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Extending family to school life: College students' use of the mobile phone ☆

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Abstract

The current study seeks to understand 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. Three focus group interviews were conducted on February 1, February 2, and February 15, 2006. A total of 40 undergraduate students who were majoring in communication studies participated in the study. One of the main findings is that the mobile phone is "a must" for college students to keep in contact with their family. Other findings suggest that college students use mobile phones to have more frequent contact with their family and to fulfill family roles. College students also utilize mobile phones to share experiences and emotional and physical support with their parents.
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1. Introduction

1.1. Research motives

Mobile communication technology (e.g., wireless Internet, the mobile phone, MP3 player) uses in American campuses are ubiquitous (Aoki and Downes, 2003; Chen, 2006; Katz et al., 2008). Among various contemporary mobile communication technologies, the mobile phone is defined as "the most radiative domestic appliance ever invented" (Coghill, 2001, p. 28). Various reasons, such as convenience, mobility, safety, and networking were found as to why the mobile phone was favored by its users (Palen et al., 2000; Ling, 2004). Early studies of the mobile phone

showed that safety and accessibility were the primary reasons why people adopted communication technology (Palen et al., 2000). Recent studies (Ling, 2004, 2008) found that networking seems to be the major reason why mobile phone users relied on this communication device.

The mobile phone is also an important communication technology in everyday life. It directly or indirectly affects many aspects of human relationships and human interactions (Katz and Aakhus, 2002; Ling, 2004). Substantial evidence indicates that mobile phone users become highly dependent on the device and express extreme reluctance to give 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). Some scholars (e.g., Ling, 2004; Srivastava, 2005) argued that the mobile phone provided 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

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[2]The survey included over 16,500 people from the UK and was conducted in May and June of 2006.

friends, in spite of the fact that the mobile phone was originally designed for professional and business purposes (De Gournay, 2002; De Vries, 2005).

People around the world (e.g., Germany, UK, USA) have been shown to be often highly emotional about the information contained in and delivered by the mobile phone, and they report that they and their relatives and friends use the device to keep in touch more frequently than before the era of the mobile phone (Vincent, 2005; The Carphone Warehouse, 2006). A survey conducted by Pew Research Center[3] showed that 26% of American mobile phone users claimed that they cannot live without the mobile phone. When asked of a group of mobile phone-only owners,[4] the percentage increased to almost half of them (i.e., 47%) agreeing 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 another American study,[5] the was ranked by Internet users in importance as a device equal with (Traugott et al., 2006).

In a study from the UK, researchers found that mobile phone users felt that they had a sense that were physically attached to the mobile phone. Many of subjects reported that they felt they could not leave home without the mobile phone (Srivastava, 2005). Returning to the Carphone Warehouse study, researchers 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). Another study also found a strong emotional attachment to old phones; users reported keeping their old mobile phones rather than giving them away or discarding them (Srivastava, 2005; The Carphone Warehouse, 2006). 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 adoption and usage modified over time from being perceived as a pure form of interpersonal communication to a socially prominent device which was involved in every aspect of daily life, including the symbolic and representational.

1.2. Significance of study

Along with mobile phone development, a vibrant community of scholars has grown to investigate the impact of the technology (Katz, 2006). There have been several

studies examining family relationship and use of the mobile phone, most notably Ling's (2000, 2004) studies of Norwegian young people and Ito's (2005) studies of Japanese young people. Studies found that younger teens used the mobile phone to avoid parental supervision (Green, 2001; Matsuda, 2005a). Rakow and Navarro's (1993) study focused on mothers using the mobile phone to parent children from remote distances. These studies were limited to either early teens (i.e., Ling, 2004) or parents' perspectives (i.e., Rakow and Navarro, 1993). In contrast, there is a notable lack of research on college student use of the mobile phone to connect or disconnect with their parents at home.

In Geser's (2005) view, the mobile phone enhances "bilateral interaction" (p. 31) between two individuals. The mobile phone offers the users an easy way to escape from unfamiliar places and complicated situations. When college students move away from their parental homes, could mobile phones be a technology that restores and strengthens family ties and provides an easy way for students to escape from their school life? The current study is interested in understanding if there is a pattern in the use of the mobile phone between college students and their family members at home, and to what degree the mobile phone affects students' college life.

2. Theoretical conception and literature review

2.1. The mobile phone: a prejudiced communication technology

The mobile phone, it has been argued, to deregulate time and space controls and to transfer from a location-based social system to a person-based social system (Glotz et al., 2005; Geser, 2005). Many studies (e.g., Ling, 2000, 2004; Skog, 2002) have reported that the mobile phone supports highly social roles in special groups. Moreover, the mobile phone was also found to be a source with which to manage deinstitutionalized privileged relationships (Licoppe and Heurtin, 2001; Fortunati, 2002; Vincent, 2005) and that people actively used the mobile phone to contact family members and close friends (De Gournay, 2002; Ling, 2004; Lasen, 2005; Kim, 2006).

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 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.

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[3]The survey included 1503 American people and was conducted between May 8 and May 28 of 2006.
[4]Mobile phone users who did not have land lines.
[5]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.

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. 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.

2.2. Mobile parenting

Some researchers (Rakow and Navarro, 1993; Kopomaa, 2000; Oksman and Rautiainen, 2002; Ling, 2004) 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 and Yttri, 2006).

On the other hand, teenagers have developed "resistance" skills in their move towards independence and control of their own affairs via the mobile phone (Green, 2001; Taylor and Harper, 2003; Ling, 2004; Ito, 2005). 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's study (as cited in Haddon, 2004) 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. 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 and 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 Tollmar 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.

2.3. Theory

The major theoretical framework of this study was Ball-Rokeach and DeFleur's (1976) Media Dependency Theory.

This 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 and DeFleur, 1976; Ball-Rokeach, 1998).

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.

Mobile communication researchers (e.g., Gergen, 2002; Sugiyama and Katz, 2003; Bull, 2005) argued that people used their mobile communication technologies to explore (e.g., make new friends; create new communities) and to enhance (e.g., keep in touch with friends and family) as well as to isolate (e.g., disconnect themselves from others) their social networking. In this study, Media Dependency Theory provided a framework for demonstrating how college students depended on mobile phones to get information or support from family. This study also attempted to investigate whether college students believed that mobile phones were necessary to maintain and build social networking with family from campus.

3. Research direction

Spungin (2006) commented on "the mobile phone as an umbilical cord" (p. 27)[6] 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 and 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. This study proposes 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

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

words, the current study is interested in 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.

4. Method

Three focus group interviews were conducted on February 1 (Focus Group #1), February 2 (Focus Group #2), and February 15 2006 (Focus Group #3) at Rutgers University, the State University of New Jersey, USA. 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 and Krueger, 1993; Stewart et al., 2007). 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 an effective method to study participants' motivations (i.e., mobile phone use in this study) in interactive friendly settings (Morgan and Krueger, 1993).

Several focus group interview questions (e.g., "How can you contact your family from school?" "Since you got the mobile phone, how, if at all, do you consider your college life to be different?") were asked to understand on mobile phone use between college students on campus and their family members at home. These questions were designed based on prior research on mobile phone use, more than 2 years of participant observation in the university, discussions with individuals in the university, and popular literature on media impact in everyday life.

4.1. 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 and 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' family communication. Participants were from four different upper-level communication classes. Most of the participants (over 75%) were female. All of participants had mobile phones. The primary ICT they used to contact their parents was the mobile phone.

4.2. 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 and 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 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 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).

4.3. 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 and 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.

5. 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) 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 Focus Group #1 and #2, participants also mentioned that the mobile phone was the major Information and Communication Technology (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.

The mobile phone was also the most important ICT for contact with close friends (e.g., Focus Group #1, #2, and #3) and the other important family members other than parents (e.g., Focus Group #3). Some of the participants 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). Some of them (e.g., a male and a female participant from Focus Group #1, two female participants from Focus Group #2) 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). Others called their parents to keep in touch (e.g., a male participant from Focus Group #2). 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.

Communication with family members was in many of the female participants' and a few male participants' daily routine. Many female participants said that they call home at least once a day. Some of the female participants 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.

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.

5.1. 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 (e.g., Participants from Focus Group #2, #3) reported that they called their parents no matter where they were and what time it was. The male participant from 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).

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 appreciated this "perpetual contact" by the mobile phone (Katz and 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).
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> 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 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.

5.2. 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 interviews reported that they had communicated with their parents almost everyday. 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. They reported, interestingly enough, that some female participants 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; Taylor and Harper, 2003; Ling, 2004) 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 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 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. 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."

Many female participants 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.

Participants reported that they called their mothers on the campus streets, on the campus buses, or walking to the next class. Some male participants 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 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). 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).

> 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).

5.3. Sharing experiences

Participants from interviews (e.g., participants from Focus Group #3) reported that their parents called them for "everything" on the mobile phone. A few female participants 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) 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.

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 she 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).

5.4. Asking for help from each other

Participants, 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. She 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 min. 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. A female participant from Focus Group #2 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., Focus Group #2), and picking something up on the way home (e.g., Focus Group #3).

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.

5.5. 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."

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).

5.6. 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 follows:

> 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).

5.7. 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.

6. Discussion and implications

Since the late 1990s, the mobile phone has gained in popularity (Townsend, 2002; Ishii, 2006). 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 (Rakow and Navarro, 1993; Kopomaa, 2000; Oksman and Rautiainen, 2002; Ling, 2004) and teens who live at home use the mobile phone to gain their freedom from parental control (Green, 2001; Taylor and Harper, 2003; Ling, 2004; Ito, 2005). After three 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.

6.1. An "umbilical cord" between parents and college students

Drawing from 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. 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 et al. (2007) arguments. Castells et al. (2007) note that the mobile phone may foster better parent–child relationships.

6.1.1. 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. Participants 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.

6.1.2. More than increases trust

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. Several of them report that they like their parents' concern about their life at school. Some male participants 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. Many participants also 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.

6.1.3. 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. Some participants 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, findings show that participants also give quick feedback to their family by use of the mobile phone.

Participants report that they depend on the mobile phone to get emotional support from family. Female participants 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." 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.

6.2. Better parent–child relationships through the use of the mobile phone

Several participants report that their relationships with their parents are better in college than in high school because of the mobile phone. Many students 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 show that participants contact family anytime and anyplace for "everything." Some participants' 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."

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 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 general, their mothers also contact them more often than 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; Taylor and Harper, 2003; Ling, 2004; Ito, 2005) 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."

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." 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. 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.

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. In the 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.

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 and 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.

7. Limitations and future studies

Although this study illuminates some interesting aspects of how college students depend on the mobile phone to connect with family, limitations should be mentioned. One of the major methodological limitations pertains to sampling methods. In these focus group interviews, convenience sampling techniques were used in collecting this data 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.

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., Rakow and Navarro, 1993; De Gournay, 2002; Ling, 2004) related to parents and young teens' connections by the mobile phone have been

conducted. Most of them were focused on parents' perspectives (e.g., Rakow and Navarro, 1993; De Gournay, 2002) or younger teens' perspectives (e.g., Kopomaa, 2000; Ling, 2004; Ito, 2005). There is a need for more research on adults' desire to connect with their parents via the mobile phone.

8. Conclusion

Studies (e.g., Green, 2001; Taylor and Harper, 2003; Ling, 2004; Ito, 2005) 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., Rakow and Navarro, 1993; De Gournay, 2002) 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. This study concluded that the participants 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.

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