prior research findings of the fixed telephone, the mobile phone was also found to be a source with which to manage deinstitutionalized privileged relationships (Fortunati, 2002; Licoppe & Heurtin, 2001; Vincent, 2005) and that people actively used the mobile phone to contact family members and close friends (de Gournay, 2002; Kim, 2006; Lasen, 2005; Ling, 2004).

The mobile phone was also initially adopted by those who frequently traveled. However, researchers found that mobile phone users mainly used the mobile phone to contact their family members and friends (de Gournay, 2002). de Gournay (2002) argued that the mobile phone was mainly used to communicate with people with whom the users had "strong ties," such as spouses or other family members to "keep in touch." She noted that French parents gave their children mobile phones with the hope of controlling their

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[10] The EU e-living project gathered survey questionnaires from Norway, the UK, Germany, Italy, Bulgaria and Israel in December of 2001.

children. Ironically, the same group of parents did not want their business partners to reach them while they were traveling!

Studies found that 64% of those under 25 in the UK had more than 50 numbers stored in their mobile phones. However, many of these phone numbers were not used very often. The UK report showed that mobile phone users' social and family networks remained tight knit (Fox, 2006). Similar findings resulted in a Rutgers' study in 2004. The study reported that college students only contacted a few people on the mobile phone although they had a significant number of mobile phone numbers stored in their mobile phones (Chen, 2005).

Similar findings were reported from Italy, Japan, Korea and France. Park (2005) found that Korean college students used their mobile phones to strengthen existing social ties more than initiating new ties. Young Japanese mobile phone users became more selective in their mobile social relationships. They connected with people with whom they identified closely, such as family and friends (Matsuda, 2005b). In Italy, the mobile phone was used most by individuals who maintained close contact with their family members (Fortunati, 2002). In Licoppe and Heurtin's (2001) study, it was found that most of their French participants (i.e., 70%) gave their mobile phone numbers to a controlled selection of their friends and family members, whereas 30% of their participants reported that they opened their mobile phone number to everyone.

On the other hand, the mobile phone also provided a free choice for its user to isolate himself or herself to disconnect from one person for another person or one location to the other location (Fox, 2006). There were a few mobile phone empirical findings related to social isolation. Cooper (2001) commented that mobile phone users

created their own private space in public by avoiding the gaze of others and avoiding

interaction. Fox (2006) and her research team members reported that UK female mobile

phone users often utilized their mobile phones in public to avoid people who they wanted

to deter. Twenty-one percent of their UK participants agreed that "I sometimes use my

mobile phone in public situations to deter people from approaching me" (p. 19). The

overall figure disguised the significance of the impact of the mobile phone technology on

the young female users. Fifty-five percent of female mobile phone users under 25 years

old agreed with this statement. Green (2001) and Ling (2004) noted that children

sometimes made excuses (e.g., out of battery, did not hear mobile phone rings) to avoid

their parents' mobile phone calls. Harper (2005) also reported that teens controlled their

availability to their social networks through the mobile phone. He found that teens

answered calls listed from their mobile phone books and ignored calls that did not have

caller IDs.

Scholars argued that using the mobile phone might set up barriers between people

and their physical situations. Engagement with the mobile phone disconnected people

from physical connections and co-present activities, activities occurring around them (de

Gournay, 2002). Persson (2001) commented that mobile phone use signals a type of

inaccessibility and erects a communicative barrier between the caller and the others who

are physically near. Kenneth Gergen (2002) argued that people became unavailable for

people co-present when they were using the mobile phone. He advocated a concept of

"absent presence," which is the situation in which people were psychologically present in

a place but also rendered absent at the same time. Gergen (2003) argued that the mobile

phone could provide people with more social connectivity because they allowed

participants with face-to-face groups to keep in touch with other remote groups at the same time. However, Gergen (2002) also commented that the same situation might isolate the participants from the face-to-face groups.

<p style="text-align:center">Mobile Parenting</p>

Some researchers (Kopomaa, 2000; Ling, 2004; Oksman & Rautiainen, 2002; Rakow & Navarro, 1993) reported that parents used the mobile phone for the "mobile parenting" of their teenagers. These scholars reported that parents used the mobile phone to monitor and regulate their teenagers. For example: Kopomaa (2000) noted that parents bought children mobile phones to reassure and supervise the children regardless of where they were and what they were doing. In the past, parents spoke to their children's friends and classmates in order to follow their children's activities by fixed-line phones. They might call several phone numbers to find the right person who could in turn tell them where their child was. Now, parents often communicate directly with their children via the mobile phone (Srivastava, 2005). Children also can call their parents to pick them up after activities (Ling, 2004; Ling & Yttri, 2006).

For their part, teenagers have developed "resistance" skills in their move towards independence and control of their own affairs via the mobile phone (Green, 2001; Ito, 2005; Ling, 2004; Taylor & Harper, 2003). Kopomaa (2000) commented that the mobile phone allowed young users to make active choices concerning with whom they wanted to contact. Green (2001) and Ling (2004) noted that youths avoided parents' monitoring by not answering their mobile phones (claiming that they did not hear it ring or that the battery was dead) or by not telling the truth to their parents. This was in spite of the fact

that these teens understood the importance of their mobile phones with regard to safety and emergency situations.

Moreover, Matsuda (2005a) also noted that due to the mobile phone, Japanese parents felt that it has become difficult to monitor the activities of their teens. Research reported that youths used the mobile phone at dinner tables in Japan (Matsuda, 2005a) as well as in the US (Cellular News, 2006). Ito (2005), in Japan, and Green, in the UK (2001) have reported that the mobile phone was also used in private bedrooms in order to avoid parents' monitoring.

This pattern was not only found among the parents of teens. Young adults have also adopted a similar tactic in order to create more privacy at home. In the UK study, more than 25% of youths aged 18-24 reported that they used their mobile phones regularly to contact someone who they do not want their family members to know about (The Carphone Warehouse, 2006).

Researchers questioned whether the mobile phone forced family members apart or if it brought them together (Matsuda, 2005a). On the one hand, Martin and de Singly (2000) reported that some teenagers used the mobile phone to escape from interactions with their parents. At the same time they used it to interact with their friends who were not physically present with them (as cited in Haddon, 2004, p. 67). On the other hand, researchers (e.g., Castells et al., 2007) reported that better parent-children relationships were fostered by the mobile phone. The mobile phone was used by teens to negotiate the boundaries between their childhood and adulthood with their parents. The mobile phone gave children greater levels of privacy and independence. It created a new chance for young people to loosen their family ties while remaining accountable. At the same time,

the mobile phone gave parents the security of a lifeline to their children and enabled

parents to rationalize the loosening of their duties to set boundaries for their children. In

addition, the mobile phone can become a locus of misunderstandings and mistrust

between generations.

The mobile phone also can function as a "pacifier for adults" (p. 26) since it

supported connections, and in particular emotional connections, with their family. The

mobile phone can help users who were away from home to fill in time gaps and deal with

loneliness. In addition, it can be used to ask for advice from loved ones at homes (Geser,

2005). Palen et al. (2000) and Ling (2004) found that the mobile phone allowed parents

and children to retain connections during periods of spatial distance. The Carphone

Warehouse's study showed that the 18-24 year-olds attested to their mobile phones

strengthening their friends and family networks (Spungin, 2006).

One of the reasons why people preferred to use the mobile phone to communicate

with their family members was because with voice contacts they had more capacity to

articulate personal emotions (Sawhney & Gomez, 2000). In their preliminary

ethnographic findings in two Indian immigrant families, Sawhney and Gomez (2000)

reported that mothers were the most essential persons with whom to communicate.

Mothers seemed central to maintaining the parental and emotional links. It was the

mother who provided news and information about others in the family. In the study, their

participants used e-mail to communicate with remote family members who had Internet

access. However, voice message was also used for regular contact because it could

provide emotional support. The same findings reported in Tollma and Persson's (2002)

observational study in Sweden. In Geser's (2005) viewpoint, the mobile phone enhanced

"bilateral interaction" (p. 31) between two individuals. The mobile phone offered the users an easy way to escape from unfamiliar places and complicated situations.

ICTs Enhanced Everyday Social Life

ICTs were found to affect every aspect of social life (Haddon, 2004; Katz & Aakhus, 2002, Ling, 2004). In some situations, mediated communication by ICTs might contribute to human socialization better than face-to-face communication. Straus (1997) commented that computer-mediated communication was not necessarily less personalized than face-to-face communication. She conducted an experimental study that included 243 undergraduate students. Her study found that computer-mediated communication had a higher task focus, a higher rate of disagreement and supportive communication, and more equal participation in discussion compared to face-to-face communication.

Walther (1996) argued that mediated interaction was usually personal. Especially when people spent more time, mediated communication might be "hyperpersonal." In this case, mediated communication might be more effective than face-to-face. In addition, Boase and Wellman (2006) argued that face-to-face communication was limited by geographic and temporal proximity, which was the strength of communication mediated by ICTs. Kraut et al. (2002) also advocated that the Internet permitted social contact across time and space. Kopomaa (2000) noted that the mobile phone allowed users to maintain a feeling of closeness without actual physical proximity. The researcher argued that the other people in a network were always present because of continuous accessibility by means of the mobile phone.

Moreover, studies found that Internet use leads to increased communication with local friends, relatives and colleagues (e.g., Howard et al., 2001; 2002; Kavanaugh &

Patterson, 2001; 2002) as well as long distance friends, relatives and colleagues

(Kavanaugh & Patterson, 2001; 2002; Kraut et al., 1998b). Ling and Yttri (2002) found

that the mobile phone was an important ICT for Norwegian youths to appear "available"

to their peers and "keep in touch" regardless of time and place. Mobile phone calls

helped to organize face-to-face meetings or coordinate things with local people.

Sugiyama and Katz (2003) found that Japanese youth actively used their mobile phones

to connect with their local and personal networks.

People adopted ICTs into their daily social lives. Rice (2002) argued that Internet

communication complements real-world relationships. Some studies (e.g., Katz & Rice,

2002b; Kavanaugh & Patterson, 2001, 2002) found that the Internet did not produce large

changes in interpersonal contact and community involvement.

Kavanaugh and Patterson (2001, 2002) studied Blacksburg Electronic Village

Blacksburg, Virginia[11] to understand Internet usage compared with community

attachment and community involvements. They found that the longer people were

involved with the Blacksburg Electronic Village, the more likely they were use to the

Internet to associate with their social capital. They also reported that when people had

stronger social capital, they used the Internet to increase their social involvement.

Wellman, Haase, Witte, and Hampton (2001)[12] found that the Internet neither

increased nor decreased contact with people either with face-to-face or by phone.

However, heavy Internet users did participate in social activities more often.

Haythornthwaite and Wellman (2002) argued that the more people used the Internet, the

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[11] In a 1996 telephone survey of year-round residents of Blacksburg, excluding students, 156 questionnaires
were collected. In 1999, another similar method telephone survey was collected 320 participants.
[12] This study conducted an on-line survey with 39,211 respondents in 1998.

more they saw each other in face-to-face situations and the more phone calls they made to others. Chen, Boase, and Wellman (2002) also found similar results. Their study found that there is a positive relationship between Internet use and face-to-face contact, telephone contact, and e-mail contact.

More Than Enhance Local Social Capital

Unlike face-to-face communication, evidence showed that ICTs enhanced distance social relations (Hampton & Wellman, 2002; Kavanaugh & Patterson, 2001, 2002; Kraut et al., 1998b; Kraut et al., 2002). With mobile communication, physical co-presence was becoming less important. Moreover, Ling and Helmersen (2000) and Skog (2002) found that the mobile phone was used, especially by youth, in identity work as a symbolic capital to show that they belonged to a certain group. Teenagers used their mobile phones to create a "*Gemeinschaft*" (often translated as community) not bound by space. Adults also used their mobile phones to stay connected to their groups, either of friends, family members or colleagues (Persson, 2001).

People volunteered to make themselves available to some individuals but not to others (Martin and de Singly, 2000, as cited in Haddon, 2004). Interactive ICTs provided channels for users to connect with remote family members, friends and colleagues as well as their local networks. Studies also showed that people used interactive ICTs to coordinate with others (Ling & Yttri, 2002). If scholars (e.g., de Gournay, 2002; Meyrowitz, 2003) argued that there was less importance being co-present, interactive ICTs should have stronger abilities to develop and enhance social capital than face-to-face contact. A main reason was because interactive ICTs not only enhanced local social capital but also enhanced remote social capital. Interactive ICTs might compete with

face-to-face contact because interactive ICTs could also enhance remote social network

in ways that face-to-face contact cannot.

Summary

Spungin (2006) commented on "the mobile phone as an umbilical cord" (p. 27)[13]

between parents and children. She argued that access to this device had changed the

interaction between parents and children. Previous to the mobile phone era, children

would try to solve their problems when their parents were not at the same location as

they. The mobile phone let them simply call their parents for help. On the other hand,

Spungin (2006) and other scholars (e.g., Ling, 2004; Ito, 2005) also commented that teens

used their mobile phones to build their peer group relationships that were out of the reach

of their parents. At the same time, parents saw the mobile phone as a way of maintaining

parental control of their teens. How teens negotiated their freedom from their parents

through the use of the mobile phone has been investigated (e.g., Ling, 2004; Ling & Yttri,

2006). Some of them focused on mobile parenting of younger children. In spite of this,

there was a lack of research on college student use of the mobile phone to connect or

disconnect with parents.

Traditionally, a major benefit of a college education was to be independent from

parental support. In this study I propose to examine how college students use their

mobile phones to keep their "umbilical cord" with their parents while they were away

from their parental homes. In other words, the current study is interested in

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[13] Geser (2005) also used "umbilical cord" (p.30) to describe the connection between mothers and children
by the mobile phone.

understanding if there is a pattern between college students' mobile phone usage and their family members at home, and to what degree it affects their college life. It also seeks to understand whether frequent contact with their family members would affect their transition from youth to adulthood.

CHAPTER 3

Theoretical Framework

Media Dependency Theory and Psychological Separation Theory provided

theoretical frameworks to demonstrate the issue of whether American college students'

mobile phone use might further their dependency on their family while they are supposed

to learn to be independent in college. Ball-Rokeach and DeFleur's (1976) Media

Dependency Theory[14] explained how people depended on some media to get information

in both daily life and crisis situations. Hoffman's (1984) Psychological Separation

Theory stated that children in late adolescence need to separate and become independent

from their parents to transform into well-adjusted adults. Therefore, successful self-

development depends on the extent to which an individual was able to develop an identity

separate from that individual's parents.

Media Dependency Theory

Uses and Gratification Theory

Ball-Rokeach and DeFleur's (1976) Media Dependency Theory was developed

from Uses and Gratification Theory and tied into Agenda Setting Theory (Ball-Rokeach,

1998). Uses and Gratification Theory aims "to explain something of the way in which

individuals use communication, among other resources in their environment, to satisfy

their needs and to achieve their goal, and to do so by simply asking them" (Katz,

---

[14] The term Media Dependency Theory and the term Media System Dependency Theory are used
interchangeably in this study.

Blumler, & Gurevitch, 1974, p. 21). Katz, Haas, and Gurevitch (1973) identified three categories of social and psychological needs that were being the most important. They were (1) needs related to strengthening information, knowledge, and understanding, (2) needs related to aesthetic, pleasurable and emotional experience, and (3) needs related to strengthening contact family, friends, and the world. Uses and Gratification Theory has been useful in studying users' mediated communication motives (e.g., Dimmick, Sikand, & Patterson, 1994; Leung & Wei, 2000). In two studies of phone usage, three motives (i.e., sociability, instrumentality, and reassurance) were outlined in the fixed phone study (Dimmick et al., 1994) as well as in the mobile phone study (Leung & Wei, 2000). Uses and Gratification Theory also has been used to test between communication motives and other factors, such as gender (e.g., Leung & Wei, 2000), age (e.g., Leung & Wei, 2000), mobile phone addiction (e.g., Park, 2005), communication channel (e.g., "I see you (ICQ)") (Leung, 2001), and who people speak to and what they talk about (e.g., Graham, Barbato, & Perse, 1993).

Media Dependency Theory

Developing from Uses and Gratification Theory, Media Dependency Theory argues that if an individual became dependent on mass media to fulfill his or her certain needs and goals, the mass media would become more important to that individual. Media Dependency Theory also stated that the individual did not depend on all media equally and people might be more dependent on certain media for information or sources in times of change or when there was an increase in uncertainty (Ball-Rokeach, 1998; Ball-Rokeach & DeFleur, 1976). Ball-Rokeach and DeFleur (1976) distinguished Media Dependency Theory from Uses and Gratification Theory as follows:

> Proponents of the uses and gratifications approach examine how audiences use the media to gratify similar information needs but do so by taking the audiences as the focal point of analysis, not the interrelationships between audiences, media and society (p. 8).

Media Dependency Theory was originally a mass media theory. Unlike other mass media theories (e.g., Uses and Gratification Theory; Modeling Theory) that demonstrated the causes and effects between media and audiences, Media Dependency Theory explained the relationship among mass media, audiences, and society as a whole. In Media Dependency Theory, one of the factors was that people will rely heavily on certain media to get their information rather than others because those selected media serve them better than the others. The other factor of dependency was social stability. When a society was in a state of crisis or instability, the media would become more powerful and had greater influence on the people who were seeking news sources (Ball-Rokeach, 1998; Ball-Rokeach & DeFleur, 1976). In general, Media Dependency Theory specified media users who utilized the media to fulfill their various information needs:

> One form of dependency is based on the need to understand one's social world; another type of dependency arises from the need to act meaningfully and effectively in that world; still a third type of dependency is based on the need for fantasy-escape from daily problems and tensions. The greater the need and consequently the stronger the dependency in such matters, the greater the likelihood that the information supplied will alter various forms of audience cognitions, feeling, and behavior (Ball-Rokeach & DeFleur, 1976, p. 6).

Media Dependency Theory showed that both the social system and the media system interact with audiences and influence audiences' needs, interests, and motives. Media Dependency Theory argued that media and non-media sources affected audiences' cognition, affections, and behaviors. In the end, audiences depended on media sources in

different ways and to different degrees (Ball-Rokeach, 1998; Ball-Rokeach & DeFleur, 1976). Ball-Rokeach and DeFleur (1976) provided a conceptual model of this theory to explain how audience, the social system and the media system interact with each other (see Figure 1).

Figure 1
Society, Media, and Audience: Reciprocal Relationship
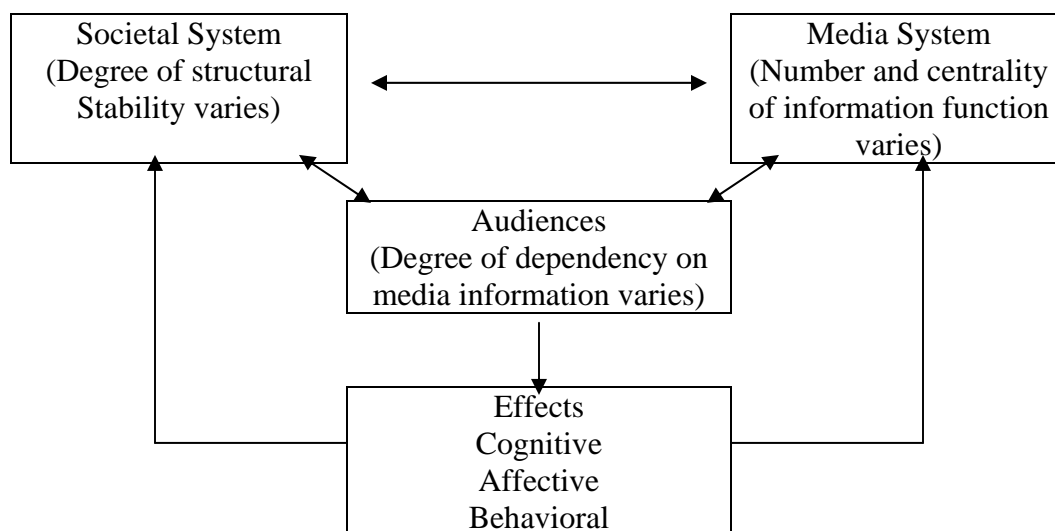
Source: Ball-Rokeach and DeFleur (1976, p. 8)

Psychological Separation Theory

Hoffman's (1984) psychological separation theory argued that a successful transition from late adolescence to adulthood depended on the extent to which a person was able to be independent from one's mother and father. Psychological Separation Theory developed from Mahler (1968) and Blos' (1967; 1979) Separation-Individuation Theory (Hoffman, 1984). Mahler's (1968) theory explained that the process of separation-individuation had two sets of interdependent changes: behavioral and mental representation. During the first three years, young children had to build up their own

personality separate from their mothers. Blos (1967; 1979) examined at adolescence as

the second separation-individuation process. In the second separation-individuation

process, young adolescents developed a separate self-identity from their parents to

become a member of the adult world (Blos, 1967; 1979).

Hoffman's (1984) Psychological Separation Theory is constructed on four

aspects: (1) functional independence is related with behavioral level; (2) emotional

independence and (3) conflictual independence is related to affective levels, and (4)

attitudinal independence is related to cognitive level (Geuzaine, Debry, & Liesens, 2000).

In Hoffman's (1984) definitions, functional independence was defined as "the efforts of

the infant to act independently may be reflected during adolescence as the ability to

manage and direct one's practical and personal affairs without the help of his or her

mother and father" (p. 171); emotional independence was defined as "freedom from an

excessive need to approval, closeness, togetherness, and emotional support in relation to

the mother and father" (p. 171); conflictual independence was defined as "freedom from

excessive guilt, anxiety, mistrust, responsibility, inhibition, resentment, and anger in

relation to the mother and father" (p. 171-172); and attitudinal independence was defined

as "the image of oneself as being unique from one's mother and father, having one's own

set of beliefs, values, and attitudes" (p. 171).

Parental separation is the final stage of adolescence (Blos, 1979). The beginning

of college years (or moving away from home) might be the most significant separation

for adolescents (Blos, 1979). The pressures and demands of college challenged the

adolescent's ability to negotiate the transition (Peterson & Craighead, 1986). Most

college students had experienced some emotional difficulties as they separated

themselves from their parents and old friends (Bloom, 1987). Studies commented that failure to separate from parents results in the development of relationships outside the family (Blos, 1967). Hoffman (1984) found that emotional independence from parents had a strong affect on work performance in female college students.

Conclusion

Many studies (e.g., Hindman & Coyle, 1999; Loges & Ball-Rokeach, 1993) have looked at Media Dependency Theory in times of social disruption and uncertainty. Their study mainly focused on degree of dependency (e.g., Hindman & Coyle, 1999), effect from dependency (e.g., Hirschburg, Dillman, & Ball-Rokeach, 1986), and differentiation of both dependency and its effects relating media type (e.g., Loges & Ball-Rokeach, 1993). Although some studies (e.g., Hirschburg et al., 1986) in Media Dependency Theory argued that individuals and social groups have relied more on mass media to get information, other studies (e.g., Lowrey, 2004; Turner & Paz, 1986) examined the theory and found that interpersonal networks were also important channels in the dissemination of information.

For college students, learning how to separate from parents and being independent were important during a time period of great uncertainty. The mobile phone has changed people's expectations about the accessibility of others to communication (Rainie, 2006). Students agreed that the mobile phone was an important ICT for them to keep in touch with their family members and friends (Chen, 2006). With the convenience of the mobile phone, college students can call their family members at anytime to seek information, ask for emotional and other type of support (Anderson, 2002; Sugiyama, 2005). The mobile

phone is an important ICT for researchers to examine Media Dependency theory and

Psychological Separation Theory among college students.

Research Questions

Drawing from the literature review and the theory discussed, several research

questions were investigated in this study:

RQ1:   To what degree are college students dependent on the mobile phone in

their everyday lives?

RQ 2: What are college students' motivations for the use of the mobile phone?

RQ 3: Which motives for the use of the mobile phone predict a higher level of

mobile phone dependency?

RQ3.1: Do socialization desires with friends or with family best predict mobile

phone dependency?

RQ 4: To what degree does college students' mobile phone dependency increase

their socialization?

CHAPTER 4

Method

Many researchers (e.g., Ito, 2005; Ling, 2004) have demonstrated that the mobile

phone helped younger teens to be independent from their family. Young adolescents

have been shown to use the mobile phone to socialize with their friends and receive

social support from outside their family. Psychological Separation Theory, discussed in

the prior chapter, argued that a successful transition from adolescence to adulthood

depended on whether the adolescent could achieve independence from his/her parents

(Hoffman, 1984). Media Dependency Theory suggested that the more media users

depend on the media to fulfill their needs, the more important the media will be for the

users (Ball-Rokeach & DeFleur, 1976). Most of the prior studies (e.g., Ito, 2005; Ling,

2004) on how teens used the mobile phone to be independent were focused on younger

adolescents who physically live with their parents. This study investigated how older

adolescents, who are college students and away from their parental homes, depended on

the mobile phone to psychologically separate themselves from their family.

This study used a triangulation research method to answer the research questions

discussed in the prior chapter. The triangulation research method combined two or more

forms of evidence with respect to an object of research interest (Fielding & Fielding,

1986). Its goal was to seek a convergence of meaning from more than one direction. If

data from two or more methods seemed to converge on a common explanation, the

research finding was enhanced (Linflof & Taylor, 2002; Maxwell, 2005). In this study,

both quantitative and qualitative data were collected. First of all, the qualitative data

were drawn from three focus group interviews conducted in a communication department of an information, communication and library studies school at a large state university in the Northeast. The quantitative data were drawn from several college undergraduate classes by a survey conducted in the same university. Finally, several in-depth interviews were conducted that collected both quantitative and qualitative data from the university (i.e., in-depth interview notes, mobile phone users' records of incoming and outgoing calls, and mobile phone bills) to enhance research findings. All research questions and procedures were approved by the university Institutional Review Board.

Focus Group Interviews

Three focus group interviews were conducted as a pilot study on February 1st (Focus Group #1), February 2nd (Focus Group #2), and February 15th 2006 (Focus Group #3). The focus group method was used because the focus group facilitated, introduced topics, encouraged participation, and probed for information in a flexible and interactive way to get more inside opinions. It increased interaction between participants with regard to discussing each others' ideas (Morgan & Krueger, 1993; Stewart, Shamdasani, & Rook, 2007). This method has been used for social science research for decades (Morrison, 1998). Compared with other types of research methods, the focus group was effective in providing insights into the sources of complex behaviors and motivations. It was a effective method to study participants' motivations (i.e., mobile phone use in this study) in interactive friendly settings (Morgan & Krueger, 1993). Frey and Fontana (1993) and Morgan and Krueger (1993) commented that the focus group could be helpful in developing a survey questionnaire.

On the other hand, the focus group method has its limitations. Participants in a focus group were not independent from each other (Merton, Fiske, & Kendall, 1990; Stewart et al., 2007). Those participants might influence each other's response, and the results can be biased by a single person in the group. Moderator(s) can have a direct impact on the group discussion (Agar & MacDonald, 1995). Moreover, some participants may not want to share certain opinions and feelings (Merton et al., 1990). Finally, a focus group relies on a small number of interviewees who were willing to participate. Therefore, findings may not be generalized to a larger population (Stewart et al., 2007).

Interview Questions

In the current study, several focus group interview questions (see Appendix A) were asked to provide some preliminary research directions on mobile phone use between college students on campus and their family members at home as well as between college students and their friends on campus. These questions were designed based on prior research on mobile phone use, more than two years of participant observation in the university, discussions with individuals in the university, and popular literature on media impact in everyday life.

Participants

A total of 40 undergraduate students who were majoring in communication studies were recruited. Some focus groups in this study had more than 12 participants. Although Lindlof and Taylor (2002) suggested an "optimal size for a focus group is from 6 to 12 persons" (p. 182) and commented that too many people in a focus group might

mean that fewer topics could be covered and everyone might not be heard, the interviewers in this study made sure that all questions were asked, all topics were covered, and interviewers asked questions several times to make sure every participant had the chance to express his/her opinions in the groups.

Those participants were chosen because they "have had experiences, or possess knowledge and/or expertise to the research questions" (Lindlof & Taylor, 2002, p. 121). These focus groups used "theoretical construct sampling," which Lindlof and Taylor (2002) explained "builds a sample on the basis of the study's theoretical interests" (p. 126). This study was interested in how the mobile phone affected college students' socialization. Participants were from four different upper-level communication classes. Most of the participants were female. All of them had mobile phones. The primary ICT they used to contact their parents was the mobile phone.

Procedure

Three focus groups were conducted in a meeting room at the school. Lindlof and Taylor (2002) suggested that focus group should take place in a conference room or on a neutral location where participants could feel comfortable. In these focus interviews, two interviewers began by identifying themselves with participants. A third researcher was in the room to take notes and observe non-verbal cues because "the nonverbal actions of the respondents plus the substance of the relations of group members can tell the field researcher a great deal about social relations that exist beyond the group" (Frey & Fontana, 1993, p. 32). The two interviewers explained the research purpose, how the individual was selected to be interviewed, and the amount of time the interview might for take.

In these focus groups, the interviewers used a semi-structured interview technique to ask questions. The semi-structured interview technique was that the interviewers first asked primary questions but then allowed for probing secondary questions. In other words, it combined the Interview Guide and the Interview Schedule Technique together. Gorden (1987) distinguished these two terms as that the Interview Schedule emphasized the means of obtaining information. It was more formal than the Interview Guide Technique. It also ensured that all participants hear roughly the same questions in the same way. On the other hand, the Interview Guide Technique emphasized the goals of the interview in terms of the topics to be explored and the criteria of a relevant and adequate response. Its approach was more flexible than the Interview Schedule Technique; it simply consisted of questions that the interview can ask in different ways for different participants. Lindlof and Taylor (2002) mentioned that interviewers often incorporate both types of instruments to achieve research goals. Those interviews lasted for an hour each. All interviews were tape-recorded. The interview procedure design was based on recommendations by Carey (1994) as well as Lindlof and Taylor (2002).

Data Analysis

After all three focus groups were completed, the researcher transcribed all recorded interviewed into text for analysis. The interview transcripts, combined with the interview notes that the third researcher took during the interviews, were read several times. The researcher then found categories in the interview notes and interview transcripts. This technique, called "open coding," was the initial and unrestricted coding of data (Strauss & Corbin, 1998). Strauss and Corbin (1998) outlined opened coding technique from (1) going through the texts line by line; (2) marking those chunks of the

text that suggest a category; and then, (3) naming those categories and having attributes ascribed them.

Guided by Knodel (1993) and Strauss and Corbin's (1998) qualitative data analysis recommendations, a codebook was then created to help the researcher to list all categories, and the location of each incident in the data records. At this point, an axial coding technique was used to make connections between categories. The axial coding brought previously separate categories together into several broad themes. Once the analysis was completed, several direct quotes from interviews that highlighted those themes and discussion points were incorporated into the data analysis.

Survey

Based on the focus group findings, a traditional paper-and pencil, self-administered questionnaire was developed (see Appendix B.2) and a survey was conducted between September 2006 and December 2006. Questionnaires were used in this study because this study intends to describe trends, attitudes, and opinions (Fowler, 2002) of college students' use of the mobile phone to socialize. With a survey, the researcher got an overview of human behavior by collecting data from many individuals and then analyzed the data to identify some patterns among the population (Fowler, 2002). Generally, the survey has been viewed as lacking the flexibility of qualitative approaches to pursue particular issues in depth and a broad range of explanatory categories. It has also been viewed as being less adept at capturing in-depth contextual details (Wolff, Knodel, & Sittitral, 1993).

The particular strengths and limitations inherent in the focus groups and the survey made them ideally suited to complement each other (Wolff et al., 1993). Some

quantitative researchers have conducted focus groups to acquaint themselves with

phenomena before constructing questionnaires (Converse & Presser, 1986), using focus

group data for a variety purpose from the formulation of whole question categories to

fine-tuning wording on particular questions (Morgan, 1988). In this study, the focus

groups revealed that there were several motivations (e.g., social support, information

seeking, emotional dependency) for college students using mobile phones throughout a

given day.

Instrument

Several prior existing scales (i.e., Procidano and Heller's PSS-Fr and PSS-Fa

Scales (1983); Rubin's "Television Affinity Scale" (1981); Rubin, Perse, and Barbato's

(1988) instrument of the "Interpersonal Communication Motives;" and Hoffman's (1984)

"Psychological Separation Inventory") were modified to examine the research

hypotheses. This questionnaire aimed to provide a better understanding of how college

students received support from their family members at homes or college friends via the

mobile phone. In addition, the survey attempted discovered some motives as to why

college students use the mobile phone to communicate with their family or friends.

Procidano and Heller (1983) reported a series of studies to test social support

information, and feedback that were fulfilled by friends (i.e., PSS-Fr) and by family (i.e.,

PSS-Fa). The two 20-item self-report measures required a simple "yes," "no," or "don't

know" response. The 20-items for friends yielded a coefficient *alpha* of 0.88, whereas

the family items yielded 0.90. Factor analysis of both instruments resulted in a single

factor solution for each. Procidano and Heller (1983) used the scales to predict

conversational behavior and concluded that self-reports can predict behaviors associated

with social support. In this study, the researcher added a statement, "by use of the mobile phone," before the original PSS-Fr and PSS-Fa scales to test if mobile phone use had effects on social support. PSS-Fr scale was modified to examine social support from friends (i.e., Questions # 1-20) by use of the mobile phone, whereas PSS-Fa scale was modified to examine social support from family (i.e., Questions #21-40) by use of the mobile phone.

Rubin's "Television Affinity Scale" (TAS) (1981) was used to examine users' attitudes toward the television. Greenberg (1974) first reported using a three-item Likert scale to measure TAS. The researcher did not report the reliability of the scale. Rubin (1981, 1988) developed the TAS to 5-item Liket scale (i.e., from 1= strongly disagree to 5= strongly agree). Cronbach's *alphas* ranged from 0.79 to 0.93 (Perse, 2004). Researchers (e.g., Greenberg, 1974; Rubin, 1981) found that the more motivated users were to use the medium, the more important they believed the medium to be. TAS often used to mediate or moderate the relationships between other variables, such as motives and exposure. In this study, TAS was modified (i.e., Questions #41-45) to examine mobile phone dependency, and it was used to compare relationship with other variables of mobile phone motives.

To understand why college students communicated with other people, Rubin, Perse, & Barbato's (1988) instrument of the "Interpersonal Communication Motives" (ICM) was modified. A serious factor analysis resulted in a 28-item questionnaire which included six factors (e.g., Pleasure, Affection, Inclusion, Escape, Relaxation, and Control). In Rubin et al. (1988) study, they found that Cronbach's *alphas* for Pleasure was 0.89; for Affection was 0.85; for Inclusion was 0.84; for Escape was 0.77; for

Relaxation was 0.81, and for Control was 0.75. They also provided evidences of

construct validity that ICM related to communication apprehension, communication

satisfaction, gender, age, and education. In this study, research modified ICM into two

aspects: family (i.e., Questions #46-73) and friends (Questions #74-101). By adding the

statements, "I talk to my family on the mobile phone," and "I talk to my friends on the

mobile phone," this study examined if the mobile phone had an affect on college

students' interpersonal communication motives.

In terms of understanding how college students psychologically separated from

family or friends, Hoffman's (1984) "Psychological Separation Inventory (PSI)" was

modified for further analysis. PSI was a 138-item scale. In Hoffman's (1984) study,

those items factored in functional independence, emotional independence, conflictual

independence, and attitudinal independence. Based on the focus group discussion and a

consultation with two undergraduate students, this study selected several questions from

PSI and added one aspect to examine college students' psychological separation from

friends. These twenty-four items (i.e., Questions #102-125) were: (Questions #102-104)

"My mother's/father's/college friends' wishes have influenced my selection of friends;"

(Questions #105-107) "I ask for my mother's/father's/college friends' advice when I am

planning my vacation time;" (Questions #108-110) "After being with my

mother/father/college friends for a vacation I find it hard to leave her/him/them;"

(Questions #111-113) "I sometimes call my mother/father/college friends just to hear

her/him/their voice;" (Questions #114-116) "When I don't contact my

mother/father/college friends often enough I feel guilty;" (Questions #117-119) "I feel

like I am constantly at war with my mother/father/college friends;" (Questions #120-122)

"My beliefs regarding how to raise children are similar to my mother's/father's/college friends';" and (Questions #123-125) "My attitudes regarding national defense are similar to my mother's/father's/college friends'."

Finally, participants were asked to report the primary ICT used to contact their mothers (i.e., Question #128), fathers (i.e., Question #129), and friends (i.e., Question #130). In addition, several demographic items, such as the year in college (i.e., Questions #131), age (i.e., Question #132), gender (i.e., Question #133), and ethnicity (i.e., Question #134) were also asked in the questionnaire. A seven-point Likert scale was used, 7 being strongly disagreed 1 being strongly agreed.

Pre-test

A pre-test of a 132-question survey with an answer sheet was conducted in a group of nine female students from an upper-level communication class on September 2006. After the pre-test, a few questions (see Appendix B.1) were asked of the participants to evaluate the questionnaire design. All participants reported that this questionnaire was manageable for an undergraduate student to complete. Participants also commented that the survey questions were not difficult to answer. They also reported that those questions were simple and direct and none of them made them uncomfortable. Although the questionnaire seemed to be long, each question was short and many similar questions were asked. All of the participants completed the survey in less than 20 minutes. The participants pointed out a few wording changes and recommended the Liket scale to be reversed from 1= strongly agree to 1= strongly disagree to make it more comprehensible to American participants. Finally, they

suggested dropping the answer sheet and recommended marking the answers on the questionnaire.

After the questionnaire was modified with the pre-test participants' suggestions, five more questions were added. They were (1) "When you are at school, which of the following do you use most frequently to get information?" (i.e., Question #126) (2) "When you are at school, who do you most frequently ask for help about how to do things?" (i.e., Question #127) and three questions to ask about their current living locations among students, their mother and their father (Questions #135-#137). Question #126 was added to test Media Dependency Theory, whereas Questions #127, #135, #136 and #137 examined Psychological Separation Theory. Question #126 asked which medium college students frequently depend on to get information. Question #127 aimed to find out on whom college students psychologically depend to get help and Questions #135- #137 were aimed at finding out if distance affected relationships in which the majority of communication occurred through the use of the mobile phone. Some research (e.g., Rose, 1984) commented that the distance could affect relationships. It was difficult to keep a long distance relationship. On the other hand, the mobile phone seemed to facilitate communication in both long and short distance relationships. McLuhan (1969) commented that the medium was an extension of the human body and Geser (2005) argued that the mobile phone was a person-to-person ICT and it could cross time and location barriers. Finally, a completed questionnaire (i.e., Appendix B.2) resulted in 137 questions.

Participants

Questionnaires were administered to 530 participants at the school, representing a wide array of ages and all levels of school years (i.e., Freshman, Sophomore, Junior, Senior). Nine of the questionnaires were not completed or they chose not to indicate their gender. Seven participants did the survey more than once. Those questionnaires were omitted from the data. The results yielded 514 valid questionnaires to be analyzed.

The participants were 197 male (i.e., 38.6%) and 314 female (i.e., 61.4%) undergraduate students. Three were missing values from the system because not all participants completed the question. The sample was composed of 61.7% Caucasian Americans, 10.6% African Americans, 6.2% Latino Americans, 16.2% Asian Americans, and 5.4% other/Not Americans. Thirteen were missing values from the system. These missing values included participants who did not answer the question and participants who identified themselves as more than one ethnicity (see Table 1).

Table 1
Demographic Items

		N	%	Valid %
Gender	Female	314	61.1%	61.4%
	Male	197	38.3%	38.6%
	Total	511	99.4%	100.0%
	Missing System	3	.6%	
Ethnicity	Caucasian American	309	60.1%	61.7%
	African American	53	10.3%	10.6%
	Hispanic American	31	6.0%	6.2%
	Asian/Pacific Islander American	81	15.8%	16.2%
	Other/Not American	27	5.3%	5.4%
	Total	501	97.5%	100.0%
	Missing System	13	2.5%	

With regards to years in college, 19.3% were freshman, 20.5% were sophomores, 26.6% were juniors, and 33.6% were seniors. Two of the participants did not answer this question. As to participants' ages, 36.1% were 18-19 years old, 48.8% were 20-21 years old, 10.0% were 22-23 years old, 1.8% were 24-25 years old, and 3.3% were 26 years old and above. Four participants did not respond to this question (see Table 2).

Table 2
Demographic Items (Continued)

		N	%	Valid %
Year in college	Freshman	99	19.3%	19.3%
	Sophomore	105	20.4%	20.5%
	Junior	136	26.5%	26.6%
	Senior	172	33.5%	33.6%
	Total	512	99.6%	100.0%
	Missing System	2	.4%	
Age	18-19	184	35.8%	36.1%
	20-21	249	48.4%	48.8%
	22-23	51	9.9%	10.0%
	24-25	9	1.8%	1.8%
	26 above	17	3.3%	3.3%
	Total	510	99.2%	100.0%
	Missing System	4	.8%	

Procedure

As soon as the survey was administered, an SPSS data spread sheet was created. To answer the research questions, this study first used factor analysis[15] to find the factors from each modified scales. A major goal of factor analysis as used in this study was to reduce a large number of observed variables to a smaller number of factors (Bryant & Yarnold, 1995). And it examined Cronbach's *alpha* tests to measure the reliability of

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[15] In this study, two criteria for loading on a factor were (1) an Eigenvalue greater than 1.00; and (2) maximum loading of .40 on a secondary factor.

those modified measurements. Several new variables (e.g., mobile phone dependency) were created.

Questions #1-#20 were modified from the "PSS-Fr" (Procidano & Heller, 1983). After factor analysis of the scale, the result indicated three factors. They were labeled (1) "Friend Moral Support" and accounted for 36% of the total variance after rotation (Eigenvalue= 7.2); (2) "Friend Social Network" and accounted for 9% of the total variance after rotation (Eigenvalue= 1.8); and (3) "Friend Information Seeking" and accounted for 6.1% of the total variance after rotation (Eigenvalue= 1.2).

Test-retest reliability for these items resulted in three scales. The first 10-item "Friend Moral Support" scale was with Cronbach's *alpha* of 0.89. Three examples of the 10-item "Friend Moral Support" scale included: By use of the mobile phone, (1) "my friends come to me for emotional support;" (2) "I rely on my friends for emotional support;" and (3) "my friends give me the moral support I need." A new "Friend Moral Support" item was computed by the mean of these ten items for further analysis in this study. The other 6-item "Friend Social Network" scale was with Cronbach's *alpha* of 0.75. Three examples of the 6-item "Friend Social Network" scale included: By use of the mobile phone, (1) "I feel that I'm on the fringe in my circle of friends;" (2) "most other people are closer to their friends than I am;" and (3) "when I confide in friends, it makes me feel uncomfortable." A new "Friend Social Network" item was computed by the mean of these six items for further analysis. Finally, the 3-item "Friend Information Seeking" scale included: By use of the mobile phone, (1) "my friends get good ideas about how to do things or make things from me;" (2) "my friends seek me out for companionship;" and (3) "I think that my friends feel that I'm good at helping them solve

problems." To check the reliability of the measure, Cronbach's *alpha* was measured and

found to be reliable (0.77). A new "Friend Information Seeking" item was computed by

the mean of these three items for further analysis in this study (see Table 3).

Table 3
Mobile Phone PSS-Fr

	Factor		
	1	**2**	**3**
11. My friends come to me for emotional support.	.734		
5. I rely on my friends for emotional support.	.716		
10. My friends are sensitive to my personal needs.	.644		
1. My friends give me the moral support I need.	.628		
8. There is a friend I could go to if I were just feeling down, without feeling funny about it later.	.602		
9. My friends and I are very open about what we think about things.	.546		
12. My friends are good at helping me solve problems.	.513		-.310
4. Certain friends come to me when they have problems or need advice.	.479		-.284
3. My friends enjoy hearing about what I think.	.470		
13. I have a deep sharing relationship with a number of friends.	.422		
7. I feel that I'm on the fringe in my circle of friends.		.728	
2. Most other people are closer to their friends than I am.		.695	
15. When I confide in friends, it makes me feel uncomfortable.		.531	
18. I don't have a relationship with a friend that is as intimate as other people's relationships with friends.	-.231	.484	
20. I wish my friends were much different.		.416	
6. If I felt that one or more of my friends were upset with me, I'd just keep it to myself.		.396	
14. My friends get good ideas about how to do things or make things from me.			-.649
16. My friends seek me out for companionship.			-.579
17. I think that my friends feel that I'm good at helping them solve problems.	.223		-.572
19. I've recently gotten a good idea about how to do something from a friend.			-.488
Eigenvalue	7.2	1.8	1.2
Variance explained	36%	9%	6.1%

Questions #21-#40 were modified from the "PSS-Fa" (Procidano & Heller, 1983). After factor analysis of the scale, the result also indicated three factors. They were labeled (1) "Moral Support from Family" and accounted for 52.5% of the total variance after rotation (Eigenvalue= 10.5); (2) "Moral Support to Family" and accounted for 8.2% of the total variance after rotation (Eigenvalue= 1.6); and (3) "Family Intimacy Relationship" and accounted for 5.1% of the total variance after rotation (Eigenvalue= 1). Test-retest reliability for these items resulted in three scales. The first 6-item "Moral Support from Family" scale was with Cronbach's *alpha* of 0.9. Three examples of the 6-item "Moral Support from Family" scale included: By use of the mobile phone, (1) "I get good ideas about how to do things or make things from my family;" (2) "my family gives me the moral support I need;" and (3) "my family enjoys hearing about what I think." A new "Moral Support from Family" item was computed by mean of these six items for further analysis in this study. The other 6-item "Moral Support to Family" scale was also with Cronbach's *alpha* of 0.9. Three examples of the 6-item "Moral Support to Family" scale included: By use of the mobile phone, (1) "members of my family come to me for emotional support;" (2) "certain members of my family come to me when they have problems or need advice;" and (3) "I think that my family feels that I'm good at helping them solve problems." A new "Moral Support to Family" item was computed by the mean of these six items for further analysis. Finally, three examples of the 6-item "Family Intimacy Relationship" scale included: By use of the mobile phone, (1) "most other people are closer to their family than I am;" (2) "when I confide in members of my family, it makes me uncomfortable;" and (3) "I don't have a relationship with a member of my family that is as close as other people's relationship with family members." To

check the reliability of the measure, Cronbach's *alpha* was measured and found to be

reliable (0.86). A new "Family Intimacy Relationship" item was computed by the mean

of these six items for further analysis in this study (see Table 4).

Table 4
Mobile Phone PSS-Fa

	Factor		
	1	**2**	**3**
22. I get good ideas about how to do things or make things from my family.	.846		
21. My family gives me the moral support I need.	.670		-.232
25. My family enjoys hearing about what I think.	.494		
33. Members of my family are good at helping me solve problems.	.481	.285	-.205
31. My family is sensitive to my personal needs.	.464		-.272
26. Members of my family share many of my interests.	.441	.308	
32. Members of my family come to me for emotional support.		.879	
27. Certain members of my family come to me when they have problems or need advice.		.871	
38. I think that my family feels that I'm good at helping them solve problems.	.214	.663	
35. Members of my family get good ideas about how to do things or make things from me.	.255	.608	
37. Members of my family seek me out for companionship.		.589	
34. I have a deep sharing relationship with a number of members of my family.		.477	-.359
30. My family and I are very open about what we think about things.	.280	.332	-.316
23. Most other people are closer to their family than I am.			.768
36. When I confide in members of my family, it makes me uncomfortable.			.730
39. I don't have a relationship with a member of my family that is as close as other people's relationship with family members.			.720
40. I wish my family were much different.	-.223		.596
24. When I confide in the members of my family who are close to me, I get the idea that it makes them uncomfortable.			.555
29. There is a member of my family I could go to if I were just feeling down, without feeling funny about it later.		.350	-.448
28. I rely on my family for emotional support.	.303	.260	-.391
Eigenvalue	10.5	1.6	1
Variance explained	52.5%	8.2%	5.1%

Questions #41-#45 were modified from the "Television Affinity Scale" (Rubin, 1981). After factor analysis of the scale, the result indicated a single factor. It was labeled "Mobile Phone Dependency" and accounted for 71.1% of the total variance after rotation (Eigenvalue= 3.56). The 5-item "Mobile Phone Dependency" scale included: (1) "using the mobile phone is very important in my life;" (2) "if my mobile phone wasn't working, I would really miss it;" (3) "I could easily do without the mobile phone for several day;" (4) "using the mobile phone is one of the more important things I do each day;" and (5) "I would feel lost without the mobile phone to use." The item "I could easily do without the mobile phone for several days" was reverse-coded for data analysis (Perse, 2004). To check the reliability of the measure, Cronbach's *alpha* was measured and found to be reliable (0.89). A new "Mobile Phone Dependency" item was computed by the mean of these five items for further analysis in this study (see Table 5).

Table 5
Mobile Phone Dependency

	Factor 1
43. Using the mobile phone is very important in my life.	.918
42. If my mobile phone wasn't working, I would really miss it.	.851
44. I could easily do without the mobile phone for several days. (revised)	.764
41. Using the mobile phone is one of the more important things I do each day.	.750
45. I would feel lost without the mobile phone to use.	.710
Eigenvalue	3.56
Variance explained	71.1%

Questions #46-#73 were modified from the "Interpersonal Communication Motives" Scale (Rubin et al., 1988) to examine the motives participants had for communicating with family through the use of the mobile phone. After factor analysis of the scale, the result indicated six factors. They were labeled "Relaxation-Fa" (i.e., Factor

#1), "Pleasure-Fa" (i.e., Factor #2), "Control-Fa" (i.e., Factor #3), "Affection-Fa" (i.e.,

Factor #4), "Escape-Fa" (i.e., Factor #5), and "Inclusion-Fa" (i.e., Factor #6).

"Relaxation-Fa" accounted for 50.4% of the total variance after rotation

(Eigenvalue= 14.1). "Because it's pleasant rest" and "because it relaxes me" by use of

the mobile phone to contact family were two examples of the 4-item "Relaxation-Fa"

scale. To check the reliability of the measure, Cronbach's *alpha* was measured and found

to be reliable (0.96). A new "Relaxation-Fa" item was computed by the mean of these

four items for further analysis in this study.

"Pleasure-Fa" accounted for 8.9% of the total variance after rotation (Eigenvalue=

2.5). "Because it's exciting" and "because it's thrilling" by use of the mobile phone to

talk to family were two examples of the 8-item "Pleasure-Fa" scale. To check the

reliability of the measure, Cronbach's *alpha* was measured and found to be reliable

(0.96). A new "Pleasure-Fa" item was computed by the mean of these eight items for

further analysis.

"Control-Fa" accounted for 7.5% of the total variance after rotation (Eigenvalue=

2.1). The 3-item "Control-Fa" scale included: I talked to my family by the mobile phone;

(1) "to get something I don't have;" (2) "to tell others what to do;" and (3) "because I

want someone to do something for me." To check the reliability of the measure,

Cronbach's *alpha* was measured and found to be reliable (0.85). A new "Control-Fa"

item was computed by the mean of these three items for further analysis in this study.

"Affection-Fa" accounted for 6.1% of the total variance after rotation

(Eigenvalue= 1.7). "To thank them" and "to show others encouragement" by use of the

mobile phone to contact family were two examples of the 5-item "Affection-Fa" scale.

To check the reliability of the measure, Cronbach's *alpha* was measured and found to be reliable (0.9). A new "Affection-Fa" item was computed by the mean of these five items for further analysis in this study.

"Escape-Fa" accounted for 3.9% of the total variance after rotation (Eigenvalue= 1.1). "To put off something I should be doing" and "to get away from what I am doing" by use of the mobile phone to connect with family were two examples of the 4-item "Escape-Fa" scale. To check the reliability of the measure, Cronbach's *alpha* was measured and found to be reliable (0.9). A new "Escape-Fa" item was computed by the mean of these four items for further analysis.

Finally, "Inclusion-Fa" accounted for 3.3% of the total variance after rotation (Eigenvalue= 0.9). "Because it's reassuring to know someone is there" and "because I need someone to talk to or be with" by use of the mobile phone to talk to family were two examples of the 4-item "Inclusion-Fa" scale. To check the reliability of the measure, Cronbach's *alpha* was measured and found to be reliable (0.93). A new "Inclusion-Fa" item was computed by the mean of these four items for further analysis in this study (see Table 6).

Table 6
I Talk to My Family by the Mobile Phone

	Factor					
	1	**2**	**3**	**4**	**5**	**6**
69. Because it's pleasant rest	.888					
67. Because it relaxes me	.879					
68. Because it allows me to unwind	.876					
70. Because it makes me feel less tense	.866					
47. Because it's exciting		-.934				
49. Because it's thrilling		-.922				
50. Because it's stimulating		-.874				
48. To have a good time		-.849				
46. Because it's fun		-.826				
51. Because it's entertaining		-.702				
53. Because it peps me up	.230	-.468				
52. Because I enjoy it		-.458		.269		
73. To get something I don't have			.816			
72. To tell others what to do			.801			
71. Because I want someone to do something for me			.757			
56. To thank them				.848		
57. To show others encouragement				.774		
55. To let others know I care about their feelings				.725		
58. Because I'm concerned about them				.581		-.295
54. To help others		-.223		.567		
63. To put off something I should be doing					-.882	
64. To get away from what I am doing					-.860	
65. Because I have nothing better to do					-.654	
66. To get away from pressures and responsibilities	.298				-.515	
62. Because it' reassuring to know someone is there						-.829
59. Because I need someone to talk to or be with						-.808
60. Because I just need to talk about my problems sometimes						-.780
61. Because it makes me feel less lonely						-.767
Eigenvalue	14.1	2.5	2.1	1.7	1.1	0.9
Variance explained	50.4%	8.9%	7.5%	6.1%	3.9%	3.3%

Questions #74-#101 were also modified from the "Interpersonal Communication Motives" Scale (Rubin et al., 1988) to examine the motives participants had for communicating with friends by use of the mobile phone. After factor analysis of the scale, the result also indicated six factors. They were labeled "Affection-Fr," "Control-Fr," "Pleasure-Fr," "Escape-Fr," "Relaxation-Fr," and "Inclusion-Fr."

"Affection-Fr" accounted for 53.2% of the total variance after rotation (Eigenvalue= 14.9). "To show others encouragement" and "to help others" by use of the mobile phone to contact friends were two examples of the 5-item "Affection-Fr" scale. To check the reliability of the measure, Cronbach's *alpha* was measured and found to be reliable (0.94). A new "Affection-Fr" item was computed by the mean of these five items for further analysis.

"Control-Fr" accounted for 9% of the total variance after rotation (Eigenvalue= 2.5). The 3-item "Control-Fr" scale included: I talked to my friends by the mobile phone (1) "to tell others what to do" (2) "to get something I don't have;" and (3) "because I want someone to do something for me." To check the reliability of the measure, Cronbach's *alpha* was measured and found to be reliable (0.91). A new "Control-Fr" item was computed by the mean of these three items for further analysis in this study.

"Pleasure-Fr" accounted for 7.7% of the total variance after rotation (Eigenvalue= 2.1). "Because it's exciting" and "because it's thrilling" by use of the mobile phone to talk to friends were two examples of the 8-item "Pleasure-Fr" scale. To check the reliability of the measure, Cronbach's *alpha* was measured and found to be reliable (0.95). A new "Pleasure-Fr" item was computed by the mean of these eight items for further analysis in this study.

"Escape-Fr" accounted for 6.2% of the total variance after rotation (Eigenvalue= 1.7). "To get away from what I am doing" and "to put off something I should be doing" by use of the mobile phone to connect with friends were two examples of the 4-item "Escape-Fr" scale. To check the reliability of the measure, Cronbach's *alpha* was measured and found to be reliable (0.93). A new "Escape-Fr" item was computed by the mean of these four items for further analysis in this study.

"Relaxation-Fr" accounted for 3.8% of the total variance after rotation (Eigenvalue= 1.1). "Because it allows me to unwind" and "because it's pleasant rest" by use of the mobile phone to contact friends were two examples of the 4-item "Relaxation-Fr" scale. To check the reliability of the measure, Cronbach's *alpha* was measured and found to be reliable (0.97). A new "Relaxation-Fr" item was computed by the mean of these four items for further analysis in this study.

Finally, "Inclusion-Fr" accounted for 3.1% of the total variance after rotation (Eigenvalue= 0.9). "Because it makes me feel less lonely" and "because it's reassuring to know someone is there" by use of the mobile phone to talk to family were two examples of the 4-item "Inclusion-Fr" scale. To check the reliability of the measure, Cronbach's *alpha* was measured and found to be reliable (0.94). A new "Inclusion-Fr" item was computed by the mean of these four items for further analysis in this study (see Table 7).

Table 7
I Talk to My Friends by the Mobile Phone

	Factor					
	1	**2**	**3**	**4**	**5**	**6**
85. To show others encouragement	.802					
82. To help others	.800					
84. To thank them	.776					
86. Because I'm concerned about them	.728					
83. To let others know I care about their feelings	.726					
100. To tell others what to do		.882				
101. To get something I don't have		.881				
99. Because I want someone to do something for me		.755				
75. Because it's exciting			-.894			
77. Because it's thrilling			-.875			
78. Because it's stimulating			-.818			
76. To have a good time			-.761			
74. Because it's fun	.228		-.715			
79. Because it's entertaining	.327		-.518	-.316		
81. Because it peps me up	.343		-.402			
80. Because I enjoy it	.376		-.391	-.294		
92. To get away from what I am doing				-.828		
91. To put off something I should be doing				-.806		
93. Because I have nothing better to do				-.722		
94. To get away from pressures and responsibilities				-.512	-.252	
96. Because it allows me to unwind					-.966	
97. Because it's pleasant rest					-.963	
98. Because it makes me feel less tense					-.874	
95. Because it relaxes me					-.824	
89. Because it makes me feel less lonely						.699
90. Because it's reassuring to know someone is there						.645
88. Because I just need to talk about my problems sometimes	.232					.617
87. Because I need someone to talk to or be with	.308					.598
Eigenvalue	14.9	2.5	2.1	1.7	1.1	0.9
Variance explained	53.2%	9.0%	7.7%	6.2%	3.8%	3.1%

Data Analysis

In order to answer research questions, this study first defined dependent and independent variables. Mobile Phone Dependency was the major dependent variable in this study, whereas several mobile phone use motives (e.g., Friend Moral Support, Moral Support from Family, Pleasure-Fa, Pleasure-Fr) were keys independent variables. In addition, variables from Hoffman's (1984) PSI were also used as independent variables. Participants were asked (1) functional independence questions included "My mother's/father's/college friends' wishes have influenced my selection of friends" and "I ask for my mother's/father's/college friends' advice when I am planning my vacation time" regarding; (2) emotional independence questions included "After being with my mother/father/college friends for a vacation I find it hard to leave her/him/them;" and "I sometimes call my mother/father/college friends just to hear her/him/their voice;" (3) conflictual independence questions included "When I don't contact my mother/father/college friends often enough I feel guilty;" and "I feel like I am constantly at war with my mother/father/college friends;" and (4) attitudinal independence included "My beliefs regarding how to raise children are similar to my mother's/father's/college friends';" and "My attitudes regarding national defense are similar to my mother's/father's/college friends'."

Pearson correlation analysis was performed to test relationships among variables, such as mobile phone dependency, social supports by the mobile phone, psychological separation. An independent T-test was computed to assess differences between genders and a self-reported mobile dependency scale. ANOVA was conducted to test other

hypotheses. Finally, regression was applied to see if mobile phone dependency was comprised of motives.

In-depth Interview

Several in-depth interviews were conducted to explore opinions and experiences in more depth (Morgan, 2003) in college students' use of the mobile phone to socialize in their daily life. Eight in-depth interviews were conducted in late December of 2006 at the university. Morgan (2003) commented that researchers often combined the focus group and the in-depth interview together. Crabtree, Yanoshik, Miller, and O'Connor (1993) argued that the focus group and the in-depth interview were very similar and sometimes can equally answer certain types of research questions in many ways. A main difference between the in-depth interview and the focus group was that the in-depth interview provided the greater depth of research findings, whereas the focus group aimed for breadth of research findings. Crabtree et al. (1993) pointed out that interviewers in the in-depth interview seek "rapport, creating empathy, privacy, and intimacy, as a way to gather data" (p. 143). Interviewers in the in-depth interview tried to set an agenda and participants select to tell stories that provided insights into that agenda. In this study, in-depth interviews were used to enhance the findings from both the focus groups and the survey.

Participants

The population of the in-depth interviews was composed of mobile phone users who contacted their family members via the mobile phone. Similar to the focus groups in this study, the in-depth interviews also used the theoretical construct sampling technique

(Lindlof & Taylor, 2002). A primary purpose of conducting those in-depth interviews was to understand the research topic in depth. Therefore, students who had contacted family by the mobile phone were recruited in this stage. These in-depth interviews recruited participants through the posting of flyers as well as sending out information through e-mail lists. Because the flyers and e-mail did not gather enough participants, a snow sampling method was also used to find more participants. Biernacki and Waldorf (1981) argued that the snow sampling "yields a study sample through referrals made among people who share or know of others who possess some characteristics that are of research interest" (p. 141). It was a method of studying social networks, subcultures or dispersed groups of people who shared certain practices or attributes (Lindlof & Taylor, 2002). After each in-depth interview had been completed, the interviewer asked participants to refer other students who contacted their family members via the mobile phone. Five female students and three male students from the university participated in these in-depth interviews (see Table 8).

Table 8
In-depth Interview Participants

Participant	Major	Year	Gender	Age
Participant #1	Communication	Senior	Female	20-21
Participant #2	Communication (Public Relations)	Junior	Female	20-21
Participant #3	Communication& Psychology	Junior	Female	20-21
Participant #4	Public Health	Senior	Female	20-21
Participant #5	Biology	Senior	Male	20-21
Participant #6	Pharmacy	Senior	Male	20-21
Participant #7	Criminal Justice	Senior	Female	20-21
Participant #8	Finance	Sophomore	Male	18-19

Interview Questions

Each participant was asked to bring his/her own last month's mobile phone bill along with his/her mobile phone together to the interview. Before they participated in the these in-depth interviews, participants were asked to erase or to cover up any personal information, such as name, address or any information that could identify the mobile phone bill to the participants. Studying mobile phone bills aimed to understand participants' mobile phone use patterns, such as when they made calls; who they communicated with on the mobile phone; and the duration of calls. For mobile phone incoming and outgoing call records, participants were asked to discuss the most current 10 incoming and 10 outgoing calls with the interviewer. This part of the data tried to study the quality of mobile conversations.

A simple in-depth interview question list was developed from the focus groups and the survey findings. The in-depth interview questions aimed to have depth and understanding of students' mobile phone conversations with their mothers, fathers and friends. In addition, those questions investigated students' attitudes and behaviors toward their mobile phone calls from mothers, fathers and friends. A complete list of the in-depth interview questions appears in Appendix C 2.1 and Appendix C 2.2.

Procedure

Participants in those in-depth interviews were asked to provide their last month's mobile phone bills for further analysis. For each interview, the participant was first asked by an interviewer to highlight each call to mother (in pink highlighter), father (in blue highlighter), friends (in yellow highlighter), others (in green highlighter), and voice mail (in orange highlight) on the last month's mobile phone bill. In addition, any call to other

family members, such as siblings or relatives, was also identified on mobile phone bills.

A simple SPSS data spread sheet was created from these mobile phone bills. The SPSS

sheet recorded the participant's ID number (e.g., Participant #1, #2…, and #8), the hour

to make/receive a call (i.e., 0:00-23:00), mobile phone rate (i.e., peak time= 1, off-peak

time= 2), to whom the call contacted (i.e., 1= mother, 2= father, 3= friends, 4= other

family members, 5= others, 6= voice mail), duration of the call, and gender (i.e., 1=

female, 2= male). The results yielded 2,966 valid mobile phone calls to be analyzed.

During the interview processes, the interviewer took notes on both verbal and non-verbal

cues. Each interview was also tape-recorded for further analysis.

Second, these in-depth interviews asked each participant to discuss his/her most

current 10 incoming and 10 outgoing mobile phone calls with the interviewer. Each

participant was questioned regarding his or her experiences, locations, and time use for

each incoming and outgoing call. All participants discussed their mobile phone calls with

the interviewer but one. Participant #7 damaged her mobile phone a day before the

interview. She got a new mobile phone right before the interview. The interviewer tried

asking her to recall her most current mobile phone calls. However, she could not

remember the calls. Therefore, data from her incoming and outgoing mobile phone calls

was missing.

The interviews were mainly focused on those participants' use of the mobile

phone, indicating where, when and with whom they communicated; and the reason for

entering into the conversation. A simple coding sheet (i.e., The incoming and outgoing

mobile phone calls coding sheet) (see Appendix C.1) was designed for the interviewer to

write down main points during the interviews. Seven participants discussed their most

current 10 incoming and 10 outgoing mobile phone calls with the interviewer. Participant #2 accidentally deleted one of the outgoing calls while doing the interview because she hit the delete button. The results yielded 70 valid mobile phone incoming calls and 69 mobile phone outgoing calls to be analyzed. This part of the data aimed to understand mobile phone conversations.

Finally, the in-depth interview questions (see Appendix C 2.1 and Appendix C 2.2) were asked at the end. These questions used the Interview Schedule Technique (Gorden, 1987) because these in-depth interviews aimed to enhance the focus group and the survey findings. Lindlof ad Taylor (2002) commented that some researchers used the Interview Schedule to increase research reliability and credibility. In-depth interviews were stopped at eight participants because there was no new finding. Each in-depth interview session lasted 1 to 1.5 hours. The interview time differences were mainly because each participant spent different amount of time identifying their mobile phone calls on the mobile phone bill.

Data Analysis

As soon as the in-depth interviews were completed, the researcher used the same data analysis technique that was used with the focus groups to analyze qualitative data from the tapes. In addition, some central tendencies, such as mean and mode, were compared to examine mobile phone use pattern. Range was used to report the distance between the highest and lowest mobile phone use pattern in the data. Cross-tabulation was utilized as an exploratory data analysis technique to examine any trend among variables in data. In this study, cross-tabulation was used to analyze data to compare mobile phone use patterns among variables.

CHAPTER 5

Qualitative Data Findings

For many participants in this study, the mobile phone was identified as the most important ICT to keep in touch with parents. With the mobile phone, several participants (e.g., Participants from Focus Group #2, #3, Participant #8) reported that they kept a great relationship with family while they were away from home. A male participant from Focus Group # 3 said, "the mobile phone was 'a must' for connecting with [his] parents." Many of the participants in the same group agreed with the statement. In the Focus Group #1 and #2, participants also mentioned that the mobile phone was the major ICT to contact their parents. A female participant from Focus Group #2 said that she did not have a landline phone at her apartment and the mobile phone "brings family together." In the same group, the other female participant commented that the mobile phone let her parents participate in her [college] life.

In in-depth interviews, most of the participants (i.e., Participant #1, #2, #3, #4, #5, #6, and #8) said that they did not have fixed phones at their apartments and all of them mentioned that the mobile phone was easy to access and some of them pointed that their parents did not have computer skills (i.e., Participant #4, #5, #6, #7); therefore, all of them agreed that the mobile phone was the primary ICT for them to contact their parents.

The mobile phone was also the most important ICT for contact with close friends (e.g., Participant #1, #2, #3, #4, #6, #7, #8) and the other important family members other than parents (e.g., Participant #5, #6, #7, #8). Some of the participants from both focus groups and in-depth interviews reported that they used Instant Messenger (IM) and text messaging to get in touch with their siblings and friends. If there was a difficulty in using

the mobile phone (e.g., parents live/travel overseas, parents do not like to carry the mobile phone), participants from Focus Group #2 and #3 said that they used other ICTs (e.g., the landline phone, IM, e-mail) to contact their parents. One of the female participants from Focus Group #2 used the Yahoo Voice phone to contact her father who resided overseas.

In terms of mobile phone conversational content, some of the participants called their parents for "everything" (e.g., participants from Focus Group #3, Participant #2, #3, #4). Some of them (e.g., a male and a female participant from Focus Group #1, two female participants from Focus Group #2, Participant #5, #8) called their parents to ask for help or advice. Participants reported that they called their parents when they had something to complain about (e.g., a female participants from Focus Group #3) or something interesting to share with their mothers (a female participant from Focus Group #3) or fathers (Participants #3 and #4). Others called their parents to keep in touch (e.g., a male participant from Focus Group #2, Participant #7). Or, the participants reported that they were "still alive" (e.g., a female participant from Focus Group #1, a male and a female participants from Focus Group #2, a female participant from Focus Group #3) via the mobile phone to their parents.

The participants in this study reported keeping the mobile phone on all of the time for their family and friends to reach them. All participants of the in-depth interviews reported that they did not ignore people's phone calls, especially from their family, unless they were at some special location or in a special situations which make taking a mobile phone call difficult or inappropriate (e.g., Participant #2, #4, #7) or a few special people

who always asked favors of them (e.g., Participant #5, #6, #7). In the first case, the

participants returned the phone calls at the earnest opportunity.

Communication with family members was in many of the female participants'

and a few male participants' daily routine. Many female participants from focus groups

and four out of five female participants from in-depth interviews said that they call home

at least once a day. Although Participant #7 did not call her mother every day, she

reported to call her sister several times a day to chat or ask advice. Participant #8, the

youngest male participant among the in-depth interviews, reported calling home every

day. He said, "I am trying to call home every day… because I want to." Some of the

female participants from focus group interviews reported that they contact their family

3~4 times a day (e.g., female participants from Focus Group #1 and #2). From

discussions, parents, especially mothers, seemed to be the most frequent contact family

member for these participants.

Many of the female participants reported calling their parents more than once a

day. The mobile phone seemed to be the primary ICT for those college participants to

"get news," "ask advice," and "receive support" from home or "exchange information"

with family members. Some of the male participants called their family members and

received calls from their family members on a weekly basis. A few of them made more

mobile phone calls. For example, a male participant from Focus Group #1 said that he

called home 2 or 3 times a week. However, male participants (e.g., a male participant

from Focus Group #2) made sure that they were always available for their family

"emergency" mobile phone calls. Participant #5 and #6 reported that they called their

parents "whenever necessary." And, they did not ignore their parents' calls (Participant

#5, #6, #8). Participant #5 reported that he enjoyed talking to his mother on the mobile

phone. Participant #8 said that he tried to contact his parents every day and call

grandparents 3 or 4 times a week.

Several major themes in mobile phone use between family members and

participants emerged from the interviews. Participants in this study used the mobile

phone to have frequent contact with their family and fulfill family roles although they and

their family were not physically present in the same locations. They also utilized the

mobile phone to share experiences and to ask for help as well as to seek emotional

support from their parents. Each of the themes was discussed in detail as follows:

The Mobile Phone Provides Direct Contact with Family

Most of the participants reported that they used the mobile phone to have a direct

contact with their fathers or mothers. One female participant from Focus Group # 3 said,

[with the mobile phone], "I don't have to wait." Another male participant from Focus

Group #2 commented that the mobile phone was "so much better" to contact parents

because it was direct. Many of the participants in the same focus groups agreed with

them. Most of the participants from interviews (e.g., Participants from Focus Group #2,

#3, Participant #6, #8) reported that they called their parents no matter where they were

and what time it was. The male participant from the Focus Group #2 also reported that

"[with the mobile phone], I could talk to my dad without asking his secretary." A female

participant from Focus Group # 2 said, "My dad lives overseas… [I] call [his] cell

phone." Several female participants said that they talked to their parents "when I am

walking between classes" or "when I am on a bus" (e.g., Participants from Focus Group

#2, #3, Participant #8).

Participants in this study reported that they used IM, text messages, e-mail, and other ICTs to contact friends. The mobile phone conversations were for close friends and family members (Participant #2, #7). For general friends, those two female participants said that they used text messaging to make quick arrangements, such as making appointments, sending holiday greetings, or exchanging school/exam information. Participant #4 mentioned that she used IM and e-mail to discuss simple and short school issues and used the mobile phone for detailed discussions with her friends. Participants #6 and #8 commented that the mobile phone was the primary ICT for "everyone." They reported that they preferred using the mobile phone over IM or e-mail to communicate with others because they and their friends were "not always in front of the computer."

On the other hand, parents also called participants' mobile phones anytime and at anyplace. Participants reported receiving calls from their parents on buses, in classrooms, on streets, and at dorms (Participants from Focus Group #2). Most of the participants (e.g., many participants from focus groups, Participant #2, #3, #4, #7, #8) appreciated this "perpetual contact" by the mobile phone (Katz & Aakhus, 2002) with their parents, whereas a few of them (e.g., some participants from Focus Group #2) did not. A few parents expected participants to be always available on the mobile phone when they called. Therefore, they had family conflicts when participants did not answer or could not answer mobile phone calls right away (Participants from Focus Group #2). Participants reported their parents "call me just for fun," "yell at me for not calling [parents]," "yell at me for not picking up [her mother's] phone calls," or "call me at the wrong time"(Participants from Focus Group #2). A few female participants from the focus group said that their parents checked on them before weekends or at midnights on

the mobile phone to make sure they were in safe places. An Asian male participant from

Focus Group #2 and an Asian female participant from Focus Group #2 complained that

their parents called them in the early morning. The Asian male participant emphasized

that his parents often called at "six o'clock in the morning." The Asian female

participant also reported a similar situation.

> … [her parents] will call at 2 to 4 in the morning. Sometime, 4 or 5 times.
> So …[her parents] would try to call the cell phone to make sure I pick up
> the phone. She [mother] knows my full class schedule. After class, she
> calls me right away… from my dad. I have to avoid phone calls. I feel
> the phone is always controlling me. "What am I doing?" "When am I
> eating?" "Have I eaten yet?" and all that stuff (Focus Group #2, an Asian
> female participant).

On a positive note, many participants also reported that their parents allowed

them to visit friends away from home or school or do more things because of the mobile

phone (Participants from Focus Group #2). A female participant from Focus Group #3

commented that "the mobile phone is definitely making things better" because the mobile

phone eased her parents' anxiety a little bit while she was away from home. Several

other participants in the same group agreed.

> …it [the mobile phone] makes my mom relaxes a little bit. And, she could
> allow me to do more things (…). If I don't have the mobile phone, I
> probably cannot do many things. For example: going away to visit other
> colleges (Focus Group # 3, a female participant).

> My mom wants me to take my [cell] phone with me to travel with my
> boyfriend. She calls when I am at a platform and calls me when I arrive to
> make sure I am OK. My boyfriend and I go out a lot, my mom calls to
> make sure we are OK (Focus Group #3, a female participant).

Even male participants shared a similar viewpoint. A male participant from

Focus Group # 3 commented that "the cell phone is a must" for his relationship with his

mother. Participants from focus groups often stated that the mobile phone was positive for their parents, especially their mothers, enabling them "to feel better" when those participants were outside on their own.

Female Participants Seemed to Have More Frequent Contact Than Male Participants With Family by Use of the Mobile Phone

Interview findings showed that female participants called and received calls from their parents more frequently than male participants. Some female participants from both interviews reported that they had communicated with their parents almost everyday. Four out of five female participants contacted their parents every day. They reported that it was a kind of "agreement" between their parents and them to call home at least once a day. However, when asked if they felt that their parents "control" them by the mobile phone, they all said "no" and reported that they actually enjoyed talking to their parents on the mobile phone. The fifth one (i.e., Participant #7) contacted her sister "several times a day" for "everything." They reported, interestingly enough, that some female participants from the focus groups showed more desire to contact their parents than their parents wished to keep in touch with them. They wanted their parents to be available for their calls. A female participant from Focus Group # 3 said that her parents "only call me if they [her parents] need something from me. I usually call them. I call them randomly…." The other female participant commented from Focus Group # 3 that she and her brother "forced" their mother to learn how to use the text message because they would like to keep more in touch with their mother.

While previous research (e.g., Green, 2001; Ling, 2004; Talyor & Harper, 2003) on parental-child interaction, which has shown that children avoided parent's mobile

phone surveillance, a lot of participants in this study did not seem to be annoyed by their

parents' mobile phone calls. Some female participants from focus groups reported that

they would like to talk to their parents "a few times a day" on the mobile phone. One

female participant from Focus Group # 2 said that her mother called her all the time. In

average, it could be 3-4 times a day. A few female participants from focus groups called

their parents more than 3-4 times a day. Many other female participants also reported a

similar situation.

> I live in a dorm. So, I can't go back every day and talk to them [parents].
> With the cell phone, I could talk to them [parents] often (Focus Group # 2,
> a female participant).

Participants reported that they enjoyed calling and being called by their family.

One female participant from Focus Group #2 and another female participant from Focus

Group #3 reported that they did not mind talking to their family a few times a day on the

mobile phone because they had "a great relationship" with their families. Participants

from in-depth interviews showed the same intimate relationship with their parents

because of the mobile phone. Two female participants' in-depth interviews (i.e.,

Participant #3 and #4) revealed that they enjoyed receiving and making calls from their

fathers on the mobile phone. Participant #7 enjoyed receiving her sister and mother's

calls. Male participants also reported a better relationship with parents because of the

mobile phone. A male participant from Focus Group #3 reported that his relationship

with parents was not "so close" before college. But, his parents called him "when they

have concerns." He seemed to like to know his parents cared about him because he

reported his relationship with his parents "a little bit better now." Participant #5 said that

he enjoyed receiving his mother's calls. Participant #8 reported that he enjoyed receiving both parents' calls and enjoyed calling his parents.

Many female participants from focus groups often had contact with their parents to keep in touch on the mobile phone. A female participant from Focus Group # 2 said that her parents called her "randomly" to ask if she had fun or to see what she was doing. Another female participant from Focus Group # 2 commented that she often wanted to call her mother because she "just wants to call her [her mother] and say 'hi'." A few female participants from the focus groups reported that they called their mothers in between classes. Participant #8 also reported that he called his parents while he was on the way to the next class. Participants reported that they called their mothers on the campus streets, on the campus buses, or walking to the next class. Some male participants from focus groups also appreciated having the mobile phone. They commented that the mobile phone allowed their mothers and them to reach each other "easily" (Male participants from Focus Group #2, #3).

On the other hand, male participants from focus groups reported calling their parents to keep in touch or to have limited contact. Most of them agreed to keep their parents in contact with them on a weekly basis. A few of them communicated with their parents more (e.g., Participant from Focus Group #1, Participant #8). It did not matter whether their parents called them or they called their parents. However, if their parents had concerns, such as emergencies, male participants were not annoyed with their parents' calls at any time (e.g., Male participants from Focus Group #2, #3, Participant #5, #6, #8).

> I call them [parents] once a week; just, you know, to keep in touch What's
> going on like that, other than that, just like emergency (…)" (Focus Group
> #2, a male participant).

Sharing Experiences

Participants from interviews (e.g., participants from Focus Group #3, Participant #3, #4, #6, #7, #8) reported that their parents called them for "everything" on the mobile phone. A few female participants from the focus groups reported that they and their parents called each other about what they had seen at the school or on the streets. A female participant from Focus Group # 3 reported that she often "called" and sometimes "texted" her mother when she saw something new on campus. Some of the participants (e.g., participants from Focus Group #2, #3, Participant #1, #2, #3, #4, #8) reported that they called their parents, especially mothers, to explain everything they have experienced in their daily life on the mobile phone. Participants and their parents talked about many things, such as classes, friends, news, or something fun they have seen on campus. Participant #3 reported that she and her father discussed "everything," such as classes, cooking, and how to do things. Participant #4 said that she had fun talking to her father on the mobile phone. Participants from interviews reported that their parents also shared what they had experienced in their daily life with them. A female participant from Focus Group # 3 said that her mother and her were "just like friends" since they shared everything and also "checked on each other" by use of the mobile phone. Many of the participants also shared the same view:

> With my mom, I usually talk to her every day. She calls me to talk about
> everything. If she is busy, she just calls to say "hi" (Focus Group # 3, a
> female participant).

Asking for Help from Each Other

Participants in focus groups, especially female participants, reported that they called their parents while they were walking alone on streets late at night or while they were taking a taxi alone. A female participant's father talked to her on the mobile phone while she had to walk alone on streets at nights. Her and her father continued talking until she arrived at her apartment (Focus Group # 1). The other female participant from Focus Group #2 reported that she called her father while she was taking a taxi.

> I call dad to tell the taxi driver's license plate, and say 'I will get back home by 20 minutes. Call me, OK'. So the taxi driver will know that I am in the taxi. And someone [her father] knows the license plate number" (Focus Group #2, a female participant).

Many of the participants from the interviews reported that they asked their parents to buy something for them if they know that their parents were at shops. Participant #4 from an in-depth interview reported that she called her mother to buy some stuff from a supermarket because she knew that her mother was grocery shopping and the participant was planning to go home for the weekend. On the other hand, participants' parents also contacted participants by the mobile phone to ask for help, such as filling out forms (e.g., Participant #4, #6, #7), and picking something up on the way home (e.g., Participant #5).

Most interesting, in several in-depth interviews, most participants (e.g., Participant #1, #2, #3, #4, #5, #6, #8) reported that they often called their parents for advice regarding how to do things in daily life or how to decide which major to study because "they [parents] have more knowledge" (Participant #8). For example, on the interview day, Participant #5 had his first car accident. He first called his mother on his mobile phone to ask for help.

Sometimes, participants depended on the mobile phone to receive help from family although they denied the importance of the mobile phone. In Focus Group #3, a female participant reported that she was sick during the day when the interview was conducted. She used her mobile phone to call her parents and asked them to deliver medication to her. She commented that, "It [the mobile phone] is convenient." Although she disagreed that her college life would be different without the mobile phone, she seemed to depend on the mobile phone to receive "convenient" help from her parents.

Fulfilling Family Roles

Male participants reported that they called their mothers on the mobile phone to make their mothers happy. One male participant from Focus Group #3 reported that he called his mother once a week to "keep her happy." He said, "Because I take my time to call her." Four out of five female participants from the in-depth interviews commented that they called their mothers at least once a day because of a "kind of agreement" between their mothers and themselves.

Some participants appreciated receiving their parents' calls because they felt that it was "nice to know they [parents] care" (Focus Group #1, a male participant). A few participants commented that their relationships with parents had changed in a positive way because of the mobile phone (Focus Group #3). A few participants from Focus Group #3 reported that their relationships with family were better in college than in high school. A male participant from Focus Group #3 said that his parents call him "when they have concerns" about him. The other male participant from Focus Group #3 reported that he talked to his parents more now than when he was in high school. A

female participant from Focus Group #3 also reported that her relationship with her

parents has been improved because of the mobile phone.

> When I was at high school, I wasn't close to my parents. When I went to
> college, separation brought us together. I talk to my parents [on the
> mobile phone] about everything (Focus Group #3, a female participant).

Depending on Parents for Emotional Support

A few female participants in the interviews commented that they called their

parents on the mobile phone when they were in negative moods. A female participant

commented as followed:

> I call my parents to complain about everything (…) with the mobile
> phone. It [the mobile phone] gives me more opportunity to that (…)
> because they are my parents, they would not ignore me. They are going to
> listen. If I don't have it [the mobile phone], I have to go home (Focus
> Group #3, a female participant).

Besides their family relationships, participants also reported that the mobile phone

was an important technology for them to contact their friends in these interviews. Some

of the participants, especially male participants (e.g., a male participant from Focus

Group #2), commented that friends' networking connected by the mobile phone was

more important than their family networking.

> I call them [parents] every now and them. I only call them on purpose. So
> they can know I am still alive. Other then that, I mostly call my friends
> and girlfriend" (Focus Group #2, a male participant).

The Mobile Phone is also an Important ICT to Contact Friends

Participants from the focus groups mentioned that they used many different ICTs,

such as e-mail, IM, and MSN, to contact their friends. Findings from in-depth interviews

showed that the mobile phone was an important ICT to contact friends. It was identified

as "used more frequently than MSN or e-mail" because it could solve complex problems

(Participant #4) and "not every friend is in front of the computer" (Participant #8). Most of the conversations with friends were school related, such as exams, class assignments, group reports (Participant #1, #4, #5, #6, #7, #8), activity arrangements (Participant #6, #8), chatting or catching up (Participant #1, #2, #3, #8). For close friends, Participant #2 and #4 reported that they talked about "everything." For other friends in general, Participant #2 and #7 reported that they preferred to use text messages to make quick arrangements or send quick notes. "I don't need to spend time to talk with them" (Participant #7).

Most of them enjoyed talking to their friends on the mobile phone. Male participants seemed to make shorter phone conversations than females. All but two participants reported that they answered all their friends' mobile phone calls if they could. Participant #6 reported that he had to ignore some friends' calls because they "like to get quick answers" on their school assignments from him. Participant #7 said that she sometimes ignored her girlfriends' mobile phone calls if she knew that her friends called her to "complained about their boyfriends' issues."

Summary

The mobile phone became the major ICT for college participants in this study to communicate with their parents. These interviews showed patterns that participants depended on the mobile phone to maintain contact with their parents, to ask for help from parents, to receive emotional and physical support from parents, to share experiences with parents and to fulfill their family roles.

CHAPTER 6

Quantitative Data Findings

Findings from Survey

The Mobile Phone was the Most Frequently Used ICT to Connect With People and

Ranked as the Second ICT to Get Information

The mobile phone was identified as the most frequently used ICT to communicate

with mothers (i.e., 87.5%), fathers (i.e., 80.3%) and college friends (i.e., 59.8%) (see

Table 9). Some participants selected other modes of communication, such as face-to-face

communication, and the MySpace/on-line community to contact family and friends.

Several missing values were found from the system. Those missing values included

those participants that did not answer the question or that selected more than one ICT for

answer.

Table 9
Most Frequent Use ICT to Connect with People

	Mother		Father		Friends	
	N	%	N	%	N	%
Mobile phone	448	87.5%	403	80.3%	303	59.8%
Fixed phone	14	2.7%	13	2.6%	1	.2%
SMS/IM	6	1.2%	8	1.6%	164	32.3%
e-mail	23	4.5%	30	6.0%	18	3.6%
Others	21	4.1%	48	9.6%	21	4.1%
Missing System	2		12		7	

Seventeen point five percent of the participants reported that they used the mobile

phone to get information while they were at school. The Internet was ranked as the most

frequently used ICT (i.e., 67.2%) to get information, whereas the television was ranked

the third (i.e., 6.9%). Thirty-nine missing values were found from the system. Those

missing values occurred because some of them had not been answered and others were

answered more than one ICT (see Table 10).

Table 10
Source to Get Information

	N	%	Valid %	Cumulative %
Mobile phone	83	16.1%	17.5%	17.5%
Fixed phone	1	.2%	.2%	17.7%
SMS/IM	4	.8%	.8%	18.5%
e-mail	19	3.7%	4.0%	22.5%
Television	33	6.4%	6.9%	29.5%
Internet	319	62.1%	67.2%	96.6%
Radio	2	.4%	.4%	97.1%
Newspaper	10	1.9%	2.1%	99.2%
Books	1	.2%	.2%	99.4%
Others	3	.6%	.6%	100.0%
Total	475	92.4%	100.0%	
Missing System	39	7.6%		

Over 1/3 of the Participants Received More Help from Their Families Than Help from

Their Friends When They were at School

This study also asked each participant to identify a person who she or he most

frequently asked for help when the participant was at school. Participants reported that

friends (i.e., 64.3%) were the most frequently asked for help. "Others" (i.e., 7.6%)

included cousins, spouses, fiancés, and siblings. In addition to the other 28.2% (i.e.,

mother= 20%; father= 8.2%) of the participants reported that they asked help from

family. Results yielded 35.8% participants who asked for help from family when they

were at school. The missing values were either "no answer" or they selected more than

one person in this question (see Table 11).

Table 11
Ask for Help

	N	%	Valid %	Cumulative %
Mother	100	19.5%	20.0%	20.0%
Father	41	8.0%	8.2%	28.1%
College friends	322	62.6%	64.3%	92.4%
Others	38	7.4%	7.6%	100.0%
Total	501	97.5%	100.0%	
Missing System	13	2.5%		

Self-reported Mobile Phone Dependency Differed by Gender and Ethnicity

This study examined whether students' gender, age, years in college and ethnicity could make a difference in self-reported Mobile Phone Dependency. Data showed a statistically significant difference between gender and self-reported Mobile Phone Dependency ($t(507)= 6.7$, $p< 0.01$). Female participants ($M= 5.24$) indicated self-reported Mobile Phone Dependency more than male participants ($M= 4.32$). When one-way ANOVA was used to compare the difference between self-reported Mobile Phone Dependency and age ($F= 0.346$, $df= 4/503$, $p> 0.8$) and years in college ($F= 0.649$, $df= 3/506$, $p> 0.5$), there were no statistical significances. However, when ANOVA was used to compare the difference between self-reported Mobile Phone Dependency and ethnicity, there was a statistical significance to the sample ($F= 3.21$, $df= 4/494$, $p< 0.05$, *Eta Squared*= 0.025). A higher level of self-reported Mobile Phone Dependency was reported in African American ($M= 5.49$, $SD= 1.44$), Caucasian American ($M= 4.89$, $SD= 1.57$), followed by Hispanic American ($M= 4.85$, $SD= 1.48$), Other/Not American ($M= 4.87$, $SD= 1.68$), and Asian/Pacific Islander Americans ($M= 4.5$, $SD= 1.63$) (see Table 12).

Table 12

Difference Among Ethnicity Groups on self-reported Mobile Phone Dependency

Mobile Phone Dependency	Mean	SD	1	2	3	4	5
1. Caucasian American	4.89	1.57	--				
2. African American	5.49	1.44	NS	--			
3. Hispanic American	4.85	1.48	NS	NS	--		
4. Asian/Pacific Islander American	4.5	1.63	NS	*	NS	--	
5. Other/Not American	4.87	1.68	NS	NS	NS	NS	--

Note. *NS*= nonsignificant difference between pairs of means, while an asterisk (*)= significance using the Dunnett's *C* procedure.

Self-reported Mobile Phone Dependency and Communication Motives

Six motivations (i.e., Pleasure, Affection, Inclusion, Escape, Relaxation, and Control) were found in mobile phone use to communicate with family and friends. The computation of the correlation was computed between self-reported Mobile Phone Dependency (i.e., 1) and (2) Pleasure motive to family, (3) Pleasure motive to friends, (4) Affection motive to family, (5) Affection motive to friends, (6) Inclusion motive to family, (7) Inclusion motive to friends, (8) Escape motive to family, (9) Escape motive to friends, (10) Relaxation motive to family, (11) Relaxation motive to friends, (12) Control motive to family, and (13) Control motive to friends. In the variable of self-reported Mobile Phone Dependency, higher scores indicated a higher level of self-reported Mobile Phone Dependency. Self-reported Mobile Phone Dependency exhibited significant positive relationships with all 12 communication motives with family and friends. Self-reported Mobile Phone Dependency was positively correlated with Pleasure motive to family ($r= 0.3$, $p< 0.01$), Pleasure motive to friends($r= 0.43$, $p< 0.01$), Affection motive to family($r= 0.28$, $p< 0.01$), Affection motive to friends($r= 0.36$, $p< 0.01$), Inclusion motive to family($r= 0.33$, $p< 0.01$), Inclusion motive to friends($r= 0.42$, $p< 0.01$), Escape motive to family($r= 0.24$, $p< 0.01$), Escape motive to friends($r= 0.35$, $p< 0.01$),

Relaxation motive to family($r= 0.28$, $p< 0.01$), Relaxation motive to friends($r= 0.36$, $p< 0.01$), Control motive to family($r= 0.2$, $p< 0.01$), and Control motive to friends ($r= 0.13$, $p< 0.01$) (see Table 13).

Table 13
Pearson Correlations among Variables of Mobile Phone Use Motivations and Dependency

		1	2	3	4	5	6	7	8	9	10	11	12	13
	1. Dependency	--												
Pleasure	2. Family	.30**	--											
	3. Friends	.43**	.57**	--										
Affection	4. Family	.28**	.60**	.43**	--									
	5. Friends	.36**	.35**	.61**	.57**	--								
Inclusion	6. Family	.33**	.60**	.40**	.68**	.46**	--							
	7. Friends	.42**	.34**	.62**	.41**	.73**	.55**	--						
Escape	8. Family	.24**	.53**	.38**	.47**	.36**	.63**	.44**	--					
	9. Friends	.35**	.29**	.58**	.27**	.49**	.38**	.64**	.62**	--				
Relaxation	10. Family	.28**	.65**	.44**	.59**	.36**	.69**	.42**	.63**	.43**	--			
	11. Friends	.36**	.44**	.70**	.36**	.56**	.45**	.68**	.49**	.71**	.62**	--		
Control	12. Family	.20**	.26**	.27**	.29**	.31**	.34**	.36**	.42**	.40**	.29**	.33**	--	
	13. Friends	.13**	.19**	.28**	.21**	.31**	.19**	.32**	.30**	.44**	.19**	.38**	.62**	--

Note. The Person product-moment correlation coefficient ranges in values from -1 to 1. A positive value in this data suggests that there is a positive relationship between self-reported Mobile Phone Dependency and a communication motive through the uses of the mobile phone. Values closer to -1 or +1 indicate stronger linear relationships. Correlation coefficients of 0.13, 0.28, and 0.43, irrespective of sign, may be interpreted as small, medium and large coefficients, respectively (Cohen, Cohen, West, & Aiken, 2003) (see Appendix D).

To see whether the Pleasure motive to family was significantly different than Pleasure motive to friends, a two-tailed paired sample t-test was applied and the result, $t(513)= -19.63$, $p< 0.01$, indicated that the differences were statistically significant. Participants had less Pleasure motive to communicate with family ($M= 3.4$) than friends ($M= 4.65$). The same test examined the other pairs and found Affection motive, $t(513)= -4.88$, $p< 0.01$; $M= 4.89$ to family vs. $M= 5.16$ to friends, Inclusion motive, $t(513)= -4.22$, $p< 0.01$; $M= 4.59$ to family vs. $M= 4.89$ to friends, Escape motive, $t(512)= -8.91$, $p< 0.01$; $M= 3.87$ to family vs. $M= 4.45$ to friends, and Relaxation motive, $t(512)= -7.07$, $p< 0.01$; $M= 3.87$ to family vs. $M= 4.36$ to friends, were all significantly different between family and friends. Participants also had less Affection, Inclusion, Escape, and Relaxation motives to communicate with family than friends. Finally, there was a significant difference between Control motive to family and friends, $t(512)= 2.03$, $p< 0.05$. Participants had more Control motive to communicate with family ($M= 3.87$) than friends ($M= 3.75$).

Self-reported Mobile Phone Dependency and Social Support

Pearson correlation analysis indicated that self-reported Mobile Phone Dependency was positively correlated with Friend Moral Support ($r= 0.31$, $p< 0.01$), Friend Information Seeking ($r= 0.3$, $p< 0.01$), Moral Support from Family ($r= 0.14$, $p< 0.01$), and Moral Support to Family ($r= 0.14$, $p< 0.01$) but not positively related to Friend Social Network[16] ($r= -0.14$, $p< 0.01$) and Family Intimacy Relationship ($r= -0.76$, *NS*).

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[16] In the variable of Friend Social Network, higher scores indicated a lower level of Friend Social Network. Three examples of the 6-item "Friend Social Network" scale.

The results suggested that students who had more self-reported Mobile Phone

Dependency were more likely to (1) receive moral support from family and friends; (2)

provide moral support to family; (3) seek more information from friends; and (4) have a

better social network with friends. However, there was no statistically significant

relationship between self-reported Mobile Phone Dependency and Family Intimacy

Relationship in this data (see Table 14).

Table 14
Pearson Correlations Among Variables of Mobile Phone Dependency and Social Support

	1	2	3	4	5	6	7
1. Dependency	--						
2. FMS	.31**	--					
3. FSN	-.14**	-.51**	--				
4. FIS	.30**	.66**	-.40**	--			
5. MSFF	.14**	.32**	-.18**	.34**	--		
6. MSTF	.14**	.32**	-.15**	.35**	.74**	--	
7. FIR	-.076	-.21**	.28**	-.16**	-.71**	-.61**	--

Note. FMS= Friend Moral Support, FSN= Friend Social Network, FIS= Friend
Information Seeking, MSFF= Moral Support from Family, MSTF= Moral Support to
Family, and FIR= Family Intimacy Relationship
** Correlation is significant at the 0.01 level (2-tailed).
a Listwise *N*= 510

In this study, the research question asked whether communicating with family or

friends by the mobile phone was more useful in predicting participants' self-reported

Mobile Phone Dependency. Multiple linear regression using two unordered sets of

predictors was applied in both mobile phone communication motives from family vs.

friends and social supports from family vs. friends by mobile phone communication.

This study seeks to determine how well the criterion was predicted by each set of

predictors (i.e., mobile phone communication motives to family vs. friends, and social

support motives by the mobile phone from family vs. friends). In addition, this study

determined how well each set of variable predicts the criterion over and above the others set.

First at all, this study assessed whether mobile phone communication motives with family or friends was more useful in predicting participants' self-reported Mobile Phone Dependency. To evaluate how well the criterion was predicted by mobile phone communication motives to family and mobile phone communication motives to friends, this study selected six mobile phone communication motives to family (i.e., Pleasure motive to family, Affection motive to family, Inclusion motive to family, Escape motive to family, Relaxation motive to family, and Control motive to family) to be set 1, whereas the other six mobile phone communication motives to friends (i.e., Pleasure motive to friends, Affection motive to friends, Inclusion motive to friends, Escape motive to friends, Relaxation motive to friends, and Control motive to friends) to be set 2. The relationship between mobile phone communication motives to family and self-reported Mobile Phone Dependency was significant, R^2= 0.14, adjusted R^2= 0.13, $F(6, 504)$= 13.2, p< 0.01. Mobile phone communication motives to friends was predicted to be significantly over and above mobile phone communication motives to family, R^2 change= 0.1, $F(6, 498)$= 12.1, p< 0.01. Because the sets were unordered, this study also evaluated how well the criterion was predicted by mobile phone communication motives to friends (i.e., set 2) and how well the criterion was predicted by mobile phone communication motives to family (i.e., set 1) over and above mobile phone communication motives to friends. The results showed that mobile phone communication motives to friends was significant, R^2= 0.23, adjusted R^2= 0.22, $F(6, 504)$= 24.8, p< 0.01. Mobile phone communication motives to family did not predict

significantly over and above mobile phone communication motives to friends, R^2

change= 0.02, $F(6, 498)$= 1.93, p= 0.8.

Second, the same analysis was used to assess whether social support to family or

friends by use of the mobile phone was more useful in predicting participants' self-

reported Mobile Phone Dependency. To evaluate how well the criterion was predicted by

social support to family through the use of the mobile phone and social support to friends

by use of the mobile phone, this study selected three social supports by mobile phone

communication to family (i.e., Moral Support from Family, Moral Support to Family, and

Family Intimacy Relationship) to be set 1, whereas the other three social supports by

mobile phone communication to friends (i.e., Friend Moral Support, Friend Information

Seeking, and Friend Social Network) was designed as set 2. The relationship between

social support to family by use of the mobile phone and self-reported Mobile Phone

Dependency was significant, R^2= 0.03, adjusted R^2= 0.02, $F(3, 506)$= 4.27, p< 0.01.

Social support to friends by use of the mobile phone predicted significantly over and

above mobile phone communication motives to family, R^2 change= 0.1, $F(3, 503)$=

17.03, p< 0.01. Because the sets also were unordered, this study continued to evaluate

how well the criterion was predicted by social support to friends by use of the mobile

phone (i.e., set 2) and how well the criterion was predicted by mobile phone

communication motives to family (i.e., set 1) over and above social support to family by

use of the mobile phone. The results showed that Social support to friends by use of the

mobile phone was significant, R^2= 0.11, adjusted R^2= 0.11, $F(3, 506)$= 21.74, p< 0.01.

Social support to family by use of the mobile phone was not predicted to be significantly

over and above social support to friends by use of the mobile phone, R^2 change= 0.00, $F(3, 503)= 0.09$, $p= 0.97$.

Self-reported Mobile Phone Dependency and Functional Independence

There were significant correlations between self-reported Mobile Phone Dependency and "my mother's ($r= 0.12$, $p< 0.01$)/ father's ($r= 0.09$, $p< 0.05$)/ friends' ($r= 0.11$, $p< 0.05$) wishes have influenced my selection of friends." There were also significant correlations between self-reported Mobile Phone Dependency and "I ask for my father's ($r= 0.1$, $p< 0.05$)/ friends' ($r= 0.16$, $p< 0.01$) advice when I am planning my vacation time" but no significant correlation between self-reported Mobile Phone Dependency and "I ask for my mother's ($r= 0.7$, *NS*) advice when I am planning my vacation time." Self-reported Mobile Phone Dependency was positively correlated with most of the variables of functional independence except for one. Results suggested a pattern where participants who had more self-reported Mobile Phone Dependency also had more functional dependence on their mother's influence in selecting friends and friends' advice in planning vacations (see Table 15).

Table 15

Pearson Correlations Among Variables of Mobile Phone Dependency and Functional
Independence

	1	2	3	4	5	6	7
1. Dependency	--						
2. Mother's wishes	.12**	--					
3. Father's wishes	.09*	.72**	--				
4. Friends' wishes	.11*	.44**	.41**	--			
5. Mother's advice	.07	.37**	.30**	.27**	--		
6. Father's advice	.10*	.31**	.51**	.31**	.57**	--	
7. Friends' advice	.16**	.20**	.15**	.38**	.34**	.30**	--

Note. Mother's wishes= My mother's wishes have influenced my selection of friends;
Father's wishes= My father's wishes have influenced my selection of friends; Friends'
wishes= My friends' wishes have influenced my selection of friends; Mother's advice= I
ask for my mother's advice when I am planning my vacation time; Father's advice= I ask
for my father's advice when I am planning my vacation time; Friends' advice= I ask for
my friends' advice when I am planning my vacation time.
** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).
a Listwise *N*= 493

Self-reported Mobile Phone Dependency and Emotional Independence

There were significant correlations between self-reported Mobile Phone

Dependency and "After being with my mother (r= 0.1, p< 0.05)/ father (r= 0.16, p<

0.01)/ friends (r= 0.22, p< 0.01) for a vacation I find it hard to leave her/ him/ them."

There were also significant correlations between self-reported Mobile Phone Dependency

and "I sometimes call my mother (r= 0.2, p< 0.01)/ father (r= 0.22, p< 0.01)/ friends (r=

0.27, p< 0.01) just to hear her/ him/ their voice." Self-reported Mobile Phone

Dependency was positively correlated with all of the variables of emotional

independence. Results suggested a pattern that participants who had more self-reported

Mobile Phone Dependency also had more emotional dependence from their family and

friends (see Table 16).

Table 16

Pearson Correlations Among Variables of Mobile Phone Dependency and Emotional
Independence

	1	2	3	4	5	6	7
1. Dependency	--						
2. Being with mother	.10*	--					
3. Being with father	.16**	.74**	--				
4. Being with friends	.22**	.38**	.31**	--			
5. Call mother	.20**	.67**	.48**	.29**	--		
6. Call father	.22**	.52**	.71**	.18**	.71**	--	
7. Call friends	.27**	.35**	.31**	.47**	.49**	.41**	--

Note. Being with mother= After being with my mother for a vacation I find it hard to
leave her; Being with father= After being with my father for a vacation I find it hard to
leave him; Being with friends= After being with my college friends for a vacation I find it
hard to leave them; Call mother= I sometimes call my mother just to hear her voice; Call
father= I sometimes call my father just to hear his voice; Call friends= I sometimes call
my college friends just to hear their voices.
* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).
a Listwise *N*= 488

Self-reported Mobile Phone Dependency and Conflictual Independence

There were significant correlations between self-reported Mobile Phone

Dependency and "When I don't contact my mother (r= 0.25, p< 0.01)/ father (r= 0.19, p<

0.01)/ friends (r= 0.24, p< 0.01) often enough I feel guilty." There were not significant

correlations between self-reported Mobile Phone Dependency and "I feel like I am

constantly at war with my mother (r= 0.04, *NS*)/ father (r= -0.03, *NS*)/ friends" (r= -0.04,

NS). Self-reported Mobile Phone Dependency was positively correlated with half of the

variables of conflictual independence (see Table 17).

Table 17

Pearson Correlations Among Variables of Mobile Phone Dependency and Conflictual Independence

	1	2	3	4	5	6	7
1. Dependency	--						
2. Guilty for mother	.25**	--					
3. Guilty for father	.19**	.64**	--				
4. Guilty for friends	.24**	.46**	.39**	--			
5. War with mother	.038	-.044	.043	.19**	--		
6. War with father	-.029	.068	-.09*	.17**	.57**	--	
7. War with friends	-.038	.040	.09	.06	.40**	.44**	--

Note. Guilty for mother= When I don't contact my mother often enough I feel guilty; Guilty for father= When I don't contact my father often enough I feel guilty; Guilty for friends= When I don't contact my college friends often enough I feel guilty; War with mother= I feel like I am constantly at war with my mother; War with father= I feel like I am constantly at war with my father; War with friends= I feel like I am constantly at war with my college friends.
** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).
a Listwise *N*= 495

Self-reported Mobile Phone Dependency and Attitudinal Independence

There were significant correlations between self-reported Mobile Phone Dependency and "My beliefs regarding how to raise children are similar to my mother's (*r*= 0.11, *p*< 0.05)/ friends'" (*r*= 0.12, *p*< 0.01) but not father's (*r*= 0.08, *NS*). There were significant correlations between self-reported Mobile Phone Dependency and "My attitudes regarding national defense are similar to my mother's (*r*= 0.17, *p*< 0.01)/ father's (*r*= 0.15, *p*< 0.01)/ friends'" (*r*= 0.12, *p*< 0.01). Self-reported Mobile Phone Dependency was positively correlated with most of the variables of attitudinal independence but one (see Table 18).

Table 18

Pearson Correlations Among Variables of Mobile Phone Dependency and Attitudinal Independence

	1	2	3	4	5	6	7
1. Dependency	--						
2. Mother's beliefs	.11*	--					
3. Father's beliefs	.08	.53**	--				
4. Friends' beliefs	.12**	.15**	.16**	--			
5. Mother's attitudes	.17**	.50**	.27**	.18**	--		
6. Father's attitudes	.15**	.33**	.54**	.12**	.63**	--	
7. Friends' attitudes	.12**	.17**	.11*	.51**	.32**	.27**	--

Note. Mother's beliefs= My beliefs regarding how to raise children are similar to my mother's; Father's beliefs= My beliefs regarding how to raise children are similar to my father's; Friends' beliefs= My beliefs regarding how to raise children are similar to my college friends'; Mother's attitudes= My attitudes regarding national defense are similar to my mother's; Father's attitudes= My attitudes regarding national defense are similar to my father's; Friends' attitudes= My attitudes regarding national defense are similar to my college friends'.

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

a Listwise *N*= 490

Findings from Mobile Phone Bills

Over 1/3 Students' Social Network Within Family

Female participants connected with family more than males. A total of 2,966 mobile phone calls was recorded from 8 participants' most current mobile phone bills. Results showed that the mobile phone was primarily used to connect with family members and friends by those participants. Female participants used it to contact family members and friends (i.e., 83.1%) a little less than male participants (i.e., 89.9%). Participants contacted family members by the mobile phone less than friends. Female participants connected with their families more often than male participants. For female participants, 32.3% of total mobile phone calls (*N*= 2,179; *M*= 435.8) was connected with family members (i.e., mother, father and relatives) and 50.8% of total mobile phone calls

was used to contact friends. For male participants, 21.7% of total mobile phone calls (*N*= 787; *M*= 262.3) was connected with family members and 68.2% of total mobile phone calls was used to contact friends. In total, 29.5% of total mobile phone calls (*N*= 2966; *M*= 370.8) was connected with family members and 55.4% of total mobile phone calls was used to contact friends (see Table 19).

Table 19
Mobile Phone Connection, by Gender

	N	family	friends	others	Voice Mail
Female	2,179	32.3%	50.8%	10.8%	6.1%
Male	787	21.7%	68.2%	4.8%	5.2%
Total	2966	29.5%	55.4%	9.2%	5.9%

Mobile Phone Calls were Short

Participants talked with their friends (Range= 1~112 minutes) longer than with their family (Range= 1~25 minutes). Participants also connected with their friends about two times more than they contacted their family members by the mobile phone. More than half (i.e., 55.2%) of mobile phone calls lasted a minute. Eighty-two point six percent of mobile phone calls lasted three minutes. Nineteen percent of mobile phone calls to friends exceeded three minutes long, whereas 16.1% of mobile phone calls to family members was longer than three minutes (see Table 20).

Table 20
Mobile Phone Minute(s), by Connected

	family	friends	others	Voice Mail	Total
N	875	1,643	273	175	2,966
1 minute	57.4%	52.2%	48.7%	82.3%	55.2%
2 minutes	17.5%	20.3%	23.4%	13.1%	19.3%
3 minutes	9.0%	8.5%	7.3%	1.7%	8.1%
4 minutes	4.0%	4.2%	6.2%	1.1%	4.1%
5 minutes	2.6%	2.3%	3.7%		2.4%
6 minutes	1.6%	2.5%	2.9%	.6%	2.2%
7 minutes	1.8%	1.1%	.7%	.6%	1.2%
8 minutes	1.1%	1.5%			1.2%
9 minutes	1.1%	1.2%	.4%		1.0%
10 minutes	1.1%	.6%	1.8%		.8%
11 minutes	.3%	.9%	.4%		.6%
12 minutes	.6%	.8%	.7%		.7%
13 minutes	.5%	.3%			.3%
14 minutes	.2%	.6%			.4%
15 minutes	.1%	.2%	.4%		.2%
16 minutes	.2%	.2%			.2%
17 minutes	.2%	.6%	.4%		.4%
18 minutes		.2%			.1%
19 minutes	.2%	.2%			.2%
20 minutes		.3%	1.1%		.3%
21 minutes	.1%	.2%			.2%
23 minutes		.2%			.1%
24 minutes		.1%			.1%
25 minutes	.1%		.4%		.1%
26 minutes		.1%			.0%
28 minutes		.2%			.1%
30 minutes		.1%			.0%
31 minutes			.7%		.1%
35 minutes		.1%	.4%		.1%
38 minutes				.6%	.0%
46 minutes		.1%			.1%
50 minutes		.1%			.0%
52 minutes			.4%		.0%
67 minutes		.1%			.0%
86 minutes		.1%			.0%
90 minutes		.1%			.0%
94 minutes		.1%			.0%
110 minutes		.1%			.0%
112 minutes		.1%			.0%

More Mobile Phone Calls in Peak Time

In this small group of college participants, participants used their mobile phones more in peak time (i.e., 55.2%) than off-peak time[17] (i.e., 44.8%). These results appeared in both mobile phone calls to/from family members (i.e., peak time= 56.2%; off-peak time= 43.8%) and friends (i.e., peak time= 53.9%; off-peak time= 46.1%) (see Table 21).

Table 21
Mobile Phone Use on Pak/Off-peak Times, by Connected

	Family	friends	others	Voice Mail	Total
N	875	1643	273	175	2966
Peak	56.2%	53.9%	57.1%	59.4%	55.2%
off-peak	43.8%	46.1%	42.9%	40.6%	44.8%

For more detail, most participants used the mobile phone between 11 am and mid-nights (see Table 22). There were not many time differences between when participants contacted their family members and friends (see Figure 2) other than those participants who contacted their friends more than family members. Participants often contacted their family members (i.e., 91.6%) and friends (i.e., 87.8%) in this time frame.

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[17] Off-peak time included free night time and free weekends minutes.

Table 22
Mobile Phone Use Hour/by Connected

	N	family	friends	others	Voice Mail
0:00	71	.8%	3.5%	1.1%	2.3%
1:00	69	1.1%	2.9%	1.8%	3.4%
2:00	31	.5%	1.3%	.7%	1.7%
3:00	19	.5%	.8%	.7%	
4:00	1	.1%			
5:00	1		.1%		
6:00	1		.1%		
7:00	13	.1%	.1%	3.3%	.6%
8:00	25	.8%	.6%	2.6%	.6%
9:00	48	1.8%	1.3%	2.6%	2.3%
10:00	62	2.6%	1.8%	2.2%	2.3%
11:00	135	4.6%	4.4%	5.9%	4.0%
12:00	205	7.5%	6.0%	8.1%	10.3%
13:00	160	6.3%	5.4%	2.6%	5.7%
14:00	225	8.9%	7.4%	5.1%	6.9%
15:00	257	8.1%	9.1%	6.2%	11.4%
16:00	223	6.4%	8.1%	8.8%	5.7%
17:00	230	9.7%	6.6%	8.4%	8.0%
18:00	208	6.5%	7.3%	6.6%	7.4%
19:00	204	6.3%	7.5%	8.1%	2.3%
20:00	201	6.7%	6.6%	8.4%	6.3%
21:00	211	10.3%	6.1%	2.6%	8.0%
22:00	194	6.5%	6.8%	6.2%	4.6%
23:00	172	3.8%	6.5%	8.1%	6.3%
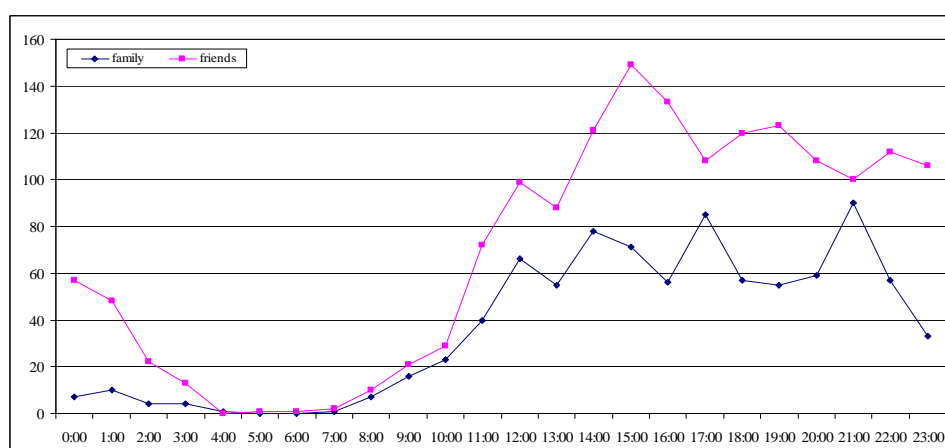
Figure 2
Mobile
Phone Use
Hour/by
Connected

Summary

Similar to qualitative findings, the mobile phone was found to be the primary technology to communicate with family in the quantitative data. The mobile phone was ranked second in information seeking technologies. Also, it was ranked as the primary communication technology to contact mothers, fathers and friends. Self-reported Mobile Phone Dependency was found to differ by ethnicity and gender but not age and year in college. Results showed that participants had stronger motives to communicate more with their friends than family by the mobile phone. Over 1/3 of their mobile phone calls were connected with family. Participants used the mobile phone during peak times more than off-peak times. Although participants made many mobile phone calls per month, their mobile phone conversations tended to be short.

CHAPTER 7

Discussion

The journey of this study starts with a very simple question-- Does use of the

mobile phone affect college students' dependence on their families? Since the late 1990s,

the mobile phone has gained in popularity (Ishii, 2006; Townsend, 2002). The mobile

phone is defined as a person-to-person communication technology, which crosses time

and space barriers (Geser, 2005). Studies find that parents use the mobile phone to

monitor children's activities remotely (Kopomaa, 2000; Ling, 2004; Oksman &

Rautiainen, 2002; Rakow & Navarro, 1993) and teens who live at home use the mobile

phone to gain their freedom from parental control (Green, 2001; Ito, 2005; Ling, 2004;

Taylor & Harper, 2003).

When students enroll in college, they are expected to learn to be adults who

should create their social capital, learn social survival skills and assume social

responsibilities within a safe environment because college is originally designed to be a

pseudo-society with mentors and friends for students to learn social skills away from

their family (Arnett, 2004). The research question of this study is: Do college students

take advantage of the mobile phone to get quick support and answers to problems from

their family while in an unfamiliar environment (i.e., college campus) or do they try to

look for solutions to their issues from nearby friend networks?

After three exploratory focus group interviews, this study finds that college

students have a pattern of frequently connecting with their family via the mobile phone

for seeking support and information exchange when they are away from home. Students

also talk about using their mobile phones to socialize with friends. A survey

questionnaire is designed to gain a broader understanding of whether communication

motives for mobile phone use are stronger for communicating with family or with

friends. Understanding mobile phone users' intrinsic motivations in communicating with

family or with friends helps the researcher in this study to decipher the reasons why

college students develop a dependency on the mobile phone. Findings from the survey

show that students have several strong socialization motives for using the mobile phone

to contact both family and friends. Finally, several in-depth interviews are conducted to

gain deeper understanding of how communication motives differ from family and friends.

Qualitative and quantitative data in this study shows several major findings. Each of the

major findings is discussed in detail as explained below:

An "Umbilical Cord" between Parents and College Students

Drawing from both quantitative and qualitative findings, the mobile phone seems

to be an "umbilical cord" (Geser, 2005; Spungin, 2006) between college students and

family, especially students and their mothers. Fox (2006) comments that the mobile

phone increases trust, provides quick feedback and has the ability to deal with issues on

the spot. Participants in this study show willingness to get their parents involved in their

college life regardless of the time or their physical location. Quantitative results show

that participants' self-reported Mobile Phone Dependency positively correlated with

various communication motives with family. Those participants enjoy using the mobile

phone to share every aspect of their social activities with their family. Qualitative results

show that the mobile phone might increase parents' trust in the participants. Participants

in this study also show a tendency to be dependent on the mobile phone to connect with

family to ask for quick advice at any given place or time. This study also demonstrates Castells and his colleagues' (2007) arguments. Castells et al. (2007) note that the mobile phone may foster better parent child relationships.

An "Umbilical Cord" from Parents

This study has found that the mobile phone has become an "umbilical cord" (Geser, 2005; Spungin, 2006) between college students and family. Participants in this study agree that the mobile phone is the most important ICT to keep in touch with parents. They call their parents no matter where they are and what time it is. Over 1/3 of the participants in the survey report that they receive more help from their family than their friends when they are at school. Survey result also shows that there is a positive pattern between Mobile Phone Dependency and moral support from family. Participants in the in-depth and focus group interviews report that they ask their parents for advice and help in major decision making processes via the mobile phone while they are not at home because parents have more knowledge. They also use the mobile phone to receive emotional and physical support from parents. The mobile phone is also identified as "a must" for contacting with parents by those participants.

Many participants report they connect with their family members via the mobile phone several times a day. Some participants in this study show more desire to contact their parents than their parents wished to keep in touch with them. They want their parents to be available for their mobile phone calls. Some of them also force their parents to learn some mobile phone functions (e.g., text message) because they would like to keep more in touch with their parents.

More Than Increases Trust

Several female participants in in-depth interviews report that they call their parents every day because they have previous "agreements" to report home. Moreover, they also comment that they actually call home more than required in the "agreement." They often call home "whenever they want to." Female participants from focus group interviews report that they call home to tell their parents before they are going away for a trip. They also allow their parents to "be" with them on the trips through the use of the mobile phone. Their parents can contact them on their mobile phones while those participants are traveling. Those participants believe that if there were no mobile phone connection, their parents would not let them do many things, including visit friends in other cities. Many participants report that their parents trust them and actually do not call to check where they are. The reason that those participants report where they are to their parents is "because they want to" and "to ease their mothers a little bit."

Although male participants did not call home as much as female participants, male participants keep their mobile phones on so that their parents can reach them. Most participants do not mind receiving mobile phone calls from family. One male participant, in an in-depth interview report, claims that he calls home every day to talk to his father or mother because he wants to. Several of them report that they like their parents' concern about their life at school. Male participants from focus group interviews believe that the mobile phone is "a must" between themselves and their parents. They call home to report that they are alive, to keep in touch with their parents, and to make their mothers happy. Participants from in-depth interviews comment that they are enjoying having more

frequent mobile phone conversations with their family than they had in high school.

They never ignore or avoid their parents' mobile phone calls.

More Than Provides Quick Feedback from Parents

Participants in this study report that they call home via the mobile phone to ask

their parents' advice on various issues, such as how to select majors, how to deal with car

accidents, and how to deal with bill issues. They also call home for "everything." A

female participant from a Focus Group #3 reports that she calls her family to have them

send her medication to school. Another female participant from an in-depth interview

asks her mother to pick up some groceries for her because she is going home that

weekend. Some participants from focus group and in-depth interviews report that they

also heed their family requests if their family calls their mobile phones. Ling and Yttri

(2002) define this situation as "micro-coordination."

On the other hand, participants also give quick feedback to their family by use of

the mobile phone. Two female participants from in-depth interviews report that they help

their mothers, who are first generation immigrants, to fill out documents. When their

mothers call them at school, they use the mobile phone to answer their mother's

questions. The other male participant from an in-depth interview also helps his aunt to

deal with computer problems. The survey findings show that participant use the mobile

phone to get support from the family ($r= 0.14$, $p< 0.01$) is similar to the support they

provide to the family $(r= 0.14$ $p< 0.01)$.

Participants report that they depend on the mobile phone to get emotional support

from family. Female participants from focus group interviews report that they have their

family to keep them company when they feel insecure while they are walking on dark

streets or taking taxis alone. The other female participant mentions that "because they are my parents, they are not going to ignore me." The survey finds that over 1/3 of the participants receive more help from their family than help from their friends when they are at school. Before the mobile phone era, students were expected to learn how to deal with their issues through their peers or mentors on campus. With the mobile phone, those participants ask advice and help from home when they need it.

Better Parent Child Relationships Through the Use of the Mobile Phone

Several participants in focus group interviews report that their relationships with their parents are better in college than in high school because of the mobile phone. Many students in focus group interviews and all students from in-depth interviews appreciate that their relationships with their parents are connected via the mobile phone although a few of them in Focus Group #2 complain about their parents' frequent mobile phone calls.

Results from focus groups and in-depth interviews show that participants contact family anytime and anyplace for "everything." Some participants from focus groups interviews mention that they and their family have "family plans" on their mobile phone service. Therefore, their family connection is always on. More students report that they have their family connection on always and they accept family calls from "emergency," "concern," "support," "keep in touch," to "everything."

Most of the participants in in-depth interviews report that they do not consider the time and place to contact their family. Female participants call their family every night because they have an "agreement" with their mothers. Those female participants also report that they call home more than once a day. They mention that they are happy to

receive their parents' mobile phone calls and enjoy the mobile phone conversations with their family members. Two female participants from in-depth interviews report that they like to talk to their fathers more than their mothers. Several female participants from focus group interviews report that they call their mothers on buses, between classes, and "whenever they want to" and their conversations are about "everything" because their relationships with their mothers are "just like friends."

Moreover, findings in this study also correspond with Sawhney and Gomez's (2000) results. Sawhney and Gomez (2000) report that mothers are the most essential persons with whom communication occurs in a family. Most of the participants in focus group and in-depth interviews report that they talk to their mothers more than to their fathers on the mobile phone. Their mothers tell them what is going on between family members. In the survey, participants also report that they call their mothers more than their fathers. In general, their mothers also contact them more often then their fathers by the mobile phone. As shown in Sawhney and Gomez's (2000) study, findings from this study also show that mothers are key persons in providing information exchange between family members.

In this study, the findings differ from prior studies (e.g., Green, 2001; Ito, 2005; Ling, 2004; Taylor & Harper, 2003) that reported that children strategically avoided their parents' control via the mobile phone. The majority of the participants in this study seem to welcome their parents' involvement in their life at any time and any place by use of the mobile phone. Only a few of them in Focus Group #2 report that they are annoyed by their parents' mobile phone calls. Many participants report that they have better relationships with their parents on campus because of the use of the mobile phone. They

and their parents share information "as friends." Participants from in-depth interviews report that they never ignore their parents' mobile phone calls.

Possible explanations of the findings in this study that differ from others might be that the participants in this study are living away from their parents or they are in the later stage of the emancipation process from their parents. Studies found that young teens (e.g., Green, 2001; Ling, 2004) and Japanese college students (Ito, 2005) who are living at home use the mobile phone to carry out their emancipation from their parents. For those who are living at home, they are facing the daily chafing between themselves and their parents. Parents question those who are living at home about everything, such as where they are going, when they are coming home, and who they are with. In this study, some participants report that their relationships with their parents are actually better in college than when they were in high school. Those participants comment that separation brings them and their parents together. Because of the mobile phone, they can decide what information that they like to share with their family.

Moreover, findings in this study that differ than Ling's (2004) findings might be due to Ling's study examining younger teens, whereas this study investigates late teens. Ling's (2004) subjects are starting the emancipation process. Their parents might see those younger teens as needing parental protection and guidance. In this study, many participants mention that their relationships with their parents are "just like friends." In the survey results, there are strong positive relationships between Mobile Phone Dependency and communication motives with friend as well as family. Those participants and their parents check on each other, report "everything" to each other and just say "hi" to each other. And, most of their parents are no longer there to watch every

move those participants make. Some parents contact with the participants only if they have concern. But, those parents are always available on the other end of the mobile phone to give participants' advice if they need it.

Moreover, some of the participants show a pattern of controlling their parents' availability more than their parents like to control them. Participants from in-depth interviews report that they call their parents more than their parents call them. A few female participants report that they want their parents to be available for them all the time. A female participant mentions that "they are my parents; they are not going to ignore me." Other participants report that they have to teach their low-tech parents to use text messaging or how to listen to voice messages because they want to contact their parents more often. Some male participants appreciate their parents calling them to express concerns about their school life. They also like the direct connection between themselves and their working parents. Some of male participants comment that the mobile phone provides direct contact without waiting for a machine or an administrative assistant to transfer their calls to their parents. Many of the male students make sure the connection by the mobile phone between themselves and their parents is always on. They call home once a week to check if everything is well at home and to let their parents know that they are doing fine at school.

Participants in in-depth interviews report that they enjoy their mobile conversations with their parents. Although female participants have "agreements" to call home, their parents allow them to decide when to do so. A new finding in this study is that some participants enjoy talking to their fathers more than to their mothers via the mobile phone. Female participants from in-depth interviews report that they have

"agreements" to call their mothers everyday and they have to "report" home if they are going away from the campus area. However, the conversations with their fathers seem more intimate. Two female students report that their conversations with their fathers are more pleasurable. In contrast, the participants state that conversations with their mothers are more ritualistic. In focus group interviews, participants comment that family connection by the mobile phone is a "must" and they depend on this device to keep their family connected in every aspect.

Mobile Phone Communication Motives are Stronger to Friends than to Family

The mobile phone is ranked as the most important ICT to connect with family and friends in this study. Participants from focus group interviews, in-depth interviews and survey in this research report that the mobile phone is used to communicate more to friends than family.

The survey findings show that participants report that there are positive correlations between several communication motives (e.g., Pleasure, Affective, Inclusion, Escape, Relaxation, Control) via the mobile phone and self-reported Mobile Phone Dependency towards family and friends. The greater the self-reported Mobile Phone Dependency that the participants have, the more Pleasure, Affective, Inclusion, Escape, Relaxation, and Control motives that the participants have to their family and friends.

Results also find that there are differences between communication motives via the mobile phone toward friends than to family. Results indicate that those participants have less Pleasure, Affective, Inclusion, Escape, Relaxation motives to communicate with family than to friends via the mobile phone. However, participants have more Control motive to communicate with family than friends via the mobile phone.

In addition, the survey findings also show that social support to friends via the mobile phone is a better prediction of self-reported Mobile Phone Dependency than social support to family via the mobile phone. In sum, the mobile phone is used to socialize with friends more than family.

The Mobile Phone is a Tool for Everyday Information Seeking and Exchange

Participants in this study use the mobile phone to exchange "everything," "news," and "information," to receive both emotional "support" and ask physical "support" and to keep "in touch" with parents and friends. This study finds that the mobile phone ranks second in information seeking among communication technologies.

Interview findings show that participants have different motives to communicate with family and friends. For communication motives to family, participants use the mobile phone more to receive moral support and fulfill their family responsibilities. On the other hand, participants use the mobile phone to receive and provide social support to friends. They also use the mobile phone to seek and exchange information more among their peer groups. Several participants from in-depth interview report that their friends always call them to ask for class notes or notes on information about exams. Survey findings show that self-reported Mobile Phone Dependency is strongly positively correlated with Friends Moral Support ($r= 0.31$, $p<0.01$) and Friends Information Seeking ($r= 0.3$, $p< 0.01$).

An interesting point to notice is that participants in this study report that the Internet is ranked the most frequently use ICT to get information. With the third generation (3G) and the fourth generation (4G) wireless systems, the mobile phone could also check e-mail and seek information from the Internet. When this study started in

early 2006, many college students use the mobile phone for voice communication. In the late 2006, participants from in-depth interviews show mobile phone bills that have a similar amount of text messages and voice message recordings. Pavlik (1996) argues that understanding technology consequences is an important but difficult task. He mentions that it is important "because the consequences of technological change are what makes technology matter" (p. 303). On the other hand, technologies keep changing their forms and shapes and it is difficult to study their consequences. This study advocates further studies to investigate whether new forms of the mobile phone would change user information seeking behaviors.

Gender Differences

Gender effects are very obvious in this study. Fischer (1992) argued that the phone was a "social communication" tool and women enjoyed it more than men. This survey result shows that there is a difference between male and female participants in self-reported Mobile Phone Dependency. Female participants reported that they have a stronger self-reported Mobile Phone Dependency than male participants. In both focus group and in-depth interviews, many male participants use the mobile phone to have limited contact with their family and fulfill their family responsibilities, such as "to make mother happy," and "to report that I'm still alive."

Compared with female participants, male participants report that they use the mobile phone to contact friends more than family in the mobile phone bill data and focus group interview findings. However, female participants seem to enjoy having frequent contact via the mobile phone with their families. They talk to mothers for "sharing experiences," ask fathers to "keep them company" when they are in unfamiliar places,

and seek "emotional support" from family. These findings demonstrate that the mobile phone is a preferred ICT by women. Those female participants report enjoying mobile phone conversations while they are driving cars, taking buses, and even walking on the streets.

<p style="text-align:center;">*Parents Supervise College Students' Transition to Adulthood*</p>

Unlike the younger teens who utilize the mobile phone to create their social network outside their parents' control (Ito, 2005, Ling, 2004), participants in this study seem to welcome their parents' participation in their social life. Over 1/3 of the participants reports that they receive more help from their families than help from their friends when they are at school. Prior to mobile phone adoption by college students, parents need to encourage college students to learn social skills on campus. This result shows that a group of the participants depend on their parents' advice even when they are expected to learn how to deal with things without their parents' help.

Because of the mobile phone, participants in this study seem to invite their parents' to supervise their transition to adulthood along with their peers and mentors on campus. In conclusion, the mobile phone provides participants more choices in learning socialization skills among their peers, their mentors on campus, or their parents off campus when they need it.

CHAPTER 8

Implications and Conclusion

Implications

Theoretical Implications

Media Dependency Theory. There appears to be a modest but nonetheless interesting pattern of the mobile phone as one of the useful ICTs for participants to acquire family information and exchange information with friends in this study. Participants report that they use the mobile phone to ask for information and support from their friends and friends. When Media Dependency Theory (Ball-Rokeach & DeFleur, 1976) is used to demonstrate how media users utilize mass media to get information when a special situation occurs (e.g., war time), the mobile phone is shown to be a powerful medium (i.e., an ICT) that participants depend on to get information to adjust a new environment (i.e., college campus) in this study.

In addition, the mobile phone is no longer a purely social communication tool. With the 3G and 4G wireless systems, the mobile phone is no longer solely designed for talking. The third and forth generation mobile phone services increase multimedia messaging and direct Internet access along with traditional voice communication services. With the 3G and 4G mobile phones, users have access to various services, such as phone mail, voice mail, stock prices, sports scores, restaurant reviews, movie guides, video phones, and video/ audio download interactive games. The mobile media is becoming a powerful information seeking and exchanging technology. Media theorists

could take the mobile media into consideration when they seek to determine how much media users depend on the media to get information as well as support to fulfill their needs in a different environment.

Psychological Separation Theory. This study also found several weak but positive patterns between psychological separation variables and self-reported Mobile Phone Dependency. Participants who have heavier self-reported Mobile Phone Dependency also have more difficulty in psychologically separating themselves from their mother/father/friends. The mobile phone is found to be used in enhancing selected social capital, such as family and close friends (de Gournay, 2002; Ling & Yttri, 2002, 2006). This study provides quantitative support to show how the mobile phone increases psychological dependency on family and friends.

Conclusion

Studies (e.g., Green, 2001; Ito, 2005; Ling, 2004; Taylor & Harper, 2003) report that young teenagers build their peer networks, develop their independence and from parents control their own affairs via the mobile phone. This study finds that older teens and young adults desire to connect with parents more than parents want to control them. Prior studies report (e.g., de Gournay, 2002; Rakow & Vavarro, 1993) that parents appreciate the mobile phone to manage their child-parent relationship from remote distance. This study finds that many participants also appreciate the mobile phone to maintain the child parent relationship from remote distance. For most of the participants in this study, the mobile phone is "a must" for them to have frequent contact with their family, to fulfill their family roles, to share experiences and to receive emotional and physical support from their parents.

On the other hand, the survey data in this study shows that the participants' self-reported Mobile Phone Dependency has positively correlated with many communication motives with family and friends. However, this study also found that connections between the participants and friends are stronger than connections between the participants and their family via the mobile phone. This study concluded that the participants are trying to learn socialization skills and learn to be independent at school with peer groups. They also invite their parents to help them learn socialization skills and to guide them to be independent via the use of the mobile phone from remote distances.

Limitations and Future Studies

Methodological Limitations and Suggestions for Future Studies

Although this study illuminates some interesting aspects of how college students depend on the mobile phone to connect with family and friends, limitations should be mentioned. One of the major methodological limitations pertains to sampling methods. In these focus group interviews, survey, and in-depth interviews, convenience sampling techniques were used in collecting this dataset and the sample was collected all from college students in a university. Therefore, the degree to which this finding can be generalized is limited. Future research may duplicate the study by collecting samples from other college students or they may use a higher-level sampling technique (e.g., systematic sampling) to collect data to confirm the findings.

This study also finds that there are many significant but weak relationships between self-reported Mobile Phone Dependency and human psychological dependency to mothers/fathers/friends. Those results show that there are some relationships between

self-reported Mobile Phone Dependency and (1) functional independence to

mothers/fathers/friends; (2) emotional independence to mothers/fathers/friends; (3)

conflictual independence to mothers/fathers/friends; and (4) attitudinal independence to

mothers/fathers/friends (Hoffman, 1984) but not linear relationships. The cause and

effect between these variables cannot be discerned by these results. Hoffman's (1984)

"Psychological Separation Inventory (PSI)" is modified to determine whether the mobile

phone affects human psychological dependency on mothers/fathers/friends. Future

research may seek other instruments to measure whether the mobile phone has an affect

on human psychological dependency to mothers/fathers/friends.

Although this study is also trying to ask about participants' 10 incoming and 10

outgoing calls to see their mobile phone use motives, several challenging questions occur

during the in-depth interviews. Those questions include: (1) The in-depth interview

sample size is too small to make any predication; (2) one participant (i.e., Participant #5)

just gets a new phone on interview day and she does not have any incoming and outgoing

call record; (3) most of the participants cannot remember how long they talk in each call;

and (4) many participants seem to have trouble remembering all mobile phone

conversations. Future research may make use of other instruments to measure

participants' actual mobile phone dependency (e.g., how many hours do you spent on the

mobile phone?) or use other methods (e.g., diary study) to have more factual data.

Finally, self-reported data is also an important methodological limitation of this

study. Self-report measures are subject to inaccuracy of self-evaluation. Findings from

mobile phone bills in this study help to explain patterns of college students' actual mobile

phone use. However, the sample size is too small and it is a convenience sample. The data could show mobile phone use patterns but not mobile phone use motives.

Other Future Possible Studies

The other suggestion for future research is to expand participants to other age groups, such as older teens and young adults who are moving out of parental homes and adjusting to new living environments, new careers, or new marriages. Studies (e.g., de Gournay, 2002; Ling, 2004; Rakow & Vavarro, 1993) related to parents and young teens' connections by the mobile phone have been conducted. Most of them were focused on parents' perspectives (e.g., de Gournay, 2002; Rakow & Vavarro, 1993) or younger teens' perspectives (e.g., Ito, 2005; Ling, 2004; Kopomaa, 2000). There is a need for more research on adults' desire to connect with their parents via the mobile phone.

Ball-Rokeach and DeFleur's (1976) Media Dependency Theory argues that changing environments will lead people to depend on certain media more for their information needs. This study finds that the mobile phone is ranked as the most important ICT for participants connecting with people and searching for information. Participants depend on the mobile phone to get social support and to exchange information when they move from their parental home to college. Like college students who move from home to school, other individuals who move to a new home, switch to a new job or just get married also need to deal with uncertainty. It would be valuable to study if mobile phone users are dependent on the mobile phone to seek for solutions when they are in a new environment.

Finally, this study finds that college students depend on the mobile phone to get support and advice from family. Some students seem to utilize and enjoy convenient

support from home through the use of the mobile phone. Prior studies (e.g., de Gournay, 2002; Ling, 2004; Rakow & Vavarro, 1993) focused on how parents and young teens' connected by use of the mobile phone. Those younger teens are expected to be guided by their parents for every aspect of their social life. Therefore, parents appreciate that the mobile phone provides the perpetual contact for them to monitor their children.

On the other hand, college students were expected to learn socialization skills from their peers or their mentors on campus before the mobile phone era (Arnett, 2004). With the mobile phone, many college students ask for help from home. Prior studies (e.g., Anderson, 2002; Sugiyama, 2005) reported that students called home to ask for help while they were away from home and this study also finds that over 1/3 of the participants report that they receive more help from family than from friends when they need it. Parents seem to have continuing responsibilities for their children even though they are away at college. It will also be valuable to study parents' perspectives towards the umbilical cord connecting them and their college age children.

References

Agar, M., & Macdonald, J. (1995). Focus groups and ethnography. *Human Organization, 54*(1), 78-86.

Anderson, R. E. (2002). Youth and information technology. In J. T. Mortimer & R. W. Larson (Eds.), *The changing adolescent experience: Societal trends and the transition to adulthood* (pp. 175-207). New York, NY: Cambridge University Press.

Aoki, K., & Downes, E. J. (2003). An analysis of young people's use of and attitudes toward cell phones. *Telematics and Informatics, 20*(4), 394-364.

Arnett, J. J. (1995). Adolescents' uses of media for self-socialization. *Journal of Youth and Adolescence, 24*(5), 519-533.

Arnett, J. J. (1997). Young people's conceptions of the transition to adulthood. *Youth & Society, 29*(1), 1-23.

Arnett, J. J. (l998). Learning to stand alone: The contemporary American transition to adulthood in cultural and historical context. *Human Development, 41*(5/6), 295-315.

Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist, 55*(5), 469-480.

Arnett, J. J. (2001). Conceptions of the transition to adulthood from adolescence through midlife. *Journal of Adult Development, 8*(2), 133-143.

Arnett, J. J. (2004). *Emerging adulthood: The winding road from the late teens through the twenties.* New York, NY: Oxford University Press.

Ball-Rokeach, S. J. (1998). A theory of media power and a theory of media use: Different stories, questions, and ways of thinking. *Mass Communication & Society, 1*(1/2), 5-40.

Ball-Rokeach, S. J., & DeFleur, M. L. (1976). A dependency model of mass media effects. *Communication Research, 3*(1), 3-21.

Ball, S., Palmer, P., & Millward, E. (1986). Television and its education impact: A reconsideration. In J. Bryant & D. Zillmann (Eds.), *Perspectives on media effects* (pp. 129-142). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

Bandura, A. (1967). The role of modeling processes in personality development. In W. W. Hartup & N. L. Smothergill (Eds.), *The young child: Reviews of research* (pp. 42-58). Washington, DC: National Association for the Education of Young Children.

Bandura, A. (1977). *Social learning theory.* Englewood Cliffs, NJ: Prentice Hall.

Bandura, A. (1986). *Social foundations of thought and action: A social-cognitive theory.* Englewood Cliffs, NJ: Prentices Hall.

Bandura, A. (1994). Social cognitive theory of mass communication. In J. Bryant & D. Zillmann (Eds.), *Media effects: Advances in theory and research* (pp. 61-90). Hillsdale, NJ: Lawrence Erlbaum Associations.

Bandura, A. (2001). Social cognitive theory: An agentive perspective. *Annual Review of Psychology, 52*(1), 1-26.

Baron, N. S., Squires, L., Tehch, S., & Thompson, M. (2005). Tethered or mobile? Use of away messages in Instant Messaging by American college students. In, R. Ling & P. E. Pedersen (Eds.), *Mobile communications: Re-negotiation of the social sphere* (pp. 293-311). London, UK: Springer.

Biernacki, P., & Waldorf, D. (1981). Snowball sampling: Problems and techniques of chain referral sampling. *Sociological Methods & Research, 10*(2), 141-163.

Bloom, M. V. (1987). Living home: A family transition. In J. Bloom-Feshbach & S. Bloom-Feshbach (Eds.), *The Psychology of separation and loss: perspectives on development, life transitions, and clinical practice* (pp. 232-266). San Francisco, CA: Jossey-Bass Publishers.

Blos, P. (1967). The second individuation process of adolescence. *Psychoanalytic Study of the Child, 22*, 162-186.

Blos, P. (1979). *The adolescent passage: Developmental issues.* New York, NY: International Universities Press.

Boase, J., & Wellman, B. (2006). Personal relationships: On and off the Internet. In A. L. Vangelisti & D. Perlman (Eds.), *The Cambridge handbook of personal relationships* (pp. 709-723). New York, NY: Cambridge University Press.

Boneva, B. S., Quinn, A., Kraut, R. E., Kiesler, S., & Shklovski, I. S. (2006). Teenage communication in the Instant Messaging era. In R. Kraut, M. Brynin, & S. Kiesler (Eds.), *Computer, phones, and the Internet: Domesticating information technology* (pp. 201-218). New York, NY: Oxford University Press.

Briggs, A. (1977). The pleasure telephone: A chapter in the prehistory of the media. In I. de Sola Pool (Ed.), *The social impact of the telephone* (pp. 40-65). Cambridge, MA: The MIT Press.

Bryant, R. B., & Yarnold, P. R. (1995). Principal-components analysis and exploratory and confirmatory factor analysis. In L. G. Grimm & P. R. Yarnold (Eds.), *Reading and understanding multivariate statistics* (pp. 99-136). Washington, DC: American Psychological Association.

Carey, M. A. (1994). The group effect in focus groups: Planning, implementing and interpreting focus group research. In J. Morse (Ed.), *Critical issues in qualitative research methods* (pp. 225-241). Thousand Oaks, CA: Sage Publications.

Castells, M., Fernandez-Ardevol, M., Qiu, J., & Sey, A. (2007). *Mobile communication society: A global perspective.* Cambridge, MA: The MIT Press.

Cellular News (2006). *SMSing under the dinner table.* Retrieved January 10, 2007 from http://www.cellular-news.com/story/20531.php

Chaffee, S. H. (1992). Search for change: Survey studies of international media effects. In F. Korzenny, & S. Ting-Toomey with E. Schiff (Eds.), *Mass media effects across cultures* (pp. 35-54). Newbury Park, CA: Sage Publications.

Chaffee, S. H., Nass, C. I., & Yang, S. (1990). The bridging role of television in immigrant political socialization. *Human Communication Research, 17*(2), 266-288.

Chen, W., Boase, J., & Wellman, B. (2002). The global villagers: Comparing Internet users and uses around the world. In B. Wellman & C. Haythornthwaite (Eds.). *The Internet in everyday life* (pp. 74-113). Malden, MA: Blackwell Publishing.

Chen, Y.-F. (2005, November). *The relationship of mobile phone use addiction and depression among college students: American and Taiwanese cases.* Paper presented at the meeting of the 91st annual convention of the National Communication Association, Boston, MA.

Chen, Y.-F. (2006). Social phenomena of mobile phone use: An exploratory study in Taiwanese college students. *Journal of Cyber Culture and Information Society, 11*, 219-244.

Chou, C., & Hsiao, M.-C. (2000). Internet addiction, usage, gratification, and pleasure experience: The Taiwan college students' case. *Computers and Education, 35*(1), 65-80.

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences* (3rd Ed.). Mahwah, NJ: Lawrence Erlbaum Associates.

Collins, W. A., & Madsen, S. D. (2006). Personal relationship in adolescence and early adulthood. In A. L. Vangelisti & D. Perlman (Eds.), *The Cambridge handbook of personal relationships* (pp. 191-209). New York, NY: Cambridge University Press.

Converse, J. M., & Presser, S. (1986). *Survey questions: Handcrafting the standardized questionnaire*. Beverly Hills: Sage Publications.

Cooper, G. (2001). The mutable mobile: Social theory in the wireless word. In B. Brown, N. Green, & R. Harper (Eds.), *Wireless world: Social and interactional aspects of the mobile age* (pp. 19-31). Haslemere, Surrey, UK: Springer.

Crabtree, B., F., Yanoshik, M. K., Miller, W. L., & O'Connor, P. J. (1993). Selecting individual or group interviews. In D. L. Morgan (Ed.), *Successful focus groups: Advancing the state of the art* (pp. 137-149). Newbury Park, CA: Sage Publications.

de Gournay, C. (2002). Pretense of intimacy in France. In J. E. Katz & M. Aakhus (Eds.), *Perpetual contact: Mobile communication, private talk, public performance* (pp. 193-205). Cambridge, UK: Cambridge University Press.

de Gournay, C., & Smoreda, Z. (2003). Communication technology and sociability: Between local tie and "global ghetto"? In J. E. Katz (Ed.), *Machines that become us: The social context of personal communication technology* (pp. 57-70). New Brunswick, NJ: Transaction Publishers.

De Vries, I. (2005). Mobile telephone: Realising the dream of ideal communication? In L. Hamill & A. Lasen (Eds.), *Mobile world: Past, present and future* (pp. 42-62). London, UK: Springer.

Dimmick, J. W., Sikand, J., & Patterson, S. J., (1994). The gratifications of the household telephone. *Communication Research, 21*(5), 643-661.

Dubos, R. (1988). Cross-cultural adaptation: Axioms. In Y. Y. Kim (Ed.), *Communication and cross-cultural adaptation: An integrative theory* (pp. 52-71). Clevedon, Avon: Multilingual Matters Ltd.

Fielding, N. G. & Fielding, J. L. (1986). *Linking data*. Beverly Hills, CA: Sage Publications.

Fischer, C. S. (1992). *America calling: A social history of the telephone to 1940.* Berkeley, CA: University of California Press.

Fortunati, L. (2002). Italy: Stereotypes, true, and false. In J. E. Katz & M. Aakhus (Eds.), *Perpetual contact: Mobile communication, private talk, public performance* (pp. 227-241). Cambridge, UK: Cambridge University Press.

Fowler, F. J. jr. (2002). *Survey research methods* (3rd Ed.). Thousand Oaks, CA: Sage Publications.

Fox, K. (2006). Society: The New garden fence. *The Carphone Warehouse* (pp. 12-25). Retrieved January 13, 2007 from http://www.mobilelife2006.co.uk/

Franzen, A. (2000). Does the Internet make us lonely? *European Sociological Review, 16*(4), 427-438.

Franzen, A. (2003). Social capital and the new communication technologies. In J. E. Katz (Ed.), *Machines that become us: The social context of personal communication technology* (pp. 105-116). New Brunswick, NJ: Transaction Publishers.

Frey, J. H., & Fontana, A. (1993). The group interview in social research. In D. L. Morgan (Ed.), *Successful focus groups: Advancing the state of the art* (pp. 20-34). Newbury Park, CA: Sage Publications.

Gerbner, G., Gross, L., Morgan, M., & Signorielli, N. (1980). The "mainstreaming" of America: Violence profile no. 11. *Journal of Communication, 30*(3). 10-29.

Gerbner, G., Gross, L., Morgan, M., & Signorielli, N. (1982). Charting the mainstream: Television's contributions to political orientation. *Journal of Communication, 32*(2), 100-127.

Gerbner, G., Gross, L., Morgan, M., & Signorielli, N. (1986). Living with television: The dynamics of the cultivation process. In J. Bryant & D. Zillmann (Eds.), *Perspective on media effects* (pp. 17-41). Hillsdale, NJ: Lawrence Erlbaum Associates.

Gergen, K. J. (2002). The challenge of absent presence. In J. E. Katz & M. Aakhus (Eds.), *Perpetual contact: Mobile communication, private talk, public performance* (pp. 223-227). Cambridge, UK: Cambridge University Press.

Gergen, K. J. (2003). Self and community in the new floating world. In K. Nyiri (Ed.), *Mobile democracy: Essays on society, self, and politics* (pp. 103-114). Vienna: Passagen Verlag.

Geser, H. (2005). Is the cell phone undermining the social order? Understanding mobile technology from a sociological perspective. In P. Glotz, S. Bertschi, & C. Locke (Eds.), *Thumb culture: The meaning of mobile phones for society* (pp. 23-35). New Brunswick, NJ: Transaction Publishers.

Geuzaine, C., Debry, M., & Liesens, V. (2000). Separation from parents in late adolescence: The same for boys and girls? *Journal of Youth and Adolescence, 29*(1), 79-91.

Glotz, P., Bertschi, S., & Locke, C. (2005). Introduction. In P. Glotz, S. Bertschi, & C. Locke (Eds.), *Thumb culture: The meaning of mobile phones for society* (pp. 11-19). New Brunswick, NJ: Transaction Publishers.

Goldscheider, F., & Davanzo, J. (1986). Semiautonomy and leaving home during early adulthood. *Social Forces, 65*(1), 187-201.

Goldscheider, F., & Goldscheider, C. (1994). Leaving and returning home in 20th century America. *Population Bulletin, 48*(4), 1-35.

Goldscheider, F., & Goldscheider, C. (1999). *The changing transition to adulthood: Leaving and returning home*. Thousand Oaks, CA: Sage Publications.

Gorden, R. L. (1987). *Interviewing: Strategy, techniques, and tactics* (4th Ed.). Chicago, IL: The Dorsey Press.

Graham, E. E., Barbato, C. S., & Perse, E. M. (1993). The interpersonal communication motives model. *Communication Quarterly, 41*(2), 172-186.

Green, N. (2001). Who's watching whom? Monitoring and accountability in mobile relations. In B. Brown, N. Green, & R. Harper (Eds.), *Wireless world: Social and interactional aspects of the mobile age* (pp. 32-45). London, UK: Springer-Verlag.

Greenberg, B. S. (1974). Gratifications of television viewing and their correlates for British children. In J. G. Blumler & E. Katz (Eds.), *The uses of mass communication: Current perspective on gratifications research* (pp. 71-92). Beverly Hills, CA: Sage Publications.

Greene, A. L., Wheatley, S. M., & Aldava, J. F., IV. (1992). Stages on life's way: Adolescents' implicit theories of the life course. *Journal of Adolescent Research, 7*(3), 364-381.

Grotevant, H. D., & Cooper, C. R (1986). Individuation in family relationship: A perspective on individual differences in the development of identity and role-taking. *Human Development, 29*(2), 82-100.

Grusec, J. E., & Goodnow, J. J. (1994). Impact of parental discipline methods on the child's internalization of values: A reconceptualization of current points of view. *Developmental Psychology, 30*(1), 4-19.

Gudykunst, W. B. (2001). *Asian American ethnicity and communication.* Thousand Oaks, CA: Sage Publication.

Haddon, L. (2004). *Information and communication technologies in everyday life: A concise introduction and research guide.* New York, NY: Berg.

Hampton, K. N., & Wellman, B. (2002). The not so global village of Netville. In B. Wellman & C. Haythornthwaite (Eds.), *The Internet in everyday life* (pp. 345-371). Malden, MA: Blackwell Publishing.

Harper, R. (2005). From teenage life to Victorian morals and back: Technological change and teenager life. In P. Glotz, S. Bertschi, & C. Locke (Eds.), *Thumb culture: The meaning of mobile phones for society* (pp. 101-113). New Brunswick, NJ: Transaction Publishers.

Haythornthwaite, C., & Wellman, B. (2002). The Internet in everyday life: An introduction. In B. Wellman & C. Haythornthwaite (Eds.), *The Internet in everyday life* (pp. 3-41). Malden, MA: Blackwell Publishing.

Holmes, D., & Russell, G. (1999). Adolescent CIT use: Paradigm shifts for educational and cultural practices? *British Journal of Sociology of Education, 20*(1), 69-78.

Howard, P. E. N., Rainie, L., & Jones, S. (2001). Days and Nights on the Internet: The impact of a diffusing technology. *American Behavioral Scientist, 45*(3), 383-404.

Howard, P. E. N., Rainie, L., & Jones, S. (2002). Days and Nights on the Internet. In B. Wellman & C. Haythornthwaite (Eds.), *The Internet in everyday life* (pp. 45-73). Malden, MA: Blackwell Publishing.

Hindman, D. B., & Coyle, K. (1999). Audience orientations to local radio coverage of a natural disaster: A case study. *Journal of Radio Studies, 6*(1), 8-26.

Hirschburg, P. L., Dillman, D. A., & Ball-Rokeach, S. J. (1986). Media systems dependency theory: Responses to the eruption of Mt. St. Helens. In S. J. Ball-Rokeach & M. G. Cantor (Eds.), *Media, audience and social structure* (pp. 117-126). Newbury Park, CA: Sage Publications.

Hoffman, J. A. (1984). Psychological separation of late adolescents from their parents. *Journal of Counseling Psychology, 31*(2), 170-178.

Ito, M. (2005). Mobile phones, Japanese youth, and the re-placement of social contact. In, R. Ling & P. E. Pedersen (Eds.), *Mobile communications: Re-negotiation of the social sphere* (pp. 131-148). London, UK: Springer.

Ishii, K. (2006). Implications of mobility: The uses of personal communication media in everyday life. *Journal of Communication, 56*(2), 346-365.

Kandel, D. B. (1985). On processes of peer influences in adolescent drug use: A developmental perspective. *Advances in Alcohol & Substance Abuse, 4*(3/4), 139-163.

Kang, J. G., Perry, S. D., & Kang, S (1999). The relation between television viewing and the values orientations of Japanese students. *Mass Communication & Society, 2*(3/4), 147-161.

Kasesniemi, E.-L. (2003). *Mobile message: Young people and a new communication culture.* Tampere, Finland: Tampere University Press.

Katz, E., Blumler, J. G., & Gurevitch, M. (1974). Utilization of mass communication by the individual. In J. G. Blumler & E. Katz (Eds.), *The use and mass communications: Current perspectives on gratifications research* (pp. 19-32). Beverly Hills, CA: Sage Publications.

Katz, E., Haas, H., & Gurevitch, M. (1973). On the use of the mass media for important things. *American Sociological Review, 38* (2), 164-181.

Katz, J. E. (1997). Social and organizational consequences of wireless communications: A selective analysis of residential and business sectors in the United States. *Telematics and Informatics, 14*(3), 223-256.

Katz, J. E. (ed.) (2003). *Machines that become us.* New Brunswick, NJ: Transaction.

Katz, J. E. (2006). *Magic in the air: Mobile communication and the transformation of social life*. New Brunswick, NJ: Transaction Publishers.

Katz, J. E., & Aakhus, M. (2002). Introduction: Framing the issues. In J. E. Katz & M. Aakhus (Eds.), *Perpetual contact: Mobile communication, private talk, public performance* (pp. 1-14). Cambridge, UK: Cambridge University Press.

Katz, J. E., & Aspden, P. (1997). A national of strangers? *Communications of ACM, 40*(12), 81-86.

Katz, J. E., & Rice, R. E. (2002a). Project Syntopia: Social consequences of Internet uses. *IT & Society, 1*(1), 166-179.

Katz, J. E., & Rice, R. E. (2002b). *Social consequences of Internet use: Access, involvement, and interaction.* Boston, MA: MIT Press.

Katz, J. E., & Rice, R. E. (2002c). Syntopia: Access, civic involvement, and social interaction on the Net. In B. Wellman & C. Haythornthwaite (Eds.), *The Internet in everyday life* (pp. 114-138). Malden, MA: Blackwell Publishing.

Katz, J. E., Rice, R. E., & Aspden, P. (2001). The Internet, 1995-2000: Access, civic involvements, and social interaction. *American Behavioral Scientist, 45*(3), 405-419.

Katz, J. E., & Sugiyama, S. (2006). Mobile phones as fashion statements: Evidence from student surveys in the US and Japan. *New Media Society, 8*(2), 321-337.

Kavanaugh, A. L., & Patterson, S. J. (2001). The impact of community computer networks on social capital and community involvement. *American Behavioral Scientist, 45*(3), 496-509.

Kavanaugh, A. L., & Patterson, S. J. (2002). The impact of community computer: Networks on social capital and community involvement in Blacksburg. In B. Wellman & C. Haythornthwaite (Eds.), *The Internet in everyday life* (pp. 325- 344). Malden, MA: Blackwell Publishing.

Kim, H. (2006, June). *The configurations of social relationships in communication channels: F2F, email, messenger, mobile phone, and SMS*. Paper presented at the meeting of the International Communication Association Pre-Conference: After the Mobile Phone? Social Changes and the Development of Mobile Communication, Erfurt, Germany.

Kim, J. K. (1980). Explaining acculturation in a communication framework: An empirical test. *Communication Monograph, 47*(3), 155-179.

Kim, Y. Y. (1988). *Communication and cross-cultural adaptation: An integrative theory.* Philadelphia, PA: Multilingual Matters.

Kim, Y. Y. (2001). *Becoming intercultural: An integrative theory of communication and cross-cultural adaptation.* Thousand Oaks, CA: Sage Publications.

Knodel, J. (1993). The design and analysis of focus group studies: A practical approach. In D. L. Morgan (Ed.), *Successful focus groups: Advancing the state of the art* (pp. 35-50). Newbury Park, CA: Sage Publications.

Kopomaa, T. (2000). *The city in your pocket: Birth of the mobile information society.* Helsinki, Finland: Gaudeamus Kirja.

Kraut, R., Kiesler, S., Boneva, B., Cummings, J., Hegelson, V., & Crawford, A. (2002). Internet paradox reviewed. *Journal of Social Issue, 58*(1), 49-74.

Kraut, R., Kiesler, S., Mukopadhyay, T., Scherlis, W., & Patterson, M., Lundmark, V. (1998a). Social impact of the Internet: What does it mean? *Communication of the ACM, 41*(12), 21-22.

Kraut, R., Patterson, M., Lundmark, V., Kiesler, S., Mukopadhyay, T., & Scherlis, W. (1998b). Internet paradox: A social technology that reduces social involvement and psychological well-being? *American Psychologist, 53*(9), 1017-1031.

Larson, R., & Richards, M. H. (1994). *Divergent realities: The emotional lives of mothers, fathers, and adolescents.* New York, NY: Basic Books.

Lasen, A. (2005). History repeating? A comparison of the launch and use of fixed and mobile phones. In L. Hamill & A. Lasen (Eds.), *Mobile World: Past, present and future* (pp. 29-60). London, UK: Springer.

Lemish, D., & Cohen, A. A. (2005). Mobiles in the family: Parents, children and the third person effect. In K. Nyiri (Ed.), *Seeing, understanding, learning in the mobile age: A Proceeding of the Hungarian Academy of Sciences Conference* (pp. 13-18). Budapest, Hungary.

Lerner, R. M., & Kauffman, M. B. (1985). The concept of development in contextualism. *Developmental Review, 5*(4), 309-333.

Leung, L. (2001). College student motives for chatting on ICQ. *New Media & Society, 3*(4), 483-500.

Leung, L., & Wei, R. (1999). Who are the mobile phone have-nots? Influences and consequences. *New Media & Society, 1*(2), 209-226.

Leung, L., & Wei, R. (2000). More than just talk on the move: Uses and gratification of cellular phone. *Journalism and Mass Communication Quarterly, 77*(2), 308-320.

Licoppe, C., & Heurtin, J. P. (2001). Managing one's availability to telephone communication through mobile phones: A French case study of the development dynamics of mobile phone use. *Personal and Ubiquitous Computing, 5*(2), 99-108.

Lindlof, T. R., & Taylor, B. C. (2002). *Qualitative communication research methods* (2nd Ed.), Thousand Oaks, CA: Sage Publications.

Ling, R. (2004). *The mobile connection: The cell phone's impact on society*. San Francisco, CA: Morgan Kaufmann Publishers.

Ling, R., & Helmersen, P. (2000). *It must be necessary, it has to cover a need: The adoption of mobile telephony among pre-adolescents and adolescents.* Paper presented at the conference on the social consequences of mobile phone. 16 June 2000, Oslo, Norway.

Ling, R., & Yttri, B. (2002). Hyper-coordination via mobile phones in Norway. In J. E. Katz & M. Aakhus (Eds.), *Perpetual contact: Mobile communication, private talk, public performance* (pp. 139-169). Cambridge, UK: Cambridge University Press.

Ling, R., & Yttri, B. (2006). Control, emancipation, and status: The mobile telephone in teens' parental and peer relationship. In R. Kraut, M. Brynin, & S. Kiesler (Eds.), *Computer, phones, and the Internet: Domesticating information technology* (pp. 219-234). New York, NY: Oxford University Press.

Ling, R., Yttri, B., Anderson, B., & DiDuca, D. (2003). Mobile Communication and social capital in Europe. In K. Nyiri (Ed.), *Mobile democracy: Essays on society, self, and politics* (pp. 359-373). Vienna: Passagen Verlag.

Loevinger, L. (1968). The ambiguous mirror: The reflective-projective theory of broadcasting and mass communication. *Journal of Broadcasting, 12*(2), 243-259.

Loges, W. E., & Ball-Rokeach, S. J. (1993). Dependency relations and newspaper readership. *Journalism Quarterly, 70*(3), 602-614.

Lowery, S. A., DeFleur, M. L. (1995). *Milestones in mass communication research: Media effects* (3rd. Ed.). White Plains, NY: Longman Publishers.

Lowrey, W. (2004). Media dependency during a large-scale social disruption: The case of September 11. *Mass Communication & Society, 7*(3), 339-357.

Mahler, M. S. (1968). *On human symbiosis and the vicissitudes of individuation.* New York, NY: International Universities Press.

Matsuda, M. (2005a). Discourses of Keitai in Japan. In M. Ito, D. Okabe, & M. Matsuda (Eds.), *Personal, portable, pedestrian: Mobile phones in Japanese life* (pp. 19-39). Cambridge, MA: MIT.

Matsuda, M. (2005b). Mobile communications and selective sociality. In M. Ito, D. Okabe, & M. Matsuda (Eds.), *Personal, portable, pedestrian: Mobile phones in Japanese life* (pp. 123-142). Cambridge, MA: MIT.

Maxwell, J. A. (2005). *Qualitative research design: An interactive approach* (2nd Ed.). Thousand Oaks, CA: Sage Publications.

McLuhan, M. (1969). *Understanding media: The extensions of man.* Cambridge, MA: The MIT Press.

Merton, R. K., Fiske, M., & Kendall, P. L. (1990). *The focused interview: A manual of problems and procedures* (2nd Ed.). New York, NY: The Free Press.

Meyrowitz, J. (1985). *No sense of place: The impact of electronic media on social behavior.* New York, NY: Oxford University Press.

Meyrowitz, J. (2003). Global nomads in the digital veldt. In K. Nyiri (Ed.), *Mobile democracy: Essays on society, self, and politics* (pp. 91-102). Vienna: Passagen Verlag.

Mitchell, B. A. (2006). *The boomerang age: Transitions to adulthood in families.* New Brunswick, NJ: Transaction Publishers.

Morgan, D. L. (1988). *Focus groups as qualitative research.* Newbury Park, CA: Sage Publications.

Morgan, D. L. (2003). Focus groups. In N. Fielding (Ed.), *Interviewing* (Vol. I) (pp. 323-346). Thousand Oaks, CA: Sage Publications.

Morgan, D. L., & Krueger, R. A. (1993). When to use focus groups and why. In D. L. Morgan (Ed.), *Successful focus groups: Advancing the state of the art* (pp. 3-19). Newbury Park, CA: Sage Publications.

Morrison, D. E. (1998). *The search for a method: Focus groups and the development of mass communication research.* Luton, Bedfordshire, U.K.: University of Luton Press.

Nie, N. H. (2001). Sociability, interpersonal relations, and the Internet: Reconciling conflicting findings. *American Behavioral Scientist, 45*(3), 420-435.

Nie, N. H., & Erbring, L. (2000). *Internet and society.* Retrieved January 13, 2007 from http://www.stanford.edu/group/siqss/Press_Release/Preliminary_Report.pdf

Nie, N. H., Hillygus, D. S., & Ergring, L. (2002). Internet use, interpersonal relations, and sociability. In B. Wellman & C. Haythornthwaite (Eds.), *The Internet in everyday life* (pp. 216-243). Malden, MA: Blackwell Publishing.

Norris, P. (1996). Does television erode social capital? A reply to Putnam. *Political Science and Politics, 29*(3), 474-480.

Oksman, V., & Rautiainen, P. (2002). Perhaps it is a body part: How the mobile phone became an organic part of the everyday lives of Finnish children and teenagers. In J. E. Katz (Ed.), *Machines that become us: The social context of personal communication technology* (pp. 293-308), New Brunswick, NJ: Transaction Publishers.

Palen, L., Salzman, M., & Youngs, E. (2000, December). Going wireless: Behavior & practice of new mobile phone users. *Proceedings of the 2000 ACM conference on Computer supported cooperative work* (pp. 201-210). Philadelphia, PA.

Park, W. K. (2005). Mobile phone addiction. In R. Ling & P. E. Pedersen (Eds.), *Mobile communications: Re-negotiation of the social sphere* (pp. 253-272). Surrey, UK: Springer.

Paterson, R., Petrie, D., & Willis, J. (1995). Introduction. In D. Petie & J. Willis (Eds.), *Television and the household: Reports from the BFI's audience tracking study* (pp. 1-10). London, UK: British Film Institute.

Pavlik, J. V. (1996). *New media technology: Cultural and commercial perspectives.* Boston, MA: Ally and Bacon.

Pavlik, J. V., & McIntosh, S. (2004). *Converging media: An introduction to mass communication.* Boston, MA: Pearson Education.

Perse, E. M. (2004). Television affinity scale. In R. B. Rubin, P. Palmgreen, & H. E. Sypher (Eds.), *Communication research measures: A sourcebook* (pp. 367-370). New York, NY: The Guilford Press.

Persson, A. (2001). Intimacy among strangers: On mobile telephone calls in public places. *Journal of Mundane Behavior, 2*(3). Retrieved January 10, 2007 from http://www.mundanebehavior.org/issues/v2n3/persson.htm

Peterson, A. C., & Craighead, W. E. (1986). Emotional and personality development in normal adolescents and young adults. In G. L. Klerman (Ed.), *Suicide and depression among adolescents and young adults* (pp. 17-52). Washington, D.C.: American Psychiatric Press.

Procidano, M. E., & Heller, K. (1983). Measures of perceived social support from friends and from family: Three validation studies. *American Journal of Community Psychology, 11*(1), 1-24.

Putnam, R. D. (1995a). Bowling alone: America's declining social capital. *Journal of Democracy, 6*(1), 65-78.

Putnam, R. D. (1995b). Tuning in, tuning out: The strange disappearance of social capital in America. *PS: Political Science & Politics, 28*(4), 664-683.

Putnam, R. D. (2000). *Bowling alone: The collapse and revival of American Community.* New York, NY: Simon & Schuster.

Rainie, L. (2006). PEW Internet project data memo. *PEW Internet and American Life Project*. Retrieved January 10, 2007 from http://www.pewinternet.org/pdfs/PIP_Cell_phone_study.pdf

Rakow, L. F., & Vavarro, V. (1993). Remote mothering and the parallel shift: Women meet the cellular telephone. *Critical Studies in Mass Communication, 10*(2), 144-157.

Rheingold , H. (2002). *Smart mobs: The next social revolution*. Cambridge, MA: Perseus Publishing.

Rice, R. E. (2002). Primary issue in Internet use: Access, civic and community involvement, and social interaction and expression. In L. Lievrouw & S. Livingstone (Eds.), *Handbook of new media: Social shaping and consequences of ICTs* (pp. 106-129). Thousand Oaks, CA: Sage Publications.

Riley, J. W., Cantwell, R. V., & Ruttiger, K. F. (1949). Some observations on the social effects of television. *The Public Opinion Quarterly, 13*(2), 223-234.

Robinson, J. P., & Alvarez, A. S. (2005). The social impact of the Internet: A 2003 update. In W. H. Dutton, B. Kahin, R. O'Callaghan, & A. W. Wyckoff (Eds.), *Transforming Enterprise: The economic and social implications of information technology* (pp. 438-465). Cambridge, MA: The MIT Press.

Rose, S. M. (1984). How friendships end: Patterns among young adults. *Journal of Social and Personal Relationships, 1*(3), 267-277.

Rubin, A. M. (1981). An examination of television viewing motivations. *Communication Research, 8*(2), 141-165.

Rubin, A. M., & Rubin, R. B. (1982). Contextual age and television use. *Human Communication Research, 8*(3), 228-244.

Rubin, R. B., Perse, E. M., & Barbato, C. A. (1988). Conceptualization and measurement of interpersonal communication motives. *Human Communication Research, 14*(4), 602-628.

Sawhney, H., & Gomez, H. (2000). *Communication patterns in domestic life: Preliminary ethnographic study.* Retrieved January 10, 2007 from http://web.media.mit.edu/~nitin/ethno/DomesticEthno.pdf

Scarr, S. (1993). Biological and cultural diversity: the legacy of Darwin for development. *Child Development, 64*(5), 1333-1353.

Scarr, S., & McChatney, K. (1983). How people make their own environments: A theory of genotype environment effects. *Child Development, 54*(2), 424-425.

Schneider, B., & Stevenson. D. (1999). *The ambitious generation: America's teenagers, motivated but directionless.* New Haven, CT: Yale University Press.

Schramm, W. (1971). The nature of communication between humans. In W. Schramm & D. Roberts (Eds.), *The process and effects of mass communication* (Revised Ed.) (pp. 3-53). Urbana, IL: University of Illinois Press.

Skog, B. (2002). Mobiles and the Norwegian teen: Identity, gender, and class. In J. E. Katz & M. Aakhus (Eds.), *Perpetual contact: Mobile communication, private talk, public performance* (pp. 255-273). Cambridge, UK: Cambridge University Press.

Spungin, P. (2006). Family and relationships: The influence of the mobile phone on the family. *The Carphone Warehouse* (pp. 27-34). Retrieved January 10, 2007 from http://www.mobilelife2006.co.uk/

Srivastava, L. (2005). Mobile phones and the evolution of social behaviour. *Behaviour & Information Technology, 24*(2), 111-129.

Stewart, D. W., Shamdasani, P. N., & Rook, D. W. (2007). *Focus group: Theory and practice* (2nd Ed.). Thousand Oaks, CA: Sage Publications.

Straus, S. G. (1997). Technology, group process, and group outcomes: Testing the connections in computer-mediated and face-to-face groups. *Human-Computer Interaction, 12*(3), 227-266.

Strauss, A., & Corbin, J. (1998). *Basics of qualitative research: Techniques and procedures for developing grounded theory* (2nd Ed.). Thousand Oaks, CA: Sage Publications.

Sugiyama, S. (2005, November). *At home abroad: College students' experience of interpersonal communication technologies and intercultural assimilation.* Paper presented at the meeting of the 91st annual convention of the National Communication Association, Boston, MA.

Sugiyama, S., & Katz, J. E. (2003). Social conduct, social capital and the mobile phone in the U.S. and Japan: A preliminary exploration via student survey. In K. Nyiri (Ed.), *Mobile democracy: Essays on society, self, and politics* (pp. 375-385). Vienna: Passagen Verlag.

Tan, A., Fujioka, Y., Bautista, D., Maldonado, R., Tan, G., & Wright, L. (2000). Influence of television use and parental communication on educational aspirations of Hispanic children. *The Howard Journal of Communications, 11*(2), 107-125.

Taylor, A. S., & Harper, R. (2003). The gift of the gab? A design oriented sociology of young people's use of mobiles. *Computer Supported Cooperative Work, 12*(3), 267-296.

The Carphone Warehouse (2006). *The mobile life report 2006: How mobile phones change the way we live.* Retrieved January 10, 2007 from http://www.mobilelife2006.co.uk/

The Pew Internet and American life project (2000). *Tracking online life: How women use the Internet to cultivate relationships with family and friends.* Retrieved January 14, 2007 from http://207.21.232.103/pdfs/Report1.pdf

Ting-Toomey, S. (1999). *Communicating across cultures.* New York, NY: The Guilford Press.

Tollmar, K., & Persson, J. (2002). Understanding remote presence. *Proceedings of NordiCHI 2002* (pp. 41-49). Aarhus, Denmark, ACM.

Townsend, A. M. (2002). Mobile communication in the twenty-first century city. In B. Brown, N. Green, & R. Harper (Eds.), *Wireless World: Social and interactional aspects of the mobile age* (pp. 62-77). New York, NY: Springer.

Traugott, M. W., Joo, S.-H., Ling, R., & Quian, Y. (2006). On the move: The role of cellular communications in American life. *University of Michigan.* Retrieved January 13, 2007 from http://141.211.177.75/UofM/Content/comm/document/OnTheMove.pdf

Turkle, S. (1995). *Life on the screen: Identity in the age of the Internet.* New York, NY: Touchstone.

Turkle, S. (1996). Virtuality and its discontents: Searching for community in cyberspace. *The American Prospect, 7*(24), 50-57.

Turner, R. H., & Paz, D. H. (1986). The mass media in earthquake warning. In S. J Ball-Rokeach & M. G. Cantor (Eds.), *Media, audience and social structure* (pp. 99-115). Newbury Park, CA: Sage Publications.

Vincent, J. (2005). Emotional attachment and mobile phones. In P. Glotz, S. Bertschi, & C. Locke (Eds.), *Thumb culture: The meaning of mobile phones for society* (pp. 117-122). New Brunswick, NJ: Transaction Publishers.

Viswanath, K., & Arora, P. (2000). Ethnic media in the United States: An essay on their role in integration, assimilation, and social control. In D. Demers (Ed.), *Mass communication & society* (pp. 39-56). Mahwah, NJ: Lawrence Erlbaum Associates.

Walther, J. B. (1996). Computer-mediated communication: impersonal, interpersonal, and hyperpersonal interaction. *Communication Research, 23*(1), 3-43.

Wellman, B., Haase, A. Q., Witte, J., & Hampton, K. (2001). Does the Internet increase, decrease, or supplement social capital? *American Behavior Scientist, 45*(3), 436-455.

Wellman, B., & Tindall, D. B. (1993). How telephone networks connect social networks. In W. D. Richards, Jr. & G. A. Barnett (Eds.), *Progress in communication sciences* (vol. XII) (pp. 63-93). Norwood, NJ: Ablex Publishing Corporation.

Wolff, B., Knodel, J., & Sittitrai, W. (1993). Focus groups and surveys as complementary research methods. In D. L. Morgan (Ed.), *Successful focus groups: Advancing the state of the art* (pp. 118-136). Newbury Park, CA: Sage Publications.

Appendix A

Focus group questions

1. Do you have the mobile phone?
   a. How long have you owned the mobile phone?
   b. Why do you need the mobile phone?

2. How do you use the mobile phone in every day life?
   a. How long (on average) do you use the mobile phone per day?
   b. When do you most frequently use the mobile phone in a given day?
   c. Who do you contact most frequently by the mobile phone?
   d. Why do you use the mobile phone?
   e. In what situations do you find that you most frequently utilize the mobile phone?
   f. In what situations if any, do you find it most appropriate to use the mobile phone?
   g. In what situations do you perceive it to be inappropriate to use the mobile phone?

3. Since you got the mobile phone, how, if at all, do you consider your life to be different?
   a. Relationships with family
      i.   Parents
      ii. Siblings
      iii. Grandparents
      iv. Other relatives
   b. Relationships with friends
      i.   Boy/girl friends
      ii. Close friends
      iii. Not-so-close friends

4. How would you describe mobile phones in general? These perceptions may include that regarding your own use and/or others' use.

Appendix B.1

Pre-test feedback

1. How long did it take you to finish this survey?

2. Do you think this survey is manageable for other undergraduate students? Please provide some reasons to explain your opinions.

3. What do you think about these questions in the survey? Do you find that these questions are difficult to answer or confusing to answer? If so, please indicate those questions and provide reasons as to why.

4. Does any question in the survey make you uncomfortable to answer? If so, please indicate those questions and provide reasons as to why.

5. What do you think about the answer sheet design?

6. Other comments/suggestions regarding this questionnaire?

Appendix B.2

Survey questionnaire

Dear Student,

I am a graduate student doing a study on the mobile phone. Your opinions will help me understand how people use the mobile phone in their daily life. If you would like additional information regarding this study, including results, before or after its completion, please feel free to contact me. This study is completely voluntary and anonymous, and you can terminate your participation at any time.

Thank you!
Yi-Fan Chen/yfchen@scils.rutgers.edu

If you have completed this survey for another class, please check here _____.

Instructions:
Please give your opinion about the following questions. There is no wrong or right answer. If you don't know a precise answer, just give your best guess. DO NOT write in your name or student identification number on the questionnaire. Use a pencil or a black or blue ink pen.

Please indicate the degree to which you agree or disagree with the following statements as they apply to _____. Use the following scale and circle one number for each statement to indicate your feelings.

> **1= strongly disagree**
> **2= moderately disagree**
> **3= slightly disagree**
> **4= agree some and disagree some**
> **5= slightly agree**
> **6= moderately agree**
> **7= strongly agree**

By use of the mobile phone

		Strongly Disagree ⬇						**Strongly Agree** ⬇
1.	My friends give me the moral support I need.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
2.	Most other people are closer to their friends than I am.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
3.	My friends enjoy hearing about what I think.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
4.	Certain friends come to me when they have problems or need advice.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
5.	I rely on my friends for emotional support.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
6.	If I felt that one or more of my friends were upset with me, I'd just keep it to myself.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
7.	I feel that I'm on the fringe in my circle of friends.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :

By use of the mobile phone

		Strongly Disagree ⬇						Strongly Agree ⬇
8.	There is a friend I could go to if I were just feeling down, without feeling funny about it later.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
9.	My friends and I are very open about what we think about things.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
10.	My friends are sensitive to my personal needs.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
11.	My friends come to me for emotional support.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
12.	My friends are good at helping me solve problems.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
13.	I have a deep sharing relationship with a number of friends.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
14.	My friends get good ideas about how to do things or make things from me.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
15.	When I confide in friends, it makes me feel uncomfortable.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
16.	My friends seek me out for companionship.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
17.	I think that my friends feel that I'm good at helping them solve problems.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
18.	I don't have a relationship with a friend that is as intimate as other people's relationships with friends.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
19.	I've recently gotten a good idea about how to do something from a friend.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
20.	I wish my friends were much different.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :

By use of the mobile phone

		Strongly Disagree ⬇						Strongly Agree ⬇
21.	My family gives me the moral support I need.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
22.	I get good ideas about how to do things or make things from my family.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
23.	Most other people are closer to their family than I am.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
24.	When I confide in the members of my family who are close to me, I get the idea that it makes them uncomfortable.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
25.	My family enjoys hearing about what I think.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
26.	Members of my family share many of my interests.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
27.	Certain members of my family come to me when they have problems or need advice.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
28.	I rely on my family for emotional support.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
29.	There is a member of my family I could go to if I were just feeling down, without feeling funny about it later.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
30.	My family and I are very open about what we think about things.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
31.	My family is sensitive to my personal needs.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
32.	Members of my family come to me for emotional support.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
33.	Members of my family are good at helping me solve problems.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
34.	I have a deep sharing relationship with a number of members of my family.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
35.	Members of my family get good ideas about how to do things or make things from me.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
36.	When I confide in members of my family, it makes me uncomfortable.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
37.	Members of my family seek me out for companionship.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :

By use of the mobile phone

38. I think that my family feels that I'm good at helping them solve problems.   : 1 : 2 : 3 : 4 : 5 : 6 : 7 :
39. I don't have a relationship with a member of my family that is as close as other people's relationship with family members.   : 1 : 2 : 3 : 4 : 5 : 6 : 7 :
40. I wish my family were much different.   : 1 : 2 : 3 : 4 : 5 : 6 : 7 :

Which best describes you?

Strongly
Disagree

Strongly
Agree

41. Using the mobile phone is one of the more important things I do each day.   : 1 : 2 : 3 : 4 : 5 : 6 : 7 :
42. If my mobile phone wasn't working, I would really miss it.   : 1 : 2 : 3 : 4 : 5 : 6 : 7 :
43. Using the mobile phone is very important in my life.   : 1 : 2 : 3 : 4 : 5 : 6 : 7 :
44. I could easily do without the mobile phone for several days.   : 1 : 2 : 3 : 4 : 5 : 6 : 7 :
45. I would feel lost without the mobile phone to use.   : 1 : 2 : 3 : 4 : 5 : 6 : 7 :

I talk to **my family by the mobile phone**

Strongly
Disagree

Strongly
Agree

46. Because it's fun   : 1 : 2 : 3 : 4 : 5 : 6 : 7 :
47. Because it's exciting   : 1 : 2 : 3 : 4 : 5 : 6 : 7 :
48. To have a good time   : 1 : 2 : 3 : 4 : 5 : 6 : 7 :
49. Because it's thrilling   : 1 : 2 : 3 : 4 : 5 : 6 : 7 :
50. Because it's stimulating   : 1 : 2 : 3 : 4 : 5 : 6 : 7 :
51. Because it's entertaining   : 1 : 2 : 3 : 4 : 5 : 6 : 7 :
52. Because I enjoy it   : 1 : 2 : 3 : 4 : 5 : 6 : 7 :
53. Because it peps me up   : 1 : 2 : 3 : 4 : 5 : 6 : 7 :
54. To help others   : 1 : 2 : 3 : 4 : 5 : 6 : 7 :
55. To let others know I care about their feelings   : 1 : 2 : 3 : 4 : 5 : 6 : 7 :
56. To thank them   : 1 : 2 : 3 : 4 : 5 : 6 : 7 :
57. To show others encouragement   : 1 : 2 : 3 : 4 : 5 : 6 : 7 :
58. Because I'm concerned about them   : 1 : 2 : 3 : 4 : 5 : 6 : 7 :
59. Because I need someone to talk to or be with   : 1 : 2 : 3 : 4 : 5 : 6 : 7 :
60. Because I just need to talk about my problems sometimes   : 1 : 2 : 3 : 4 : 5 : 6 : 7 :
61. Because it makes me feel less lonely   : 1 : 2 : 3 : 4 : 5 : 6 : 7 :
62. Because it's reassuring to know someone is there   : 1 : 2 : 3 : 4 : 5 : 6 : 7 :
63. To put off something I should be doing   : 1 : 2 : 3 : 4 : 5 : 6 : 7 :
64. To get away from what I am doing   : 1 : 2 : 3 : 4 : 5 : 6 : 7 :
65. Because I have nothing better to do   : 1 : 2 : 3 : 4 : 5 : 6 : 7 :
66. To get away from pressures and responsibilities   : 1 : 2 : 3 : 4 : 5 : 6 : 7 :
67. Because it relaxes me   : 1 : 2 : 3 : 4 : 5 : 6 : 7 :
68. Because it allows me to unwind   : 1 : 2 : 3 : 4 : 5 : 6 : 7 :
69. Because it's pleasant rest   : 1 : 2 : 3 : 4 : 5 : 6 : 7 :

I talk to **my family by the mobile phone**

	Strongly Disagree ⬇						Strongly Agree ⬇
70. Because it makes me feel less tense	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
71. Because I want someone to do something for me	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
72. To tell others what to do	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
73. To get something I don't have	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :

I talk to **my friends by the mobile phone**

	Strongly Disagree ⬇						Strongly Agree ⬇
74. Because it's fun	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
75. Because it's exciting	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
76. To have a good time	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
77. Because it's thrilling	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
78. Because it's stimulating	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
79. Because it's entertaining	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
80. Because I enjoy it	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
81. Because it peps me up	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
82. To help others	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
83. To let others know I care about their feelings	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
84. To thank them	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
85. To show others encouragement	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
86. Because I'm concerned about them	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
87. Because I need someone to talk to or be with	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
88. Because I just need to talk about my problems sometimes	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
89. Because it makes me feel less lonely	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
90. Because it's reassuring to know someone is there	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
91. To put off something I should be doing	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
92. To get away from what I am doing	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
93. Because I have nothing better to do	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
94. To get away from pressures and responsibilities	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
95. Because it relaxes me	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
96. Because it allows me to unwind	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
97. Because it's pleasant rest	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
98. Because it makes me feel less tense	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
99. Because I want someone to do something for me	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
100. To tell others what to do	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
101. To get something I don't have	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :

Please circle **a "best" choice.**

	Strongly Disagree ⬇						Strongly Agree ⬇
102. My mother's wishes have influenced my selection of friends.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
103. My father's wishes have influenced my selection of friends.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
104. My college friends' wishes have influenced my selection of friends.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :

Please circle **a "best" choice.**

	Strongly Disagree ↓						Strongly Agree ↓
105. I ask for my mother's advice when I am planning my vacation time.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
106. I ask for my father's advice when I am planning my vacation time.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
107. I ask for my college friends' advice when I am planning my vacation time.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
108. After being with my mother for a vacation I find it hard to leave her.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
109. After being with my father for a vacation I find it hard to leave him.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
110. After being with my college friends for a vacation I find it hard to leave them.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
111. I sometimes call my mother just to hear her voice.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
112. I sometimes call my father just to hear his voice.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
113. I sometimes call my college friends just to hear their voices.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
114. When I don't contact my mother often enough I feel guilty.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
115. When I don't contact my father often enough I feel guilty.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
116. When I don't contact my college friends often enough I feel guilty.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
117. I feel like I am constantly at war with my mother.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
118. I feel like I am constantly at war with my father.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
119. I feel like I am constantly at war with my college friends.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
120. My beliefs regarding how to raise children are similar to my mother's.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
121. My beliefs regarding how to raise children are similar to my father's.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
122. My beliefs regarding how to raise children are similar to my college friends'.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
123. My attitudes regarding national defense are similar to my mother's.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
124. My attitudes regarding national defense are similar to my father's.	: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
125. My attitudes regarding national defense are similar to my college friends'.							

Please circle **a "best" choice.**

126. When you are at school, which of the following do you use most frequently to get information?
(1) Mobile phone (2) Fixed phone   (3) SMS/IM   (4) e-mail   (5) Television   (6) Internet
(7) Radio   (8) Newspaper   (9) Books   (10) Others (please write down) _____

127. When you are at school, who do you most frequently ask for help about how to do things?
(1) Mother   (2) Father   (3) College friends   (4) Others (please write down) _____

128. What do you use most frequently to communicate with your mother?
(1) Mobile phone (2) Fixed phone   (3) SMS/IM   (4) e-mail
(5) Others (please write down) _____

129. What do you use most frequently to communicate with your father?
(1) Mobile phone (2) Fixed phone   (3) SMS/IM   (4) e-mail
(5) Others (please write down) _____

130. What do you use most frequently to communicate with your college friends?
(1) Mobile phone (2) Fixed phone   (3) SMS/IM   (4) e-mail
(5) Others (please write down) _____

Please circle **a "best" choice.**

131. What year are you?
(1) Freshman   (2) Sophomore   (3) Junior   (4) Senior   (5) Graduate

132. What is your age?
(1) 18-19   (2) 20-21   (3) 22-23   (4) 24-25   (5) 26 above

133. What is your gender? (1) Female   (2) Male

134. Which best describes your ethnicity?
(1) White American   (2) Black/African American   (3) Hispanic American   (4) Asian/Pacific Islander American   (5) Other/Not American (please write down your nationality) _____

135. Where do you currently live?   _____
                                       (City, State, Zip Code)

136. Where does your mother currently live?_____
                                       (City, State, Zip Code or City, Country)

137. Where does your father currently live?   _____
                                       (City, State, Zip Code or City, Country)

Thank you

Appendix C.1

Incoming and outgoing mobile phone call coding sheet

Participant #: _____

Incoming calls

	When	Where	Who	What	Why	How
Call # 1						
Call # 2						
Call # 3						
Call # 4						
Call # 5						
Call # 6						
Call # 7						
Call # 8						
Call # 9						
Call # 10						

Outgoing calls

	When	Where	Who	What	Why	How
Call # 1						
Call # 2						
Call # 3						
Call # 4						
Call # 5						
Call # 6						
Call # 7						
Call # 8						
Call # 9						
Call # 10						

Appendix C 2.1

In-depth interview questions

Participant #: _____

1. Communication with mother
   a. What is the primary communication technology that you use to contact your mother?
   b. Why?
   c. What are your communications about?
   d. How do you feel about using the mobile phone to contact your mother (control/enjoy)… do you like it, dislike it or do you have mixed feeling about it?
   e. Have you ever purposely ignored your mother's calls?
   f. How often?
   g. Why?

2. Communication with father
   a. What is the primary communication technology that you contact your father?
   b. Why?
   c. What are your communications about?
   d. How do you feel about using the mobile phone to contact your father (control/enjoy)… do you like it, dislike it or do you have mixed feeling about it?
   e. Have you ever purposely ignored your father's calls?
   f. How often?
   g. Why?

3. Communication with friends
   a. What is the primary communication technology that you contact your college friends?
   b. Why?
   c. What are your communications about?
   d. How do you feel about using the mobile phone to contact your friends (control/enjoy)… do you like it, dislike it or do you have mixed feeling about it?
   e. Have you ever purposely ignored your friends' calls?
   f. How often?
   g. Why?

4. If you need help at school, which person that you contact the most?

5. If you need information at school, how can you find it?

Appendix C 2.2

In-depth interview questions

Participant #: _____

Please circle a "best" choice.

When you are at school, which of the following do you use most frequently to get information?
(1) Mobile phone   (2) Fixed phone
(3) Instant messaging   (4) E-mail
(5) Television   (6) Internet
(7) Radio   (8) Newspaper
(9) Books   (10) Face-to-face
(11) Others (please write down) _____

When you are at school, who do you most frequently ask for help about how to do things?
(1) Mother   (2) Father
(3) College friends
(4) Others (please write down) _____

What is your major? _____

What year are you?
(1) Freshman   (2) Sophomore
(3) Junior   (4) Senior

 What is your age?
(1) 18-19   (2) 20-21
(3) 22-23   (4) 24-25
(5) 26 above

What is your gender?
(1) Female   (2) Male

Which best describes your ethnicity?
(1) White American   (2) Black/African American
(3) Hispanic American   (4) Asian/Pacific Islander American
(5) Other/Not American (please write down your nationality) _____

How many phone numbers do you have in your mobile "phone book"? _____

Where do you currently live?   _____
                                      (City, State, Zip Code)

Where does your mother currently live?   _____
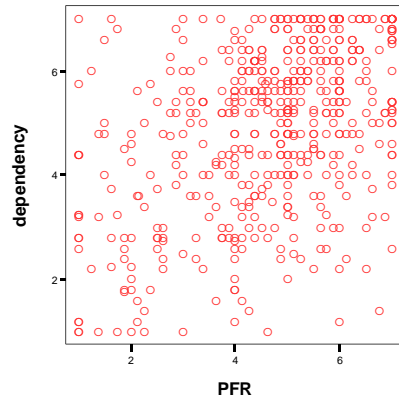   (City, State, Zip Code or City, Country)

Where does your father currently live?   _____
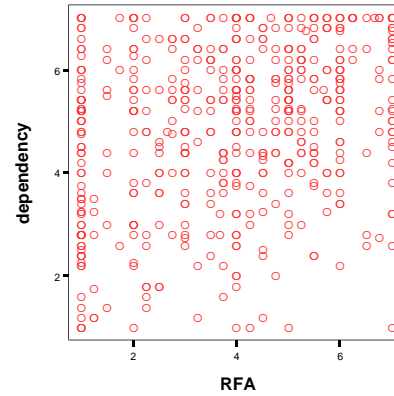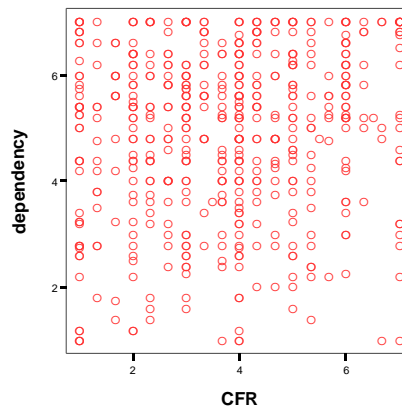   (City, State, Zip Code or City, Country)

Appendix D

Examples of small, medium and large coefficients

Large

Medium

Small

Correlation coefficients of 0.13 (i.e., Self-reported Mobile Phone Dependency vs. Control motive to friends), 0.28 (i.e., Self-reported Mobile Phone Dependency vs. Relaxation motive to family), and 0.43 (i.e., Self-reported Mobile Phone Dependency vs. Pleasure motive to friends), irrespective of sign, may be interpreted as small, medium and large coefficients, respectively (Cohen et al., 2003).

Curriculum Vitae

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Education

2003-2007	Rutgers, The State University of New Jersey, USA Ph.D. in Communication, Information and Library Studies
2002-2003	Marshall University, West Virginia, USA MA in Communication
1995-1997	Marshall University, West Virginia, USA MAJ in Journalism and Mass Communications
1993	National Cheng-Kung University, Tainan, Taiwan BA in Chinese Literature

Academic Experience

2004-	Research associate/Associate director Center for Mobile Communication Studies (CMCS) Rutgers University, New Jersey, USA
2006-	External reviewer Research Grants Council of Hong Kong
2006-2007	Guest lecturer Department of Communication/ Department of Journalism and Media Studies Rutgers University, New Jersey, USA
2006	Research assistant Ajou University, Korea
2005-2006	Graduate assistant Department of Communication Rutgers University, New Jersey, USA
2004-2005	Reader Department of Communication Rutgers University, New Jersey, USA

2003	Research assistant
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1998-2002   Adjunct instructor
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- Far-East University, Tainan, Taiwan
- I-Shou University, Kaohsiung, Taiwan
- National Cheng-Kung University, Tainan, Taiwan
- Southern Taiwan University of Technology, Tainan, Taiwan
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1996-1997   Graduate assistant
The W. Page Pitt School of Journalism and Mass Communications
Marshall University, West Virginia, USA

Publications

- Peer-reviewed journal articles

    Chen, Y.-F. (forthcoming, 2007). Public mobile communication technology use: A comparison between America and Taiwan. *Intercultural Communication Studies, 7*(1).

    Chen, Y.-F. (2006). Social phenomena of mobile phone use: An exploratory study in Taiwanese college students. *Journal of Cyber Culture and Information Society, 11*, 219-244.

- Book chapter

    Katz, J. E., Lever, K., & Chen, Y.-F. (forthcoming). Mobile music as environmental control and pro-social entertainment. In J. E. Katz (Ed.), *Handbook of mobile communication studies*. Cambridge, MA: MIT Press.

- Conference proceedings

    Chen, Y.-F., & Lever, K. M. (2005). Relationships among mobile phones, social networks, and academic achievement: A comparison of US and Taiwanese college students. In K. Nyiri (Ed.), *Seeing, understanding, learning in the mobile age: A Proceeding of the Hungarian Academy of Sciences Conference* (pp. 191-196). Budapest, Hungary.

    Chen, Y.-F. (2004). The relationship of mobile phone use to addiction and depression among American college students. In S. D. Kim (Ed.), *Mobile communication and social change: A Proceeding of the Korean Association of Broadcasting Studies Conference* (pp. 344-352). Seoul, Korea.