Université de Montréal

The adoption and use of SMS among Chinese teenagers

Par
Qi Qiao

Département de communication
Faculté des arts et des sciences

Mémoire présenté à la Faculté des études supérieures et postdoctorales
en vue de l'obtention du grade de Maîtrise en sciences
en sciences de la communication

Novembre, 2009
© Qi Qiao, 2009

Université de Montréal
Faculté des études supérieures et postdoctorales

Ce mémoire intitulé:

The adoption and use of SMS among Chinese teenagers

présenté par
Qi Qiao

a été évalué par un jury composé des personnes suivantes :

Boris Brummans
_____

président-rapporteur

André H. Caron
_____

directeur de recherche

Micheline Frenette
_____

membre du jury

Résumé

Ce mémoire examine l'adoption des téléphones mobiles et l'utilisation des messages texte (SMS) par les adolescents chinois, selon la théorie des usages et gratifications et de la recherche sur la communication par ordinateur. Certains champs particuliers de l'utilisation des messages textes par les adolescents chinois, comme le contrôle parental, la circulation des chaînes de messages, la popularité des messages de salutations et l'utilisation répandue des émoticônes ont été étudiés. La fonction sociale des SMS, plus particulièrement des pratiques sociales et des relations émotionnelles des adolescents chinois, a également été explorée.

Cette étude est basée sur un sondage réalisé sur le terrain auprès de 100 adolescents chinois. Elle révèle que chez les adolescents chinois, les deux principales raisons pour l'adoption du téléphone mobile sont l'influence parentale et le besoin de communication sociale. Quant à l'utilisation des messages texte, elle répond à sept usages et gratifications : la flexibilité, le coût modique, l'intimité, éviter l'embarras, le divertissement, l'engouement et l'évasion. Il a également été observé que les messages texte jouent un rôle positif dans la construction et l'entretien des relations sociales des adolescents chinois.

Mots-clés: les messages texte (SMS), téléphone mobile, les adolescents chinois, usages et gratifications, communication par ordinateur, contrôle parental, chaînes de messages, émoticône

Abstract

This thesis examined the adoption of mobile phones and use of SMS among Chinese teenagers based on the uses and gratification theory and computer-mediated communication research. Specific areas of Chinese teenagers' SMS use, such as parental control, the circulation of chain messages, the popularity of greeting messages and the wide use of emoticons were studied. The social functions of SMS, especially in Chinese teenagers' social-emotional practice, were explored as well.

This study is based on a field survey conducted among one hundred Chinese teenagers. It reveals that, for Chinese teenagers, the two main reasons for the adoption of mobile phones are parental influence and the need for social communication; the use of SMS corresponds to seven uses and gratifications: flexibility, low cost, privacy, embarrassment avoidance, entertainment, fad and escape. SMS is also used by Chinese teenagers to build and maintain their social relationships.

Keywords: SMS (short message system), mobile phone, Chinese teenagers, uses and gratifications theory (U&G), computer-mediated communication (CMC), parental control, chain message, emoticon

Dedication

I dedicate this thesis to my mother, Guoying Qiao, who not only gave me life, but filled it with all her love. She was so happy when she knew that I had the opportunity to study at the University of Montreal and always encouraged me to do my best in my studies. But under the brutal persecution of Falun Gong in China, my mother, a kind and righteous woman, lost her life like thousands of her fellow Falun Gong practitioners just because they believed in Truthfulness, Compassion and Forbearance. She will never see my photo wearing a graduation gown, which she always hoped to see. Life is tough without her love; but my longing for her supported me in finishing this thesis and I wish, somewhere in heaven, she could see that I have not let her down and smile.

Acknowledgment

This thesis would not have been possible without the support of many people.

First, I would like to thank my thesis advisor, Prof. Dr. André H. Caron, who offered invaluable guidance for this study. Thanks for his understanding and support when I found it difficult to continue due to the passing away of my mother. I would also like to thank Dr. Boris Brummans, without whose assistance this study would not have been successful.

I gratefully thank Mrs. Yueling Hou, who voluntarily helped conduct the survey in China and Mr. David Tovey for his wonderful proofreading of my English.

Thanks to my husband, Noé Chartier, who always supports me in every aspect of my life. His love and encouragement are so powerful and help me overcome any difficulty.

Table of contents

Chapter I: Introduction

When the first mobile telecommunication equipment was imported to China in 1987, there were only 700 users (People's Daily Online, 2007) and the price of a mobile phone[*] was 30 000 Yuan (approximately 7 500 US $ in 1989) something only a very few rich people could afford. Only since the year 2000 have mobile phones really started to be widely adopted by Chinese people as the price gradually became more affordable for the middle class (mobile phone prices ranged from 4 000 Yuan to 9 000 Yuan in 2000) (Young, 2006). Today, even the price of 3G mobile phones has gone down to 5 000 Yuan. From 2002 to 2008, the growth of the mobile phone adoption rate in China was remarkable: from 200 million mobile phone users in 2002 to more than 640 million users in 2008, meaning nearly half of the Chinese population owned a mobile phone (MIIT, 2008).

Among all Chinese mobile phone users, teenagers are a notable group. Although no authoritative statistics have been found so far, according to a few regional surveys done by journalists, it was shown that the mobile phone possession rate among teenagers was higher than the average. For example, in 2003, nearly 60% of teenagers

---

[*] Mobile phones are called "shou ji (手机)" by Chinese speakers in their everyday speech, which literally means "hand machine"— a telephone (machine) that one can carry in the hand instead of being fixed on the desk or wall; the official term for mobile phone in Chinese is actually "yi dong dian hua (移动电话)". This is mostly found in technical documents or official reports, which we believe is directly translated from the English term "mobile phone," which had been adopted internationally when mobile phones were first used in China. In this thesis, we will keep the term "mobile phone" which is more standard in both China and other countries.

owned mobile phones in Guangzhou City (Lin, 2004) and more than 70% of high school students used mobile phones in Beijing (Hong, 2003); in 2006, the mobile phone possession rate among teenagers in Wuhan City also exceeded 70% (Liu, 2006). All of these media articles mentioned an important function of mobile phones which had become very popular among Chinese teenagers: the short message system (SMS), and had started to influence teenagers' lives and studies.

Unintended and completely unanticipated adoption patterns often play a large role in the diffusion of modern technologies (Geser, 2003). SMS, as a side product and value-added service, has exceeded all expectations by surpassing audio messages, the intended main function of mobile phones (Kasesniemi & Rautiainen, 2002). The statistics of the Ministry of Industry and Information Technology (MIIT, 2007) of China showed that in 2007, there were at least 1.7 billion short messages being sent every day in China. SMS is becoming an important communication channel for Chinese people, especially for young users. The data from In-Stat showed that by 2005, SMS was already the favourite mobile service for Asian teens.

However, we have not found any authoritative statistics or comprehensive studies focusing on SMS adoption and use among Chinese teenagers, except for a few media articles as mentioned above. For most of the journalists and social observers, the main acknowledged reasons for Chinese teenagers to adopt SMS are *low cost*, *preference for indirect communication* and *fad* (Zhang, Wei &Zhang, 2007; Liu, 2005; Wang, 2008).

Low cost is believed to be one of the main reasons for the wide use of SMS

among Chinese teenagers. In fact, it is the parents who pay for their children's mobile phone services, so the cost is actually under the control of parents. In China, the cost of SMS (0.10Yuan/message sent, 0Yuan/message received; 1 Chinese Yuan = 0.14 US$) is much cheaper than voice calls (0.40Yuan/minute), which makes SMS an economical way for teenagers to communicate through their mobile phones while minimising the costs (Desjeux, 2005).

---

*"I have a lot of fun when sending short messages, and it's cheap so that my mobile phone expense is always within my parents' budget…"**

--Gang Qin, 18 years old, Beijing

For people who feel shy or uneasy in face-to-face communication, SMS is a good choice to help them feel more at ease when communicating (Geser, 2004); and this may be another reason why SMS is popular with individuals and in cultures which tend to be reserved with other people (Plant, 2000), such as in China. Yuan Xing, a professor of Sociology at Shanxi University, when interviewed by Liu (2005), considered that a significant reason why SMS is popular in China is that Chinese people are more used to expressing themselves in an implicit and euphemistic way; therefore SMS is obviously a perfect communication tool for Chinese people to avoid the uneasiness or embarrassment in face-to-face communication. In Korea, where the culture is quite similar to Chinese culture, it was found that the use of SMS is much higher than the use of voice-mail. Kim et al., (2003) attributed this phenomenon to the high collectivism and high-context culture (HCC) in Korea, where a speaker's

---

* Citations in this section are all collected through telephone interviews with Chinese teenagers or their parents by the researcher.

background, norm, title and rank are all counted as "context" that contains important information in interpersonal communication. In HCC countries such as China, Japan and Korea, being less directly expressive may represent more respect, politeness, wisdom or status; the actual messages of interpersonal communication therefore have less content or are more indirect than LCC (low collectivism and low-context culture) countries; to fully interpret the messages, the receiver needs to fill them up with information from the context, such as the speaker's identity, habits and all the nonverbal cues. This study showed that in Korea as well as other HCC countries, SMS has become an extension of non-verbal cues in interpersonal communication.

"I hope time will always stay at the moment when I receive a message from my boyfriend. Short messages make me feel at ease in our relationship and allow me much more fantasy than talking to him directly."

--Yuxin Lin, 19 years old, Nanjing City

"Joining in the fad bandwagon" is another recognized reason determining Chinese teenagers' adoption of both mobile phones and SMS: many teenagers asked their parents to buy them mobile phones just so they would not be "left behind"; for some Chinese teenagers, the reason for sending SMS was as simple as all their friends communicate through SMS (Wang, 2003; Luo, 2005; Xie, Gong&Zhao, 2006; Zhao, 2006). No matter what reasons led to the fad of SMS among Chinese teenagers, as soon as this fad was formed, the *bandwagon effect* then made the *fad* itself another reason for more teenagers to use SMS.

"I am online, but not reading news; I am on the phone, but no voice can be heard; I am drawing, but no pencil in hand: I'm sending short messages."

-- A member of the Thumb Generation in China

When studying Chinese adolescent issues, we cannot ignore an important social factor as background: the one-child policy in China, implemented at the end of the 1970's, which has formed today's Chinese youth ecology and parent-child relationship. Therefore, we will take this background into consideration when studying the adoption and use of mobile phones and SMS. While being interviewed (Chen 2004), Xiangping Liu, professor of psychology of Beijing University, argued that because of the one-child policy which creates thousands of single-child families, Chinese parents fervently devote themselves to the care of their only child and a mobile phone is evidently the best tool for parents to locate and monitor their children at any time. What is more, the parents of single-child families have less financial burden than the parents who have more than one child and more readily satisfy the needs of their children, such as buying a mobile phone when their children demand it.

"On one hand, I need to be able to contact my son at any time; on the other hand, since this is our only child, we'll make every effort to give him what other children have to make him feel happy."

-- Mrs. Zhang, mother of a 15 year old boy, Beijing

1.1 Review of Literature

The adoption and use of ICT has been studied by using a number of approaches. Some have focused on the adoption and diffusion process, such as Rogers' diffusion of innovation theory (2003) and the technology acceptance model (TAM) proposed by Davis (1989). Rogers categorized five steps (*knowledge, persuasion, decision, implementation and confirmation*) that an individual takes in the innovation-decision process. TAM provides a model of how users accept and adopt a technology and suggests the factors that could affect users' decisions. For example, Chan et al. (2008) proposed four main direct determinants of the adoption of SMS: *perceived usefulness, perceived ease of use, perceived enjoyment,* and *perceived critical mass* and three indirect influences: *visibility, subjective norm,* and *perceived cost-effectiveness*. Kim et al. (2008) identified four major factors that directly affect the adoption of SMS among Korean mobile phone users: *perceived enjoyment, perceived monetary value, perceived usefulness,* and *perceived ease of use*.

There are also approaches looking at media adoption and use from the perspective of *user* and *media*. For instance, uses and gratification theory (U&G) explains media use and choice by examining the users' needs; computer-mediated communication (CMC) research examines media use by understanding the attributes of the media. Different theories and approaches can be either applied individually or combined in ICT adoption studies (Wirth et al., 2007). In this thesis, we will look at the adoption and use of SMS from both the angle of *user* and *media*; more specifically, we'll employ U&G theory to explain the media use and media choice of

SMS among Chinese teenagers and use CMC approach to examine how SMS functions in Chinese teenagers' social-emotional communication practice.

1.1.1 Uses and gratifications theory

U&G theory is one of the influential research traditions in the field of mass communication, explaining why people use or choose particular media by integrating media, social and psychological studies. Blumler and Katz (1974) considered that media users are active and goal-oriented in choosing and using media; media use and choice are determined by individuals' social and psychological needs. Five categories of needs were identified by Katz, Haas and Gruevitch (1973): cognitive needs, affective needs, personal integrative needs, social integrative needs and tension release needs.

After its prevalence in the 1960s and 70s, U&G theory was questioned for its lack of theoretical justification (Stanford, 1983); some scholars contended that U&G has little power in explaining traditional media use (Elliott, 1974; Severin & Tankard, 1997). But Ruggiero (2000) predicted the revival of U&G with the emergence of telecommunication technology because new communication technology provides more and more media choices; motivation and satisfaction are thus becoming more important for audience analysis. He suggested that future U&G models should include the concepts of *interactivity, demassification and asynchroneity*, because new telecommunication technologies allow the participants to "have control over and exchange the roles in their mutual discourse", "liken the new media to face-to-face interpersonal communication." (Williams, Rice, & Rogers, 1988; p10 & p12), and

allow messages to be staggered in time and to be sent or received at the users' convenience (Chamberlain, 1994).

As anticipated by Ruggiero, more U&G studies have appeared in the last few years, focusing on new interactive media such as the Internet, e-mail, instant messaging and mobile services. Leung (2001) found seven gratifications sought by college students when using ICQ (a popular instant messaging tool, homophone of the phrase "I seek you"): *express affection*, *entertainment*, *relaxation*, *fashion*, *inclusion*, *sociability* and *escape*. For the use of mobile services, seven main gratifications have been identified (Leung and Wei, 2000): *Fashion/status*, *affection/sociability*, *relaxation*, *mobility*, *immediate access*, *instrumentality* and *reassurance*. The study showed that the gratifications of traditional telephony can still be found in the gratifications of mobile telephony, but more gratifications such as *fashion*, *relaxation* and *mobility* are sought only in the use mobile services. After reviewing the present literature, Chigona (2007) summarized 16 uses and gratifications of the mobile phone: *personal safety, financial incentive, parental control, time management, image/fashion/status, privacy management, dependency, information access, social interaction, immediacy, mobility, pleasure, reassurance, escape, relaxation* and *inclusion*, which might be the most integrated version of uses and gratifications of mobile phone use by far.

The studies of SMS use have also been found in U&G research. Leung (2007) contends that U&G is a powerful approach to explain why SMS has become a popular interpersonal, mediated communication channel among college students. Six gratifications of SMS use were found in his studies: *entertainment, affection, fashion,*

escape, *convenience and low cost*, and *coordination*. Peters et al. (2003) located four types of motives of SMS use among young Dutch users: *entertainment, social interaction, immediate access*, and *efficiency (in time)*. He also argued that teenagers use SMS more often for entertainment and social interaction, whereas young adults are more concerned with its instrumental or task-oriented uses. Grinter and Eldridge (2001) studied both media uses and media choice of SMS within U&G research among British teens, and the uses of SMS are found to *arrange times, adjust arrangements, coordinate with friends and family, chat and gossip*; as for media choice, SMS is chosen because it's *quick, cheap, easy* and *convenient*.

As reviewed above, both Leung (2007) and Peters (2003) have listed *entertainment* as the first gratification of SMS. This suggests the issue of *chain messages* to our discussion, because the entertainment function of SMS for teenagers is mainly found in chain text messages. Chain messages are defined by Ling et al (2004) as "impersonal messages," which are "not necessarily authored by the sender" and which are "at least attempts at humor"; "there is no real functional reason for the messages, except as a means to socialize and entertain" (p10). The chain messages circulated among teenagers could be poems, jokes and wishes; they are often "the fad of the week until people get bored with it." (Kaseniemi & Rautiainen 2002; p179) The spread of chain messages could be just for amusement, or could function socially as gifts aiming to maintain and develop the relationships between the senders and receivers (Taylor and Harper, 2002).

1.1.2 CMC research

As a text-based communication technology, SMS could be easily brought within the domain of computer-mediated communication (CMC) research, which particularly looks into text-based communication.

CMC traditionally refers to text communication occurring via computer networks, but has been extended to other forms of text messaging systems, such as SMS. CMC research explains *media use* by examining the attributes of media. Te'eni (2001) characterized the media attributes of CMC technologies by *channel capacity*, *interactivity* and *adaptiveness*; low *channel capacity* could be compensated by high *interactivity* and high *adaptiveness*. As for text messaging system, it was defined by Te'nei as an interactive and adaptive communication system with *low capacity channels*, but higher *interactivity* and *adaptiveness* could make it suitable for effective communication.

Boonthanom (2004) summarized two research streams regarding CMC: task-oriented models and social-emotion-oriented models. The essence of task-oriented models suggests that compared to traditional face-to-face communication and telephone conversations, CMC has narrower channels due to lack of audio or visual cues, and tends to be task-oriented and less emotional. Whereas the social-emotion-oriented models, such as the Social Information Processing (SIP) model presented by Walther (1992), which incorporates relational communication into CMC, argues that CMC can transfer social information in a manner similar to traditional face-to-face communication: social identity and relational cues can be

carried in the messages and the message receiver can decode the messages and develop impressions of the senders.

The social effect of CMC is always an object of study for CMC researchers. One influential theory examining media's social context and interactivity is the theory of *social presence*, which is defined as the "degree of salience of the other person in the interaction and the consequent salience of the interpersonal relationships" (Short, Williams, and Christie 1976; p65). *Social presence* describes the degree to which a person is perceived as a *real* person in mediated communication (Gunawardena, C.N. 1995). According to Short et al. (1976), CMC is less personal, lacking *social presence* in comparison with face-to-face communication due to the lack of non-verbal cues. However, more and more recent studies argue that, with the increasing use of symbol, image and sound, the *social presence* of CMC is also increasing. In Walther's (1994) study, experienced CMC users considered text-based media richer than telephone and face-to-face communications. Perse et al. (1992) found that college students consider e-mail a sociable, warm, personal and sensitive medium which links to higher level of CMC. Studies on distance education also proved the capacity of CMC to support highly affective interpersonal interactions (Rourke et al., 2001). In a content analysis of a course conducted entirely through CMC (Angeli, Bonk, and Hara,1998), 27% of the total message content consisted of expressions of feeling, self-introductions, jokes, compliments, greetings, and closures. Doering et al. (2007) argued that the sending time and location of a text message can also be interpreted as non-verbal cues by the receiver in SMS communication.

CMC users have developed an electronic "paralanguage" (Carey, 1980, cited in Walther, 1992), to express affective and socioemotional information. These informal codes, which we call "emotext," may include intentional misspelling, lexical surrogates for vocal segregates, grammatical markers, strategic capitalization, and visual arrangements of text characters into "emoticons." Intentional misspelling often includes the repetition of a vowel or consonant to represent the accentuation of a word or phrase for affect, as in the phrase, "sssoooooo good!" Lexical surrogates function as parenthetical metalinguistic cues, as "hmmm" might represent a paraverbal expression of thoughtfulness or "yuk yuk" might express self-deprecating laughter. Grammatical markers include gratuitous capitalization as well as repeated exclamation points and question marks to add affective emphasis. Emoticons refer to short combinations of textual characters which, if turned clockwise, resemble various facial expressions. (:-) emoticon; ː emoticon rotated 90 degrees clockwise)

-- Jaffe et al. 1995

In Asian languages, *intentional misspelling* and *lexical surrogates*, as summarized above by Jaffe, do not exist due to the character-based nature of Asian languages; however, emoticons have been greatly developed and widely used in Asian text messages and even become a "language" for young people to write articles or novels (Han & Jiang, 2006). In this thesis, we will use CMC research to examine the use of emoticons in SMS communication among Chinese teenagers who use emoticons very frequently in their text messages.

In CMC studies, "emoticon" is defined as (typo)graphic depictions of facial behaviours which are suggested to convey social emotion (Derks, 2007). Thompson and Foulger (1996) claimed that emoticons are able to serve as non-verbal surrogates suggestive of facial expression in CMC. Derks (2007) proposed that emoticons are more used in socio-emotional than task-oriented social contexts; *expressing emotion*,

strengthening messages and *expressing humor* are the main motives of using emoticons. According to Derks, people use emoticons in a similar way to facial expressions in face-to-face communication and emoticons can serve the same functions as non-verbal behaviour in face-to-face communication. Emoticons have not been found to have been studied in SMS communication, but we hypothesize that the research on emoticons in CMC research will also be applicable to SMS communication.

In this thesis, we will also analyze the emoticons used in Chinese teenagers' text messages by using Ekman (1969) and Plutchik's (1980) basic emotions theories, which, to our knowledge, have yet to be adopted in emoticon studies. According to psychologists, some emotions are basic and universal for all humans and even certain animals; the complex emotions are all derived from the basic emotions. Ekman (1969) classified six basic facial expressions of human emotions: *sadness*, *happiness*, *anger*, *fear*, *disgust* and *surprise*, which are considered basic or biologically universal to all humans and not culturally determined. In 1980, Plutchik proposed his *basic emotions circle* and listed eight basic emotions: *joy, acceptance (trust), fear, surprise, sadness, disgust, anger* and *anticipation*. According to him, all other emotions are combinations, mixtures, or compounds of these eight basic emotions. For example, *love* is an advanced emotion composed of *joy* and *acceptance*; *disappointment* is the compound of *sadness* and *surprise*, etc. Therefore, we believe that emoticons used in CMC as well as in SMS, should also correspond to the basic emotions theories, if they function as non-verbal surrogates of facial expressions (Thompson & Foulger, 1996).

1.1.3 Teenagers and the adoption and use of ICT

1.1.3.1 Why focus on the teenage community?

> *How does the adoption and use of a technology interweave with social practices, forms of interaction, and ways of life specific to a given community? How do individuals incorporate a technology into their specific culture? In order to understand the process of cultural incorporation and grasp the nuances of the everyday practical accomplishment of such a process, we need to leave the realm of general statement, large-scale descriptions, and ideal-typical categories of people. We have to focus instead on particular uses of technologies among members of a specific community.*
>
> *-- Andre H. Caron and Letizia Caronia, 2007 (p103)*

Many researchers study the adoption and use of new communication technologies among teenagers for the reason that teenagers are identified as the "early adopters" of new technology (Rogers 1995). However, only when a technology is "adopted by an early majority do they really enter into the diffusion process and virtually become instruments for constructing everyday culture." (Caron & Caronia, 2007, p102) Therefore, "being early adopters" is not really a sufficient condition for researchers to choose the target community for ICT adoption studies.

Caron and Caronia (2007) suggested exploring the use of mobile phones among urban adolescents in view of the special link between adolescents and mobile technology. Mobile technology has become embedded in teenagers' lives as a symbol of "adolescence" and a device of "identity-making"; mobile phones are not only communication channels, but also provide a cultural and social environment for teenagers to "construct their identities, their specific culture, and the boundaries of

communities of peers (p105)." This special meaning of mobile technology makes teenagers' use of mobile phones distinct from all other users. Ling and Yttri (2002), for example, argued that the mobile phone use of teenagers is "expressive in nature (p147)." Compared to other age groups, teenagers focus more on the technology itself (e.g., intrinsic use) than other uses (e.g., instrumental or task-oriented uses) (Peters et al., 2003; Ling and Yttri, 2002). In the U&G studies of new ICTs, some researchers have found that certain gratifications are particularly related to adolescents (Pedersen, 2002). Hence, to explore the inherent link between "technologies and uses" and to more comprehensively study the adoption and use of a new ICT, as well as its cultural and social influences, teenagers are hypothesized to be the ideal community.

1.1.3.2 Adolescent socialization and ICT adoption and use

Many ICT adoption studies have shown that new communication technologies are adopted more frequently by older teenagers than younger teenagers. For example, in Australia, the use of mobile phones, SMS, IM and emails increased dramatically when teenagers were of high school age and the older teenagers use these technologies more frequently than the younger teenagers (ACMA, 2007). In the US, the use of social networking web sites among teenagers keeps increasing as they get older; based on statistics from 2007, the user percentage increased from 22% at the age of 10-12 to 70% at the age of 18-21 (Oppenheim, 2008).

Ling and Helmersen (2000) argued that teenagers' ICT adoption is correlated to adolescent development, specifically their socialization process. Therefore, understanding the features of adolescent development becomes necessary in the

studies of teenagers' ICT adoption and use. In Ling and Helmersen's research, clear age-based differences were shown in the adoption and use of mobile phones, which are related to the development of adolescence: 12 or 13 is the age when teenagers start to gradually move from family to a larger social network, and the possession rate of mobile phones among 13 year old teens was 39%; at the age of 14, when teenagers are able to take part in adult activities and present themselves as an adult, the possession rate of mobile phone increased to 54%; by the age of 18 or 19, when teenagers finish the transition from adolescents to young adults, nearly 90% owned mobile phones. According to Ling and Helmersen, the high school period is the proper time for teenagers to adopt mobile phones because mobile phones only "make sense as a way to maintain contact and organize social networks" during this period.

Similar to the adolescents in other countries (Elkin & Handel, 1978; Grusec & Hastings, 2007) , the socialization process of Chinese adolescents can be summarized in three phases: 1. Teenagers start transitioning their lives from family-centered to peer-centered during early adolescence; 2. After entering senior high school, teenagers will be involved in more social activities such as social services, group travel and peers' parties; at this phase, with the expansion of their social networks, teenagers' communication and expression competence matures; 3. By the end of the high school period, teenagers' socialization process comes to an end (Sha, 2005). Like most other teenagers in the world, younger Chinese teenagers are largely influenced and controlled by parents, while older teenagers are more socialized and connected with peers. It is against this background that we study the adoption and use of SMS among Chinese teenagers.

1.1.3.3 Parental control and teenagers' ICT adoption and use

The financial dependency of teenagers determines, in the first place, that parents play an important role in their children's ICT adoption behaviours because they actually pay for the devices. Thrane (2003) listed two main factors influencing the ICT adoption in teenagers' homes: *economic affordability* (whether the parents are able to afford the ICT); *utilities* (whether the ICT can meet their needs or desires and offer children opportunities to learn at the same time). When the financial situation allows, parents are usually active in buying their children new ICTs if needed.

However, parental control in teenagers' ICT adoption and use is always complex and contradictory. New ICTs bring parents fear of their children spending too much time on the devices and less time with the family (Thrane, 2003); teenagers using ICTs without restrictions could get their parents into financial risk, such as the high cost of too much time spent talking on a mobile phone (Downie & Glazebrook, 2007; Campell, 2005); the negative information or content that ICT might bring to the children worries the parents as well (Tiemann, 2007; Ferran, 2008). These worries may impel parents to rethink the adoption of ICTs (Ling & Yttri, 2002) or monitor and set rules on the use of these devices (Campell, 2005; Green, 2006).

Parental control could limit ICT adoption and use with rules and restrictions, but it could also stimulate teenagers to take advantage of the ICT to free themselves from the surveillance of their parents. For example, the caller ID and voice mail

functions of mobile phones are often used by teenagers to avoid communication from their parents (Ling & Helmersen, 2000); SMS allows teenagers to put distance between themselves and parents' control and "construct an independent world of norms, references and values" (Caron & Caronia, 2007).

1.2 Purpose of the study

The main purpose of this research is to study the adoption and use of SMS among Chinese teenagers. So far, some studies have been found on the adoption and use of SMS among Chinese people, but mostly focusing on university students, young salaried adults or a more general population of all ages (e.g. Desjeux et al., 2005; Leung, 2007; Chan et al., 2008; Ma et al., 2007). Few studies, to our knowledge, have been focused specifically on the teenage group. This supports even more the need to study the use of SMS among teenagers, who are probably the main SMS users in mainland China.

In this research, we will first study the adoption and use of mobile phones among Chinese teenagers to set up a general background for the adoption research of SMS. Second, the reasons for Chinese teenagers to adopt and use SMS will be explored. Third, three special areas related to the use of SMS will be studied: the spread of *chain text messages*, teenagers' social relationship building via SMS, and the use of *emoticons*.

1.3 Methods

This study is based on a survey conducted among Chinese teenagers of a high school in Langfang City, Hebei province. It was certain that an *in situ* field survey would be the most ideal option, but due to the objective reason that the researcher could not go back to China[*], we had to entrust a teacher from this Chinese high school to help conduct the survey.

It took us more than five months to conduct the survey, including communication with the entrusted teacher and the time of data collection, and nearly three months to process the data, including translation of all the data from Chinese into English and the statistical analysis.

---

[*] Since 1998, I, the researcher of this study, have been practicing Falun Gong, a cultivation practice guided by the characteristics of Truthfulness, Benevolence, and Forbearance. In 1999, Falun Gong was defamed and banned by the Chinese communist regime because of a paranoid dictator's fear of Falun Gong's meteoric growth and soaring popularity. The persecution has lasted for more than ten years. To this day, tens of thousands of innocent Falun Gong practitioners who refused to give up their beliefs have been put into jails, sent to labour camps or even persecuted to death. I was arrested and tortured twice for the same reason in the year 2000 and 2001. In 2002, I immigrated to Canada and finally obtained freedom of religion. However, I was not able to return to China again even though all my family and friends are still there. In 2006, my mother, a Falun Gong practitioner as well, was indirectly persecuted to death in her home, and I was not able to go back to see her for the last time. That was a difficult period of time which delayed the process of my thesis. Till now, my father, whom I have already not seen for seven years and who has only one child, is still in China, missing me greatly, supporting my faith none the less.

1.3.1 Profile of the participants

The participants were recruited on a voluntary basis from Guandaoju High School which is located in Langfang City and considered one of the better high schools in the region. Most students in this school are from middle-class families (the annual income/family is from $7,500 to $20,000). Langfang is a medium-sized city, but geographically lies right between the two biggest cities in China, Beijing and Tianjin, so its economic situation and degree of modernization are both above average for Chinese cities.

The Chinese education system divides high school into two sections: junior high school, in which the students are aged from 12 to 15; and senior high school, in which the students are aged from 16 to 18. Therefore, in this project, our analysis will take these two age groups into consideration. The gender and age distribution can be seen below:

	Number of the participants
Male from 12 to 15	24
Male from 16 to 19	21
Female from 12 to 15	32
Female from 16 to 19	11
Total	88

1.3.2 Questionnaire

The survey for this research is in the form of a multi-page questionnaire consisting of multiple-choice questions, closed-ended and open-ended questions. A population of 100 high school students participated in this survey and 88 of them successfully completed the questionnaire; both quantitative and qualitative data have been collected through the questionnaire. According to the study objectives of this research, the questionnaire was designed in three parts:

Part I. The state of adoption of mobile phones and SMS among Chinese teenagers

Part I is intended to collect general data on the use of mobile phones and SMS. These data can help us outline the state of the adoption and use of mobile phones and SMS among Chinese teenagers and also be referential and supporting for our further analysis.

Through Part I, we are able to learn the motives for Chinese teenagers in adopting mobile phones, who their "texting partners" are, the monthly cost of their mobile phones, etc. For example, the participants were asked: "*What is the main reason for you to use a mobile phone?*"; "*What is the average number of messages that you send and receive per month?*"; "*In most situations, what purpose is your mobile phone used for?*"; "*Who do you exchange messages with and how many messages do you send and receive from them?*" etc.

Part II. The adoption and use of SMS among Chinese teenagers

Part II examines the factors that determine or influence the adoption and use of SMS among Chinese teenagers, as well as the reasons why they make choice of SMS instead of other interpersonal communication channels, such as voice calls, emails, etc. *Parental control*, as an important factor that affects teenagers' adoption and use of SMS, is also studied in this part. For instance, the participants were asked: *"What is (are) the main reason(s) you prefer text-messaging to voice calls?"*; *"Do your parents control your use of cell phone?"*; *"Do your parents often check the messages on your mobile phone?"*

There are also open-ended questions in this part to help with further analysis. For example, the participants were asked to list the subjects for which their parents contact them; and after they choose their favourite means ("face to face", "voice call", "email", "writing a letter" or "SMS") of expressing emotions to their family and friends, they are also asked to explain in their own words why they make those choices.

Part III. Chain text messages, SMS greetings and emoticons

In Part III, the reasons and the impact of chain messages and the use of emoticons will be studied. In the questionnaire, the participants were also asked to offer their own point of view about the impact of SMS greetings on their social relationships in both closed-ended and open-ended questions. For example, these questions were asked of the participants: *"When you receive greeting chain messages, will you sometimes forward them to others?"*; *"Why do you forward chain messages*

to your family or friends?"; "In the past, people greeted each other face to face on important festivals or anniversaries, now more and more people choose to send SMS greetings, what influence do you think this change will have on people's relationships?" "According to you, what are the functions of emoticons?" "Please draw three emoticons which you find most interesting and which you have sent or received in the last two weeks."

As the English ability of Chinese high school students is such that they might not be able to read and understand the questionnaire in English, we translated the entire questionnaire from English into Chinese and sent it to the entrusted teacher. After the teacher sent back the completed questionnaires, we then translated again all the answers of the participants from Chinese into English for further analysis.

1.3.3 Journals

Five of the participants were invited to keep journals of their everyday use of SMS over a period of two weeks. These five teenagers were required to log the messages they sent and received each day. The journals were originally written in Chinese and were translated into English by the researcher thereafter. Around 700 messages in total have been recorded. These journals are anticipated to function as firsthand references and supporting data.

Since the journals were completed during the students' summer vacations, it is worth noting that the contents and the quantity of these messages might vary from the messages sent and received during the regular school period.

Chapter II:

Results, Analysis and Discussion

2.1 The state of the adoption and use of mobile phone and SMS among Chinese teenagers

Taking into account that SMS is a new form of communication technology via mobile phone, the adoption and use of SMS is therefore closely related to the adoption and use of mobile phone. Based on this consideration, we included a few questions about the adoption and use of mobile phone in the first part of the questionnaire.

2.1.1 The general state of mobile phone adoption and use

2.1.1.1 The possession rate of mobile phone among Chinese teenagers (Question 1)

As illustrated in Figure 1, 88% of our participants have their own mobile phones. A report from the Chinese Academy of Social Sciences (CASS) showed that 41% of Chinese citizens living in big cities owned mobile phones by 2007 (Guoliang, 2007). Although the samples are not comparable, it is interesting to observe that the mobile phone possession rate among teenagers in our sample is more than double that found in the CASS study. This comparison, to some extent, proved that mobile phones have not only been widely adopted by Chinese teenagers, but teenagers have become the

main mobile phone users in China. In regard to teenagers' mobile phone adoption, no significant difference in age or gender was found.

Figure 1: The possession of mobile phone among Chinese teenagers (N=88)

Yes, I have a
mobile phone.
88%

No, I don't have a
mobile phone.
12%
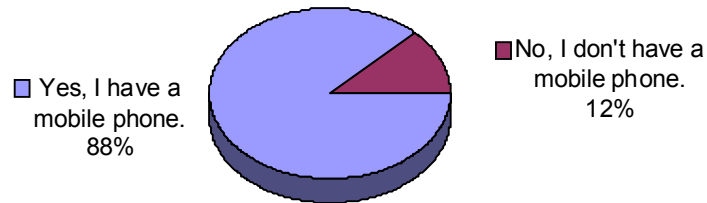
2.1.1.2 The reasons for Chinese teenagers not to use a mobile phone (Question 2 and 3)

The main factors (as shown in Figure 2) that determine why Chinese teenagers do not use mobile phones are mainly related to the *cost* (55%), the ***non-necessity*** of using a mobile phone (55%), and ***parental decision*** (46%) to not purchase a mobile phone for them even though the teens themselves do not really agree with the parents' reasons. As a matter of fact, nearly all Chinese teenagers are financially dependent on their parents, hence the factor of *cost* could also be considered as the ***parents' decision***.

Figure 3 shows that nearly 2/3 of the teenagers who do not have a mobile phone intend to buy one in the next few years, therefore the possession rate of mobile phone adoption among Chinese teenagers will continue to increase.

**Figure 2: The reasons for Chinese teenagers not to use a
mobile phone (N=11)**
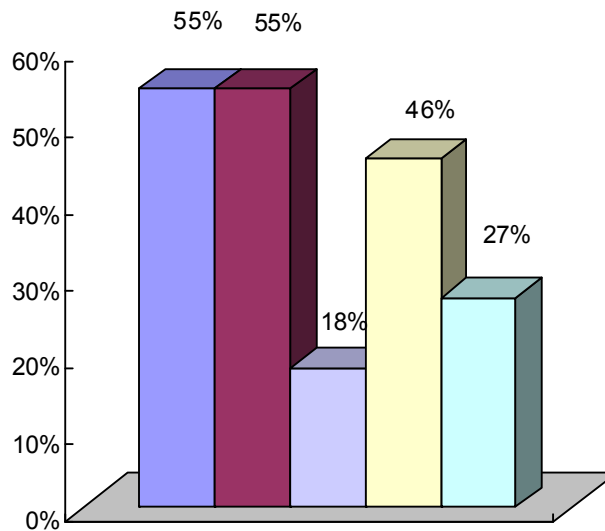
The cost of using a mobile phone is too expensive for me.

A mobile phone is not necessary for me.

A mobile phone will have a negative influence on my life.

My parents do not allow me to have a mobile phone because they think it is not necessary for me, though I do not agree with them.

My parents do not allow me to have a mobile phone because they think it will have a negative influence on my life, though I do not agree with them.

**Figure 3: The intention of adopting a mobile phone in the future
(N=11)**
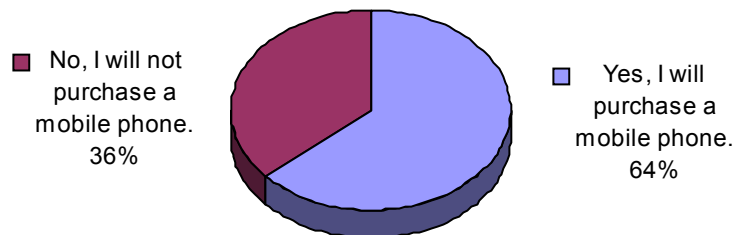
2.1.1.3 The reasons for Chinese teenagers to adopt a mobile phone (Question 4 and 5)

As indicated in Figure 4, ***parental decision*** (48%) is the main determinant of the adoption of mobile phones among Chinese teenagers, closely followed by the need for ***social communication*** (40%). Only one tenth of the participants consider ***entertainment*** as the primary reason to adopt a mobile phone (Figure 4), but nearly 2/5 of the participants take it as the second reason (Figure 5). ***Fear of losing face*** (21%) ("Face", originally a Chinese concept (Ho, 1976), meaning reputation, self-respect, prestige, honor and social standing) and ***necessary for studies*** (8%) are also reasons for Chinese teenagers to use a mobile phone (Figure 5).

Figure 4: The main reason for Chinese teenagers to use a mobile phone (N=77)
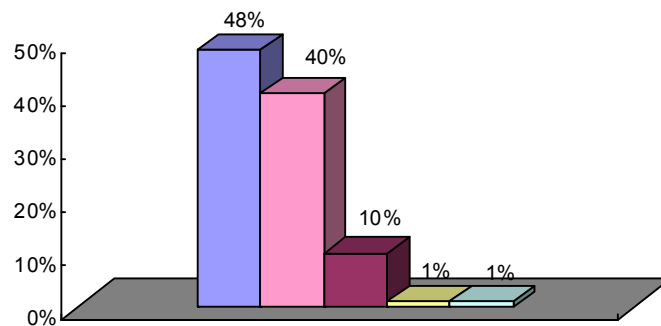
☐ My parents decided to buy me a mobile phone so they can locate me easily.

☐ A mobile phone is necessary for social communication.

■ For entertainment such as playing games and Internet access.

☐ I fear losing face or falling behind my friends because most of them have mobile phones.

☐ A mobile phone is necessary for my studies.

**Figure 5: Other reasons for Chinese teenagers to use a mobile phone
(N=77)**

My parents decided to buy me a mobile phone so they can locate me easily.

A mobile phone is necessary for social communication.

For entertainment such as playing games and Internet access.

I fear losing face or falling behind my friends because most of them have mobile phones.

A mobile phone is necessary for my studies.
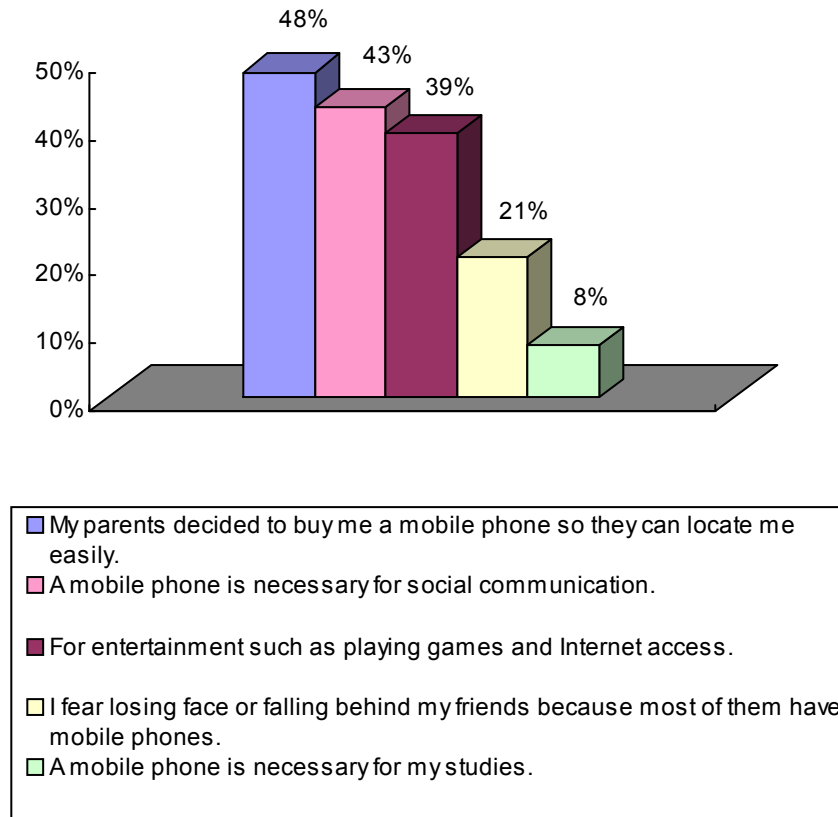
Among all the determinants, *parental decision* plays the most important role in Chinese teenagers' mobile phone adoption. On the one hand, parents feel the need to locate and keep watch on their children at all times; on the other hand, teenagers cannot afford a mobile phone without their parents' financial support. These two reasons determine that parents' decision is the main factor that influences the mobile phone adoption of Chinese teenagers: both having and not having a mobile phone mostly depend on *parental decision* (Figures 2, 4 and 5). We also observed that younger teenagers report being more influenced by *parental decision* (57%) than

older teenagers (31%).

The need for ***social communication*** is another important reason for Chinese teenagers to use mobile phones. Our survey results indicated that the social communication function of mobile phones is more important for older teenagers (57%) than younger teenagers (31%), because older teenagers usually have more need for social coordination; they have more activities, such as peers' parties and various extracurricular activities; and they also have a larger social network than younger teens.

2.1.1.4 The uses of mobile phones (Question 6)

As shown in Figure 6, for Chinese teenagers, ***making and receiving voice calls*** is still the main function of their mobile phones (71%), closely followed by ***sending and receiving SMS*** (61%). Mobile phones are also used for ***taking and sending pictures or music*** (16%), ***playing games*** (12%) and, in very few circumstances, for ***Internet access*** (4%).

Figure 6: The uses of mobile phones (N=77)
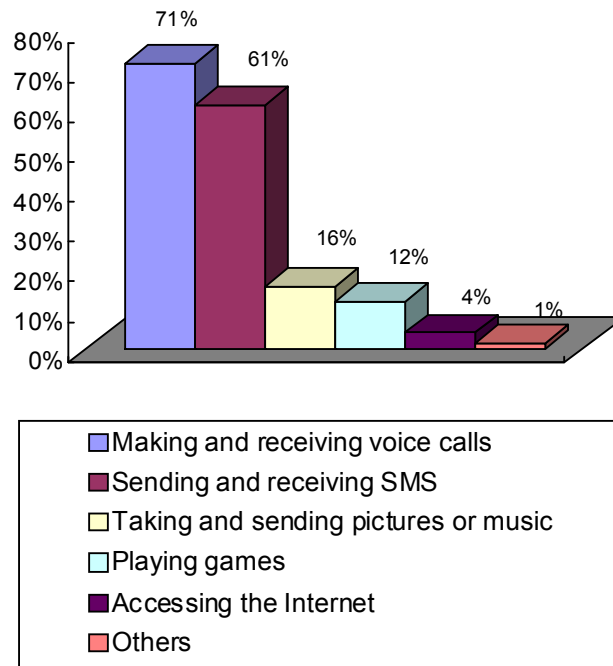
2.1.1.5 *Average cost of a teenager's mobile phone per month (Question 7)*

As seen in Figure 7, nearly half of the participants spend less than 50 Yuan on their mobile phones every month (1 Yuan = 0.14 US$) and almost 2/5 of the participants spend less than 100 Yuan; 9% of the participants spend more than 100 Yuan and 5% of the participants spend more than 200 Yuan per month.

For all the teen mobile phone users, the mean cost of a mobile phone per month is 68 Yuan/month (approximately 9.50 US$), which allows 340 minutes of local voice calls or 680 text messages according to the Chinese mobile service fee scale (without any special plan, voice calls are 0.40 Yuan/min and sending text messages is 0.10Yuan/message). Older teenagers spend a bit more money on mobile phone use (average 72 Yuan/month) than younger teenagers (average 65 Yuan/month), but this

difference is not significant.

Figure 7: Average cost of a mobile phone per month (N=77)
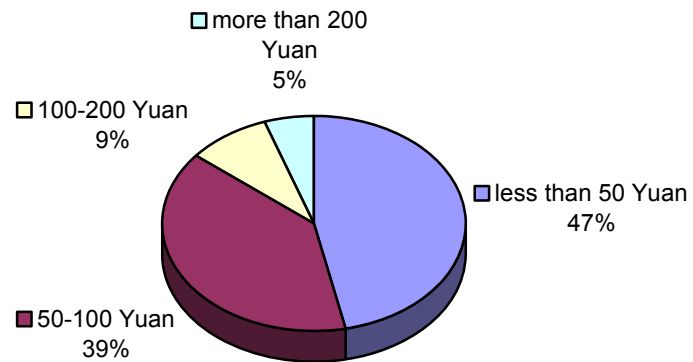
2.1.2 The general state of SMS use

2.1.2.1 The length of time Chinese teenagers have been using SMS (Question 8)

As can be seen in Figure 8, no participant chose "I never use SMS," i.e., all Chinese teen mobile phone users use SMS. Nearly 2/5 (39%) of the teenagers have used SMS for less than one year and around 1/3 (32%) of the participants have used SMS for 1 to 2 years. One in ten of the participants have used SMS for 2 to 3 years and almost 1/5 (19%) of the participants have used SMS for more than 3 years.

Figure 8: The length of time Chinese teenagers have been using SMS (N=77)
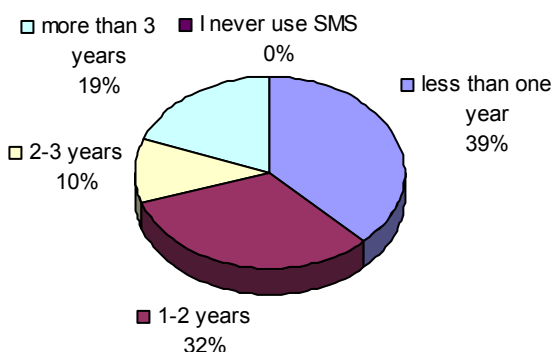
A significant difference has been found ($\chi2=8.135$, $p<0.05$), as could be expected, between the two age groups: older teenagers have been using SMS much longer than younger teenagers. In China, children owning a mobile phone is a symbol for "entering high school." They are "eligible" to have a mobile phone as soon as they enter high school because their parents have a strong need to locate or monitor them (in Chinese cities, children in primary school are always accompanied by their parents on the way to or back from school. After entering high school, they start going to school alone but the parents still perceive the need to know at all times if their **only** child is safe and that everything is going well due to the unsatisfactory social order in China). Among our participants, most of the younger teenagers have been in high school for only one or two years, but the older teenagers have been there for 4 or 5 years. This time difference explains why the older teenagers have used SMS longer than the younger teenagers: they got a mobile phone as soon as they entered high school. In our survey, nearly 2/3 of the participants are younger teenagers who have been in high school for only one or two years, which explains

why more than 70% of the participants have used SMS for less than 2 years.

2.1.2.2 Average number of messages that Chinese teenagers send and receive per week (Question 10 & 11)

As illustrated in Figure 9 and 10, nearly one in three of the participants send or receive more than 50 text messages per week and another third of the participants send or receive between 20 to 50 messages; the rest send or receive less than 20 messages per week. For all the participants, the mean is 38 messages sent and 38 messages received, i.e., approximately 76 messages are exchanged in total. The SMS journals written by the participants also support this number: the number of messages sent and received weekly by our participants is between 60 and 80.

Figure 9: Average number of messages sent per week (N=77)

- less than 5 — 9%
- 5 to 10 — 17%
- 10 to 20 — 12%
- 20 to 50 — 33%
- more than 50 — 32%
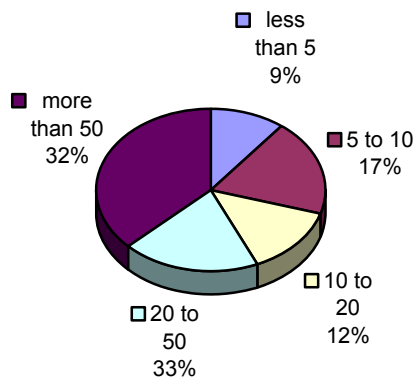
Figure 10: Average number of messages received per week (N=77)

- less than 5 — 5%
- 5 to 10 — 18%
- 10 to 20 — 14%
- 20 to 50 — 32%
- more than 50 — 31%
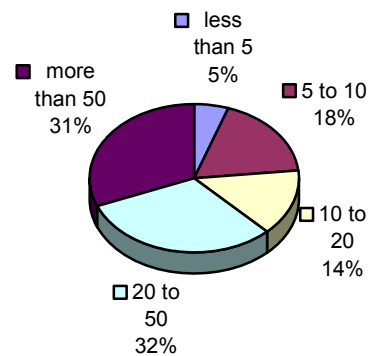
A significant difference has been found between the two age groups: older teenagers send ($\chi2=9.983$, $p<0.04$) and receive ($\chi2=9.267$, $p\leq0.05$) more text

messages than younger teenagers. This difference can be explained by the adolescent socialization process: with the expansion of their social networks, older teenagers have a greater need for social communication than younger teenagers; hence more communication via mobile phone is expected for older teenagers and the result that more text messages are sent and received by older teenagers proves this inference.

2.1.2.3 SMS "partners" of Chinese teenagers (Question 12)

When asking the participants about their "text-messaging partners," we listed five categories that are related to Chinese teenagers' everyday life: parents, schoolmates, teachers, boyfriends or girlfriends and Internet friends; for each group, there are four scales to describe the amount of the messages exchanged between them: "a lot," "many," "some" and "few."

As expected, schoolmates (87%, see Figure 11) are the main SMS partners for Chinese teenagers; most of them exchange "a lot" or "many" text messages with their schoolmates. Parents (61%) are also important SMS partners of Chinese teenagers, but only "some" messages are exchanged between them.

Figure 11: SMS partners of Chinese teenagers
(N=77)
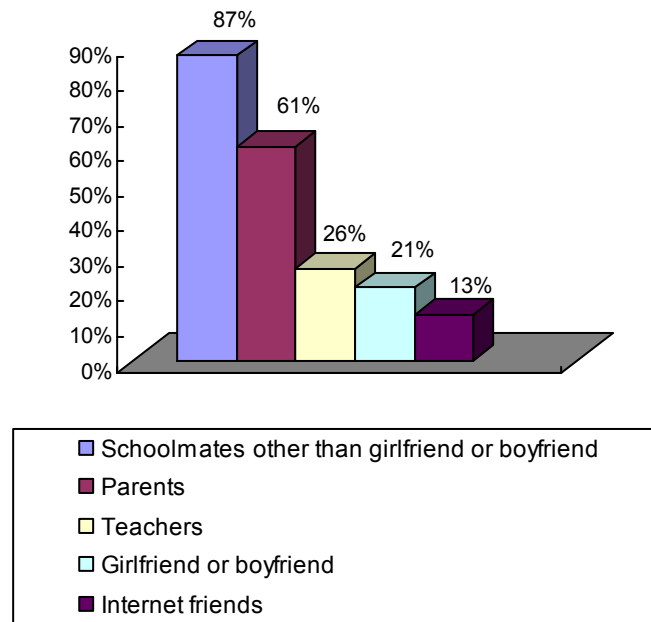
A surprising finding is that more than 1/4 of teenagers exchange text messages with their teachers, even though the messages exchanged between them are "few." Chinese people used to describe the traditional teacher-student relationship as a "cat-rat" relationship (Liu, 2004). In the past, a qualified teacher should not only be knowledgeable, but had to be very strict with their students; "a strict teacher produces the best students" (严师出高徒, famous Chinese proverb) was the dominant educational principle in China for thousands of years. Therefore it was very common for students to be harshly punished by their teachers when they did not do well in their studies; fear and awe were two typical attitudes of Chinese students towards their teachers (Wang, 2009). In school, the topics discussed between teachers and students focused only on teaching and learning; out of school, teachers and students

would seldom communicate with each other. However, in our study we have found that SMS has affected the traditional Chinese teacher-student relationship, and were prompted to ask the questions: is this a positive or negative change? What are the topics in the SMS communication between students and teachers?

In the SMS journals of our participants, we found details of two messages exchanged between one participant and her teacher:

*   *   *

Student A1: Teacher Liu, one student wants to take some extra classes with you; I've told him your number and he might call you soon.

Teacher Liu: Got it! Thanks!

*   *   *

In this text conversation, student A1 becomes a "middleman" between Teacher Liu and another student who is seeking a teacher for extra classes. In China, "extra classes" are an inevitable outcome of Chinese examination-oriented education and are very popular among high school students who want to enter a good senior high school or university. Some extra classes are compulsory, offered by schools during weekends, vacations and evenings; some extra classes are private, the students or their parents invite the teachers to give extra tutoring in the students' home and the teachers are usually very well paid for this. The conversation between Student A1 and Teacher Liu belongs to the second circumstance. In this conversation, there is no greeting such as "Hello," which implies that they are on familiar terms and both of them are cognizant of the topic. As one can see, the text message between this teacher and student is still focused on study-related topics; in other words, SMS has become an extension of

traditional face-to-face communication between teachers and students.

Since the SMS journals were written during summer vacation, we were not able to find more messages exchanged between teachers and students to better explore the impact of SMS on the teacher-student relationship. To compensate for this limit, we referred to Chinese Google by searching the key words "teacher (教师)" and "SMS (短信)", and more than 11,300,000 web sites were found, most of which offer downloads of SMS greetings for teachers. Apparently, sending greeting messages to teachers is very popular among Chinese students. Below are two examples that we found on one of these web sites:

Is it the chalk power that dyed your hair gray? But don't worry, please, you're always young in my heart. Dear teacher, Happy Teacher's Day!

There is no better time than today to show you my thanks: thank you for illuminating my voyage of life with your light of life. Happy Teacher's Day!

-- Cited from www.qicaispace.com

When we discuss the effect of SMS greetings on teenagers' social relationships later in Part III of the chapter, we will return to the topic of greeting text messages and teacher-student relationships.

2.2 The adoption and use of SMS among Chinese teenagers (Part II of the questionnaire)

2.2.1 The adoption and use of SMS

2.2.1.1 Preference between SMS and voice calls (Question 13, 14 and 15)

As we have seen in Figure 6, for teenagers, mobile phones are used slightly more frequently for voice calls than SMS; however, when asked about their preferences, more teenagers chose SMS instead of voice calls. As illustrated in Figure 12, 44% of the teenagers like SMS more than voice calls; one in three of the teenagers prefer voice calls to SMS. Less than one in four of the teenagers do not have a preference between voice calls and SMS.

Figure 12: Teenagers' preference between SMS and voice calls

(N=77)
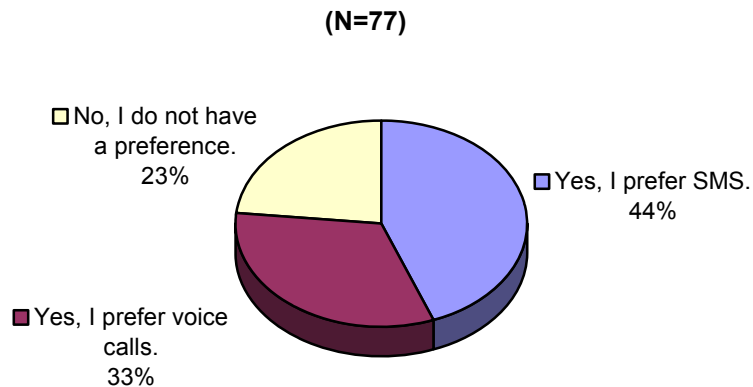
A significant difference was found between the two age groups (χ2=11.962, p<0.05): younger teenagers showed a greater preference for SMS (45%) than voice calls (22%); on the contrary, more older teenagers prefer voice calls (54%) to SMS

(42%). This difference could be explained by Figure 13: 93% of the older teenagers prefer voice calls because the communication through voice calls are perceived to be more time efficient than communication through SMS; however, only 45% of the younger teenagers take "saving time" as a concern. Older teenagers, who are currently in senior high school, have a heavier study burden than younger teenagers who are still in junior high school; they have to prepare for the National College Entrance Examination (NCEE), which is the only way to enter university; they have more extra classes and more social activities; there is never enough time for them, thus *saving time* is spontaneously their first concern. Compared to text-messaging, talking on the phone takes less time since one does not need to type words and wait for a response, therefore voice calls are perceived as the best choice for older teenagers concerned with saving time.

Figure 13: Reasons for preferring voice calls to SMS
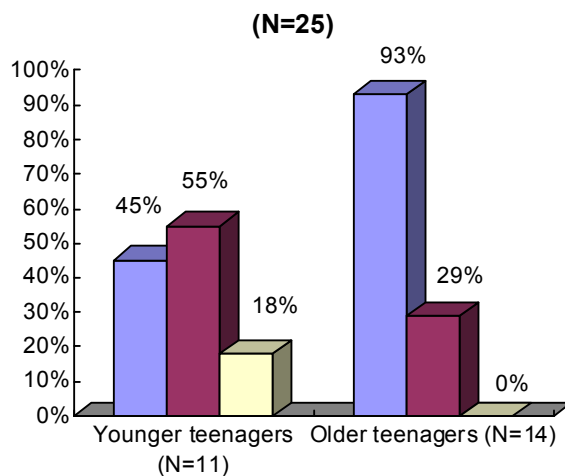
Legend:
- Voice calls can save more time than SMS.
- Voice calls are more direct and simple than SMS.
- SMS is too cold, I prefer to hear people's voices.

Figure 14 illustrates the reasons why SMS, compared to voice calls, is preferred by Chinese teenagers. Seven reasons determining Chinese teenagers' media choice of SMS have been identified: *flexibility* (75%), *low cost* (74%), *privacy* (74%), *embarrassment avoidance* (47%), *entertainment* (47%), *fad* (41%) and *escape (from parents' nagging)* (12%)*.* Among all the reasons, *flexibility*, *low cost* and *privacy* are equally the most salient for Chinese teenagers to use SMS, because they allow teenagers to freely control when and where to send or reply to the messages at a low cost and with greater privacy

Figure 14: Reasons for preferring SMS to voice calls
(N=34)

☐ I can control when and where to view and reply to SMS, which is very flexible.
■ SMS is cheaper.
☐ As a very private mode of communication, SMS can be sent and received inconspicuously.
☐ SMS provides irreplaceable entertainment such as interesting chain messages.
■ To avoid the embarrassment when communicating through voice calls.
■ It is a fad that all my friends like.
■ To avoid hearing the nagging of my parents.

Contrary to the situation in the US where few American teens mentioned saving

money as a reason for using SMS (survey conducted by Harris Interactive and CTIA, 2008), *low cost* is still one of the main considerations for Chinese teenagers. As mentioned previously, teenagers' mobile phones are paid for by their parents, and the parents usually have a budget on the cost of their mobile phones; therefore the factor of *low cost* is rather a *parental control* factor.

Privacy is another main reason determining teenagers' use of SMS. Teenagers' privacy issues emerge in early adolescence and their need for privacy continues to increase as they get older (Caissy et al, 2002). Compared to voice calls, SMS can be sent and received inconspicuously and allows more privacy for teenagers, which is an important advantage for teenagers to use SMS.

Entertainment is also one of the determinants of teenagers' adoption of SMS. The *entertainment* function of SMS is mainly fulfilled by chain text messages (Ling 2004, 2007). Ning (2007) argued that in China, SMS has become a culture with the tremendous circulation of chain messages and the substance of SMS culture lies in its entertainment function, fulfilled by the spread of humorous chain messages. In the journals written by the participants, we have found strong indications of the entertainment function of chain messages:

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

August 12

H2: For smashing ten police cars, you can win a trip to the largest prison of the province, free chains, free food and lodging! By smashing more, you can get an honorable certificate awarded by the People's Court, free bullet made of pure copper and free perforation! More surprises are waiting for you! Put your cell down and start smashing right away! Z.

A2: Is Z your classmate? Thanks for making me happy when I'm frustrated.

Good night.

August 14

...

A2: Is Z your classmate who sent you that funny message? You forwarded his message to me, right?

H2: Yeah, just to make you happy.

<div align="center">*   *   *</div>

A2 is one of our female participants, H2 is her female friend and Z is a male in the same class as H2. H2 forwarded A2 a chain message composed by Z who expressed an "adolescent wish" of challenging authority by teasing the Chinese police and justice system in his SMS with the overtone of a commercial advertisement. This message successfully entertained A2 and relieved her of her frustration. Even two days later, A2 could still not forget this message and asked for its source; the answer from H2 was short but got to the point directly: "just to make you happy." Apparently, this chain message has fulfilled its role of entertainment with success.

Other than all the determinants above, ***avoiding embarrassment*** that may occur in voice calls, pursuing SMS as a ***fad*** and ***escaping*** from parents' nagging are also reasons for Chinese teenagers to adopt SMS. However, it was found that parents' nagging was mostly a problem for younger teenagers. One in three of the younger teenagers use SMS to avoid parents' nagging, yet no older teenagers use SMS for this reason; a good explanation of this difference is that parents usually stop nagging their children when they grow older because keeping silent is a good method to placate children's resentment and not provoke their rebellious mentality (Ginott, 1969).

2.2.1.2 Media choices for Chinese teenagers to express emotions (Question 16 and 17)

Emotional expression and building social relationships are inherently related to each other; it has been argued that emotional expression is a key factor in humans' social relation building and maintaining (Dunn, 1995; Parkinson et al., 2005). On the one hand, emotional-expressive behaviour is deeply "embedded in the dynamics of social relationships" (p62) and has a strong influence in building and changing people's relationships (Saarni, 1999; Morris & Keltner, 2000; Yang & Gilbert, 2007); on the other hand, social relationships are influential and integral to emotional experience (Weiner et al., 2003). For children, emotional expression directly influences their relationship with family and peers (Lewis & Feiring, 1998). By examining how and why teenagers choose certain media to express their emotions, we will be able to evaluate the importance of these media in teenagers' family and social relationships and better understand their motives for using these media.

Figure 15 and 16 show that, compared to face-to-face communication, voice calls, letters and email, SMS has become the first choice for Chinese teenagers to express their emotions to family and friends. When expressing emotions to family (Figure 15), 36% of the teenagers chose "sending text messages," closely followed by "telling them face to face" (35%); one in four of the teenagers chose "calling them directly" and only less than one tenth would write "letters" or "emails." When expressing emotions to friends (Figure 16), more than half of the teenagers (53%) prefer "sending text messages"; the rate of choosing "telling them face to face" and "calling them directly" are respectively 19% and 18%; one in ten of the teenagers

would write "letters," but no one was interested in "sending emails." The rate of SMS is notably higher than all other communication channels when teenagers express emotions to friends, which implies the great importance of SMS for teenagers' social relationship building and maintaining. No significant difference in age or gender was found when teenagers express emotions to either family or friends.

Figure 15: Media choices for expressing emotions to familiy (N=77)

- Sending emails 4%
- Writing letters 5%
- Calling them directly 25%
- Sending text messages 36%
- Telling them face to face 35%
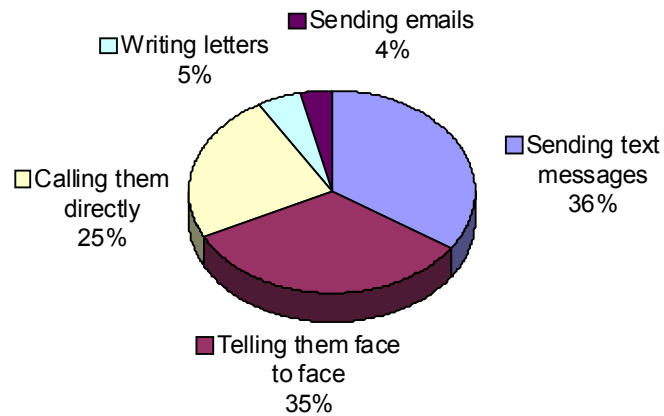
Figure 16: Media choices for expressing emotions to friends (N=77)

- Sending emails 0%
- Writing letters 10%
- Calling them directly 18%
- Sending text messages 53%
- Telling them face to face 19%
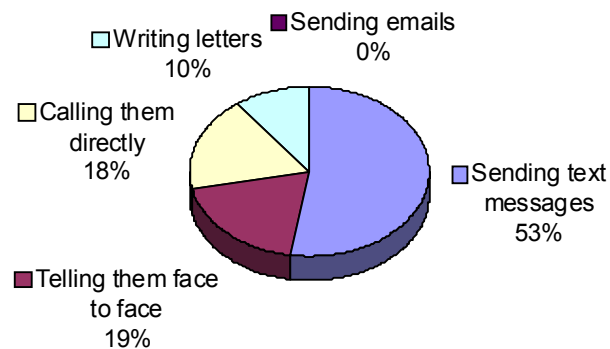
Instead of giving closed-ended answers to the participants as to why they made their choices, we asked them to write down the reasons in their own words (See participants' answers in Appendix II). Table 1 lists the reasons why teenagers express emotions to family or friends by the communication mode they have chosen.

Table 1: Reasons Chinese teenagers choose certain communication channels to express emotions

Media choices	Reasons	
	Expressing emotions to family	**Expressing emotions to friends**
Sending text messages	embarrassment avoidance trouble avoidance enjoyment efficiency low cost immediate access convenience easiness fad	embarrassment avoidance trouble avoidance enjoyment efficiency low cost immediate access convenience easiness fad privacy practicality
Telling them face to face	simplicity richness of emotional cue easiness convenience low cost	simplicity richness of emotional cue immediate access convenience low cost efficiency
Calling them directly	simplicity convenience easiness immediate access richness of emotional cue	simplicity convenience easiness immediate access embarrassment avoidance
Writing letters	enjoyment embarrassment avoidance	enjoyment embarrassment avoidance trouble avoidance

		practicality richness in emotional cue enjoyment
Sending emails	N/A	enjoyment embarrassment avoidance

By classifying these five communication channels into two categories: *direct communication* (face to face, voice call) and *indirect communication* (SMS, email, letter), and combining the results of Figure15 and 16, we can see the contrast between these two categories, as shown in Figure 17. Chinese teenagers prefer more *indirect* ways (in the form of text communication) to express emotions to friends and more *direct* ways to express emotions to family. Because family members are closer and more familiar than friends, teenagers may feel less shy, constrained or embarrassed when communicating with family; they do not need more indirect ways to avoid the unease often occurring in face-to-face communication or over voice calls when communicating with other people.

From the explanations of the participants (as listed in Table 1), we can see that *embarrassment avoidance* and *enjoyment* are common reasons for teenagers to choose all the three indirect communication channels; *simplicity*, *immediate access* and *convenience* are common reasons for both direct communication channels to be chosen.

Figure 17: Comparison between expressing emotions to family and friends

(N=77)

Expressing emotions to family

Indirect communication 43% Direct communication 57%

Expressing emotions to friends

Indirect communication 63% Direct communication 37%
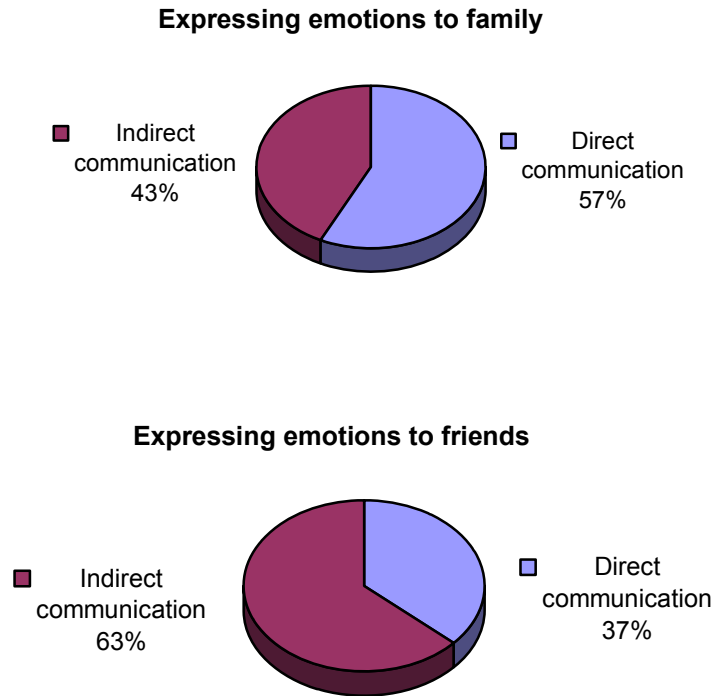
Another phenomenon that we have made note of is that SMS contributes to the change of the structure of Chinese teenagers' social-emotional practice.

Compared to Westerners, Eastern Asians (e.g., Chinese and Japanese) have been described as being less emotionally expressive, more inhibited and having more constraint and control over their emotion-expressive behaviour (Russell & Yik, 1996; Tseng & Hsu, 1969; Yamamoto & Steinberg, 1981). However, it was also found that East Asians were less emotionally expressive only when they were with others; there was no difference between Asians and Westerners in emotional experiences when there are no other people around (Tsai et al., 2000; Ekman, 1972). That is to say, East

Asians are less emotionally expressive in direct communication than in indirect communication.

In the past, writing letters was the most popular way for Chinese people to express their affection, because it was difficult for them to fully express their emotions in face-to-face communication for cultural reasons, such as the expectation that one would remain reserved and introverted in interpersonal communications (Liu, 2006). However, the emergence of SMS and Internet has dramatically changed this state: the statistics from China Post (Han, 2006) indicated that the amount of personal letters is decreasing at a rate of 20% each year. New *indirect communication* technologies such as SMS and email can not only compensate Chinese people's lack of emotional expression in face-to-face and voice communication, but also avoid the long mailing time of traditional letters. And compared to email and other IM tools via computer, SMS has more accessibility, mobility and flexibility, especially for the students who might not be able to access the Internet at school, they can text at any time and anywhere, even in class. With all these advantages, SMS is no doubt an ideal way for Chinese teenagers to coordinate their lives, express their emotions, and build and maintain their social relationships.

2.2.2 Parental influences

As discussed previously, "parental influence" plays an important role in teenagers' adoption of mobile phones and SMS. In this section, we will examine how parents influence teenagers' use of mobile phones and SMS.

2.2.2.1 The frequency that parents contact their children's mobile phones (Question 18)

Figure 18 shows how many times parents contact their children's mobile phones per week: 2/3 (66%) of the parents contact their children's mobile phones less than 10 times per week; nearly 1/5 of the parents contact their children's mobile phones 10 to 20 times and 13% of the parents contact their children's mobile phones more than 20 times per week; the average frequency is 9 times per week.

Figure 18: The weekly frequency that parents contact their children's mobile phones (N=77)
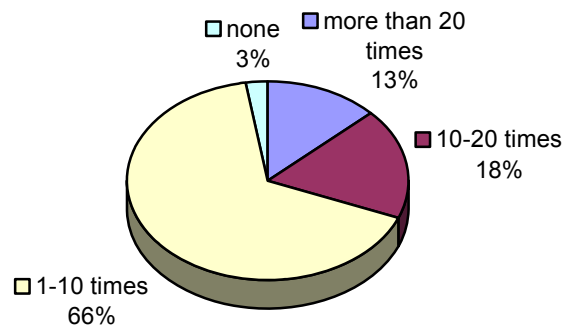
A significant difference was found between the two age groups ($\chi2=14.154$, $p<0.05$): younger teenagers' parents contact their children's mobile phones much more frequently (24 times/week) than older teenagers' parents (11 times/week). As we noted above, the parents of younger teenagers have a greater need to locate and keep watch on their children than do the older teenagers' parents; we believe it is for this reason that younger teenagers' parents contact their children's mobile phones

more frequently than older teenagers' parents.

2.2.2.2 The means by which parents contact their children (Question 19)

Due to the simple and straightforward reason parents have for contacting their children's mobile phones, i.e., locating the children at any time and anywhere, the mobile phone communication between parents and children should be direct and efficient. Figure 19 proves this assumption: voice calls are the first choice for parents to contact their children because it is immediate and efficient. Nearly half of the parents (49%) reach their children only through voice calls and 47% of the parents use both voice calls and text messages to contact their children; there are 4% of the parents who contact their children only through SMS.

Figure 19: The means by which parents contact their children (N=75)
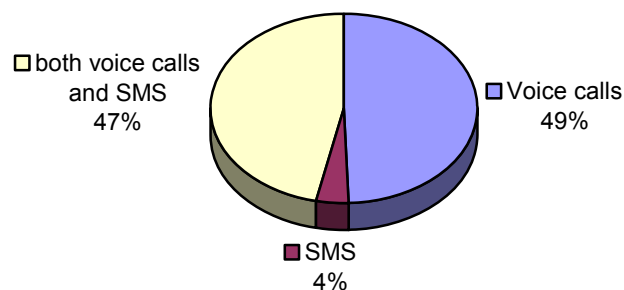
Since more than half of the parents (47% + 4%) communicate with their children through SMS, it is worth looking more deeply into the SMS communication between parents and children. Parents send SMS to their teenage children because they want to keep up with them (Wolsey 2009). In the study of Ma et al. (2007), Chinese parents

over 40 years old (whose children are teenagers) exchange more SMS with their children than their friends. Although most of the Chinese parents like to call directly to be more efficient, they still "text" with their children because they know SMS is the favourite communication mode for their teenagers. However, as seen in Figure 15 above, SMS is used by some teenagers to avoid directly listening to their parents' nagging. This result drew an interesting picture for us: parents use SMS to be closer to their children, but the children use SMS to maintain distance from their parents.

In the open-ended question, the participants were asked to list the subjects of the calls or the text messages received from their parents. Without exception, most of the subjects of the parent-child conversation are within three categories: "time" (when the children will be returning home), "place" (where the children are at the moment) and "care" (how things are going with the children). There is no difference in the subjects and contents between SMS and voice calls, which also proves that when parents choose to use SMS instead of a voice call, their purpose could be just to keep up with their children and not to disturb them by voice calls.

The analysis of the participants' answers shows that 92% of the voice calls or text messages between parents and children were initiated by the parents. The most frequently asked questions are "*When will you come back?*" (56%), "*Where are you?*" (40%), and "*How is it going?*" (24%), which respectively belong to the three categories of "time," "place" and "care". Other questions, such as "*did you eat?*", "*Do you need anything?*", "*Do you need money or food?*" and "*What are you doing?*" also belong to the subject of "care." Eight percent of the conversations are started with informing instead of inquiring, such as "*Go to your granny's after school*",

"*Meet us at Restaurant X and we'll eat together*", which are still within the subject categories of "place" and "care".

2.2.2.3 Parental control over the use of mobile phones (Question 20 & 21)

As seen in Figure 20-1, more than 3/4 of the teenagers confirmed the parental control over their mobile phone use. The *cost* of mobile phone use (39%), children's *contacts* (40%) and the *time* that teenagers can spend on mobile phones (39%) are three main aspects which are under the control of parents (Figure 20-2).

As Thrane (2003) argued, parental control in teenagers' ICT adoption and use is often contradictory. Mobile phones bring convenience for parents in reaching their children whenever they wish; however this convenience is at the same time accompanied by worries and fears. To protect the children from a negative social network which might be built through mobile phones, to keep the mobile phone cost at an acceptable level, and to make sure the children spend enough time on their studies, parents have to exert necessary control over their children's mobile phone use.

Figure 20-1: Parental control over teenagers' mobile phone use (1)
(N=77)

My parents do not control the use of my mobile phone at all. 23%

My parents control the use of my mobile phone. 77%
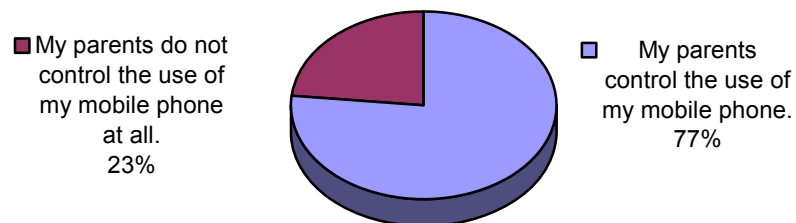
Figure 20-2: Parental control over teenagers' mobile phone use (2) (N=77)
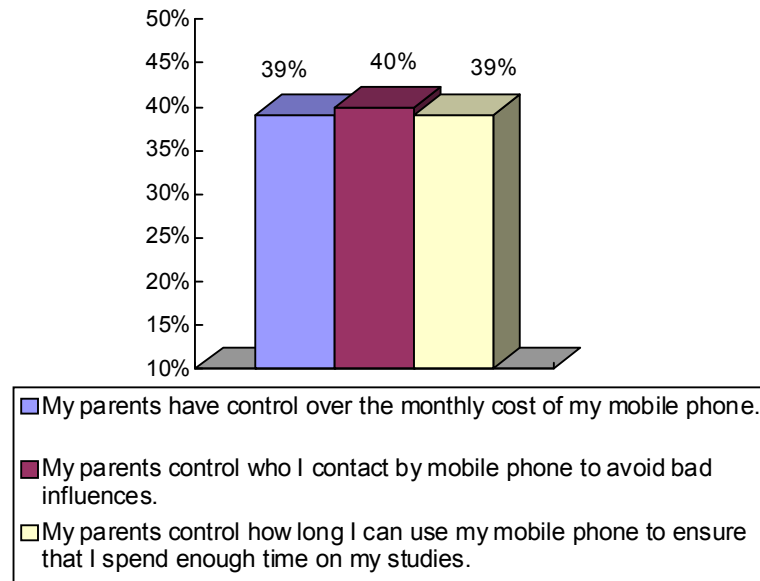
Other than controlling the mobile phone use directly, some parents also monitor their children's text messages. As seen in Figure 21, more than 1/3 of the teenagers confirmed that their parents checked the messages on their mobile phones; some parents even secretly peeked at their messages.

Figure 21: Parents checking teenagers' messages (N=77)
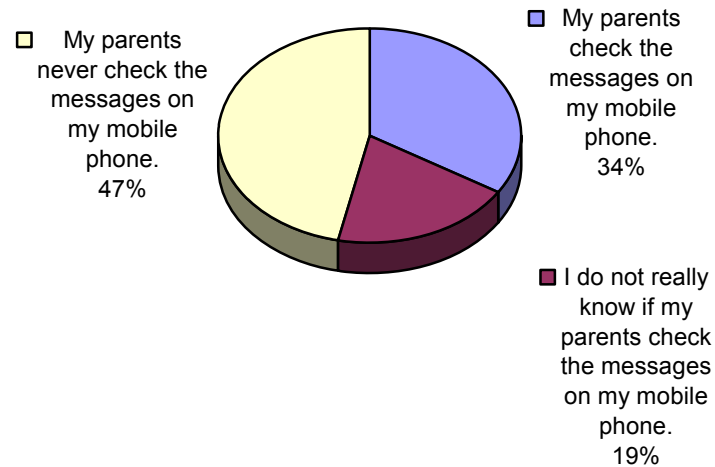
A significant difference ($\chi2=12.155$, $p<0.05$) was found between the two age groups in this regard: younger teenagers' parents (45%) check their children's text messages more often than older teenagers' parents (6%). This difference corresponds again to the fact that younger teenagers' parents feel a greater need to monitor their children. By checking children's messages, parents can find out if anything is being hidden from them. Though this behaviour does not seem to be agreeable to the children and even provokes their rebellious mentality, sometimes it does afford the parents an efficient means of knowing what is really going on in their children's lives.

2.3 Chain text messages, SMS greetings and emoticons (Part III of the questionnaire)

2.3.1 Chain text messages

2.3.1.1 The spread of chain messages among Chinese teenagers (Question 22 and 23)

The results of our survey confirmed the popularity of chain messages among Chinese teenagers; only less than 3% of the teenagers never receive or send chain messages (Figure 22 and 23). The average number of chain messages sent and received by one Chinese teenager per week is 10 and 7 respectively. Based on one of the results in Part I, that a total of 76 text messages are sent and received by a teenager every week, more than 1/5 of the text messages sent and received by Chinese teenagers are chain text messages, i.e., out of every 5 text messages, one is a chain message.

Figure 22: The number of chain messages received per week (N=77)
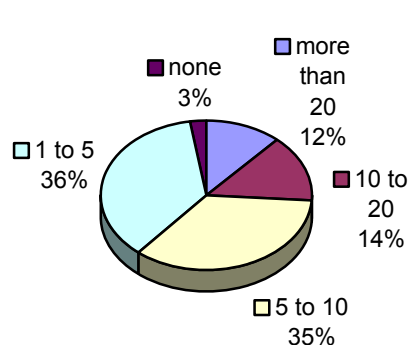
Figure 23: The number of chain messages sent per week (N=77)
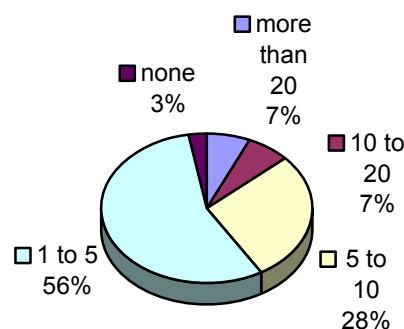
2.3.1.2 Collection of chain messages (Question 24)

Chain messages are not only circulated by Chinese teenagers, but also collected by most of them. One in three (33%) Chinese teenagers reported collecting many chain messages (Figure 24), and 3/5 of the teenagers saved the chain messages that they thought interesting on their mobile phones.

Figure 24: Collection of chain messages (N=75)
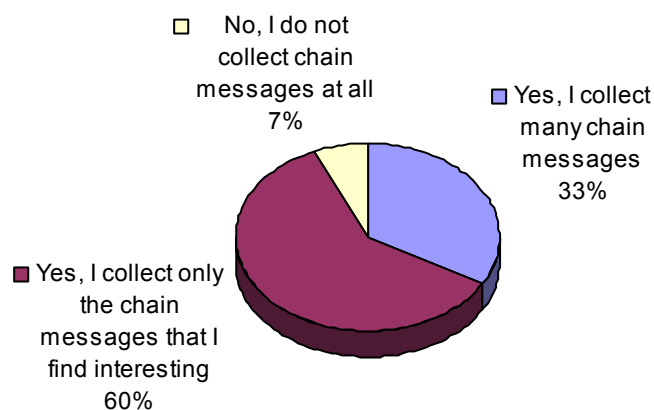
2.3.1.3 The circulation of greeting chain messages among Chinese teenagers (Question 25, 26 and 27)

Greeting chain messages have a great circulation among Chinese mobile phone users, especially during the traditional holidays or anniversaries. In general, there are two categories of chain messages according to their functions: *humour chain messages* such as jokes, which function simply as entertainment for both the message senders and receivers; and *greeting chain messages* which offer the senders' good wishes and greetings to the receivers. There are also many greeting chain messages composed in a humorous manner, which were thus provided with the dual functions

of both maintaining relations and entertaining the message receivers. Greeting chain messages are defined by Cui (2007) as an evolution of mediated greetings started as paper cards to maintain relations.

As seen in Figure 25, 97% (57%+40%) of Chinese teenagers forward greeting chain messages to their family members or friends.

Figure 25: Teenagers' forwarding greeting chain messages to family or friends during festivals or anniversaries (N=77)
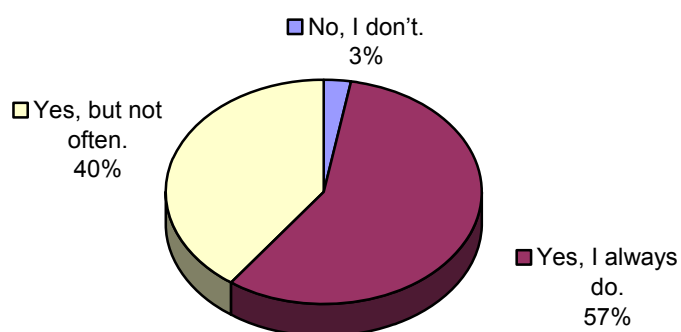
The reasons why teenagers forward chain messages can be summarized as *entertainment* (75%), *maintenance of relationship* (40%), *ease* (27%) and *laziness* (23%) (Figure 26). The humorous and interesting content is the first reason for Chinese teenagers to spread greeting chain messages because these messages are worthy of being shared to express their greetings and entertain people at the same time. The second reason for teenagers to send greeting chain messages is because these messages can be sent to a bigger circle of contacts, intimate or distant. Cui (2007) defined one's SMS contacts with "text circle" and "greeting circle". *Text circle*

is the group of people with whom the SMS sender texts on an "everyday basis," such as family and close friends; g*reeting circle* refers to the circle of people to whom an SMS sender would forward greeting chain messages; the *greeting circle* contains the *text circle*, covering both strong-tie relationships and weak-tie relationships. The third reason is that greeting chain messages are good for teenagers who are shy or less expressive and would feel too awkward or forward using their own words to express wishes and greetings. And for those teenagers who are too lazy to take the initiative to write their own messages, greeting chain messages are very convenient as well.

Figure 26: The reasons for Chinese teenagers to forward greeting chain messages (N=75)
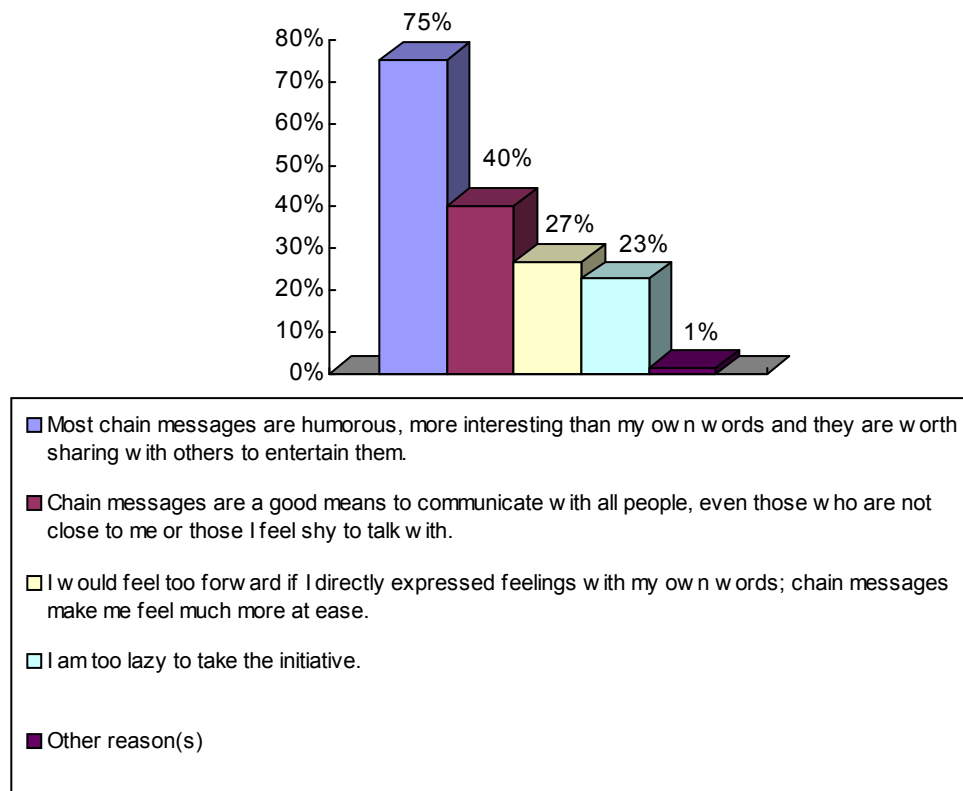
In the open-ended question where the participants could add more reasons why

they forward greeting chain messages, two participants answered: "I'm proud of having these interesting text messages" and "It's a new mode to send greetings to people," which implies that *satisfaction* and *fad* are also reasons for teenagers to send greeting chain messages.

However, there are still 3% of the participants who do not forward greeting chain messages to others (Figure 25). From their point of view, sending chain messages as greetings or gifts is not sincere and they prefer to use their own words to express wishes or affection to family and friends.

2.3.2 The impact of SMS greetings on teenagers' social relationships (Question 28)

During important festivals or anniversaries such as the Chinese New Year, Chinese people used to visit their relatives, friends and neighbours to greet each other face to face; but with the wide adoption of mobile phones, more Chinese people are choosing to stay home and send SMS greetings instead. The amount of these festival greeting messages was so huge that Chinese economists created a new term, "thumb economy", to describe the huge profits made by these greeting messages (Li, 2008). However, the substitution of SMS greetings for face-to-face greetings concerned the sociologists. They argued that SMS greetings would estrange people from one another due to its lack of sincerity (Dong, 2006; Dong, 2009).

Teenagers have their own opinions. As Figure 28 illustrates, more than half of the teenagers (52%) feel that SMS greetings are helpful for social relationships; 34%

of the teenagers do not see any change in people's relationships after SMS greetings

replaced face-to-face greetings; only 14% think that SMS greetings replacing

face-to-face greetings will lead to the alienation in people's relationship.

Figure 28: The impact of SMS greetings on social relationships (N=77)

☐ SMS is positive for friendship and intimacy among people.

☐ I do not see any change in people's relationships after SMS
   greetings replace face-to-face greetings.

☐ I think that SMS greetings replacing face-to-face greetings
   will lead to the alienation in people's relationship.
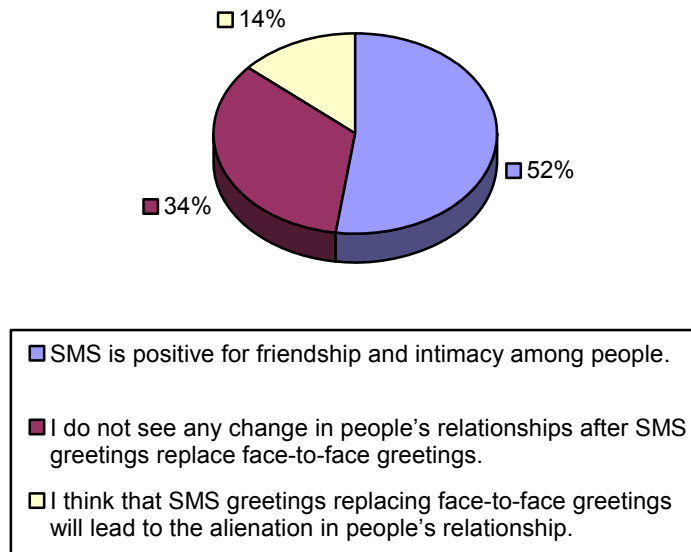
A supportive example was found in the SMS journals written by one of the

participants:

*   *   *

B3: It's your birthday today, happy birthday!
A3: Thanks!

E3: Happy birthday!
A3: Thanks a lot!

F3: Happy birthday to you!
A3: Thanks! How are you, sister F?
F3: I'm fine! We haven't seen each other for almost one year, right?
A3: I thought you guys had forgotten my birthday. I'm so happy!
...

G3: What are you doing?

A3: Nothing to do. You finally remembered me at the end of the vacation…
G3: Where are you? Happy birthday!
A3: Thanks a lot.

H3: Is today your birthday?
A3: Yeah, who are you?
H3: I'm H
H3: I'm texting you just to say "Happy Birthday"!
A3: Thank you, H!

*   *   *

A3 is one of the participants who wrote this journal and B3, E3, F3, G3, H3 are all her female friends. A3's birthday happened to be one of the days when she wrote the journal; on her birthday, she received SMS greetings from these five friends, yet three (F3, G3 and H3) of them do not contact her frequently.

Apparently, A3 did not expect the greetings from G3 as she started complaining that G3 had totally forgotten her when G3 initiated the conversation by asking what A3 was doing. As for H3, A3 did not even know who H3 was when H3 first sent her the message to confirm if it was her birthday. It was obvious they were not close friends because H3 was not sure about A3's birthday in the first place, and she was neither on A3's contact list, nor was A3 able to recognize H3's number, but H3 still tried to send her good wishes to A3 by SMS. The conversation between A3 and F3 is more persuasive. After the short "greetings" and "thanks," F3 sighed that they have not seen each other for nearly one year; and A3 was surprised that F3 still remembered her birthday, which made her very happy.

Without SMS, F3, G3 and H3 would probably not have the chance to express their wishes to A3, because they did not seem to be able to see each other and a phone call might be too abrupt as they are not particularly familiar with or close to each

other. Hence A3 would have probably missed these "birthday gifts" which made her birthday happier. In this example, SMS fully functioned as a relationship "maintainer" among these teen friends.

Another good example in our survey is that the teacher-student relationship was changed by SMS, or more specifically, ameliorated mostly by greeting messages. In the past, even if a student wanted to express his gratefulness or wishes to the teacher or intended to change the "cat-rat" relationship, he might not be able to find a proper way to do so, because if he was seen visiting or sending a gift to the teacher, he would be accused of seeking special treatment from the teacher and would run the risk of being isolated from his peers. However, the emergence of SMS has provided a chance for both teachers and students to improve their relationships, because SMS is such an inconspicuous communication mode that allows them to have much more communication out of the classroom and not to be noticed. With a large number of teachers and students becoming adapted to this new communication, the teacher-student relationship has been unintentionally improved. With SMS, expressing gratefulness and wishes to the teacher is no longer unacceptable behaviour because every student can download greeting messages for the teacher from thousands of public web sites. In this circumstance, the replacement of face-to-face greetings by SMS is definitely positive in maintaining and improving teacher-student relationships.

2.3.3 Emoticons

2.3.3.1 The use of emoticons in SMS (Question 29)

Figure 29 confirms the wide use of emoticons among Chinese teenagers: nearly 9/10 of the participants who own mobile phones use emoticons in their text messages.

Figure 29: The rate of emoticon use among Chinese teenagers (N=77)
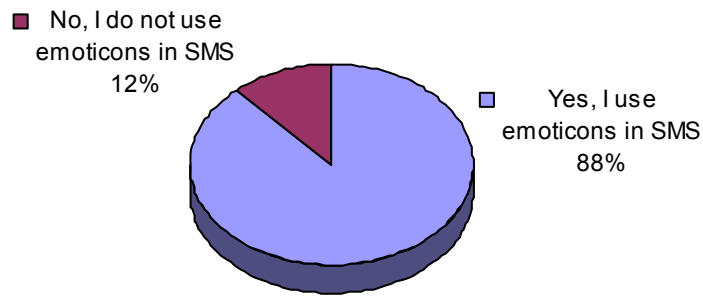
A significant difference ($\chi2=8.327$, $p<0.05$) was found between the two age groups: younger teenagers use emoticons more frequently than older teenagers, which supports the studies of Merchant (2005), who has found that young teenagers play a key role in "linguistic innovation" associated with new ICTs and they are active in sharing and passing on their linguistic innovations such as abbreviations and emoticons to their peers.

2.3.3.2 The functions of emoticons in SMS (Question 30)

Figure 30 shows that ***augmenting emotional cues*** (86%) and ***bringing fun to the text conversation*** (78%) are two main functions of emoticons in SMS communication. This result backs the "social presence" theory that text-based media

(CMC) can also support highly affective interpersonal interactions, and accords with Derks' studies (2007) that *expressing emotion, strengthening messages* and *expressing humour* are three main motives of using emoticons. Nearly 2/5 of teen mobile phone users also think that people use emotions in SMS because it's a fad and 35% of teenagers think emoticons are important in SMS use.

Figure 30: The functions and meanings of emoticons (N=77)

□Emoticons redeem the lack of emotional cues of text messages.
■Emoticons make the text conversation more funny.
□Emoticons have become a fad, many people use emoticons.
□Emoticons have become an important part of text messages.
■Emoticons have no special meaning for me.
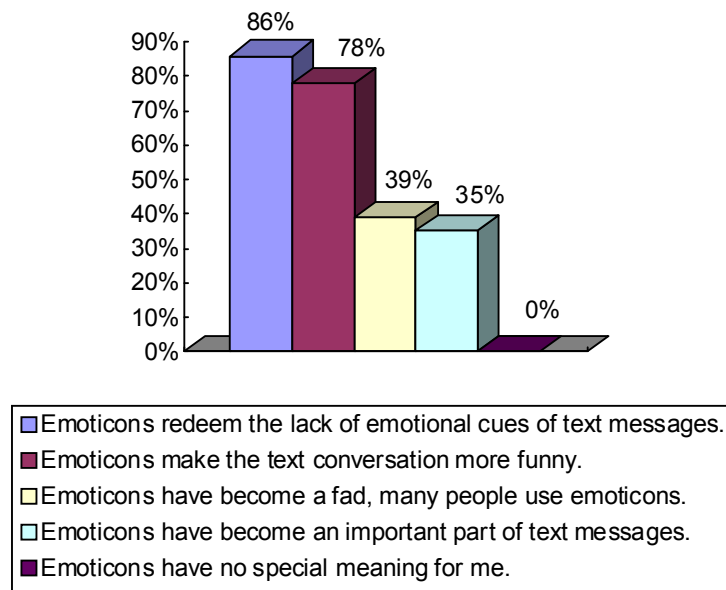
2.3.3.3 Analysis of the emoticons used in Chinese teenagers' SMS (Question 31)

At the end of the questionnaire, the participants were asked to draw three emoticons which they thought interesting and sent or received in the last two weeks. We collected 61 different emoticons from the participants, plus 3 emoticons found in the participants' journals, for a total of 64 emoticons as listed in Table 2.

To analyze these emoticons, we first classified them into *Western style* and *Eastern style*, then labeled them with the corresponding emotions according to Ekman (1969) and Plutchik's (1980) basic facial emotions theories (Table 2).

Table 2: Analysis of the emoticons used in Chinese teenagers' SMS

Styles	Emoticons and their meanings	Ekman's basic facial emotions	Plutchik's basic facial emotions
Western style	:) —classic smile without nose	Happiness	Joy
	;) —winking smile without nose	Happiness	Joy
	;-) —winking smile with nose	Happiness	Joy
	;o) —winking smile with nose	Happiness	Joy
	B-) —Batman / smiley with glasses	Happiness	Joy
	:-! —pride, hilarity, etc	Happiness	Joy
	: (—classic sad without nose	Sadness	Sadness
	: P —tongue sticking out (silly, or feeling lousy)	Disgust	Disgust
	:-/ —Skeptical/confused	Surprise	Surprise
	;o/ —Skeptical with nose	Surprise	Surprise
	:-@ —scream	Surprise	Surprise
	:-& —tongue tied	Anger	Anger
Eastern style	^@^ —a symbol of kiss	Happiness	Joy
	^ ^~—happy	Happiness	Joy
	^_^ —smile	Happiness	Joy
	^o^ —lol/cheering	Happiness	Joy
	^_~ —smile with wink	Happiness	Joy
	(-^_^-)—happy face with blush	Happiness	Joy
	(*^_^*)—smile blushingly	Happiness	Joy
	` v ´ —happy	Happiness	Joy
	´ ⌣ ` — happy face	Happiness	Joy
	⌒ ⌒ ⌣ —smile	Happiness	Joy

Styles	Emoticons and their meanings	Ekman's basic facial emotions	Plutchik's basic facial emotions
	*^o^* —laugh out loud with blush	Happiness	Joy
	A_A —a "very" happy face/smiley	Happiness	Joy
	˘^˘ —sad/frustrated	Sadness	Sadness
	⌣‿⌣ —sad	Sadness	Sadness
	´‿` —sad	Sadness	Sadness
	ToT —cry	Sadness	Sadness
	T_T —cry	Sadness	Sadness
	t_) —sad	Sadness	Sadness
	~_~ —A smile showing genuine hurt	Sadness	Sadness
	_ —disappointed/speechless	Sadness	Sadness
	(°_°) —disappointed/puzzled	Sadness	Sadness
	u_u —sad or disappointed	Sadness	Sadness
	-_-# —faint/mad and angry	Anger	Anger
	(-_-:)—anime sweat drop/ mad or annoyed	Anger	Anger
	>o< —angry	Anger	Anger
	>_< —angry/frustrated face, also used to show embarrassment	Anger	Anger
	`_´ —angry	Anger	Anger
	(- -") —embarrassed/angry/ anime sweatdrop	Anger	Anger
	=_=" —embarrassed/annoyed/angry	Anger	Anger
	(- -) —annoyed	Anger	Anger
	>!< —crazy/very angry	Anger	Anger
	-_< —crazy/mad	Anger	Anger
	Φ_Φ—a negative attitude or some anger towards the recipient	Anger	Anger
	^_^# —sheepishness or discomfort	Fear	Fear
	^_^ⁱⁱⁱ —embarrassed	Fear	Fear
	OTL =>o|￢|_ —a kneeling or bowing person/ failure, despair or a great admiration	Fear	Fear
	@_@ —dizzy/disoriented/highly nearsighted	Fear	Fear
	-_- —annoyed or bored	Disgust	Disgust
	ˆ_ˆ —(Thai style smiley) bored face with eyebrow	Disgust	Disgust

Styles	Emoticons and their meanings	Ekman's basic facial emotions	Plutchik's basic facial emotions
	(-_-)—A bored face	Disgust	Disgust
	~__~ —bored/frustrated/suffered	Disgust	Disgust
	=_= —annoyed, usually used in replying to a stupid question; often used to express irony also	Disgust	Disgust
	<_> —confused	Surprise	Surprise
	@.@ —confused or surprised	Surprise	Surprise
	°>°—chatting	N/A	N/A
	^v^ —bird	N/A	N/A
	<*)>>>< or <*)))) < —fish	N/A	N/A
	(^ω^) or ^(oo)^ —pig	N/A	N/A
	(●__●) — rabbit	N/A	N/A
	@>->->- — rose	N/A	N/A
	☆ — star	N/A	N/A
		N/A	N/A

Due to the evolution process, emoticons are naturally classified in two basic styles: the *Western-style* and the *Eastern-style* (www.wikipedia.org). The emoticons in Western style are written from left to right, so one must to tilt one's heads toward the left shoulder to recognize the emoticons, because in Western-style emoticons, the eyes are on the left and the mouth is on the right. In most of the Western-style emoticons, eyes are represented by a colon or semicolon; the mouth, which is the central character, can be represented by different symbols to express different meanings. For example, parenthesis ")" is used to represent a smiling mouth; the letter "P" is used to represent a tongue sticking out of the mouth to mean silliness.

The emoticons in Eastern style, first used by the Japanese in 1986, can be recognized without rotating one's head. The main part of Eastern-style emoticons to express emotions is the eyes, and the mouth can be simply represented by an underscore. For example, two "^" characters mean a smile (^_^); the letter "T" or "Q" can be used to represent crying eyes, expressing sadness (T_T or Q_Q); asterisks indicate a disappointed face (*_*). In recent years, Eastern-style emotions have been developed to be more complicated and to have many more meanings. They are no longer limited to facial expressions, but can incorporate hands, arms, or even the whole body. For example, """ or ":" beside a face represents the sweat drops and implies embarrassment; "< >", "⊂ ⊃" or "V" beside a face indicate hands or arms; the letter "Y" could be two fingers indicating "victory" (Y(^_^)Y). Since emoticons are very popular and widely used in China and Korea as well, Chinese and Korean characters are also used in emoticons, for example, "ㅎ_ㅎ" (a smiling face) is composed of two Korean jamos "ㅎ"; "(￣皿￣)凸" (皿 and 凸 are Chinese characters) shows an angry face and a fist with the middle finger sticking out; "囧", a Chinese character which means "bright", now is used in Chinese and Taiwanese community for a frowning face. Other than the human body, Asian users have also invented emoticons to express actions, animals and many other objects: "OTL" means a kneeling person with head, arms and legs; "m(_ _)m" means a big bow with two hands up; and "<*)))) <" is a fish. Between two friends who are teasing each other, they may send a message of "You're as stupid as a ^(oo)^ " instead of " You're as stupid as a pig"; and because of the lovely smile of the "pig", the receivers will not misunderstand the message as an insult but only take it as a joke.

The difference between the Western style and Eastern styles can be explained from the perspective of cross-cultural communication. Yuki, Maddux and Masuda (2007) argued that when interpreting facial emotions, depending on people's cultural background, facial cues in different parts of the face are weighted differently. Their studies confirmed that Japanese tend to look to the eyes for emotional cues, whereas Americans look to the mouth because they consider the mouth to be the most expressive part of the face. Therefore, Japanese tend to emphasize the emotive changes of the eyes in their emoticons, whereas the Americans tend to change the mouth in their emoticons to express different facial cues.

As seen in Table 2, both Eastern-style emoticons and Western-style emoticons are used in Chinese teenagers' text messages, but Eastern-style emoticons have more variety and are much more frequently used than Western-style emoticons. The greater variety of Eastern-style also implies that although Eastern Asian teens are less emotionally expressive than Western teens in face-to-face communication (Russell & Yik, 1996; Tseng & Hsu, 1969), they may likely be more emotionally expressive in text-based communication. The emotions "^_^", "-_-" and ":)" are the three most frequently used emoticons among those we collected. The reasons why Eastern-style emoticons are more frequently used could be: 1. Eastern-style emoticons have much more variety than Western-style emoticons and can therefore express more emotions; 2. Eastern symbols and characters are very easy and convenient to acquire from the Chinese mobile phone input system. According to participants' answers, ":)" is the only Western-style emoticon which is very frequently used by Chinese teenagers,

because this "smile" has become so familiar to everyone in the world and is composed of only two punctuation marks which are very easy to type.

Table 2 also indicates that all the six basic emotions proposed by Ekman (1969) can be matched with the emoticons collected from the participants and seven of eight basic emotions listed by Plutchik (1980) can be found in our collection as well, except the emotion of "anticipation". Considering the limitation of our data collection, we consulted some web sites (e.g. Computer World Net) which provide a large number of emoticons for Chinese mobile phone users to download, and it was easy to find the emoticon " ((。(^_^)。)) ", which represents "anticipation". Therefore all Ekman's and Plutchik's basic emotions can be expressed by emoticons in SMS communication. This result proves that, like the non-verbal emotional cues in face-to-face communication, emoticons in SMS communication are provided with the functions of emotional expression, which are able to comprehensively represent all the basic human emotions, or even advanced emotions.

At the end of Table 2, there are six emoticons which can be labeled with neither Ekman nor Plutchik's emotions because they do not represent facial expressions, which implies that the function of emoticons in SMS has gone beyond normal facial expressions, as they can be more complicated and express more meanings and objects, such as actions, events, animals, etc.

In computer-mediated communication, other than the classification by Eastern and Western styles, emoticons can also be divided, according to their appearance, into *symbolic (character) combination* and *graphic image*. In recent years, to meet the

huge SMS market, some mobile phone manufacturers have developed graphic emoticon functions for their products. This built-in emoticon function offers SMS users a list of graphic (animated) emoticons which are easy to choose and send; this list is quite similar to the emoticon menus of online IM tools or BBS. In our survey, such graphic emoticons are not found or mentioned by the participants, so we will not include them in this study.

Chapter III: Conclusion

This thesis has examined Chinese teenagers' adoption and use of SMS as well as mobile phones. The study proved the wide adoption of mobile phones and SMS among Chinese teenagers, which have become their most important communication tools to contact families, peers and even teachers. According to our study, Chinese teenagers showed few differences from other countries' teenagers in both mobile phone and SMS adoption and use: most of them start to use mobile phones at around 12 years old and the mobile phone possession rate among teenagers is higher than average; SMS is adopted by all Chinese teenagers, it is used to build and maintain relationships, express emotions, obtain entertainment, save mobile phone cost and to avoid or escape from any situation that they do not want to face. There are a few points that we found particularly interesting and are worth highlighting again, such as the parental influences and control on teenagers' adoption and use of mobile phones

and SMS, emoticons in SMS communication and the effect of SMS on teenagers' relationship building and maintenance.

Parental influences

As mentioned in Chapter I, the parental factor should always be taken into consideration in studies of Chinese children or adolescents, because the one-child policy in China has created a special parent-child relationship: contemporary Chinese parents have much higher expectations, stronger emotions and more excessive concerns about their children than any other period in Chinese history because they know that the child may be the "only" one they can have (Chen, 2007).

In our study, parents were found to play an important role in the adoption and use of mobile phones and SMS among Chinese teenagers. The first reason for teenagers to adopt mobile phones is their parents' desire to easily locate and monitor them at anytime. Chinese parents also have strong control over their children's mobile phone use for security and financial reasons, such as controlling whom the children contact through mobile phones and when or how long their children can use their mobile phones.

The adoption of SMS among Chinese teenagers is also influenced by parental control: *low cost* is one of the main reasons for Chinese teenagers to use SMS since the cost of mobile phones is actually under their parents' control. The "excessive" concerns of Chinese parents are also one of the reasons for teenagers to adopt SMS: some young teenagers communicate with their parents through SMS just to avoid

listening to their parents' nagging. Paying too much attention to their children has even led some parents to spy on their children's text messages to protect or better understand their children.

Since this thesis is not a comparison study, we are not able to determine if there is any difference between Chinese parents and the parents of other countries in the influences on teenagers' mobile phone and SMS use; but it may be interesting to make such comparisons in future studies.

SMS and teenagers' relationship building and maintaining

In our study, SMS communication was found to positively affect teenagers' relationship building and maintaining. It was very interesting to observe that within only a few years, SMS has positively changed teenagers' relationships with teachers, which had not changed for hundreds of years. SMS creates more communication opportunities between teachers and students and builds a channel for emotional expressions between them. Within families, SMS is utilized by parents to keep up with their teenage children and to diminish the generation gap, because parents know that their children are keen on SMS communication. SMS also functions in building and maintaining friendships among teenagers; as a particular category of SMS, the greeting chain messages eliminates the limit of time and space and makes the maintenance of friendships much easier than face-to-face communication and voice calls.

For Chinese teenagers, SMS is their first choice for expressing emotions to both family and friends because SMS is indirect, inconspicuous, enjoyable, cheap, faddish,

convenient, easy, and so forth. These several advantages make SMS a "tailor-made" communication channel for Chinese teenagers and have caused SMS to take the most important position in teenagers' social-emotional practice. It seems quite likely that SMS could turn Chinese teenagers from less emotionally expressive (Russell & Yik, 1996; Tseng & Hsu, 1969) to more emotionally expressive, because SMS has eliminated many cultural, mental or physical obstacles that may prevent Chinese teens from being more emotionally expressive.

Emoticons

Emotion is an important component of SMS for Chinese teenagers. The emoticons used in SMS have a lot of variety in both Eastern and Western styles; however, Eastern style emoticons are used much more frequently due to their greater richness in emotional expression. The analysis of the emoticons used in SMS confirmed that the emotional expressive function of emoticons is similar to the function of non-verbal emotional cues in face-to-face communication. This conclusion accords with the emoticon studies in other CMC research (Derks, 2007; Walther, 1992).

We have tried to examine emoticons in SMS, for the first time, through the approach of basic emotions theories (Ekman, 1969; Plutchik 1980) and the results proved that SMS emoticons are not only fully capable of representing all basic human emotions but even more advanced and complicated human feelings and actions. These findings implied that the emotional expressive function of emoticons in SMS (CMC) can not only transport facial emotion to the text communication, but even

transcends the function of real non-verbal emotional cues. For instance, in SMS (CMC) communication, emoticons representing "kiss", "puke" or "punch" can be used to express strong love, disgust or anger between two persons, however the real actions of "kiss", "puke" or "punch" may be impossible or less possible to really happen in face-to-face communication. When a person admires or fully agrees with someone, it's quite unlikely that he will actually bow or kowtow on his knees, yet the emoticon "OTL" can accurately expresses the emotions of admire from the message sender, transcending all the verbal and non-verbal expressions.

Although this thesis is not an in-depth study of emoticons, we believe that the link between emoticons and human emotions is more complex than we had foreseen and could lead to very promising research in the future.

Age and gender differences

Throughout our survey analysis, we have not found any significant difference between *genders*, but a few *age* differences have been shown in mobile phone and SMS adoption and use.

Older teenagers have been using mobile phones and SMS longer than younger teenagers because they have spent a longer time in high school, and Chinese teenagers most often get a mobile phone upon entering high school. Older teenagers use mobile phones more heavily than younger teenagers, in both SMS and voice calls, because they have more need for social communication. In order to be more efficient, older teenagers who have a heavier study burden tend to use voice calls more than SMS.

Parental influence also causes differences between the two age groups. Younger teenagers are much more frequently contacted by their parents through their mobile phones, because younger teenagers' parents have more need to locate, protect and monitor their children; additionally, younger teenagers' text messages are much more frequently checked by their parents, because younger teenagers' parents are more concerned or worried about their children than older teenagers' parents.

Limitations of the research

A methodology of field survey was employed in this empirical study; however, due to religious persecution, the researcher could not go back to China to conduct and supervise the field study in person, which led to slight flaws in the sample selection and the quality of filled questionnaires. First, the sample numbers of the two age groups are not very well balanced; more participants aged 16 to 19, especially females, should have been involved. Second, because the participants filled out the questionnaire at home without proper supervision, 12% of the questionnaires were invalid. In future research, the field study needs to be better controlled. If an entrusted person is needed, this person should be better trained to run the project.

Taking into consideration the very intensive study schedules of Chinese high school students, we only asked the participants to start writing journals during their summer vacations. Therefore it is possible that these journals may not reflect the complete SMS contents of Chinese teenagers, because their lives during vacation are different than during the regular school year, and this difference may have caused inaccuracies in the analysis.

We should also bear in mind that it is not easy to get enough samples for a study related to Chinese people because China has a huge population with wide cultural and economic gaps among regions; it is always difficult to get adequate samples to faithfully represent the Chinese people on average. Hence most of the research has to focus on a limited population in specific regions, as does our project.

Suggestions for future studies

In regard to Chinese teenagers' adoption and use of SMS as well as mobile phones, there are a few topics which we may continue or look into deeper in future studies:

Linguistic innovation initiated and spread by teenagers

Linguistic innovation is always an important practice in teenagers' text communication. Recently, a newly invented language, which is called "Martian" （火星文, literally translated as "the language of Mars"）appeared in the text messages of Chinese teenagers. "Martian" got its name because most humans on Earth do not understand it; it can only be understood by those young people who invent and use it often. "Martian" could refer to all kinds of intentionally wrongly used characters or words, such as homophony, combination of different languages, even the invention of characters that did not previously exist. The emergence of "Martian" is no doubt an interesting topic for both Linguistics and CMC researchers.

Emoticons and emotional expressions

In CMC studies, emoticons are often compared with non-verbal cues, such as facial expressions (Thompson & Foulger, 1996; Derks, 2007). However, as discussed previously, emoticons may be provided with the functions that facial expressions cannot have. In other words, emoticons may not only be surrogates of non-verbal emotional cues, but supplements of emotional expressions. With greater numbers of new emoticons being invented, more and more complicated human emotions could be expressed by emoticons in text communications. Yet we have not been able to find any study on the link between emoticons and human emotions so far; the variety and complexity of emotions which can be expressed by emoticons is also unclear to researchers. All this may lead to promising future studies.

Comparison study on parental influences

Since the one-child policy in China is unique in the world, Chinese parents' attitudes towards their children may be different from the parents of other countries. For example, while Chinese toys have occupied most of the international markets and found their way into most European and American homes thanks to their cheap price, Chinese parents, on the contrary, favour foreign-made toys which are much more expensive but safer for their children, because the Chinese one-child families are "willing to spend lavishly on their sole offspring" (Kurtenbach, 2007). Parents from all over the world are similar in being willing to give the best to their children; however, if Chinese parents' concerns are too excessive about their only child, there may be some difference in their influence on children's adoption of ICTs such as

mobile phones, and this comparison could be an interesting theme for future studies.

Other than the topics listed above, more social effects of Chinese teenagers' SMS use should be included in future studies as well. In this thesis, we've only examined how SMS influences teenagers' social relationships, but there are still more social influences of SMS which may need further study, because some social phenomena are quite common among Chinese teenagers, such as sending SMS in class, the spread of destructive chain messages (e.g. messages with pornographic content), etc. Although could not be done in this study, it would also be interesting to look more closely at how universal the chain messages phenomenon appears in other counties.

Methodology, time and sample

For future studies on Chinese teenagers' SMS or mobile phone use, an *in situ* field survey will still be an ideal method to collect data and more qualitative data such as journals, follow-up interviews and open-ended questions should be collected and analyzed.

The time to conduct the survey needs to be well arranged. Data should be collected both when teenagers are in school and on vacation so that the research can give a more complete picture of teenagers' SMS or mobile phone use.

The Chinese population is not balanced in terms of their financial situation or social status, so the samples could be selected from different regions; and these samples could also be divided into different categories to be analyzed separately or

comparatively. Parents and teachers are also recommended to be part of the samples for teenager studies. For comparison studies, samples from other countries should be included as well.

Reference:

ACMA (Australian Communications and Media Authority) (2007). **Use of electronic media and communications: Early childhood to teenage years**, published by the Australian Communications and Media Authority, http://www.acma.gov.au/webwr/_assets/main/lib310665/use_of_electronic_media_& _comms-early_childhood_to_teenage_years.pdf

Angeli, C., Bonk, C. and **Hara, N.** (1998). **Content Analysis of Online Discussion in an Applied Educational Psychology Course**. http://crlt.indiana.edu/publications/crlt98-2.pdf

Blumler, J.G. and **Katz, E.**(1974). *The Uses of Mass Communications: Current Perspectives on Gratifications Research*. Sage, Beverly Hills, CA.

Boonthanom, R. (2004). **Computer-mediated communication of emotions: a lens model approach** http://etd.lib.fsu.edu/theses/available/etd-06262004-113224/unrestricted/Boonthanom _Dissertation_2004.pdf

Caissy, G. A., Toepher, C. F. and **Jr. (FRW)** (2002). *Early Adolescence, Understanding The 10 To 15 Year Old*, Edition: 2, Da Capo Press

Campbell, M. (2005). **The impact of the mobile phone on young people's social life.** In: Social Change in the 21st Century Conference, 28 October 2005, QUT Carseldine, Brisbane. http://eprints.qut.edu.au/3492/1/3492.pdf

Caron, A. H. and **Caronia, L.** (2007). *Moving Culture: Mobile Communication in Everyday Life*, Mcgill-Queen's University Press, Montreal

Chamberlain, M. A. (1994). **New technologies in health communication**. *American Behavioral Scientist, 38,* p271–284

Chan, K. Y., Gong, M., Xu, Y. and **Thong, J. Y. L.** (2008). **Examining user acceptance of SMS: an empirical study in China and Hong Kong,** paper presented in PACIS 2009, http://www.pacis-net.org/file/2008/PACIS2008_Camera-Ready_Paper_294.pdf

Chen, L. (2004). **Will you buy your kid a mobile phone?** http://edu.beelink.com.cn/20041016/1701327.shtml

Chen, Y. X. (2007). **Parent-child relationship in single-child families in China**, *World Cultural Psychiatry Research Review*, Oct. 2007, p123-127

Chigona, W. (2007). **Needs and gratifications of mobile Internet: case of South Africa,**
http://www.developmentinformatics.org/workshops/2007/WallaceChigona.pdf

CTIA & Harris Interactive (2008). **Teenagers: a generation unplugged**
http://f'iles.ctia.org/pdf/HI_TeenMobileStudy_ResearchReport.pdf

Cui, Y. Q. (2007). **Messaging design and beyond: learning from a user study on holiday greeting messages**, paper presented on the 4th International Conference on Mobile Technology, Applications and Systems, http://
http://research.nokia.com/files/p159-cui.pdf

Davis, F. D. (1989). **Perceived usefulness, perceived ease of use, and user acceptance of information technology**.
http://www.cba.hawaii.edu/chismar/ITM704/Davis-TAM1989.pdf

Derks, D. (2007). *Exploring the Missing Wink: Emoticons in Cyberspace*, Copyshop TvA 2 Radboud University Nijmegen, The Netherlands

Desjeux, D. (2005). **SMS uses and issues in China, France and Poland,**
http://www.argonautes.fr/sections.php?op=viewarticle&artid=380

Doering, N. M. and **Poeschl, S.** (2007). **Nonverbal cues in mobile phone text messages: the effects of chronemics and proxemics,** Paper presented at the annual meeting of the International Communication Association,
http://www.allacademic.com/meta/p172164_index.html

Dong, L. (2008). **Massively-sent greeting messages reflects the phony social relationship**, http://blog.sina.com.cn/s/blog_46e815bb01008i6o.html

Dong, X. (2006). **Role-position in mobile phone communication**, *China Press Journal*, issue Nov. 15, 2006

Downie, C. and Glazebrook, K. (2007). **Mobile phones and the consumer kids**, Australia Institute Research Paper No. 41,
https://www.tai.org.au/documents/downloads/WP97.pdf

Dunn, J. (1995). *Connections Between Emotion and Understanding in Development*, Taylor & Francis

Ekman, P. and **Friesen, W. V,** (1969). *The Repertoire of Nonverbal Behavior: Categories, Origins, Usage, and Coding.* Semiotica, 1, p49-98

Ekman, P. (1972). **Universals and cultural differences in facial expressions of emotion**. In J. Cole (Ed.), *Nebraska Symposium on Motivation* (Vol. 19, pp. 207–282). University of Nebraska Press.

Elkin, F. and **Handel, G.** (1978). *The Child and Society: the Process of Socialization* 3rd edition, Random House, New York

Elliott, P. (1974). **Uses and gratification research: A critique and a sociological alternative,** in J.G. Blumler & E. Katz, *The Uses of Mass Communications: Current Perspectives on Gratifications Research*, Sage, Beverly Hills, CA, p249-268

Ferran, L. (2008). **Parental Controls for cell phones, GPS, phrase recognition and speed alerts let parents monitor kids' cell phones**, http://abcnews.go.com/GMA/Parenting/Story?id=6529871&page=1

Geser, H. (2003). **Towards a sociological theory of the mobile phone,** http://socio.ch/mobile/t_geser1.pdf

Ginott, H. G. (1969). *Between Parent and Teenager*, University of Michigan

Green, N. (2003). **Outwardly Mobile: Young people and mobile technologies**, in James E. Katz, *Machines that become us: The social context of personal communication technology*. New Brunswick, NJ: Transaction Publishers.

Grinter, R.E. and **Eldridge, M.A.** (2001). **y do tngrs luv 2 txt msg?** In *Proceedings of CSCW 2001*, Kluwer Academic Publishers, p219-239.

Grusec, J. E. and **Hastings, P. D.** (2007). *Handbook of Socialization: Theory and Research*, The Guilford Press, New York

Gunawardena, C.N. (1995). **Social presence theory and implications for interaction and collaborative learning in computer conferences** http://www.aace.org/dl/files/IJET/IJET12147.pdf

Guo, L. (2007). **Surveying Internet usage and its impact in seven Chinese cities** http://www.worldinternetproject.net/publishedarchive/_China%20Internet%20Project %20Survey%20Report%202007.pdf

Han, J. (2006). **China Post is being supported by business mail**, http://www.ynpost.com/Article/ShowArticle.asp?ArticleID=1513

Han, J. and **Jiang X. L.** (2006). **The popularity of emoticons in *new age novels***, http://www.southcn.com/nfsq/ywhc/ws/200603070518.htm

Ho, David Yau-Fai (1976). **On the concept of face**, *American Journal of Sociology*, 81 (4), p867–84

Hong, Z. (2003). **Should high school students own mobile phones?** http://beijing.qianlong.com/3825/2003/09/28/132@1623375.htm, (source: *Beijing Daily*, September 28, 2003)

In-Stat (2005). **Asian youth mobile trends: devices, data, and multimedia**,
http://www.instat.com/catalog/Wcatalogue.asp?id=236#IN0502372AW

Jaffe, J. M., Huang, L. N. and Oshagan, H. (1995). **Gender, pseudonyms, and CMC masking identities.**
http://research.haifa.ac.il/~jmjaffe/genderpseudocmc/intercmc.html

Katz, E.; Blumler, J. G.; Gurevitch, M. (1973). **Uses and gratifications research,** *The Public Opinion Quarterly*, Vol. 37, No. 4. (Winter, 1973-1974)

Kaseniemi, E. and **Rautiainen, P.** (2002). **Mobile culture of children and teenagers in Finland,** in James E. Katz & M. Aakhus (Eds.), *Perpetual Contact: Mobile Communication, Private Talk, Public Performance*. Cambridge University Press, Cambridge, p170 - 192

Kim, S., KIM, M. J., CHOO, H., KIM, S. and **KANG, H. J.** (2003). **Cultural issues in handheld usability: are cultural models effective for interpreting unique Use patterns of Korean mobile phone users?**
http://www.caerang.com/publications/UPA_2003.pdf

Kim,G. S., Park, S. and **Oh, J.** (2008). **An examination of factors influencing consumer adoption of short message service (SMS),** *Psychology & Marketing. Hoboken*: Aug 2008. Vol.25, No.8, p.769

Kurtenbach, E. (2007). **Chinese parents favor foreign-brand toys: for wealthiest, foreign-made brands are seen as safer for kids,** The Associated Press,
http://www.msnbc.msn.com/id/22262800

Leung, L. and **Wei, R.** (2000). **More than just talk on the move: uses and gratifications of the cellular phone**, *Journalism & Mass Communication Quarterly*, Vol.77, No.2, p308-320

Leung, L. (2001). **College student motives for chatting on the ICQ**. *New Media & Society*, 3, p483-500

Leung, L. (2007). **Unwillingness-to-communicate and college students' motives in SMS mobile message**, *Telematics and Unformatics* 24 (2007), p115-129

Lewis, M. and **Feiring, C.** (1998). *Families, Risk, and Competence*, Lawrence Erlbaum Associates

Li, X. F. (2008). **2002, Chinese New Year greeting SMS created thumb economy**,
http://pick.cctv.com/20081114/105902_2.shtml

Lin, J. (2004). **The impact of the addiction of mobile phone in high schools**. *China Youth Daily*, March 31, 2004, available at

http://zqb.cyol.com/content/2004-03/31/content_847254.htm

Ling, R. (2004). **The adoption, use and social consequences of mobile communication**
http://www.telenor.com/telektronikk/volumes/pdf/3.2004/Page_069-081.pdf

Ling, R. and **Helmersen P.** (2000). **"It must be necessary, it has to cover a need": The adoption of mobile telephony among pre-adolescents and adolescents."**
Presented at the conference on the social consequences of mobiletelephony, Oslo Norway. Also available at:
http://www.richardling.com/papers/2000_necesary_need.pdf

Ling, R., Julsrud, T. and **Yttri,B.** (2004). **Nascent communication genres within SMS and MMS,**
https://blog.itu.dk/DMKS-E2008/files/2008/10/2004-nascent-communication-genres.pdf

Ling, R. and **Yttri, B.** (2002). **Hyper-coordination via mobile phones in Norway,** in James E. Katz & M. Aakhus (Eds.), *Perpetual Contact: Mobile Communication, Private Talk, Public Performance*. Cambridge University Press, Cambridge, p139 - 169

Liu, H. (2006). **Texting in class and the high cost, the worrying use of mobile phone among high school students**, http://edu.people.com.cn/GB/4245443.html (source: *Chutianjin Daily*, March 28, 2006))

Liu, H. (2004). **Teacher-student relationship in the last 20 years**, *Yangcheng Evening News*, Sep, 9, 2004,
http://www.ycwb.com/gb/content/2004-09/09/content_758238.htm

Liu, J. H. (2009). **The culture of greeting card and the harmonization of society**, *China Post News*, Issue 1287, Jan. 17, 2009, available at
http://www.chinapostnews.com.cn/epaper/html/2009-01/17/content_3099.htm

Liu, Y. (2005). **SMS is chaning the life mode of Chinese people,**
http://www.gz183.com.cn/Info/100/info13301_1.htm

Luo, W. D. (2005). **Pay attention to the teenage thumb generation**. *Tianyuan Daily*, Jan 12, 2005, available at
http://www.sx.xinhua.org/qyzx/2005-01/12/content_3549630.htm

Ma, D., Ichikava, F., Liu, Y. and **Li, J.** (2007). **Use of Chinese short messages**, *Lecture Notes in Computer Science*, Springer Berling, Heidelberg, Volume 4558/2007

MIIT (Ministry of Industry and Information Technology of PRC) (2007). **Monthly Statistic Report of MIIT of October 2007,**

http://www.miit.gov.cn/n11293472/n11293832/n11294132/n11302706/11766753.html

MIIT (Ministry of Industry and Information Technology of PRC) (2008). **Monthly statistic report of MIIT of December 2008**, http://www.miit.gov.cn/n11293472/n11295057/n11298508/11912660.html

Merchant, G. (2005). **Teenage girls and Internet chat rooms,** http://www.shef.ac.uk/content/1/c6/05/05/23/merchant.pdf

Morris, M. W. and **Keltner, D.** (2000). **How emotions work: The social functions of emotional expression in negotiations**. *Research in Organizational Behaviour, 22*, p1-50

Ning, W. (2007). **Exploration of the substance and characters of SMS culture,** http://www.cycs.org/Article.asp?Category=1&Column=108&ID=5773

Oppenheim, K. (2008). **Social networking sites: Growing use among tweens and teens, but a growing threat as well?** Published by Harris Interactive, April, 2008, http://www.harrisinteractive.com/news/newsletters/k12news/HI_TrendsTudes_2008_v07_i03.pdf

Parkinson, B., Fischer, A. and **Manstead, A. S. R.** (2005). *Emotion in Social Relations: Cultural, Group, and Interpersonal Processes*, Psychology Press

Pedersen, P. E. (2002). **The adoption of text messaging services among Norwegian teens: development and test of an extended adoption model**. http://ikt.hia.no/perep/snf_23_02.pdf

Perse, E.I., Burton, P.,Lears, M.E. and **Sen, R.J.** (1992). **Predicting computer-mediated communication in a college class,** *Communication Research Report,* 9(2), p161-170

People's Daily Online (2007**). China's mobile phone users exceeds 600 million.** http://english.peopledaily.com.cn/90001/90778/6263880.html

Peters, O., Almekinders, J. J., Van B., R. L., Roy, S. and **Wessels, J. T.** (2003). **Motives for SMS use,** Paper presented at the annual conference of the International Communication Association, San Diego, CA. http://doc.utwente.nl/59780/1/Peters03motives.pdf

Plant, S. (2000). **On the mobile. The effects of mobile telephones on social and individual life.** http://www.motorola.com/mot/documents/0,1028,333,00.pdf

Plutchik, R. (1980). **A general psychoevolutionary theory of emotion**, in R. Plutchik & H. Kellerman (Eds.), *Emotion: Theory, Research, and Experience: Vol. 1.*

Theories of emotion. Academic, New York, p3-33

Rourke, L., Anderson, T., Garrison, R. and **Archer, W.** (2001). **Assessing Social Presence in Asynchronous Text-based, Computer Conferencing,** http://moodle.uacj.mx/moodledata152/7/Modulo_VI/Documentos_de_trabajo/PresSocial.pdf

Rogers, E. M. (1995). *Diffusion of Innovations,* The Free Press, New York. (Original publication 1962)

Rogers, E. (2003). *Diffusion of Innovations*, (5th ed.). Free Press, New York.

Ruggiero, T. E. (2000). **Uses and gratifications theory in the 21st century,** *Mass Communication & Society*, 2000, 3(1), p3-37

Russell, J. A. and **Yik, M. S.** (1996). **Emotion among the Chinese,** *The handbook of Chinese Psychology*, Oxford University Press, London, p166–188

Saarni, C. (1999). *The Development of Emotional Competence*, Guilford Press

Severin, W. J. and **Tankard, J. W.** (2001). *Communication Theories: Origins, Methods, and Uses in the Mass Media* (5th ed.), Longman, New York.

Sha, Y. R. (2001). *Human Behavior and Social Environment,* Wunan, Taibei

Short, J., Williams, E. and **Christie, B.** (1976). *The Social Psychology of Telecommunications*, John Wiley & Sons, London

Stanford, S. W. (1983). **Comments on Palmgreen and Rayburn: gratifications sought and media exposure.** *Communication Research*, 10, p247-258

Swan, K. and **Shih, L. F.** (2005). **On the nature and development of social presence in online course discussions**, http://www.sloan-c.org/publications/jaln/v9n3/pdf/v9n3_swan.pdf

Taylor, A. S. and **Harper, R.** (2002). **Age-old practices in the 'New World': A study of gift-giving between teenage mobile phone users**, *Computer Supported Cooperative Work,* 12, Kluwer Academic Publishers, Netherlands, p267–296

Te'eni, D. (2001). **Review: A cognitive-affective model of organizational communication for designing IT**. http://www.misq.org/archivist/bestpaper/teeni.pdf

Thrane, K. (2003). **Adoption of ICT in Norwegian teenage homes**. Kjeller: Telenor R&D. Report 20/2003, http://www.telenor.com/rd/pub/rep03/R_20_2003.pdf

Tiemann, A. (2007). **AT&T adds parental control options to cell phones**,

http://news.cnet.com/8301-13507_3-9770506-18.html

Thompsen, P. A. and **Fougler, D. A.** (1996). **Effects of pictographs and quoting on flaming in electronic mail**. *Computers in Human Behavior,* 12, 1996, p225-243

Tsai, J. L., Ying, Y. and **Lee, P. A.** (2000). **The meaning of "being Chinese" and "being American": Variation among Chinese American young adults**. *Journal of Cross-Cultural Psychology, 31,* p302–322

Tseng, W. S. and **Hsu, J.** (1969). **Chinese culture, personality formation and mental illness**, *International Journal of Social Psychiatry, 16,* p5–14

Walther, J. B. (1994). **Interpersonal effects in computer mediated interaction.** *Communication Research*, 21(4), p460-487

Walther, J. B. (1992). **Interpersonal Effects in Computer-Mediated Interaction – a Relational Perspective.** *Communication Research* 19(1), p52-90

Wang, B. S. (2009). **Is equality progressive or retrogressive in teacher-student relationship?** http://www.sciencenet.cn/m/user_content.aspx?id=228620

Wang, J. X. (2003). **Should teenager's mobile phone be banned?** *Life Times*, June 16, 2003, available at http://past.people.com.cn/GB/kejiao/20030616/1016351.html

Wang, L. L. (2008.) **Bill Gates' confusion: why Chinese like SMS so much?** *Global Times*, November 25, 2008, available at http://world.huanqiu.com/roll/2008-11/293291.html

Wang, T. (2006). **Reflection on the structure of the traditional teacher-student relationship**, http://www.jxmayflora.com/jsfc/ShowArticle.asp?ArticleID=172

Weiner, I. B., Freedheim, D. K., Lerner, R. M., Schinka, J. A., Easterbrooks, M. A., Velicer, W. F. and **Mistry, J.** (2003). *Handbook of Psychology, Developmental Psychology*, John Wiley and Sons

Williams, F., Rice, R. E. and **Rogers, E. M.** (1988). **Research methods and the new media,** Free Press, New York

Wirth, W., Von Pape, T. and **Karnowski, V.** (2007). **An integrative model of mobile phone appropriation,** paper presented at the annual meeting of the International Communication Association, http://www.allacademic.com/meta/p171469_index.html

Wolsey, T. (2009). **Texting benefits for teens, how short message services (SMS) improve learning and social skills**, http://educationalissues.suite101.com/article.cfm/texting_benefits_for_teens

Wu, Q. (2009). **The media functions of mobile phone**,
http://lw.3edu.net/txwl/lw_123198.html

Xie. C. H., Gong, J., Zhao, J. (2006). **Investigation of mobile phone use among high school students**, *Henan Business Daily*, October 16, 2006, available at http://www.bokee.net/bloggermodule/blog_viewblog.do?id=503244

Yang, L. and **Gilbert N.** (2007). **Case-based model of emotional expression influence on work group socialization and performance,** *The Centre for Research in Social Simulation.* Paper 21,
http://www.agsm.edu.au/bobm/teaching/SimSS/Vol2/10StudentSession/11.pdf

Yamamoto, J., & Steinberg, A. (1981). **Affect among Asians and Asian Americans.** *Journal of American Academy of Psychoanalysis, 9,* p447–457

Young, J. (2006). **Mobile phone adoption in developing countries**,
http://www.wikinvest.com/concept/Mobile_Phone_Adoption_in_Developing_Countries

Yuki, M., Maddux, W. W., and **Masuda, T.** (2007). **Are the windows to the soul the same in the East and West? Cultural differences in using the eyes and mouth as cues to recognize emotions in Japan and the United States.** *Journal of Experimental Social Psychology*, 43, p303-311

Zhang. Y. K., Wei, D. F., Zhang, H. J. (2007). **Text-messaging in class, high schools urge against mobile phones**, *Changjiang Business Daily*, December 4, 2007, available at http://news.xinhuanet.com/school/2007-12/04/content_7197010.htm

Zhao, X. X. (2006). **Good or bad, teeanager's using mobile phone?** *Procuratorial Daily*, October, 2006, Issue 2460, available at
http://www.jcrb.com/n1/jcrb228/ca136282.htm)

Appendix I: Questionnaire

Part I

1. Do you have a mobile phone?

☐ Yes, I have a mobile phone. *(Please directly go to question 4 if you check this option)*

☐ No, I do not have a mobile phone. *(Please continue with question 2 if you check this option)*

2. Please choose the main reasons why you do not use a mobile phone (multiple choices).

☐ The cost of mobile phone use is too expense for me.

☐ A mobile phone is not necessary for me.

☐ A mobile phone will have a negative influence on my life.

☐ My parents do not allow me to have a mobile because they think it is not necessary for me, though I do not agree with them.

☐ My parents do not allow me to have a mobile because they think it will have negative influence on my life, though I do not agree with them

☐ Other reasons: _____

Please explain your choice: _____

3. Are you planning to purchase a mobile phone in the next few years?

☐ Yes, I will purchase a mobile phone.

☐ No, I will not purchase a mobile phone.

☐ other reasons: _____)

4. What is the main reason why you need a mobile phone? (Choose one only)

☐ A mobile phone is necessary for my study.

☐ A mobile phone is necessary for social communications.

☐ I fear losing face or falling behind my friends because most of them have mobile phones.

☐ For entertainment such as playing games and Internet access.

☐ My parents decided to buy me a mobile phone so they can locate me easily.

☐ other: _____

5. What are other reason(s) why you need a mobile phone? (Multiple choices)

☐ A mobile phone is necessary for my study.

☐ A mobile phone is necessary for social communications.

☐ I fear losing face or falling behind my friends because most of them have mobile phones.

☐ For entertainment such as playing games and Internet access.

☐ My parents decided to buy me a mobile phone so they can locate me easily.

☐ others: _____

6. In most situations, your mobile phone used for:

☐ Making and receiving voice calls

☐ Sending and receiving SMS

☐ Taking and sending pictures or music

☐ Playing games

☐ Accessing the Internet

☐ Others: _____

7. What is the average cost of your mobile phone per month?

☐ Less than 50 Yuan

☐ 50-100 Yuan

☐ 100-200 Yuan

☐ More than 200 Yuan

8. How long have you been using SMS?

☐ Less than one year. *(Please directly go to question 10 if you check this option)*

☐ 1-2 years. *(Please directly go to question 10 if you check this option)*

☐ 2-3 years. *(Please directly go to question 10 if you check this option)*

☐ More than 3 years. *(Please directly go to question 10 if you check this option)*

☐ I never use SMS.*(Please continue with question 9 if you check this option)*

9. Please choose 2 or 3 main reasons why you do not use SMS.

☐ SMS is not necessary for me.

☐ Typing text messages is not convenient.

☐ Few of my friends SMS.

☐ Few of my family members use SMS.

☐ My parents do not allow me to use SMS.

☐ Other reasons: _____

(For the students who do not use text-messaging service, please only finish question 16, 17, 18, 20 and 28 and your questionnaire is done; for the students who use text-messaging service, please continue with all the rest questions according to the requirement.)

10. How many text messages on average do you send per week?

☐ Less than 5

☐ 5-10

☐ 10-20

☐ 20-50

☐ More than 50

11. How many text messages on average do you receive per week?

☐ Less than 5

☐ 5-10

☐ 10-20

☐ 20-50

☐ More than 50

12. Who do you exchange text messages with? What is the amount of messages that you send and receive from them? (Multiple choices)

☐ **Parents** (☐A lot ☐many ☐some ☐ few)

☐ **Teacher(s)** (☐A lot ☐many ☐some ☐few)

☐ **Girlfriend or boyfriend** (☐A lot ☐many ☐some ☐few)

☐ **Schoolmates other than girl friend or boy friend** (☐A lot ☐many ☐some

☐few)

☐ **Internet friends** (☐A lot ☐many ☐some ☐few)

Part II

13. Do you have a preference between voice calls and SMS?

☐ Yes, I prefer voice calls. *(If you check this option, pleas continue with question 14 and skip question 15)*

☐ Yes, I prefer SMS. *(Please directly go to question 15 if you check this option)*

☐ No, I do not have a preference. *(Please directly go to question 16 if you check this option)*

14. Please choose the reason(s) why you prefer voice calls to SMS. (Multiple choices)

☐ Voice calls can save more time than SMS

☐ Voice calls are more direct and simple than SMS

☐ SMS is too cold, I prefer to hear people's voices

☐ Other reason(s): _____

15. Please choose 4 or 5 main reason(s) why you prefer text-messaging to voice calls.

☐ SMS is cheaper.

☐ I can control when and where to view and reply SMS, which is very flexible.

☐ It is a fad that all my friends like.

☐ To avoid the embarrassment when communicating through voice calls.

☐ To avoid hearing the nagging of my parents.

☐ As a very private mode of communication, text messages can be sent and received inconspicuously

☐ Other reason(s): _____

16. When expressing emotions to family, which option below do you prefer? (Choose one only)

☐ Telling them face to face

☐ Calling them directly

☐ Writing letters
☐ Sending emails
☐ Sending text messages
Please explain your choice in 2 or 3 sentences:
_____

17. When expressing emotions to friends, which option do you prefer? (Choose one only)
☐ Telling them face to face
☐ Calling them directly
☐ Writing letters
☐ Sending emails
☐ Sending text messages
Please explain your choice in 2 or 3 sentences:
_____

18. How many times on average do your parents contact your mobile phone per week?
☐ More than 20 times
☐ 10-20 times
☐ 5-10 times
☐ 1-5 times
☐ None *(Please directly go to question 20 if you check this option)*

19. Your parents usually contact you by:
☐ Voice calls
☐ SMS
☐ Both voice calls and text messages
Please answer: What is (are) the subject(s) when your parents contact you through voice calls or SMS?
_____
_____
_____

20. Do your parents have control over the use of your mobile phone? (Multiple choices)
☐ Yes, my parents have control over the monthly cost of my mobile phone.
☐ Yes, my parents control who I contact by mobile phone to avoid bad influence.
☐ Yes, my parents control how long I can use my mobile phone to ensure that I spend enough time on my studies
☐ No, they do not control the use of my mobile phone at all
☐ Please add if there is (are) other reason(s) for your parents to control your use of mobile phone: _____
_____

21. Do your parents check the messages on your mobile phone?
☐ Yes, my parents often check the messages on my mobile phone.
☐ Yes, my parents check my messages often and they even secretly peek at my messages sometimes.
☐ Yes, my parents check my messages, but not often.
☐ I do not really know if my parents check the messages on my mobile phone.
☐ No, I know that my parents never check the messages on my mobile phone.

Part III
22. How many chain messages do you receive per week?
☐ More than 20
☐ 10-20
☐ 5-10
☐ 1-5
☐ None *(Please directly go to question 28 if you check this option)*

23. How many chain messages do you forward to others per week?
☐ More than 20
☐ 10-20
☐ 5-10
☐ 1-5
☐ Mone

24. Do you collect chain messages?
☐ Yes, I collect many chain messages.
☐ Yes, I collect only the chain messages that I find interesting.
☐ No, I do not collect chain messages at all.

25. When you receive *chain greeting messages* during festivals or anniversaries, will you forward them to your family or friends?

☐ **No, I do not.** *(If you check this option, please go directly to question 27)*

☐ **Yes, I always do.** *(If you check this option, please continue with question 26 and skip question 27)*

☐ **Yes, but not often.** *(If you check this option, please continue with question 26 and skip question 27)*

26. Please choose the reason(s) why you forward greeting chain messages (multiple choices).

☐ I would feel too forward if directly expressing feelings with my own words, chain messages make me feel much more at ease.

☐ I am too lazy to take the initiative.

☐ Most chain messages are humorous, more interesting than my own words and they are worth being shared with others to entertain them.

☐ Chain messages are a good means to communicate with all people, even those who are not close to me or those I feel shy to talk with.

☐ Other reason(s):

_____

_____

_____

27. Please choose the reason(s) why you do not forward chain greeting messages to others (multiple choices).

☐ I prefer use my own words to express feelings and wishes, chain messages are not sincere.

☐ The message receiver might receive the same chain message from others, which is boring.

☐ Other reason(s):

_____

_____

_____

28. In the past, people greeted each other face to face on important festivals or anniversaries, now more and more people choose to send SMS greetings, what influence do you think this change will have on people's relationships?

☐ I do not see any change in people's relationships when SMS greetings replace face-to-face greetings.

☐ I think that SMS greetings replacing face-to-face greetings will lead to the alienation in people's relationships.

☐ SMS is positive for friendship and intimacy among people.

☐ Other opinions:_____

Please explain your choice: _____

_____

29. Do you use emoticons in your SMS?

☐ Yes, very often.

☐ Yes, but not very often.

☐ Yes, occasionally.

☐ No, never.

30. According to you, emoticons: (Multiple choices)

☐ have become a fad, many people use emoticons.

☐ redeem the lack of emotional cue of text messages.

☐ make the text conversation more funny.

☐ have become an important part of text messages.

☐ have no special meaning for me.

Please add if you have more ideas about the using of emoticons:

_____

_____

_____

31. Please draw three emoticons which you find most interesting and which you have sent or received in the last two weeks:

_____

_____

Appendix II: Answers of Open-Ended Questions

Question 16: When expressing emotions to family, which option below do you prefer? (Choose one only)

☐ Telling them face to face
☐ Calling them directly
☐ Writing letters
☐ Sending emails
☐ Sending text messages

Please explain your choice in 2 or 3 sentences: _____

A total of 48 participants answered this open-ended question:

Modes of expressing emotions to family	Explanation of the participants	Reason summary	Age/Sex
Sending short messages	"For certain topics, I won't be nervous by talking with SMS and can communicate better than other ways"	Embarrassment avoidance	YB [*]
	"To save time and not to bother my family too much"	Efficiency Trouble avoidance	YB
	"I feel it's interesting."	Enjoyment	YB
	"It's easier for me to express my emotions by text messages."	Embarrassment avoidance	YB
	"I belong to the 'thumb group'; SMS is one of the symbols of the information era; besides, it's easier for me to express myself by SMS than other ways."	Fad Embarrassment avoidance	YB
	"I'm shy and not good at oral communication."	Embarrassment avoidance	YB
	"I feel embarrassed to talk with them face to face; sending text message is better."	Embarrassment avoidance	OB
	"I'm shy to express myself directly."	Embarrassment avoidance	OB
	"I feel embarrassed to talk face to face."	Embarrassment avoidance	OB
	"To avoid argument about some issues"	Trouble avoidance	OB
	"To avoid embarrassment"	Embarrassment avoidance	YG
	"I can only express my love to them by SMS, it's hard for me to use other ways."	Embarrassment avoidance	YG

[*] **YB: younger boys (12 to 15); OB: older boys (16 to 19); YG: younger girls; OG: older girls**

	"Every time when I receive a text message, it's a surprise for me; I enjoy this feeling"	Enjoyment	YG
	"It's cheap and fast"	Low cost Immediate access	YG
	"It's easy and convenient and the messages can be saved if you want."	Easiness Convenience Practicality	YG
	"It'll be a surprise for them; and it's easier for me to express myself."	Enjoyment Embarrassment avoidance	YG
	"There are always some words that you cannot talk face to face; writing a letter is too complicated; SMS is the best choice."	Embarrassment avoidance Easiness	YG
Telling them face to face	"It's more direct."	Easiness	YB
	"This is the way that you can feel more human feelings and emotions."	Richness in emotional cue	YB
	"I can see them everyday, why use a more complicated way?"	Easiness	YB
	"There is nothing that I cannot talk to them face to face."	Easiness	OB
	"economical"	Low cost	OB
	"Simple and sincere"	Simplicity Richness in emotional cue	OB
	"I feel good expressing my emotion to my family directly."	Richness in emotional cue	YG
	"It's easy to talk face to face."	Easiness	YG
	"It's easy to tell everything clearly."	Easiness	YG
	"There is nothing that I cannot tell them face to face; how can a piece of paper represent all my feelings."	Easiness Richness in emotional cue	YG
	"It's easy and convenient."	Easiness Convenience	YG
	"More sincere"	Richness in emotional cue	YG
	"Communicating face to face helps reinforce the relationship with family members."	Richness in emotional cue	OG
	"To show respect to my family; it's more sincere to talk face to face."	Richness in emotional cue	OG
	"I see my parents every day, it's better to say everything face to face."	Easiness	OG
Calling and telling them directly	"I feel freer talking with them on the phone and we can hear each other, which is better than emails or SMS."	Richness in emotional cue	YB
	"It's easy and direct"	Easiness	YB
	"It's more direct"	Easiness	YB
	"Simple and convenient"	Simplicity Convenience	OB

	"Simple, clear and fast"	Simplicity Immediate access	OB
	"Fast"	Immediate access	OB
	"Convenient"	Convenience	OB
	"It's more convenient for me to call them."	Convenience	YG
	"It's good to hear the voice of Papa and Mama."	Richness in emotional cue	YG
	"Simple, convenient and fast"	Simplicity Convenience Immediate access	OG
	"simpler than other ways"	Simplicity	OG
	"My parents and I are not at home very often, so the easiest way for us to communicate is to call…"	Easiness Convenience	OG
	"I don't live at home, so I can only call them."	Convenience	OG
Writing a letter	"I like writing letters."	Enjoyment	YB
	"There are always some words that you won't feel comfortable saying to your family face to face or on the phone; but in a letter, you can say anything that you want to say."	Embarrassment avoidance	YB
Sending an email	N/A	N/A	N/A

Question 17: When expressing emotions to friends, which option do you prefer? (Choose one only)

☐ Telling them face to face
☐ Calling them directly
☐ Writing letters
☐ Sending emails
☐ Sending text messages

Please explain your choice in 2 or 3 sentences:_____

A total of 52 participants answered this open-ended question:

Modes of expressing emotions to friends	**Explanation of the participants**	**Reason summary**	**Age/Sex**
Sending short messages	"It's more private."	Privacy	YB
	"It's the easiest way for me."	Easiness	YB
	"For communication with friends, some warm text messages are enough."	Personality	YB
	"I have better communication with my friends by SMS."	Richness in emotional cue	YB

	"It's cheap."	Low cost	YB
	"It's easy for me to contact them by SMS since we don't meet often."	Easiness	YB
	"It's cheap."	Low cost	YB
	"I'm one of the 'thumb generation'; SMS is one of the symbols of the information era; besides, it's easier for me to express myself through SMS than other methods."	Fad Embarrassment avoidance	YB
	"It's more emotional."	Richness in emotional cue	YB
	"I like sending text messages."	Enjoyment	YB
	"I'm not used to expressing my feelings to my friends directly"	Embarrassment avoidance	OB
	"I'm shy to express myself directly."	Embarrassment avoidance	OB
	"To avoid embarrassment"	Embarrassment avoidance	OB
	"Sometimes you'll bother people if you call them."	Trouble avoidance	OB
	"To avoid argument for some issues"	Trouble avoidance	OB
	"It's easier for me to express myself."	Embarrassment avoidance	OB
	"I'm shy…"	Embarrassment avoidance	OB
	"It's easier for me to communicate with my friends by text messages."	Embarrassment avoidance	OB
	"I prefer not to express my feelings directly to my friends."	Embarrassment avoidance	YG
	"To avoid embarrassment"	Embarrassment avoidance	YG
	"Every time when I receive a text message, it's a surprise for me; I enjoyment this feeling."	Enjoyment	YG
	"It's cheap and fast."	Low cost Immediate access	YG
	"It's easy and convenient and the messages can be saved if you want."	Easiness Convenience Practicality	YG
	"To avoid the embarrassment when talking face to face"	Embarrassment avoidance	YG
	"Sending short messages makes us feel closer to each other."	Richness in emotional cue	YG
	"You have the time to organize your words well if you send messages."	Embarrassment avoidance	YG
	"There are always some words that you cannot say face to face; writing a letter is too complicated; SMS is the best choice."	Embarrassment avoidance Easiness	YG
	"To avoid the embarrassment"	Embarrassment avoidance	OG

	"I feel shy talking face to face"	Embarrassment avoidance	OG
Telling them face to face	"This is the way that you can feel more human feelings and emotions."	Richness in emotional cue	YB
	"It's efficient."	Immediate access	YB
	"Convenient, fast and sincere"	Convenience Immediate access Richness in emotional cue	OB
	"More respectful."	Richness in emotional cue	OB
	"I'm not shy, why not talk face to face."	NON-Embarrassment avoidance	YG
	"There is nothing that I cannot tell them face to face; how can a piece of paper represent all my feelings."	Richness in emotional cue	YG
	"Easy, clear and simple"	Simplicity Convenience	YG
	"To save money and time"	Low cost Efficiency	OG
Calling and telling them directly	"It's easy and direct"	Easiness	YB
	"Convenient"	Convenience	OB
	"Simple and easy"	Simplicity Easiness	YG
	"I feel too shy to tell them face to face"	Embarrassment avoidance	YG
	"It's more convenient for me to call them"	Convenience	YG
	"direct, clear, accurate"	Easiness	YG
	"Simple and fast"	Simplicity Immediate access	OG
	"Convenient"	Convenience	OG
Writing a letter	"I like writing letters."	Enjoyment	YB
	"A good way to avoid argument."	Trouble avoidance	YB
	"I'm not used to expressing my feelings to my friends directly"	Embarrassment avoidance	OB
	"A text message has a character limit, while a letter can be as long as you want."	Practicality	OB
	"It's hard to say everything face to face, but writing letters is much easier."	Embarrassment avoidance	YG
	"Writing is the best way to express emotions between friends."	Richness in emotional cue	YG
	"I feel too shy to talk face to face."	Embarrassment avoidance	OG
Sending an email	"It's interesting; it's more proper to say some words in an email which is not too direct."	Enjoyment Embarrassment avoidance	YG

Question 19: Your parents usually contact you by:

☐ Voice calls

☐ SMS

☐ Both voice calls and text messages

Please answer: What is (are) the subject(s) when your parents contact you through voice calls or SMS?

_____

_____

	Original answers (49 answers)	Summary of the subjects		Age/Sex
		Informing (9 answers) (18.4%)	Inquiring (45 answers) (91.8%)	
Voice calls	"To ask when I will come back home."		Time	YB
	"To ask when I will come back home."		Time	YB
	"To ask where I am or why I haven't come home yet."		Place Care	YB
	"To tell me that they won't go home…"	Place		YB
	"To know when I will go back home."		Time	OB
	"To ask where I am."		Place	OB
	"To know if everything is going well at school."		Care	OB
	"'How are your studies?'"		Care	OB
	"To know when I'll go home or how are my studies."		Time Care	OB
	"To ask how things are going at school."		Care	OB
	"To ask how my studies are or how my health is."		Care	OB
	"'Do you need anything?' 'Do you need money?' 'Do you need food?' 'How are your studies?'"		Care	OB
	"To ask where I am and if I will go back home soon."		Place Time	YG
	"'Have you arrived at the extra class?'"		where	YG
	"To ask when I will come back home."		When	YG
	"Tell me what happened in the family and ask me how my studies are."	Information	Care	YG
	"To ask when I will come back home."		Time	YG
	"To ask if I need money or how my studies are"		Care	OG
	"'Where are you?' 'How are		Place	OG

	you recently?' 'How are your studies and everything?'"		Care	
	"'How are your studies?'"		Care	OG
	"To ask where I am and when I'll go back for dinner."		Place Time	OG
Text messages	"Go to your grandma's house after school."	Place		YB
	"To tell me where to go after school or ask me to buy something on the way"	Place	Place Demand	YB
	"To ask where I am and what I am doing."		Place Care	YG
Both voice calls and text messages	"To tell me where I can find them; to ask me where I am; to ask me when I will go home."	Place	Place Time	YB
	"To ask me when I will go home or tell me where to meet them."	Place	Time	YB
	"To ask if everything is going well or why I still haven't come home."		Care	YB
	"To ask where I am or what I'm doing."		Place Care	YB
	"To know when I will go home, where I am or who I'm with."		Time Place Care	YB
	"To ask if the school is over or where I'm going."		Place Care	YB
	"To know where I am and when I'll go home."		Place Care	YB
	"To ask me when I'll come back or when the extra class will be over; to tell me which restaurant I should go to eat with them."	Place	Time	YB
	"'Where are you?' 'Have you eaten?'"		Place Care	OB
	"To know where I am."		Place	OB
	"To ask where I am; when I will go home and if I have eaten yet."		Place Time Care	OB
	"To ask when I'll go home"		Time	YG
	"To ask me where I am and when I am going back home"		Place Time	YG
	"To ask when I will come back home and tell me to come back as soon as possible"	Care	Time	YG
	"To let me know where I can	Place		YG

	"find them."			
	"To ask when I will come back home"		Time	YG
	"Tell me where to find them or ask me when I'll go back for dinner."		Time	YG
	"To ask me when I will go back home or tell me where to go after school."	Place	Time	YG
	"To ask where I am and when I'll go home."		Place Time	YG
	"To know if I will have extra class or if everything is fine."		Care	YG
	"To ask where I am and if I will go back home soon"		Place Time	YG
	"To know when the extra class will be over."		Time	YG
	"To ask when I'll go home and how my studies are."		Time	OG
	"To ask when I'll go home."		Time	OG

Question 26: Please choose the reason(s) why you forward greeting chain messages (multiple choices).

☐ I would feel too forward if directly expressing feelings with my own words, chain messages make me feel much more at ease.

☐ I am too lazy to take the initiative.

☐ Most chain messages are humorous, more interesting than my own words and they are worth being shared with others to entertain them.

☐ Chain messages are a good means to communicate with all people, even those who are not close to me or those I feel too shy to talk with.

☐ Other reason(s): _____

Other reasons why you forward chain greeting messages to your family or friends	Age/Sex
N/A	YB
"I'm proud of having these interesting text messages"	OB
"It's a new mode to send greetings to people."	YG
N/A	OG

Question 28: In the past, people greeted each other face to face on important festivals or anniversaries. Now more people choose to send SMS greetings, what influence do you think this change will have on people's relationships?

☐ I do not see any change in people's relationships when SMS greetings replace face-to-face greetings.

☐ I think that SMS greetings replacing face-to-face greetings will lead to the alienation in people's relationships

☐ SMS is positive for friendship and intimacy among people.
☐ Other opinions:_____
    Please explain your choice: _____

	Explanation of the choices	Age/Sex
I do not see any change in people's relationships after SMS greetings replace face-to-face greetings.	"Greeting each other by SMS in Chinese New Year has become a fashion, but it's still based on the tradition. I suppose that SMS will be replaced by some other new technology sooner or later, so I have no worry that SMS will change people's relationships."	YB
	"It's good that people don't have to go outside in the winter to greet each other; it's impossible for people to be alienated just because of SMS"	YB
	"We can say everything by text messages, just like talking face to face."	YB
	"I don't see any difference between text message and face to face communication in people's relationships."	YB
	"Nowadays, almost everyone has a cell phone and sends text messages; if everybody still does the same thing (like sending text messages), why should there be any change?"	YB
	"Is there any change?"	OB
	"Both face-to-face and SMS communications have good and bad points: for example, some words are not proper to say face to face; but for some other issues, talking directly is clearer; SMS is the same."	OB
	"The relationship depends only on how we handle it."	YG
	"I don't see any change."	OG
	"I cannot see any change and difference."	OG
I think that SMS greetings replacing face-to-face greetings will lead to the alienation in people's relationship.	"Text messages have a character limit, so it's not easy to fully express your feelings and emotion; you could have more agile fingers by sending more text messages, but you may lose your oral abilities as well; for sure it won't help people's relationships"	YB
	"I found so."	OB
	"When sending text messages, you cannot see other's face, so you don't really know how people are feeling…"	OB
	"Text messages is lack of human love and warmth; it's not good to always send greetings through text messages, I prefer to go visit my family and friends and talk to them face to face."	YG
	"Face to face communication is much warmer than SMS which is too simple to express all your feelings."	YG
	"Text messages cannot show the sincerity."	YG
	"Visiting your family members in person is very important."	YG

SMS is positive for friendship and intimacy among people.	"To reduce embarrassment, especially for those friends who I don't contact often."	YB
	"It's easier to say sorry and to share good news with all my friends by SMS"	YB
	"In this information society, to express yourself by short message is more adapted to reinforce the relationship for today's people"	YB
	"Because you can express yourself and your feelings more easily by sending text messages"	YB
	"Text messages are good for friends who cannot see each other often; a warm greeting message will help the friendship."	YB
	"For some friends, you can't see them often, but you can send them text messages often."	YB
	"As an easier way, which takes less time and causes less embarrassment, SMS is good."	YB
	"You can say the words which you don't say often to some friends, SMS is a very easy way"	YB
	"You can send greetings to more people and it will help reinforce the friendship."	YB
	"No matter if you're happy or not, just send a message to your friends and they'll know you better and better"	OB
	"For me, it's easier to communicate through text messages; it can avoid the embarrassment of talking face to face."	OB
	"Through text messages, you can send your greetings to your friends, chat with them, get more and more familiar with each other and then you have better relationship with them."	OB
	"It's simple and good for all kinds of topics"	OB
	"Sending text messages can often help friends know each other better and better; it's a good way to make friends."	OB
	"This new mode of communication is pretty good."	OB
	"It's good for the friendship between friends who do not talk often; and it's easier for people to feel the warmth from others"	YG
	"People can contact each other any time, no limit with time and space."	YG
	"A message is a big surprise for friends"	YG
	"First, it's not proper to say some words face to face; second, SMS protects your privacy; third, it's interesting."	YG
	"SMS is cheap and fast, so you can send a lot; it's a very direct mode to express yourself as well."	YG
	"SMS communication has no limit of time and space."	YG
	"I can say whatever I want to say through text messaging without any embarrassment."	YG
	"Even a very simple greeting can reinforce the friendship."	YG

	"I can contact my friends very often, no matter when and where."	OG
	"It's easy and simple to send text messages and help avoid much trouble and embarrassment."	OG

Appendix III: Crosstabs

Question 1: Do you have a mobile phone?

Crosstab

			Question 1: Do you have a mobile phone?		
			No, I do not have a mobile phone.	Yes, I have a mobile phone.	Total
Age	12 to 15 years old	Count	5	51	56
		% within Age	8.9%	91.1%	100.0%
	16 to 19 years old	Count	6	26	32
		% within Age	18.8%	81.2%	100.0%
Total		Count	11	77	88
		% within Age	12.5%	87.5%	100.0%

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.796[a]	1	.180
Likelihood Ratio	1.728	1	.189
Linear-by-Linear Association	1.776	1	.183
N of Valid Cases	88		

b. Computed only for a 2x2 table

Crosstab

			Question 1: Do you have a mobile phone?		
			No, I do not have a mobile phone.	Yes, I have a mobile phone.	Total
Sex	boy	Count	6	39	45
		% within Sex	13.3%	86.7%	100.0%
	girl	Count	5	38	43

	% within Sex	11.6%	88.4%	100.0%
Total	Count	11	77	88
	% within Sex	12.5%	87.5%	100.0%

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.058[a]	1	.809
Likelihood Ratio	.059	1	.809
Linear-by-Linear Association	.058	1	.810
N of Valid Cases	88		

b. Computed only for a 2x2 table

Question 3: Are you planning to purchase a mobile phone in the next few years?

Crosstab

		Question 3: Are you planning to purchase a mobile phone in the next few years?		
		No, I will not purchase a mobile phone.	Yes, I will purchase a mobile phone.	Total
Age 12 to 15 years old	Count	3	2	5
	% within Age	60.0%	40.0%	100.0%
16 to 19 years old	Count	1	5	6
	% within Age	16.7%	83.3%	100.0%
Total	Count	4	7	11
	% within Age	36.4%	63.6%	100.0%

	Value	df	Asymp. Sig. (2-sided)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.213[a]	1	.137
Likelihood Ratio	2.284	1	.131
Fisher's Exact Test			
N of Valid Cases	11		

b. Computed only for a 2x2 table

Crosstab

			Question 3: Are you planning to purchase a mobile phone in the next few years?		
			No, I will not purchase a mobile phone.	Yes, I will purchase a mobile phone.	Total
Sex	boy	Count	2	4	6
		% within Sex	33.3%	66.7%	100.0%
	girl	Count	2	3	5
		% within Sex	40.0%	60.0%	100.0%
	Total	Count	4	7	11
		% within Sex	36.4%	63.6%	100.0%

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.052[a]	1	.819
Likelihood Ratio	.052	1	.819
Linear-by-Linear Association	.048	1	.827
N of Valid Cases	11		

b. Computed only for a 2x2 table

Question 4: What is the main reason why you need a mobile phone?

Crosstab

			Question 4: What is the main reason why you need a mobile phone?					
			A mobile phone is necessary for my study.	A mobile phone is necessary for social communications.	I fear losing face or falling behind my friends because most of them have mobile phones.	For entertainment such as playing games and Internet access.	My parents decided to buy me a mobile phone so they can locate me easily.	Total
Age 12 to 15 years old	Count		0	16	1	5	29	51
	% within Age		.0%	31.4%	2.0%	9.8%	56.9%	100.0%
16 to 19 years old	Count		1	15	0	2	8	26
	% within Age		3.8%	57.7%	.0%	7.7%	30.8%	100.0%
Total	Count		1	31	1	7	37	77
	% within Age		1.3%	40.3%	1.3%	9.1%	48.1%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.959[a]	4	.093
Likelihood Ratio	8.526	4	.074
Linear-by-Linear Association	6.376	1	.012
N of Valid Cases	77		

a. 6 cells (60.0%) have expected count less than 5. The minimum expected count is .34.

Crosstab

			Question 4: What is the main reason why you need a mobile phone?					
			A mobile phone is necessary for my study.	A mobile phone is necessary for social communications.	I fear losing face or falling behind my friends because most of them have mobile phones.	For entertainment such as playing games and Internet access.	My parents decided to buy me a mobile phone so they can locate me easily.	Total
Sex boy	Count		1	17	0	4	17	39
	% within Sex		2.6%	43.6%	.0%	10.3%	43.6%	100.0%
girl	Count		0	14	1	3	20	38
	% within Sex		.0%	36.8%	2.6%	7.9%	52.6%	100.0%
Total	Count		1	31	1	7	37	77
	% within Sex		1.3%	40.3%	1.3%	9.1%	48.1%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.664[a]	4	.616
Likelihood Ratio	3.437	4	.487
Linear-by-Linear Association	.696	1	.404
N of Valid Cases	77		

a. 6 cells (60.0%) have expected count less than 5. The minimum expected count is .49.

Question 7: What is the average cost of your mobile phone per month?

Crosstab

		Question 7: What is the average cost of your mobile phone per month?				
		Less than 50 Yuan	50-100 Yuan	100-200 Yuan	More than 200 Yuan	Total
Age 12 to 15 years old	Count	28	15	5	3	51
	% within Age	54.9%	29.4%	9.8%	5.9%	100.0%
16 to 19 years old	Count	8	15	2	1	26
	% within Age	30.8%	57.7%	7.7%	3.8%	100.0%
Total	Count	36	30	7	4	77
	% within Age	46.8%	39.0%	9.1%	5.2%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.902[a]	3	.116
Likelihood Ratio	5.877	3	.118
Linear-by-Linear Association	.791	1	.374
N of Valid Cases	77		

a. 4 cells (50.0%) have expected count less than 5. The minimum expected count is 1.35.

Crosstab

		Question 7: What is the average cost of your mobile phone per month?				
		Less than 50 Yuan	50-100 Yuan	100-200 Yuan	More than 200 Yuan	Total
Sex boy	Count	18	17	4	0	39
	% within Sex	46.2%	43.6%	10.3%	.0%	100.0%
girl	Count	18	13	3	4	38

% within Sex	47.4%	34.2%	7.9%	10.5% 100.0%
Total Count	36	30	7	4 77
% within Sex	46.8%	39.0%	9.1%	5.2% 100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.664[a]	3	.198
Likelihood Ratio	6.210	3	.102
Linear-by-Linear Association	.839	1	.360
N of Valid Cases	77		

a. 4 cells (50.0%) have expected count less than 5. The minimum expected count is 1.97.

Question 8: How long have you been using SMS?

Crosstab

		Question 8: How long have you been using SMS?				
		Less than one year.	1-2 years.	2-3 years.	more than 3 years.	Total
Age 12 to 15 years old	Count	21	20	3	7	51
	% within Age	41.2%	39.2%	5.9%	13.7%	100.0%
16 to 19 years old	Count	8	5	5	8	26
	% within Age	30.8%	19.2%	19.2%	30.8%	100.0%
Total	Count	29	25	8	15	77
	% within Age	37.7%	32.5%	10.4%	19.5%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.135[a]	3	.043
Likelihood Ratio	7.984	3	.046

Linear-by-Linear Association	4.564	1	.033
N of Valid Cases	77		

a. 1 cells (12.5%) have expected count less than 5. The minimum expected count is 2.70.

Crosstab

		Question 8: How long have you been using SMS?				
		Less than one year.	1-2 years.	2-3 years.	more than 3 years.	Total
Sex boy	Count	13	11	5	10	39
	% within Sex	33.3%	28.2%	12.8%	25.6%	100.0%
girl	Count	16	14	3	5	38
	% within Sex	42.1%	36.8%	7.9%	13.2%	100.0%
Total	Count	29	25	8	15	77
	% within Sex	37.7%	32.5%	10.4%	19.5%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.825[a]	3	.419
Likelihood Ratio	2.863	3	.413
Linear-by-Linear Association	2.279	1	.131
N of Valid Cases	77		

a. 2 cells (25.0%) have expected count less than 5. The minimum expected count is 3.95.

Question 10: How many text messages on average do you send per week?

Crosstab

		Question 10: How many text messages on average do you send per week?					
		Less than 5	5-10	10-20	20-50	More than 50	Total
Age 12 to 15 years	Count	4	13	7	14	13	51

	% within Age	7.8%	25.5%	13.7%	27.5%	25.5%	100.0%
16 to 19 years old	Count	3	0	2	9	12	26
	% within Age	11.5%	.0%	7.7%	34.6%	46.2%	100.0%
Total	Count	7	13	9	23	25	77
	% within Age	9.1%	16.9%	11.7%	29.9%	32.5%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	9.983[a]	4	.041
Likelihood Ratio	13.977	4	.007
Linear-by-Linear Association	4.251	1	.039
N of Valid Cases	77		

a. 4 cells (40.0%) have expected count less than 5. The minimum expected count is 2.36.

Crosstab

		Question 10: How many text messages on average do you send per week?					
		Less than 5	5-10	10-20	20-50	More than 50	Total
Sex boy	Count	2	6	3	14	14	39
	% within Sex	5.1%	15.4%	7.7%	35.9%	35.9%	100.0%
girl	Count	5	7	6	9	11	38
	% within Sex	13.2%	18.4%	15.8%	23.7%	28.9%	100.0%
Total	Count	7	13	9	23	25	77
	% within Sex	9.1%	16.9%	11.7%	29.9%	32.5%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.797[a]	4	.434
Likelihood Ratio	3.868	4	.424
Linear-by-Linear Association	2.190	1	.139
N of Valid Cases	77		

a. 4 cells (40.0%) have expected count less than 5. The minimum expected count is 3.45.

Question 11: How many text messages on average do you receive per week?

Crosstab

		Question 11: How many text messages on average do you receive per week?					
		Less than 5	5-10	10-20	20-50	More than 50	Total
Age 12 to 15 years old	Count	3	13	9	12	14	51
	% within Age	5.9%	25.5%	17.6%	23.5%	27.5%	100.0%
16 to 19 years old	Count	1	1	2	12	10	26
	% within Age	3.8%	3.8%	7.7%	46.2%	38.5%	100.0%
Total	Count	4	14	11	24	24	77
	% within Age	5.2%	18.2%	14.3%	31.2%	31.2%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	9.267[a]	4	.050
Likelihood Ratio	10.472	4	.033
Linear-by-Linear Association	5.513	1	.019
N of Valid Cases	77		

a. 4 cells (40.0%) have expected count less than 5. The minimum expected count is 1.35.

Crosstab

		Question 11: How many text messages on average do you receive per week?					
		Less than 5	5-10	10-20	20-50	More than 50	Total
Sex boy	Count	1	6	7	12	13	39
	% within Sex	2.6%	15.4%	17.9%	30.8%	33.3%	100.0%
girl	Count	3	8	4	12	11	38
	% within Sex	7.9%	21.1%	10.5%	31.6%	28.9%	100.0%
Total	Count	4	14	11	24	24	77
	% within Sex	5.2%	18.2%	14.3%	31.2%	31.2%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.258[a]	4	.688
Likelihood Ratio	2.316	4	.678
Linear-by-Linear Association	.734	1	.391
N of Valid Cases	77		

a. 2 cells (20.0%) have expected count less than 5. The minimum expected count is 1.97.

Question 13: Do you have a preference between voice calls and SMS?

Crosstab

		Question 13: Do you have a preference between voice calls and SMS?			
		No, I do not have a preference.	Yes, I prefer voice calls.	Yes, I prefer SMS.	Total
Age 12 to 15 years old	Count	17	11	23	51
	% within Age	33.3%	21.6%	45.1%	100.0%
16 to 19 years	Count	1	14	11	26

	% within Age		3.8%	53.8%	42.3% 100.0%
Total	Count		18	25	34 77
	% within Age		23.4%	32.5%	44.2% 100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	11.962[a]	2	.003
Likelihood Ratio	13.652	2	.001
Linear-by-Linear Association	1.916	1	.166
N of Valid Cases	77		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 6.08.

Crosstab

		Question 13: Do you have a preference between voice calls and SMS?			
		No, I do not have a preference.	Yes, I prefer voice calls.	Yes, I prefer SMS.	Total
Sex boy	Count	10	15	14	39
	% within Sex	25.6%	38.5%	35.9%	100.0%
girl	Count	8	10	20	38
	% within Sex	21.1%	26.3%	52.6%	100.0%
Total	Count	18	25	34	77
	% within Sex	23.4%	32.5%	44.2%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.268[a]	2	.322
Likelihood Ratio	2.281	2	.320

Linear-by-Linear Association	1.366	1	.242
N of Valid Cases	77		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 8.88.

Question 16: When expressing emotions to family, which option below do you prefer?

Crosstab

		Question 16: When expressing emotions to family, which option below do you prefer?					
		Telling them face to face	Calling them directly	Writing letters	Sending emails	Sending text messages	Total
Age 12 to 15 years old	Count	15	10	3	1	22	51
	% within Age	29.4%	19.6%	5.9%	2.0%	43.1%	100.0%
16 to 19 years old	Count	10	9	0	1	6	26
	% within Age	38.5%	34.6%	.0%	3.8%	23.1%	100.0%
Total	Count	25	19	3	2	28	77
	% within Age	32.5%	24.7%	3.9%	2.6%	36.4%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.677[a]	4	.225
Likelihood Ratio	6.672	4	.154
Linear-by-Linear Association	2.878	1	.090
N of Valid Cases	77		

a. 4 cells (40.0%) have expected count less than 5. The minimum expected count is .68.

Crosstab

		Question 16: When expressing emotions to family, which option below do you prefer?					
		Telling them face to face	Calling them directly	Writing letters	Sending emails	Sending text messages	Total
Sex boy	Count	12	10	2	1	14	39
	% within Sex	30.8%	25.6%	5.1%	2.6%	35.9%	100.0%
girl	Count	13	9	1	1	14	38
	% within Sex	34.2%	23.7%	2.6%	2.6%	36.8%	100.0%
Total	Count	25	19	3	2	28	77
	% within Sex	32.5%	24.7%	3.9%	2.6%	36.4%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.413[a]	4	.981
Likelihood Ratio	.419	4	.981
Linear-by-Linear Association	.006	1	.940
N of Valid Cases	77		

a. 4 cells (40.0%) have expected count less than 5. The minimum expected count is .99.

Question 17: When expressing emotions to friends, which option below do you prefer?

Crosstab

		Question 17: When expressing emotions to friends, which option do you prefer?				
		Telling them face to face	Calling them directly	Writing letters	Sending text messages	Total
Age 12 to 15	Count	7	10	5	29	51

		Telling them face to face	Calling them directly	Writing letters	Sending text messages	Total
	% within Age	13.7%	19.6%	9.8%	56.9%	100.0%
16 to 19 years old	Count	8	4	2	12	26
	% within Age	30.8%	15.4%	7.7%	46.2%	100.0%
Total	Count	15	14	7	41	77
	% within Age	19.5%	18.2%	9.1%	53.2%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.192[a]	3	.363
Likelihood Ratio	3.052	3	.384
Linear-by-Linear Association	1.570	1	.210
N of Valid Cases	77		

a. 3 cells (37.5%) have expected count less than 5. The minimum expected count is 2.36.

Crosstab

		Question 17: When expressing emotions to friends, which option do you prefer?				
		Telling them face to face	Calling them directly	Writing letters	Sending text messages	Total
Sex boy	Count	9	6	3	21	39
	% within Sex	23.1%	15.4%	7.7%	53.8%	100.0%
girl	Count	6	8	4	20	38
	% within Sex	15.8%	21.1%	10.5%	52.6%	100.0%
Total	Count	15	14	7	41	77
	% within Sex	19.5%	18.2%	9.1%	53.2%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.040ᵃ	3	.792
Likelihood Ratio	1.046	3	.790
Linear-by-Linear Association	.028	1	.867
N of Valid Cases	77		

a. 2 cells (25.0%) have expected count less than 5. The minimum expected count is 3.45.

Question 18: How many times on average do your parents contact your mobile phone per week?

Crosstab

		Question 18: How many times on average do your parents contact your mobile phone per week?					
		None	More than 20 times	10-20 times	5-10 times	1-5 times	Total
Age 12 to 15 years old	Count	1	9	13	16	12	51
	% within Age	2.0%	17.6%	25.5%	31.4%	23.5%	100.0%
16 to 19 years old	Count	1	1	1	7	16	26
	% within Age	3.8%	3.8%	3.8%	26.9%	61.5%	100.0%
Total	Count	2	10	14	23	28	77
	% within Age	2.6%	13.0%	18.2%	29.9%	36.4%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	14.154[a]	4	.007
Likelihood Ratio	15.490	4	.004
Linear-by-Linear Association	8.880	1	.003
N of Valid Cases	77		

a. 4 cells (40.0%) have expected count less than 5. The minimum expected count is .68.

Crosstab

		Question 18: How many times on average do your parents contact your mobile phone per week?					
		None	More than 20 times	10-20 times	5-10 times	1-5 times	Total
Sex boy	Count	2	5	8	9	15	39
	% within Sex	5.1%	12.8%	20.5%	23.1%	38.5%	100.0%
girl	Count	0	5	6	14	13	38
	% within Sex	.0%	13.2%	15.8%	36.8%	34.2%	100.0%
Total	Count	2	10	14	23	28	77
	% within Sex	2.6%	13.0%	18.2%	29.9%	36.4%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.503[a]	4	.477
Likelihood Ratio	4.285	4	.369
Linear-by-Linear Association	.344	1	.558
N of Valid Cases	77		

a. 3 cells (30.0%) have expected count less than 5. The minimum expected count is .99.

Question 19: Your parents usually contact you by:

Crosstab

			Question 19: Your parents usually contact you by:			
			Voice calls	SMS	Both voice calls and SMS	Total
Age 12 to 15 years old	Count		21	2	27	50
	% within Age		42.0%	4.0%	54.0%	100.0%
16 to 19 years old	Count		16	1	8	25
	% within Age		64.0%	4.0%	32.0%	100.0%
Total	Count		37	3	35	75
	% within Age		49.3%	4.0%	46.7%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.364[a]	2	.186
Likelihood Ratio	3.415	2	.181
Linear-by-Linear Association	3.319	1	.068
N of Valid Cases	75		

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is 1.00.

Crosstab

			Question 19: Your parents usually contact you by:			
			Voice calls	SMS	Both voice calls and SMS	Total
Sex boy	Count		18	2	17	37
	% within Sex		48.6%	5.4%	45.9%	100.0%
girl	Count		19	1	18	38
	% within Sex		50.0%	2.6%	47.4%	100.0%
Total	Count		37	3	35	75
	% within Sex		49.3%	4.0%	46.7%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.376[a]	2	.829
Likelihood Ratio	.382	2	.826
Linear-by-Linear Association	.000	1	.998
N of Valid Cases	75		

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is 1.48.

Question 21: Do your parents check the messages on your mobile phone?

Crosstab

		Question 21: Do your parents check the messages on your mobile phone?					
		No, I know that my parents never check the messages on my mobile phone.	Yes, my parents often check the messages on my mobile phone.	Yes, my parents check my messages often and they even secretly peek at my messages sometimes.	Yes, my parents check my messages, but not often.	I do not really know if my parents check the messages on my mobile phone.	Total
Age 12 to 15 years old	Count	20	4	5	13	9	51
	% within Age	39.2%	7.8%	9.8%	25.5%	17.6%	100.0%
16 to 19 years old	Count	18	0	2	0	6	26
	% within Age	69.2%	.0%	7.7%	.0%	23.1%	100.0%
Total	Count	38	4	7	13	15	77
	% within Age	49.4%	5.2%	9.1%	16.9%	19.5%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	12.155[a]	4	.016
Likelihood Ratio	17.339	4	.002
Linear-by-Linear Association	2.766	1	.096
N of Valid Cases	77		

a. 5 cells (50.0%) have expected count less than 5. The minimum expected count is 1.35.

Crosstab

			Question 21: Do your parents check the messages on your mobile phone?					
			No, I know that my parents never check the messages on my mobile phone.	Yes, my parents often check the messages on my mobile phone.	Yes, my parents check my messages often and they even secretly peek at my messages sometimes.	Yes, my parents check my messages, but not often.	I do not really know if my parents check the messages on my mobile phone.	Total
Sex	boy	Count	24	3	3	5	4	39
		% within Sex	61.5%	7.7%	7.7%	12.8%	10.3%	100.0%
	girl	Count	14	1	4	8	11	38
		% within Sex	36.8%	2.6%	10.5%	21.1%	28.9%	100.0%
Total		Count	38	4	7	13	15	77
		% within Sex	49.4%	5.2%	9.1%	16.9%	19.5%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.722[a]	4	.102
Likelihood Ratio	7.935	4	.094
Linear-by-Linear Association	6.935	1	.008
N of Valid Cases	77		

a. 4 cells (40.0%) have expected count less than 5. The minimum expected count is 1.97.

Question 22: How many chain messages do you receive per week?

Crosstab

		Question 22: How many chain messages do you receive per week?					
		none	More than 20	10-20	5-10	1-5	Total
Age 12 to 15 years old	Count	2	9	8	16	16	51
	% within Age	3.9%	17.6%	15.7%	31.4%	31.4%	100.0%
16 to 19 years old	Count	0	0	3	11	12	26
	% within Age	.0%	.0%	11.5%	42.3%	46.2%	100.0%
Total	Count	2	9	11	27	28	77
	% within Age	2.6%	11.7%	14.3%	35.1%	36.4%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.437[a]	4	.115
Likelihood Ratio	10.846	4	.028
Linear-by-Linear Association	6.170	1	.013
N of Valid Cases	77		

a. 4 cells (40.0%) have expected count less than 5. The minimum expected count is .68.

Crosstab

		Question 22: How many chain messages do you receive per week?					
		none	More than 20	10-20	5-10	1-5	Total
Sex boy	Count	1	3	6	12	17	39
	% within Sex	2.6%	7.7%	15.4%	30.8%	43.6%	100.0%
girl	Count	1	6	5	15	11	38
	% within Sex	2.6%	15.8%	13.2%	39.5%	28.9%	100.0%
Total	Count	2	9	11	27	28	77
	% within Sex	2.6%	11.7%	14.3%	35.1%	36.4%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.697[a]	4	.610
Likelihood Ratio	2.727	4	.604
Linear-by-Linear Association	1.315	1	.252
N of Valid Cases	77		

a. 4 cells (40.0%) have expected count less than 5. The minimum expected count is .99.

Question 23: How many chain messages do you forward to others per week?

Crosstab

		Question 23: How many chain messages do you forward to others per week?					
		None	More than 20	10-20	5-10	1-5	Total
Age 12 to 15 years old	Count	4	5	3	17	22	51
	% within Age	7.8%	9.8%	5.9%	33.3%	43.1%	100.0%
16 to 19 years old	Count	1	0	2	7	16	26
	% within Age	3.8%	.0%	7.7%	26.9%	61.5%	100.0%

| Total | Count | 5 | 5 | 5 | 24 | 38 | 77 |
| | % within Age | 6.5% | 6.5% | 6.5% | 31.2% | 49.4% | 100.0% |

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.468[a]	4	.346
Likelihood Ratio	6.042	4	.196
Linear-by-Linear Association	2.836	1	.092
N of Valid Cases	77		

a. 6 cells (60.0%) have expected count less than 5. The minimum expected count is 1.69.

		Question 23: How many chain messages do you forward to others per week?					
		None	More than 20	10-20	5-10	1-5	Total
Sex boy	Count	3	2	3	9	22	39
	% within Sex	7.7%	5.1%	7.7%	23.1%	56.4%	100.0%
girl	Count	2	3	2	15	16	38
	% within Sex	5.3%	7.9%	5.3%	39.5%	42.1%	100.0%
Total	Count	5	5	5	24	38	77
	% within Sex	6.5%	6.5%	6.5%	31.2%	49.4%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.035[a]	4	.552
Likelihood Ratio	3.058	4	.548
Linear-by-Linear Association	.140	1	.708
N of Valid Cases	77		

a. 6 cells (60.0%) have expected count less than 5. The minimum expected count is 2.47.

Question 24: Do you collect chain messages?

Crosstab

		Question 24: Do you collect chain messages?			
		No, I do not collect chain messages at all.	Yes, I collect many chain messages.	Yes, I collect only the chain messages that I find interesting.	Total
Age 12 to 15 years old	Count	6	18	27	51
	% within Age	11.8%	35.3%	52.9%	100.0%
16 to 19 years old	Count	1	7	18	26
	% within Age	3.8%	26.9%	69.2%	100.0%
Total	Count	7	25	45	77
	% within Age	9.1%	32.5%	58.4%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.341[a]	2	.310
Likelihood Ratio	2.518	2	.284
Linear-by-Linear Association	2.307	1	.129
N of Valid Cases	77		

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is 2.36.

Crosstab

		Question 24: Do you collect chain messages?			
		No, I do not collect chain messages at all.	Yes, I collect many chain messages.	Yes, I collect only the chain messages that I find interesting.	Total
Sex boy	Count	4	13	22	39
	% within Sex	10.3%	33.3%	56.4%	100.0%

girl	Count	3	12	23	38
	% within Sex	7.9%	31.6%	60.5%	100.0%
Total	Count	7	25	45	77
	% within Sex	9.1%	32.5%	58.4%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.192[a]	2	.908
Likelihood Ratio	.193	2	.908
Linear-by-Linear Association	.185	1	.667
N of Valid Cases	77		

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is 3.45.

Question 25: When you receive chain greeting messages during festivals or anniversaries, will you forward them to your family or friends?

Crosstab

		Question 25: When you receive chain greeting messages during festivals or anniversaries, will you forward them to your family or friends?			
		No, I do not.	Yes, I always do.	Yes, but not often.	Total
Age 12 to 15 years old	Count	4	31	16	51
	% within Age	7.8%	60.8%	31.4%	100.0%
16 to 19 years old	Count	0	12	14	26
	% within Age	.0%	46.2%	53.8%	100.0%
Total	Count	4	43	30	77
	% within Age	5.2%	55.8%	39.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.932[a]	2	.085
Likelihood Ratio	6.105	2	.047
Linear-by-Linear Association	4.770	1	.029
N of Valid Cases	77		

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is 1.35.

Crosstab

		Question 25: When you receive chain greeting messages during festivals or anniversaries, will you forward them to your family or friends?			
		No, I do not.	Yes, I always do.	Yes, but not often.	Total
Sex boy	Count	3	23	13	39
	% within Sex	7.7%	59.0%	33.3%	100.0%
girl	Count	1	20	17	38
	% within Sex	2.6%	52.6%	44.7%	100.0%
Total	Count	4	43	30	77
	% within Sex	5.2%	55.8%	39.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.730[a]	2	.421
Likelihood Ratio	1.778	2	.411
Linear-by-Linear Association	1.572	1	.210
N of Valid Cases	77		

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is 1.97.

Question 28: In the past, people greeted each other face to face on important festivals or anniversaries, now more and more people choose to send SMS greetings, what influence do you think this change will have on people's relationships?

Crosstab

| | | Question 28: In the past, people greeted each other face to face on important festivals or anniversaries. Now more people choose to send SMS greetings, what influence do you think this change will have on people's relationships? | | | |
		I do not see any change in people's relationships after SMS greetings replace face-to-face greetings.	I think that SMS greetings replacing face-to-face greetings will lead to the alienation in people's relationships.	SMS is positive for friendship and intimacy among people.	Total
Age 12 to 15 years old	Count	16	9	26	51
	% within Age	31.4%	17.6%	51.0%	100.0%
16 to 19 years old	Count	10	3	13	26
	% within Age	38.5%	11.5%	50.0%	100.0%
Total	Count	26	12	39	77
	% within Age	33.8%	15.6%	50.6%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.672[a]	2	.715
Likelihood Ratio	.688	2	.709
Linear-by-Linear Association	.136	1	.713
N of Valid Cases	77		

a. 1 cells (16.7%) have expected count less than 5. The minimum expected count is 4.05.

Crosstab

			Question 28: In the past, people greeted each other face to face on important festivals or anniversaries, now more and more people choose to send SMS greetings, what influence do you think this change will have on people's relationships?			
			I do not see any change in people's relationships after SMS greetings replace face-to-face greetings.	I think that SMS greetings replacing face-to-face greetings will lead to the alienation of people's relationship.	SMS is positive for friendship and intimacy among people.	Total
Sex	boy	Count	12	5	22	39
		% within Sex	30.8%	12.8%	56.4%	100.0%
	girl	Count	14	7	17	38
		% within Sex	36.8%	18.4%	44.7%	100.0%
Total		Count	26	12	39	77
		% within Sex	33.8%	15.6%	50.6%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.115[a]	2	.573
Likelihood Ratio	1.119	2	.572
Linear-by-Linear Association	.733	1	.392
N of Valid Cases	77		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.92.

Question 29: Do you use emoticons in your SMS?

Crosstab

			Question 29: Do you use emoticons in your SMS?				
			No, never	Yes, very often.	Yes, but not very often.	Yes, occasionally.	Total
Age 12 to 15 years old	Count		4	18	17	12	51
	% within Age		7.8%	35.3%	33.3%	23.5%	100.0%
16 to 19 years old	Count		5	4	5	12	26
	% within Age		19.2%	15.4%	19.2%	46.2%	100.0%
Total	Count		9	22	22	24	77
	% within Age		11.7%	28.6%	28.6%	31.2%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.327[a]	3	.040
Likelihood Ratio	8.398	3	.038
Linear-by-Linear Association	.649	1	.420
N of Valid Cases	77		

a. 1 cells (12.5%) have expected count less than 5. The minimum expected count is 3.04.

Crosstab

		Question 23: How many chain messages do you forward to others per week?					
		None	More than 20	10-20	5-10	1-5	Total
Sex boy	Count	3	2	3	9	22	39
	% within Sex	7.7%	5.1%	7.7%	23.1%	56.4%	100.0%
girl	Count	2	3	2	15	16	38
	% within Sex	5.3%	7.9%	5.3%	39.5%	42.1%	100.0%

Total Count	5		5	5	24	38	77
% within Sex	6.5%		6.5%	6.5%	31.2%	49.4%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.035[a]	4	.552
Likelihood Ratio	3.058	4	.548
Linear-by-Linear Association	.140	1	.708
N of Valid Cases	77		

a. 6 cells (60.0%) have expected count less than 5. The minimum expected count is 2.47.

Crosstab

		Question 29: Do you use emoticons in your SMS?				Total
		No, never	Yes, very often.	Yes, but not very often.	Yes, occasionally.	
Sex boy	Count	6	11	11	11	39
	% within Sex	15.4%	28.2%	28.2%	28.2%	100.0%
girl	Count	3	11	11	13	38
	% within Sex	7.9%	28.9%	28.9%	34.2%	100.0%
Total	Count	9	22	22	24	77
	% within Sex	11.7%	28.6%	28.6%	31.2%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.154[a]	3	.764
Likelihood Ratio	1.173	3	.759
Linear-by-Linear Association	.762	1	.383
N of Valid Cases	77		

a. 2 cells (25.0%) have expected count less than 5. The minimum expected count is 4.44.