

A CROSS-CULTURAL STUDY:
SOCIOLOGICAL APPROPRIATION OF
SHORT MESSAGE SERVICE (SMS)
A TAIWANESE CANADIAN EXPERIENCE

Final Report

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Dedications:

For my hard working immigrant parents who had brought me to Canada and provided me with a solid foundation to learn, and to my dearest friends - without your encouragement my voice would have never been heard

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TABLE OF CONTENTS

INTRODUCTION	5
A) The role of mobile technology in the context of a global SMS phenomenon	5
B) Groundings of a Cross-cultural study on the social-appropriation of SMS.....	6
C) Section Layouts:.....	7
SECTION ONE: LITERATURE REVIEW: SMS IN THE GLOBAL PERSPECTIVE.....	9
A) An Introduction to ‘SMS’ & Current Social ‘Txt’ Hotbeds	9
B) A Sociological Theory on the usage of mobiles in the public space	13
C) Factors of SMS development and inertness.....	16
i) <i>Geographic Factors</i>	16
ii) <i>State Regulation and Policy</i>	17
iii) <i>Network Standards and incompatibility</i>	19
iv) <i>Industry Statistics and Factors of mobile growth</i>	20
v) <i>Socio-cultural difference</i>	22
SECTION TWO: METHODOLOGY	23
A) Literature review.....	23
B) Demographic of Study	24
C) Ethical Consent & Venue.....	24
D) Qualitative In-depth Interviews	25
E) Quantitative Surveys	26
SECTION THREE: OPPORTUNITIES AND LIMITATIONS – CANADA AND TAIWAN.....	27
A) The Canadian Regulatory and Competitive Mobile wireless model:	27
B) Taiwan’s Mobile Wireless Communication Landscape:	30
SECTION FOUR: FINDINGS OF THE STUDY.....	34
A) Qualitative In-depth Interviews	34
B) Qualitative In-depth Interview Discussion:	44
C) Quantitative Data – Descriptive Survey Results.....	48
i) <i>Demographic Data and Country Comparison:</i>	48
ii) <i>SMS Users:</i>	49
iii) <i>SMS Behaviour:</i>	51
D) Quantitative Paper Survey Discussion and Analysis:.....	53
SECTION FIVE: LIMITATIONS.....	56
SECTION SIX: RECOMMENDATIONS.....	58
A) Recommendation for Academics.....	58
B) Recommendation for Mobile manufacturers & Service Providers:.....	59
C) Recommendation for Policy Makers and Regulators:	61
CONCLUSION:	62
APPENDIX SECTION:	64
FIGURE A	64
FIGURE B	64
FIGURE C	65
FIGURE D	66
REFERENCES.....	68

INTRODUCTION

A) The role of mobile technology in the context of a global SMS phenomenon

The notion of the ‘global village’ as proposed by legendary Canadian communication educator, theorist, and academic, Marshall McLuhan has indeed come full circle in today’s post modern society. Dependency upon and pervasive use of wireless communication technology in, the 21st century has profoundly altered and shaped the heart of human activity. One such invention has been the mobile phone, so radical is its impact in experiencing place and co-presence that those who utilize its capacity are becoming both socially and interactionally accountable at any given time (Ito, 2003). The hegemonic discursiveness of the mobile phone and its sociological being within not only the developed world but that of poor developing nations is becoming profoundly important in current literature of ‘transformational technologies’ (Geser, 2004). Its ability to unite distinct tribes of people in marginalized societies while creating intangible benefits within distinct realms of social hierarchies has proven its vital role in keeping people within arms reach at times of despair and ecstasy (Geser, 2004).

Indeed, the mobile phone has shrunk our personal networks, and provided individuals with an alternative means of channeling their thoughts and feelings. However, it has been the new ‘killer application’ of ‘text messaging’ (colloquially known as Short Message Service), (SMS) that has brought convenience and commercial usefulness into the manner in which we live and communicate with one another. While the diffusion of SMS can be linked primary to its low-cost throughout the world, the phenomenon has occurred globally and rather independently of varying cultural habits, values and norms (Rheingold, 2002). There has been a global trend of young adults (teenagers) taking an active interest in the technology which has been of particular significance. In East Asia and Europe, the social consumption of SMS has accentuated and epitomized how technology can cultivate spontaneously interaction, while challenging the ways

of traditional communication in the context of interaction and dissemination. From teenage dating, to last minute arrangements or the sharing of causal jokes, youths have appropriated 'SMS' in a wide array of domains such as the home, school or urban settings (Ito, 2005).

Although text messaging has increasingly become a prominent part of people's lives in both Asia and Europe, the same reaction may not be discerned in North America. In a cross-cultural study on the social uses of wireless communication technology, (Castells, Fernandez-Ardevol, Qiu, and Sey, 2004), highlighted a general trend of prolific global mobile phone consumption in the developed regions of the world (United States, Europe and the Asia-Pacific). The scholars concentrated on the applications development or inertness in each of the regions. More specifically the aim was to understand the parameters of diffusion in the context of telecommunication standards, industry factors, state policy, socio-cultural difference, where the multidimensional interpretation of the 'mobile' was accentuated to understand the underlying factors and motivation behind the various cross-cultural usage patterns.

B) Groundings of a Cross-cultural study on the social-appropriation of SMS

Although '*A cross-cultural study on the social uses of wireless communication technology*' was comprehensive, detailed and extremely informative, the scholars had circumvented two key players that would have further contributed to their analysis – the political states of Canada and Taiwan. Insofar, as many as 55 million people (23 million Taiwanese, 32 million Canadians) were displaced from the study which was suppose to represent accurately the mobile usage patterns in all these regions. As a Taiwanese/Canadian, it was my personal interest to solely understand the social effects of SMS in both countries and to determine how individuals viewed and appropriated this technology in the daily excursions of everyday life.

Hence, the purpose of this thesis is to provide a preliminary, informed and grounded discussion on the social appropriation of SMS text messaging and its effects within a

Canadian/Taiwanese framework. While there is minimal research in this particular field of study, the thesis attempts to probe into the socially commodified communication system known as 'SMS' within a global context of surrounding causalities. The questions posed by the researcher precisely include: Do Taiwanese and Canadian young adults between 18 and 24 fit into the mould of a growing teenage phenomenon that emphasizes SMS as an alternative mode of communication? And if so, do they utilize SMS as the primary method of communication for social style, emancipation and liberalization from the constraints of voice calls? By undertaking a multidimensional study based on qualitative interviews and quantitative survey studies, the researcher hoped to gain extensive insights into the daily usage protocol of SMS mobile users in these two states. This study will in effect contribute and provide further insights into the academic realm of SMS literature.

C) Section Layouts:

Section one provides an extensive literature review on the social implications of mobile technology based on the text messaging premise. In formulating a critical canon and a dialectic underpinning on the spectacle known as 'text messaging' the section traces the origins of its development through the lens of sociological theory, within a political and economic context. A cross-cultural overview of both the Taiwanese and Canadian telecommunication landscape is introduced to the reader, while concurrently providing relevant figures for the development of SMS technology in each region.

Section two delves into the methodology approach in of undertaking an SMS study in Taiwan and Canada. While specifically focusing on various segments of the paper itself, the literature review, qualitative and quantitative study will depict a stable framework in which to make a critical assessment of the particular cohort of choice of this study in both countries.

Section three of this study converges on the focal points and the backdrops of regulatory and policy development within an analytical framework of the Canadian and Taiwanese telecommunication realms. The motivation is to dissect the underlying positioning of these two distinct market-economies and the reasoning for their individual success or failures of initiating SMS within their respective states.

Section four formulates the findings of both the qualitative and quantitative studies, through a variety of methods such as sample inserts of interview discussions and Chi Square cross tabulation analysis of significance results in order to depict a particular usage trend between the two states. Moreover, an analytical discussion will follow each of the two segments in order to illustrate extensive findings for both qualitative and quantitative studies.

Section five presents some insights to the study and offers potential recommendations for improvements to further research in this particular field of study, The researcher provides value added information in terms of where improvements should be made if further attempts are made to tackle the research questions noted in this thesis.

Section six offers recommendations for three particular parties: academics, mobile manufacturer/service providers and Canadian regulators/policy makers that would potentially find the information that was discussed and revealed applicable for their own causes.

The Conclusion wraps up the thesis and discourse and summarizes the evidence presented in the previous sections and offers some ‘food for thought’ in drawing a relationship between mobile wireless communication and its social uses by individuals through the SMS medium.

SECTION ONE: LITERATURE REVIEW: SMS IN THE GLOBAL PERSPECTIVE

A) An Introduction to 'SMS' & Current Social 'Txt' Hotbeds

The first commercial short text message was sent on December 3rd 1992 by the Sema Group, from a Personal Computer to Vodafone's GSM network in the United Kingdom, however, SMS was originally conceived in the late 1980s and was introduced as a peripheral feature of the mobile phone during the 1990s (Wikipedia, 2006). Surprisingly after the introduction of digital cellular (also known as 2nd generation mobile technology), the application unique savour took centre stage in both the developed and developing worlds. Devoid of colour, graphics, audio, and constrained to 160/140 Latin alphabet or 70 non-Latin text, early SMS hardly seemed to be the most radical of new media technologies. Small and often cumbersome keypads accompanied by tiny screens were not the most user-friendly features of new 'technologies', hence they were not conducive to SMS usage (Haig, 2002, p.6). Despite these initial hurdles, SMS has succeeded in inspiring an entire generation of 'textheads' who have conjured up their own 'short-hand' to overcome impending limitations of the technology. It also initialed a phenomenon of its own as 'teenagers' embraced SMS a new mode of social interaction, such that it has now become the most creative and popular method of utilizing the 'mobile' (Plant, 2000). Some perceive the application as a less intrusive and often cost-effective substitute for voice calls others describe SMS as a new channel of mediated personalized communication especially that of romantic relationships preferable to the traditional face-to-face channel approach of human interaction (Byrne, 2004).

Hotbeds of SMS activity can be found all over the world, however, the reasons for its sudden popularity have varied across the social spectrum. As illustrated by both Rheingold and Ito in their encounter with the most technologically-adept cultural subgroup (referred to as the 'thumb tribe'), at the famous Shibuya Crossing in Tokyo, Japan (Rheingold, 2002). The two scholars believe that for such, their relationship with the 'Keitai' (mobile phone) represents an

emancipation and an intergenerational power shift because it frees youths from the “tyranny of the landline shared by inquisitive family members” (Rheingold, 2002, p.5). At the same time, cellular communication in general and text messaging in particular creates a sense of private space allowing personal communication and social action. While embedded in this framework, lays a reciprocal trust where these individuals are monitored and regulated by the adults whom provided them with the mobile phones in the first place, where a site of negotiation, and mutual accountability leads to a ‘parent management strategy’ (Green, 2002, p.7).

Similarly, in Finland, the social appropriation of SMS by teenagers surpassed all expectations of the Ministry of Transport and Communication. In a country with a mere population of 5 million- 78 percent of some 2.35 million households owed a mobile phone by the end of 1999. The high rate of penetration maybe directly influenced by the presence of Nokia, one of the global leaders of telecommunications as Puro notes “every child in Finland learns that there is one name, Nokia, and it is very special to Finnish life (Puro, 2002, p.28). Finnish teens have taken a great fascination with the SMS application, as its culture of usage is both developed and complex among those in the adolescent age cohort. Scandinavians are often too timid to express their opinions overtly, so for the majority of teenagers, SMS offers a communicative channel and style where by they can assume a different personality as well as initiate, maintain and terminate a relationship if necessary. All of these actions can be accomplished without actually having to encounter the anxiety of possible disappointment inherent in reality (Kasesniemi & Rautiainen, 2002).

In the neighbouring country of Norway, it was discovered through quantitative reasoning that working class youths were the majority group who appropriated the mobile phone. Skog, also disclosed the fact that, for male youths, the apparent perception of functionality and practicality were the primary drivers for their usage of the technology (Skog, 2002). On the

contrary, Norwegian girls, saw the mobile phone as a product for maintaining social relationships and interpersonal connections with close networks. In all, it was concluded that Norwegian teens utilized their mobile phones for style, in addition to escaping the daily chores of reality, such as academic responsibilities (Skog, 2002).

Equally as important, Fox's research on the evolution, alienation and '*Gossip of mobile telecommunication*' along with Harper and Taylor's study '*The gift of the gab*' provided general insights into the appropriation of text messaging in Great Britain.

Fox noted that mobile gossip, whether through voice calls or 'texting', is the equivalent of 'social grooming' among primates for the purposes of relieving stress and boosting the immune system. Moreover, 'texting' is particularly important for maintaining social bonds when individuals lack: time, energy or the funds to make phone calls (Fox, 2001). Likewise, text messages can act as trailers for mobile gossip, as friends alert one another to items of interest, while saving the details for a face-to-face meeting.

Similarly, the notion of performing and engaging in a gift-exchanging ritual through text message is an important element amongst a network of friends, and is considered an integral part of young people's daily phone mediated interactions. Some authors view these youths as being ensconced in a type of make believe cultural paradigm through an assessment and signification in terms of meaning and value of the ritual at hand (Harper & Taylor, p.25, 2002). Reid and Reid also raised similar opinions in their study where they observed well-defined and close-knit groups of contacts with whom 'texters' regularly exchanged messages, within define particular 'circles' or 'in-crowds' (Reid & Reid, 2004, p.199). The exchange and display of text messages among this subgroup generates and transforms the text capable mobile phone from a mere communication device into a coded form of sacred artifact. Concurrently, these same youths criticized conventional methods of voice messaging as being insensitive and of not great

personal value. In the British context, 'texting' is considered meaningful on a symbolic basis as manifested through this particular use of the mobile.

The expansion of SMS in China has been partially fuelled by the existence of major national portal sites (Sina, Sohu and Netease), which service providers through subscription while providing text messages, ring tones and images (Castells, Fernandez-Ardevol, Qiu, and Sey, 2004). With increasing social wealth, has come the desire to satisfy not only "functional" needs but also a social and psychological penchant to gain status through ownership of this symbol. Youths in China have cultivated a sense of superiority in showcasing their mobiles for friends, or even strangers, to envy. Working class, migrant youths in China spend countless hours during their limited free time sending text messages to users within their social network, with the intent of depicting a supposedly higher social status, while illustrating their capability to type with thumb. Many such similar individuals are included in this somewhat exclusive network (Castells, Fernandez-Ardevol, Qiu, and Sey, 2004).

No discourse on SMS text messaging should exclude the Philippine nation. As one of the revolutionary participants in the messaging phenomenon, SMS has assumed a unique flavour in a country where: "40 percent of the population lives on one dollar a day, SMS are of one-tenth the price of a voice call" and computers cost twenty times as much as a mobile phone. These examples support the reasoning behind the people in this region of the world who have embraced the phenomenon of 'text mania' (Rheingold, p.158, 2002). Similar to their counterparts in Tokyo and Scandinavia, Filipino 'texters' take full advantage of the application's features – the ability to forward jokes, rumours, and chain letters mobilized efforts to compose messages on the mobile phone. Filipino citizens took texting to another level when they radicalized a non-violent demonstration on President Joseph Estrada's corrupt regime by exchanging and forwarding millions of text messages to anti-Estrada supporters (Celdran, 2002).

In the United States, SMS usage is currently fairly limited compared to their European and Asian counterparts. According to the *New Media Age*, the average American cell phone user has little perceived knowledge of the SMS medium. Although an average message cost around US\$0.05, while (many providers offer monthly allotments), only 13 messages were sent an average by users in 2003 (Wikipaida, 2006). This fact maybe surprising considering that the PC-based equivalent of SMS, instant messaging is considered a popular application in the country. Many users in the US, however, have unlimited “mobile-to-mobile”, minutes a high monthly allotment of service, which is not available in other parts of the world. Moreover, studies have concluded that Americans prefer e-mail and paging as viable alternatives to text messaging due to the difficulty of typing the content on awkward cell keyboards (Zhang & Prybutok, 2005). Nevertheless, SMS usage is gradually rising as the number of text messaging users grew from 18 million in 2002 to 27 million in 2003, respectively. This growth may be due to the stabilization of inter-network gateways and to efforts wireless phone operators plus those of the entertainment sector to allow viewers to choose a winner (the hit talent singing contest ‘American Idol’ used ‘text voting.’ This effect has in turn, helped to generate interest in SMS within the public sphere (Castells, Fernandez-Ardevol, Qiu, and Sey, 2004). More recently, pop star Britney Spears used ‘text messaging’ to notify husband Kevin Federline that he was being “dumped” - a further illustration that SMS has become ‘mainstream’ in the past year (Yahoo News, 2006).

B) A Sociological Theory on the usage of mobiles in the public space

Unlike technological determinism which implies that technology conducts social change, Sociological theory strikes at the nature of human evolution and personal behaviour given a set of pre-conditions. During the 1950s, American sociologist David Riesman identified three basic ways in which individuals related to their social world. He study the groupings of traits and patterns of human behaviour which focused on three particular courses known as ‘tradition-

direction', 'inner-direction', and 'other-direction', (Plant, 2000). These specific orientations reflected the way in which individuals associated themselves with particular sources of guidance, knowledge and support. Plant, in her study '*On the mobile*' examined how Riesman's model framework fit people's relationship with their mobile. Tradition-directed individuals are often part of a larger collective and tend to stick with routines, rituals and have a sense of natural order inherited from elders. They are less likely to use the mobile phone and feel rather unnerved in displaying the mobile phone in situations where they influence the division between private and public spheres.

Likewise, the inner-directed person is not overtly accepting of the mobile mode of social life. In situations they deem intimidating, the individual will most likely ensure they are unavailable to receive the call by switching phones off in advance. Through an inherited mode of guidance, inner-directed individuals have fostered a sense of moral fibre, Riesman describes them as having a 'psychological gyroscope' which keeps them centred on themselves and bound to enduring principles (Plant, 2002, p.72,). These individuals tend to resist allowing mobiles to revolutionize their lives. Their use is sparing and with purposive and 'responsive' motives – typically for work and family.

Lastly, Riesman's other-directed characters are inclusively dependent on guidance and sharing from their close social network. Rather than accepting tradition and precedence or strong social institutions, modern other-oriented individuals appropriate their mobiles with a sense of intimacy, since their connection with multiple others and relationships are rather looser and transient than the fewer, strong bonds maintained by the tradition-directed and inner-directed individuals (Plant, 2002 p.70). Reisman's study did not address the issue of why the latter were guided in this specific manner.

Erving Goffman's analytical research on face to face interaction of people in public spaces revealed the importance of insignificant issues of daily conduct. Rules are not independent of action - the very rules that were created are modified during practice within the context of a public setting (Lasen, 2002). Moreover, he emphasized that the primary flow of information exchanged during interaction is through non-verbal means,

Communication is conveyed by 'body idiom', the most significant component of behaviour in public. This is an all-inclusive term for "dress, bearing, movements and positions, sound level, physical gestures such as waving and saluting, facial decorations and broad emotional expression." (Lasen, 2002, p.13).

Consequently, Goffman's discourse concentrated on the dramaturgic perspective of social life characterizing individuals conducting social activity as performers on a theater backdrop (Lasen, 2002) -where the physical surrounding directs a person's front and backstage actions, in what Goffman argues as 'impression management'. 'Actors' will always try to present themselves in a favorable light which are appropriate to the particular roles they are playing. Applying the mobile phone to this particular context, the conventional home phone takes a backstage pass while the mobile takes on the public stage persona and individuals perform their respective roles according to public expectations (Lasen, 2002). However, while Goffman focused on everyday life, he had virtually ignored the impact of the phone on human social relations.

A recurring theme in the literature review pertains to attitudes about mobile phone use in public settings. In a study on the sociological theory of the mobile phone, Hans Geser noted that post-modern societies are characterized by individuals attempting to lead complicated lives while maintaining constant painful discrepancies between spatial and social distance (Geser, 2004). In order to tolerate the burdens of decreased face-to-face interaction, individuals have utilized mobile phones which allow them to conquer the limitations of both physical proximity and

spatial immobility (Geser, 2004). The need for maintaining spatial mobility while having the capacity to maintain personal and professional connections is evident in the public sphere. The re-orientation of public space was also evident in Harkin's report. While surrounded by masses of totally indifferent others (ie: crowded cities, stores, and buses), individually may intentionally slip out their cell phone to evade any interaction with surrounding strangers. This gesture indicates to bystanders that the user is unavailable at that particular moment in time and has created a bubble of 'personal privacy' (Harkin, 2003). This intention is to safeguard the individual's rights to a minimal private space within the larger public domain.

Ling studied SMS use through a random sample of Norwegian teens. He outlines some of the general themes and types of messages individuals can expect to receive. Topping his list is 'Coordination', (ie: What time does school start?), next, 'Grooming' – messages that seemed like the small gifts alluded to Harper and work. Answers, were the next frequent batch of replies, followed by questions. The remaining 25 percent of messages included categories such: as commands, requests for personal news and diverse comments (Ling, 2005). For further illustrations of Ling's discussion of SMS types, please refer to figure A in the appendix. Overall, while the response to SMS has been quite mixed, ranging from those who embrace its use and see it as a revolution, to those who regard its existence as a step towards the destruction of human civilization, and the erosion of written language, preliminary research (both academic and industry based) suggest that SMS use is both rational and centred on maintaining social communications and networks of individuals (Snowden, 2006, p.118).

C) Factors of SMS development and inertness

i) Geographic Factors

“Countries with small land mass and more densely populated residential settlements are able to speed up the adoption of wireless communications because it's easier to set up the

wireless infrastructure” (Castells, Fernandez-Ardevol, Qiu, & Sey, 2004, p.35). This is especially true for countries in Europe (European Union) and that of East Asia (Japan, Korea, Taiwan, Philippines), whereas the establishment of same infrastructure would require expense and collaboration in expensive countries such as the United States and Canada.

ii) State Regulation and Policy

The policy of cultivating a viable telecommunication structure has secured Finland’s dominant position in the world mobile arena. The country’s perseverance cooperation and strategic alliances with the private sector paid off with the rise of global giant, Nokia. By the late 1980s, the rigid Post Telegraph Telephone system that functioned as a regulator and operator and was still apparent in many European countries, was largely being replaced through the Finnish governments own initiative to transforming its state-owned monopoly into a state controlled commercial enterprise bound by the same rules as the local telecom companies (Palmberg, 2000, p.170). In 1990, five to six years before most major markets began to allow operation of the GSM standard, the Finnish government had initiated allocation to various bidders, including a joint-venture with a local broadcasting corporation. These initiatives, along with a user driven culture have contributed to the rapid social growth of the mobile and that of text messaging among the general population.

By the same token, the Korean government’s resilience in pushing and adopting an explicit national strategy, designed to propel it towards a dominant global IT leadership role in the information age, was spurred by the country’s financial meltdown in the late 1990s. Since the signing of the 1997, WTO Basic Telecommunications agreement, which encouraged foreign investment, and opened markets to international competition and cooperation, Koreans have become one of the most technologically savvy nations with regard to mobile phone usage and uptake (Lee, 2005). Five individual Korean service providers, known locally as *chaebols*:

(Samsung, LG, SK Korea Telecom, Hansol PCS, Shinsegi Telecom) engaged in daily advertising wars daily in all media fronts, playing upon the theme of ‘products to live a better life’.

Fortunately all five service providers agreed to utilize the CDMA network as the national infrastructure – an important implication for SMS diffusion. In earlier decades, a lack of access to public telephones and landlines had hindered the development of Korean society on both the economic and political front (Kim, 2002, p.67). Today, the country is a hotbed of SMS activity and a leader in the development of 3G mobile applications.

Faced with the same global economic conditions as their Asian counterparts, the North American governments relatively ‘lessez faire’ approach toward the telecom sector has posed numerous problems which have relegated their countries to a peripheral role in wireless discourse. In Canada, policy making bodies have failed to keep up with changing market conditions. Service providers are often hampered by the stringent ownership regulations laws particularly in Canada (Lastewka, 2003). The country has lagged behind most developing nations in adopting cellular telephony and it was ranked 26th among the 30 OECD representative countries utilizing mobile telephony (Neil & Sanderson, 2005).

Lastly, the type of payment policy implemented within a country affect the adoption level of wireless mobile. In most countries with the ‘Caller Party Pays’ (CPP) pricing system, consumers are ready and willing to pay for their calls, because they are obligated to pay what they had consumed in service (Castells, Fernandez-Ardevol, Qiu, & Sey, 2004). Conversely, in countries where the ‘Receiving Party Pays’, pricing mechanisms actually impede adoption rates, since people are responsible for paying for calls ‘imposed’ on them by others. In North American countries, local landline calls are often free (a flat monthly usage rate is charged). It is true that other countries like Australia, which has a similar system of fixed line local calls, depict a greater level of adoption than the US. Researchers are quick to point out, however, that value added

services must offer consumers the appropriate applications and this depends on both geographic and demographic understandings (Castells, Fernandez-Ardevol, Qiu, & Sey, 2004).

iii) Network Standards and incompatibility

Network compatibility and government initiatives have additionally contributed to the increasing popularity of text messaging in both Europe and Asia. The uniform Global System Mobile (GSM) network structure adopted by respective countries in these areas in these areas is conducive to the use of SMS. For the most part, countries in Europe and Asia-Pacific region such as the Philippines, Taiwan, Singapore (with the exception of Korea and Japan which use CDMA and a total different standard) belong to the GSM standard network. This decision has provided a viable and dependent means for 'texters' to send messages to recipients on other compatible networks (Castells, Fernandez-Ardevol, Qiu, & Sey, 2004). Similarly, direct intervention into the marketplace by respective governments through formulation of network decisions and the 'laying down' of policies to cultivate an integrated playing field has dramatically aided in informing and interesting various players in the wireless sector.

Conversely, the inability of countries such as Canada and the US to mandate and select one technological mobile communication standard has impeded the efforts of individuals who seek to 'roam' outside their respective network regions in order to communicate via voice calls and by text messaging (Haig, 2002). While the existence of uniform technological standards promotes interconnectivity between wireless carriers, the concept of sticking to one network standard has proven problematic in North America. In Canada and the US, the mosaic patchwork includes: Code Division Multiple Access (CDMA), Time Division Multiple Access (TDMA), iDEN and the GSM standard (Castells, Fernandez-Ardevol, Qiu, & Sey, 2004). Inter-connection agreements and gateways have been created only recently, as American operators have realized that their disintegration has cost them potential revenue. Fortunately, these barriers are gradually

being removed with the CDMA and GSM/GPRS network systems becoming the two dominant standards (Haig, 2002).

iv) Industry Statistics and Factors of mobile growth

According to International Telecommunication Union figures, in June of 2002, the top global markets in term of broadband Internet penetration were: South Korea, followed by Hong Kong, Canada, Taiwan, Belgium, Sweden, Ireland, USA, Denmark, Singapore, Austria and Japan (Rao, p.65, 2003). In terms of SMS penetration and traffic, the Philippines led the Asia-Pacific region with an astonishing average of 336 messages per month in 2003, while Singapore (75), Australia (42.9), South Korea (27.3), Malaysia (24.9), Taiwan (12) and Thailand (3), with China led in terms of overall numbers (Rao, 2003). Due to lucrative foreign investments pouring into sectors such as wireless mobile, China Mobile and China Unicom, ranked 1st and 3rd respectively in their industry are two of the world's elite telecom providers. (Gao, 2005). The booming Chinese economy has also brought along a wave of youth migrant workers to its urban centres, while the private sector has capitalized on low-end services such as 'Little Smart', which provides both voice telephony and SMS to individuals of lower social stratus. According to a market analysis by Zhang and Prybutok, Chinese mobile users were expected to send 550 billion SMS messages by the end of 2004, thereby doubling mobile phone operator revenues to \$6.7 billion (Zhang & Prybutok, 2005).

Levels of wire line PC penetration in Japan have been fairly low due to the relative cost of the service (Text messaging is the mobile internet in Japan). Concurrently, this society's preference to use wireless internet due to inherent need for mobility, has worked into the advantage of wireless providers such as NTT DoCoMo's i-Mode service. Launched in 1999 the packet-based "always on" data service grew to an outstanding 26 million users in just 30 months and currently exemplifies a "truly ubiquitous mobile Internet" (Castells, Fernandez-Ardevol,

Qiu, Sey, 2004). AU, another wireless service provider in Japan, calls its version 'C-mail' and mobile e-mail has become the norm when sending messages between individuals on a wireless network in the country (Rao, 2003).

Likewise in China, 'Little Smart (Xiaolingtong), has successfully replaced the conventional GSM mobile phone in numerous interior cities, where migrant workers and those on fixed budgets are able to purchase cheap handsets to stay in touch with friends and loved ones – a process Ling and Yttri refer to as 'micro-coordination' (Ling & Yttri, 2002). This has been a truly remarkable and profitable business concept, as most mainland Chinese citizens fit within the fast growing low-end market (Castells, Fernandez-Ardevol, Qiu, Sey, 2004).

From a European perspective, SMS offers a value added service to the already existing milieu of voice calls. Due to its cost effectiveness, young people are quickly embracing text messaging. Industry experts in mobile telephony have also observed that the technology has generated a particular advantageous spin off. With the availability of pre-paid service as an alternative to monthly packages, youths have utilized the mobile phone as a type of entertainment product substituting its use for activities such as drinking and smoking during their leisure hours (Castells, Fernandez-Ardevol, Qiu, Sey, 2004). More importantly, with two of the world's largest mobile manufacturers on the European continent, Nokia (Finland) and Ericsson (Sweden), individuals across all strata are ubiquitously exposed to the concept of the mobile phone and SMS.

Prepaid Vs Postpaid

In both China and the Philippines, the majority of users employ prepaid plans for their mobile units. As of 2001, the number of prepaid users in China comprised the majority of new subscribers, not surprising since telecom operators had previously had problems with service first and pay later strategies. Although prepaid plans minimize the risk for operators, they also

can result in lower revenue, while subsequently creating the likelihood of increased SMS usage (Zhang & Prybutok, p.112, 2005). In countries that offer lucrative deals on airtime packages, the majority of accounts are based on monthly post-paid payments, like that of Canada and the US, where unlimited calling on weekends and week nights is commonly offered to provide an alternative to fixed lines in the home (Castells, Fernandez-Ardevol, Qiu & Sey, 2004).

v) Socio-cultural difference

According to recent studies, the advancement of the telecom sector in Asia and Europe is also attributable to the urban landscape, which is characterized by a high density population, spatial concentration and intense interpersonal and social networks (International Telecommunication Union, 2003). Individuals in these user driven cultures have been nurtured in a system of affordable electronic devices and applications (Lee, 2005). North Americans, on the other hand, tend generally to be intimidated by the mobile phone, which is seen to quicken the pace of life, challenge issues of public etiquette, and transgress the conventional boundaries of public/private work/personal lives. Consequently, the latter perceive the technology as more useful in times of emergencies or catastrophes (Castells, Fernandez, Qiu, Say, 2004).

Another critical factor in the socio-cultural continuum is the type of communication style preferred by various cultural groups. In North America, individuals prefer asynchronous communication methods such as pagers email and voice mail for communication with friends and families, due to the relatively low cost of broadband Internet service in this part of the world (Castells, Fernandex, Qiu, Say, 2004).

In various parts of the world, the mode of travel between point of origin and destination may affect the manner in which wireless phones are appropriated in specific social contexts. These differences can be lucidly seen in the daily commuting patterns of North Americans compared to their Europe and Asian counterparts. The former tend to be highly restricted in their

ability to undertake certain communication activities such as SMS when they are on the go, since the primary mode of transportation demands a focus on traffic conditions (Castells, Fernandez, Qiu, Say, 2004). Those in the latter region are accustomed to taking buses and trains to and from work. Hence, mobile users in Europe and Asia ride quite ‘freely’ and due to sometimes longer spans of time spent commuting, may be motivated to use various new technologies in order to pass the time (Geser, 2004).

Lasen observes, “mobile phone use gives new meaning to dead times and transitional spaces allowing escape from boredom. ‘Texting’ seems to be one of the main activities of commuters in and around London when waiting on platforms” (Lasen, 2002, p.27). Similarly, it is deemed inappropriate in numerous cultures to appropriate the mobile for personal indulgence in certain public spaces. Restrictions usage on trains in Britain, Japan, and Switzerland and even in the US, have prompted individuals to switch to the alternate mode of SMS communication (Lasen, 2003).

SECTION TWO: METHODOLOGY

A) Literature review

The researcher utilized the online database of Simon Fraser University, searched through inter-library loans, and carried out a related search in Taiwan’s prestigious National Taiwan University library catalogue to locate the primary sources of suitable information to be reviewed for the study. A wide range of the most recent academic research papers, books and journal articles on the subject of ‘text messaging’ (SMS) – in a sociological context were examined for the purpose of this study. The literature spans the period from early 2000 to 2006 with the majority falling in the middle of this continuum. Diverse selections of works consulted accompanied by numerous appendices are available at the conclusion of the paper, which also contains figures and facts supporting the research.

B) Demographic of Study

This research was undertaken to provide a preliminary overview of text messaging (SMS) usage patterns and reasons in both Taiwan and Canada for the purpose of determining whether there are significant variations between the two countries in order to see if they fit within the global norm of each of their respective region. The participants sought were in the 18 to 24 age group as the researcher wanted to limit the study to college/university age participants. The aim was to determine whether the usage patterns reflected the recent wave within global teen population which has demonstrated a keen interest in 'text messaging'. Possibly college/university age participants would constitute a separate age cohort altogether who behaved and responded differently to this same stimulus. Sample participants were additionally subjected to comparisons to their teenage counterparts with respect to: individual discrepancy, taste and usage pattern in their approach to SMS.

C) Ethical Consent & Venue

Prior to embarking on the study, the researcher approached the two participating educational institutions to ask for the necessary consent to conduct the investigation. At Simon Fraser University (SFU), the researcher received ethical consent from the Director of the Office of Research Ethics' (DORE), Hal Weinberg, to conduct in-depth interviews and collect both primary and secondary data on the main campus. SFU is situated in Burnaby, British Columbia Canada, part of the Lower Mainland which encompasses Metropolitan Vancouver. Simon Fraser University is one of two public universities in the Lower Mainland of BC. 56 percent of its funding derives from taxpayer dollars and 39% is obtained from tuition fees. It has been renowned for its comprehensive programs and has been ranked one of the top academic institutions in the annual rankings of Canada's most prestigious publications, Maclean's Magazine for years during the 1990s and early 2000. The institution is currently comprised of six

faculties: Applied Sciences, Arts and Social Sciences, Business Administration, Education, Health Sciences, and Science. It was established as part of the post-Sputnik boom in universities and named after the famous Western Canadian explorer Simon Fraser (Wikipedia, 2006).

The other venue where the research was conducted was Ming Chuan University (銘傳大學) in Taipei, Taiwan (Republic of China). The researcher consulted with Wong John-Yih, Dean of Business Administration at Ming Chuan University to seek his consent for the conduct of in-depth interviews and the collection of primary data at this institution. Ming Chuan University's main campus is located in the heart of downtown Taipei. It is a family owned private university founded by Pao Teh-Ming and her husband Lee Ying-Chao. The institution is named after the famous progressive Qing Dynasty governor of Taiwan Liu Ming Chuan, and is a renowned business administration and management institution (Wikipedia, 2006).

D) Qualitative In-depth Interviews

In-depth interviews were conducted in order to explore subject of 'text messaging' usage, and learn how the various aspects of psychological and sociological behaviour affected the attitudes, feelings and motivations of those individuals who use SMS. Essentially, the researcher decided to divide the qualitative sample into two halves, a) a Taiwanese university aged population between 18 and 24 years of age, and b) a Canadian university aged population between 18 and 24 years of age. Due to the limited time span available for the project, the researcher had to find suitable candidates in a timely manner. A total of 10 participants (5 Canadian and 5 Taiwanese) agreed to participate in the representative study which lasted on average of 45 minutes per candidate. When analyzing interview responses, the researcher has set the benchmark of 3 participants in creating a formidable trend. In both the Taiwanese and Canadian qualitative sample studies, the researcher recruited individuals by 'Word of mouth' and though powerful "gatekeepers" using the "grapevine method". In both instances, the primary

contacts for potential interview candidates were close friends of the researcher. Although the researcher would have liked to collect information from a well balanced male to female ratio subset, this was not feasible since some potential individuals cancelled or rescheduled the interview or ultimately did not arrive for the one on one session. Interviews conducted for the Taiwanese qualitative population were carried out during the period December 25th to 30th in 2005. The conversations between participants and the researcher were audio recorded and documented into a digital repository. Similarly interviews conducted for the Canadian qualitative sample were completed during the period of October 9th to 20th in 2006. Conversations between the participants and the researcher were likewise, audio recorded and documented into a digital repository by the researcher. To gain a comprehensive understanding of the questions posed to participants, refer to *Figure D* at the conclusion of this study.

E) Quantitative Surveys

For this survey research, convenience sampling was employed for both clusters of participants in Taiwan and Canada. In both cases, a paper survey was administered, due to the uncertainty of the response rates and the general environment itself, which the researcher wished to somewhat control. As time and resources were limited commodities, the researcher again, used gatekeepers such as friends and classmates to locate possible participants. Additional, constraints were placed on obtaining the full description of the usage patterns for each pool of interviewees as there were no open-ended questions. An introduction was given to elicit interest and gain the attention of a sizable number of participants to reflect the perceptions of different social groups.

Since the researcher sought to collect large amounts of data within a limited time span, descriptive survey research was determined to be the approach to be taken, given the fact that the goal of the study was to attempt to create a snapshot of picture current conditions and attitudes.

Similarly, participants in the quantitative survey were divided into two groups in order to measure the frequency of responses in the context of specific closed-ended questions geared towards understanding SMS usage. These summary statistics were generated by using the JMP Statistical software. The software system was utilized in order to generate statistically cross-tabulation findings that the researcher used to mine statistically significant results and measure the type of responses individuals would produce given a certain set of response situations. The researcher used the benchmark of 95 percent confidence interval to determine significance in a statistical answer. The Null Hypothesis (H_0): states no association between row and column variable. Two particular approaches were utilized to depict statistical significance, however, a controlled set of stipulations applied to this study. The Pearson Chi Square test is not appropriate when the expected cell counts are less than 5. A Fisher's Exact test is used when the expected cell counts are less than or equal to 5. Two tailed tests were used for all the analysis conducted, so we could detect changes in both directions. Bar charts are used to display frequencies (in counts) between the categories of categorical variables. The researcher also split the two samples using a numeric listing with 1 to 130 representing Taiwanese participants and 131 to 260 representing Canadian participants. A total of 145 surveys were disseminated for the Taiwanese survey with a response rate of 89.6%. Likewise, a total of 140 surveys were distributed on the Canadian side with a slightly higher response rate of 92.9%. For an in-depth look at the descriptive survey questionnaire refer to *Figure C* at the conclusion of the study.

SECTION THREE: OPPORTUNITIES AND LIMITATIONS – CANADA AND TAIWAN

A) The Canadian Regulatory and Competitive Mobile wireless model:

The evolution of a competitive wireless Canadian Telecommunication service model transpired over a number of years as a result of policy and regulatory initiatives by both the federal government and its regulatory body, the Canadian Radio-television and

Telecommunication Commission (CRTC, 2005). The monopoly of private lines by telephone companies ended in 1979, with the introduction of terminal attachments interconnected with the public switched telephone network. Subsequently, throughout the 1980s, continued liberalization in the telecom sector gave way to further acts of de-regulation such as the limited resale of particular telecommunication equipment. In 1984, with the divestiture of AT&T resulting from an antitrust suit in the United States, the Canadian government saw the opportunity to restructure its own domestic telecom sector, with a mind to creating a competitive playing field in the wireless sector by allowing two new entrants in each region of the country (Berman, p.131, 1987).

Liberalization was in full bloom in the 1990s, with long distance phone service having been opened to competition along with the enactment into law in 1993 of the Telecommunications Act. This Act provided the necessary legislative framework for all federally-regulated common carriers, and in doing so fostered an integrated Canadian market for telecommunication services. Wireless Services in the cellular and Personal Communication Service (PCS) era began in 1995. Industry Canada, (under the Radio Spectrum Management office) decided to allocate GSM licenses at the 1900MHz spectrum through the ‘beauty pageant’ method (Industry Canada, 2006). Incumbents and competitors in the market quickly saw the potential for strong and prosperous growth due to the stimulation of innovation and price competition. Under the *Radiocommunication Act*, two additional competitive carriers were licensed in 1997; this included Mircocell Telecommunications Inc (FIDO) and Clear Net PCS, considered one of the most competitive segments in Canada’s telecommunication sector.

According to the CRTC’s Commission to the Governor under the inclusion of section 7 of the 1993 Telecommunication Act:

The Commission has gradually and in an orderly manner opened up monopoly-based markets to competition over

the years. The Commission's approach to opening up various market segments to competition is to weigh the potential advantages and disadvantages, and to strike a fair and reasonable balance between the often conflicting interests of all concerned, including incumbents, competitors and customers (CRTC, 2005).

Despite the seemingly 'pro-market overtone, the Canadian wireless telecom sector has struggled with several challenges. As previously mentioned, network incompatibility was a major issue hindering collaborations between the major cellular providers. Economically, Canada's protracted adoption of mobile telephony has been largely due to its long-standing practice of using cross-subsidies in maintaining artificially low wire line prices (Neil & Sanderson, 2005). With the trend towards convergence in the late 1990s, both broadband Internet entities and wireless telecom providers became entangled in a fierce competition to outwit one another in order to capture and retain market share. These developments reduced the numerous cellular providers desire to compete for additional revenue hence, incentives to deploy new technologies were greatly diminished. This ultimately affected the ability to provide quality, expanded coverage for its users (especially those in the entrant position). Moreover, the inability of smaller entrants to compete head to head with incumbents can be further attributed to The CRTC's relatively anachronistic policies of supporting the larger carriers who, in term, have the landlines under their jurisdiction (Lastewka, 2003). The inability to 'cut the cord' has also impeded the uptake of new database technologies on the mobile while has in effect slowed the supply side network development agenda (Neil & Sanderson, 2005).

Introduction of new technology service has been a relatively expensive process, compared to other countries with similar statures to that of Canada, because of the Canadian government's reluctance to loosen its foreign ownership requirements and its requirement of 80% direct Canadian control. Investors from other countries were hindered from investing in the entrants network infrastructure or from revamping services like SMS to target the most suitable

niche markets (Lastewka, 2003). The ongoing process of dividing the country into regional markets with the two major incumbents, (Bell Mobility in Eastern Canada and Telus Mobility in the West) vying for one another's market share in each respective regions has limited funding for real wireless product development such as is available in Asia and Europe (Neil & Sanderson, 2005).

Despite these apparent drawbacks, it should be noted that mobile wireless service and SMS in particular has gained the attention of the Canadian public, especially that of young adults. According to figures released by Canada's Text Messaging Resource Centre, over 1.5 billion person-to-person text messages were sent in 2005, more than doubling the previous year's volume of 710 million refer to *Figure B* in the appendix. Canadians now send over 324.4 million text messages per month - more than 10.8 million text messages each day (Canada's Text Messaging Resource Centre, 2006). In contrast, countries such as China and the Philippines where mobile subscription is based on prepaid accounts, use of, post-paid plans has increased in Canada in recent years. At the same time, new plans are providing consumers with more choices/services and allowing the market to retain high value paying customers. For further information on wireless plans and options refer to the accompanied *CD* at the end of the study.

B) Taiwan's Mobile Wireless Communication Landscape:

Prior to 1990, cellular telephone service was a monopolized industry in Taiwan. Service was provided by the Directorate General of Telecommunications (DGT) under the auspices of AMPS' first general mobile network system (Fu, p.62, 2003). Up until 1999, the DGT was an arms length unit of the Ministry of Transportation and Communication (MTC). With the novel development of digital cellular (2G communication technology), coupled with the prospect of drawing out lucrative revenue from the private sector, the Taiwan government decided to liberalize the ailing telecommunications sector in favour of an arena of effectively competitive

players. The DGT, in turn, morphed into an independent regulatory authority – all its service segments were privatized and incorporated into a publicly-traded company,” Chunghua Telecom (Fu, p.62, 2003).

As did its Canadian counterpart, the DGT conducted a competitive application (beauty pageant) for allocating eight new GSM licenses – two nationwide at (1800 MHz) and six regional at (900 and 1800 MHz). While the majority of applications consisted of collaborations of conglomerate investors, both domestic and international; Taiwan Cellular Corporation (TCC) and Far Eastone Telecom (FET) both obtained nationwide permits which rivaled incumbent carrier Chunghua Telecom. Other carriers that obtained licenses included KG Telecom in the north, the central carrier Tuntex and in the both TransAsia and MobiTai, (Fu, p.62, 2003).

The Taiwanese wireless telecommunication landscape, in some ways quite differed from the one in Canada. For the most part, all Taiwanese providers consented to follow the more established and world renowned European GSM standard, which made interconnection of applications such as SMS more feasible. Interconnection fees between service providers were, however, unusually high compared to those of other countries. An ensuing market share battle accompanied by aggressive marketing campaigns to lure subscribers forced regulators to reflect on its policies for limiting the abuse of market power by the incumbent service provider (Fu, p.62, 2003). Interconnection charges were based on the actual cost of the attributing elements as calculated by the ‘TELRIC’ (total element long-run incremental cost) method developed by the US Federal Communication Commission. ‘TELRIC’ was viewed as an entrant-favoring pricing methods and its use was intended to foster competition. Despite having TELRIC in place to calculate interconnection costs, actual cost have sky rocketed in Taiwan (Fu, p.63, 2003).

The Taiwanese government decided early during its deployment of PCS 2G technology, that a caller-pays payment scheme would be best for both service providers and users. This was a

method of payment already in place in well established European markets (Castells, Fernandez-Ardevol, Qiu, & Sey, 2004). Under the interconnection regulation rule, callers bears all costs incurred (inclusive of the interconnect cost if applied) while call recipient pays nothing irrespective of the call origination and termination. Moreover, tariffs imposed by each cellular operator fluctuate within the balance of intra-network and cross-network calls.

Subscribers on one network who wishes to contact those users on other networks are at a great disadvantage, as outbound call rates are considerably marked up on top of the interconnection cost. In Taiwan, the normal cross network calling fee is set at twice the level of internal ones (ie: NT\$6-7.2/min or US\$0.2-0.24/min) compared to that of (ie: NT\$3/min or US\$0.1/min). Essentially, the discrimination of calls based on the destination renders individual calling behaviour more sensitive to the operator's cost, Taiwan users are thus conscious about their choice of subscription networks (Fu, 2003, p.63.).

A final factor influencing the domestic wireless industry in Taiwan is cellular coverage. When the DGT first de-regulated the wireless industry, it allowed both TCC and FET, in addition to the incumbent (Chunghua telecom) to service the entire country. KG Telecom shortly joined the 'all country-club' in January of 1999 by acquiring Tuntex. According to Fu, the ability to gain entry into the 'all country-club' gave wireless providers less leeway when it came to attracting subscribers. Unlike nationwide players whose subscription base soared rapidly, single-region operators encountered difficulty in enrolling wireless users. Realities such as captive marketing tactics, billing convenience, superior distribution channels proved difficult for single-region operators to overcome. The greatest obstacle of all for these regional operators was the fact that their small subscriber base was forced to call outward to reach anyone not within their region or network resulting in higher costs for users on a monthly basis. Smaller operators tried to form alliances which enabled their users to roam across areas, as calls made during roaming

still incurred full interconnection charges and were priced according to cross network rates (Fu, p.64, 2003).

By 2000, it was evident that an oligopoly or “bandwagon effect” had materialized due to the unmonitored interconnection fee issue. The big three including: Chunghua Telecom (23.9%), Taiwan Cellular Corporation (43.1%), Far Eastone (16.7%) had close to a 84% market share position on the island. Despite the Taiwanese government’s best efforts to create a competitive and fair playing field for all participants, a lopsided fiscal advantage for the ‘all-country club’ group had become apparent.

These factors outlined in Fu’s study have had a dramatic implication on the usage of SMS in the social context. In Taiwan, mobile subscription and text messaging usage continues to steadily raise despite a slow down in 2005, according to *Focus on Internet News and Data* (FIND), an authoritative website that provides abundant and professional information on Internet demographics and trends. Subscriptions peaked in 2003 at 25.8 million users, while in the first quarter of 2005, mobile penetration rate fell below 100 percent for the first time to 99 percent at 19.6 million users, proof that efforts made by mobile operators to eliminate unused numbers had succeeded (FIND, 2006). Conversely, the number of text messages sent during this period surpassed 2.4 billion for the first time, during 2003. Between January and September 2005, the monthly fluctuation in the number of SMS messages did not exceed +3% or -3%, indicating that text messaging use is stabilizing (FIND, 2005). In another interesting trend, FIND reports that, most text messages sent on the island were during the Christmas and Lunar Chinese New Year months. However, a recent Q1 2005 report by the organization, with data obtained from the DGT, depicts a trend of increasing SMS usage outside of these holiday and festival periods (FIND, 2005). For additional information on mobile wireless plans in Taiwan and SMS penetration in the countries refer to the accompanied *CD*.

SECTION FOUR: FINDINGS OF THE STUDY

A) Qualitative in-depth interviews

The review of literature and examination of the framework of wireless communication provide interesting insights from a theoretical and historical perspective, however, the purpose of this thesis is to gather and analyze hard data of youth SMS usage patterns in two countries. In this discussion, the researcher asked a series of questions to participants in order to explore the way text messaging is appropriated in their everyday social context. The goal of this exercise was to compare and contrast personal accounts of SMS usage in order to draw generalized conclusions that might be of relevance for further future studies. A total of 21 questions were posed to interviewees, however only the responses with the most significance to this study will be reviewed in this discussion due to the scope of this paper. Recurring themes are highlighted initially, followed by an interpretation of responses which yielded unanticipated findings. For a full and detailed transcription of the various accounts refer to the accompanied *CD*.

RQ2: *Who do you think is more accepting of new technologies, college/university students or young professionals? Why?*

In this question, the researcher sought to gain an understanding of the way college/university students viewed themselves when compared to young professionals with respect to the appropriation of new technologies. The majority of participants, (four out of five in each country) agreed that college/university students were more accepting of new technologies than their young professional counterparts (JES/23, DF/20, DP/22, S/19). The reasons for their response varied across a spectrum of explanations including; stay in the tendency to stride with what is fashionable and cool, curiosity & peer pressure issues among students in general, being anticipated of having access to a generous allowance provided by their parents. Conversely, the rationale given for not selecting young professionals as more accepting of new technologies was: their tendency to hold back with their money and only appropriate the technologies with which

they feel comfortable. Having a lack of time and being in an environment that exposes the individual to fewer advertisements and information innovators were other reasons participants gave for young professionals were less accepting of new technologies.

RQ3: *What communication technologies do you use?*

The majority of participants (9 out of 10 - four Taiwanese and all Canadian participants), listed cell phones and computers as essential communication technologies that they utilized on a daily basis. With regards to the computer, popular applications such as (MSN), (Skype) and email were often mentioned as communication tools that were part of these individuals' lives. Those who appropriated computer application were more concerned about conserving finances; individuals who preferred the cell phone mentioned its portability.

RQ4: *How do you learn of these communication technologies?*

Answers varied once again from all participants in the study and in both countries. Personal connections were the most important source for learning about new technologies. Word of mouth was frequently cited among the participants: e-mails, casual conversation, and Internet blogs were also common answers. There was some discrepancies, however, in that, where the majority of Taiwanese respondents (HU/21, VI/21, AFA/21) mentioned blogs as a reliable source of information, whereas none of the Canadian participants cited them as a way to obtain information. Interestingly, one Taiwanese participant (J/21) rejected using word of mouth as a source of information stating that it was bias and often inaccurate, and preferred to go straight to a reliable source for information (retailers or distributor). Likewise, a Canadian participant mentioned a father had taught her about the importance with keeping up with technological development. One Canadian male participant (BEN/19) spoke of the general advertising mediums (the television, internet, and even poster advertisements on subway systems) as avenues whereby individuals could obtain information for personal use. The majority of

individuals gave differing reasons for relying on specific information sources. (S/21) stated that family obligation had underpinned a reliance on the father as a gatekeeper for technological information, while (BE/22) relied on the television medium extensively, as the primary source of information about technological products.

RQ5: *How do these technologies alter the way we communicate and live?*

There was no single definite answer as to the way various communication technologies and the related applications altered the way participants communicated and lived. However, individual answers revealed some of the factors that have contributed to the way theirs have morphed in recent times. A few of the Taiwanese participants, felt that the cell phone and to a lesser extent, computer applications such as MSN have provided them more privacy, without feeling that adults are listening in on private conversations “I know that 99 percent of the time, the person who is going to pick up will be my friend” (AFA/22). Moreover, participants commented that these particular communication technologies have quickened the pace of life, created a choice of mediums for communication, and have allowed users to rearrange ‘conversations’ to suit their schedules. A Taiwanese interviewee mentioned, the ability to decrease social proximity, instead of having to meet with the person face-to-face, interactions could be conducted over the cell phone (HU/21). The majority of participants see technological development for the purpose of communication in a positive light. Despite this positive outlook, a few interviewees expressed the feeling that relationships have become more superficial since individuals are not bound by commitments that were obligatory in traditional forms of communication such as meeting face-to-face at a particular venue - while laziness may be another factor playing into this equation.

RQ6: *Do you use cellular phones, what model phone do you use and why did you choose it?*

All participants in the study stated that they used a cell phone. Likewise, Samsung seemed to be a popular model that individuals selected due to its physical design, the layout of its applications such as the camera, and its ability to hold mp3 songs for later listening. The majority of Taiwanese interviewees indicated that their choice of phone was also based on the provisions of cellular provider, and on the number of their closest friends using the same network. This propelled them to select a phone that had an accompanying plan (AFA/22, J/21, BE/23). One participant indicated that parents wanted her to be on the same network so that they could reach her whenever required (S/19). Similarly, another attracted by the providers marketing tactics offering free minutes for a limited amount of time. On the Canadian front, all of the participants had chosen a GSM phone, indicating that they were 'fashion conscioues' and wanted a stylish and capable phone which their CDMA (Telus & Bell) counter parts did not offer. One participant went to the extreme of ordering her phone online from Japan, so that she could be different from others around her. The majority of Canadian participants emphasized, however, that good quality reception, and colour screens combined with a digital camera were the important mix of essentials for them to purchase the phone (S/19, BEN/20, DP/22, JES/23).

RQ7: *Are you familiar with text messaging or (SMS), can you describe what you know about the technology?*

All of the respondents knew what (SMS) text messaging was and stated that it was relatively easy to use. In both Taiwan and Canada, respondents indicated that they had first become aware of or used SMS about four years ago. It provides a second option of correspondence if they are not able to reach an individual due to its ability to be asynchronous, and it is especially useful if the issue is an emergency (BEN/19). The main proponents of the technology were usually close friends of the participants, who began sending messages to their cell phones (DF/20, BE/23, JES/23). The study participants found the application to be fun to use, especially if they were really bored, or if they were in 'dead space' (i.e.: commuting on the

subway). Sending jokes through SMS was another method of killing time. An individual from the Taiwan sample saw SMS as further extension of the PDA and hence, of instant messaging on the go – albeit one that cost money (HU/22).

RQ8: *What are your reasons for using SMS? What's the best thing about having SMS?*

Various explanations were given for SMS appropriation, but one of the common themes occurring in both groups of participants was its convenience, cost efficiency, and directness for posing and answering questions (JES/23, DF/20, BE/22). A desire to be less intrusive was another reason for using SMS. Many felt that the application allows them to communicate with others most often for grooming purposes, when they are not sure if the other party is free to speak. For example, late night text messaging was mentioned as a better alternative to calling the recipients residence. Moreover, in the Taiwan sample, the majority of participants (three out of five) noted that when faced with difficult situations, SMS provided females with an avenue to express their inner feelings in terms of relationships and negotiation. A couple of the participants in the Taiwanese sample preferred to conduct their SMS activity on the subway system, it also allowed them to think and speak their mind confidently (BE/23, J/21, AFA/22). The majority of participants in both countries agreed that when their monthly allotment of included network time expired, text messaging became an alternative method of reaching their friends and families (BEN/19, HU/21, and DP/22). Overall, participants stated that they felt cost, was the most important and motivating factor in contributing to their personal appropriation of SMS.

RQ 10: *How do you learn about abbreviations? Do you make them up? Do they change often?*

There was a significant difference in the way the two pools of participants learned about SMS abbreviations. The Canadian sample, noted that their close friends and the constant usage of applications such as MSN Messenger provided them with the means to learn about abbreviations. The Taiwanese sample participants, cited 'Internet blogs' and friends as sources of

information; The allure of and fascination with refreshing, cool, and interesting words/phrases originated from this creative channel whereby they obtained the latest “talk”. ‘Wretch’ was one of the major sources of inspiration for this particular group of participants, (Refer to <http://www.wretch.cc/>). Most of the Taiwanese participants indicated that they had experimented with both numeric abbreviations and English acronyms: For instance, SPP, very outdated, old fashioned in the Taiwanese dialect, not really mandarin, OBS, Obasan or an old lady, in Japanese, LKK – appearing really old when one is actually young. Number abbreviations included: 520 – I love you (using the sound of 5 = I, 2= Love, and 0 = You), 78 – a near translation in Mandarin to the term ‘jerk’ in English, or 881 close to the phonetic sound of good-bye (BE/23). The participants did however state some concern over the growing usage of such abbreviations since it could ultimately impact literacy rates on the island in the future. On the Canadian side, most participants utilized the ‘predictive messaging’ tool to compose their messages as interviewees also cited their reluctance in using abbreviations. The reasons ranging from: ‘confusing’, not professional, and childish were given to refute its positive benefits such as saving spacing and cutting down on word length in order to save one from sending more than one message (BEN/19, S/19, DF/19). The Canadian sample, however, supported the fact that, in the case of an inside joke among a group of small friends, ‘making up abbreviations’ was actually not that bad, since outsiders would not understand, and the occasional use of short-hand to save space was acceptable too (S/19, BEN/19). While both groups noted that abbreviations often changed in meaning, they themselves did not engage in this process since it was not an apparent concern for the sample groups.

RQ 12: *Would you say you generally have a conversation by SMS, or would you mostly use it for short exchanges?*

For both pools of participants, the primary usage of SMS is for short exchanges. Individuals in each group indicated that price was a real factor that hindered extensive usage of

the application. Those who used it for conversational purposes typically engaged with one close friend, while concurrently not exceeding ten messages per conversation. If the conversation became more in-depth both parties would agree to switch applications, or media, continuing the conversation through instant messaging, or Skype, calling one another on the telephone (landline or mobile) and in two cases for the Taiwanese participants, by meeting face-to-face. Taiwanese participants also mentioned that travel on the train systems, was a motivator for SMS conversations, since it was often uncomfortable to be around strangers while engaging in a voice call (BE/23).

RQ 16: *How do you feel about receiving group messages?*

There was a great distinction between the group responses to receiving group messages. The Canadian sample seemed to greatly detest this notion. This group felt that it was an ineffective way reaching individuals since SMS is not the primary mode of communication. One particular participant felt that ‘group messages’ seemed impersonal, and that messages sent this way were not wholehearted. Another simply stated that he would just delete the message after looking at the heading (S/19, DF/20, DP/22). A third participant explained that he thought group messages could be useful in the context of the business environment, where his manager often sent messages informing he and his colleagues about work scheduling for the coming week (BEN/19). The majority of the Taiwanese camp was more than eager during holiday seasons and special occasions to receive group messages. Responses ranged from: feeling remembered if they had lost touch with their friends to being apart of an elite group of friends sharing laughter and jokes during times of joy (AFA/21, HU/21, VI/21). In Taiwan, telephone scams are prevalent, where con-artists often pose as legitimate entities such as government agencies or commercial banks and call directly to the household line and trick elders into giving large sums of money. Although group messages from friends were warmly received by Taiwan participants, the same

can not be said for spam from telemarketers, or from those who are perceived as ‘phishing’ for personal and financial information (BE/22, AFA/21).

RQ 17: *Has having an SMS phone made it easier or harder to communicate in writing*

Having a SMS phone that enables individuals to type in short-hand has not affected everyday writing and comprehension according the participants in both countries. Only one Canadian interviewee indicated that typing short-hand through (SMS) text messaging and instant messaging has affected her overall writing style in terms of grammar and comprehension (S/19). The reason given for this result according to respondents was their age, as most participants in the sample were 19 or older. In the Taiwanese population this age cohort was not provided a cellular phone at an early age, and did not grow up with its critical influences, however, they felt that younger children would be more susceptible to the technologies short fall (AFA/21, BE/22, J/21). While, the majority of the Canadian pool, stated that they preferred to type in full words, as noted in an earlier section, while most instances, Canadians were not heavy users of SMS and thus influences on writing was kept at a minimal (DF/20, DP/22, BEN/19). In Taiwan, participants are aware of the consequences of typing in an abbreviated format and thus, tend to be very conscious of when it is acceptable to utilize lingos and when it is not, such as in the classroom environment (VI/21, HU/21)

RQ 18: *Do you find it easier to talk about difficult topics with text messaging?*

Both the Taiwanese and the Canadian participants had similar feelings about SMS use when it came to dealing with difficult issues. A couple of the Taiwanese female participants found that using SMS in difficult situations allowed them to shape responses and convey feelings that would otherwise be difficult to express in an ordinary voice call. They also noted that typing on the cumbersome keypads often lead them to eventually switch over to a voice call or meeting face-to face once they felt comfortable enough (J/21, HU/22). Likewise, in the Canadian sample,

a few participants reflected similar opinions. They saw SMS as an 'ice breaker' or means to approach difficult topics on issues that might be awkward to initiate conversation about over the phone (DF/20). There were also some participants who saw SMS as a 'last resort', since its asynchronous feature allowed recipients to ignore a message if they chose to do so. Others felt that using SMS to discuss problematic issues discredited a relationship, and would never consider using this option. Most of the latter suggested that individuals who were timid were more likely to appropriate the technology for this specific purpose.

RQ 19: *Can you please tell me what you feel are the major advantages of using SMS compared to voice calls?*

Answers varied among participants in both groups, but almost all agreed that factors such as: cost and time were the most relevant issues determining when to use text messaging to communicate with others. Other reasons provided included: privacy in the public context and wanting to keep parents from overhearing conversations, having the ability to send messages at anytime that is convenient, and lastly, the capacity to allow senders to convey clear-cut ideas and questions that might be hard to address through a voice call (J/21, BE/22, JES/22, DP/22). Furthermore, it was added that: inquiries which could be easily resolved with a few lines of text were preferable and was useful as a second line of communication if a voice call failed (BEN/19, S/19).

RQ 20: *What would you like to see improved on SMS service to make your experience in using it more enjoyable?*

In addition to the last response to the previous question, the issue of cost was reiterated as an impediment to widespread adoption of SMS in both countries at present. Those who indicated cost as a factor for increased usage were currently limited users of SMS to begin with. Users who already appropriated SMS regularly were eager about and entertained with the idea of making text messages longer in length. Apparently, character constraints were an issue that often

propelled texters to select alternative medium when they felt their question/answer could be addressed in a mere 70 (Chinese)/160 (Latin alphabet) characters. Improvements which allow messages to fit within one text message, instead of two or three would address, the question of cost as well. Another contributing factor to adoption, according to the users, would be a revamping of SMS by introducing 'emoticons' which could be pervasively employed within the realm of instant messaging conversations. Similarly, colour was seen as a further desired improvement which would better convey the mood or atmosphere of the conversation.

Participants saw this as a large step towards clarifying the content within a message if pictorial displays could be used, so that confusion between the sender and receiver of the message would not arise. Overall, there was no discrepancy between users and country of origin in the responses given but one Taiwanese participant recommended that mobile manufacturers could create an easy standardized method of inputting non-Latin alphabets to minimize the hassle of sifting through the Chinese alphabet in order to compose each word. A Canadian respondent echoed similar concerns when he mentioned, voice recognition as a means where by cumbersome messages could be easily composed in a few seconds time.

RQ21: *Do you feel the regulatory framework of a country telecommunication system affects the way people use text messaging (SMS)? Why?*

All participants in both Taiwan and Canada agreed that the way that the regulatory system is conceived and ultimately molded in terms of 'caller pays' vs 'receiver pays' systems would definitely influence the manner in which they appropriated text messaging (SMS). In Taiwan, (although most of the participants have never used cellular phone service outside the island), respondents indicated that if a Canadian wireless telecommunication service were implemented on the island, they would definitely shift their usage pattern. They would use cellular phones more during the evening, while subsequently going online and chatting on MSN and other instant messaging systems more, rather than 'text messaging' to their mates (BE/22).

An intriguing observation was made by two interviewees in the Taiwan sample who stated that they would probably switch to another type of cellular network altogether, (what is known as PHS - low frequency urban network) a service which caters to urban dwellers. Although the range of reception is less perfected than the GSM standard, cost of this service is relatively low, while incoming calls by contrast, are marked up in price (HU/21, AFA/21). Another insight provided, was that due to the caller-pays system in Taiwan, people are more likely to wait for others to call them if it were non-urgent calls, thus, they might utilize SMS more readily for these occasions (J/20). In Canada, participants typically pick up their cell phone and dial without discerning between urgent or non-urgent calls (BEN/19). Despite socio-cultural difference between Taiwan and Canada, most of those in the age cohort of the study are 'on the move'; therefore they would be unable to utilize a flat rate home phone system if it were present in Taiwan (VI/21). On the Canadian side of the equation, there was a varied decidedly positive interest in favour of the Taiwanese wireless approach. Responses from participants ranged from savouring a move to a mixed format, using both text messaging and phone calls, to advocating a caller-pays system in order to avoid paying for unsolicited calls and finally, to providing individuals the option of choosing between voice calls and send text messages instead of being driven and dictated to (DP/22, JES/23). A female interviewee expressed that she would like to see rates decline for international 'text messaging' to promote that aspect of global connection (DF/20).

B) Qualitative In-depth Interview Discussion:

Preliminary analysis of the in-depth interviews reveals some clear distinctions and patterns between how Taiwanese and Canadian use their mobiles for 'texting' purposes. Differences between masculine and feminine behaviour were noticeable. Most males preferred to use SMS on the basis of what Ling refers to as 'Coordination', while females on the other hand tend to appropriate the technology for 'Grooming purposes' (Ling, 2005). College/university

students saw themselves as more accepting of new technologies because of factors such as: peer pressure, disposable income provided by parents and an innovative environment to learn about new technologies. While analyzing individuals according to the sociological approach towards to mobile phone as proposed by David Reisman, there seemed to be a mixture of both ‘inner directed’ those that use it for self-enduring purposes and ‘other directed’ individuals who are continuously reinforcing their relationship with the outside world surfacing from the current study of Taiwanese and Canadian participants (Plant, 2002).

In terms of preference for communication technology, some favoured the cell phone due to its portability, whereas others liked Instant Messaging and Skype due to the cost factor. Canadians, in general, preferred to utilize computer applications, these although bias was not ‘country’ dependent, but a result of individual tastes and lifestyles. People who tended to stay at home for the majority of the time and who rarely used public transit would typically appropriate instant messaging for communication purposes, while those who used public transportation systems and were on the go, were likely to rely on their cellular phones for interaction purposes.

Participants in the Taiwan sample were separated by one distinct criteria, which was the utilization of Internet ‘blogs’ to learn about new technologies in terms of both the product itself and the type of content that was required to enable it. This was a surprising finding that was not mentioned in previous literature and opens the possibility of topics future study in Taiwan and elsewhere.

Interviews discussions also brought out relevant findings in terms of security and shyness, which are reflective in both Rheingold’s study on the thumb tribe in Japan, and Kasesniemi and Rautiainen’s examination of the mobile culture of children and teenagers in Finland. Female Taiwanese participants in this current study were sensitive to the problem of communicating in awkward situations. Concurrently, many reflected their annoyance with

parents who eavesdropped on their conversations and believed that text messaging aided in the circumvention of these situations.

All participants in both sample pools had experience with SMS and mentioned that efficiency, convenience, and cost were relative factors that contributed to their choice of appropriating the technology. In Taiwan, in particular, text messaging was employed on subways in order to fill in 'dead space' during commuting time. This conclusion was also noted previously by Hans Gaser in his study of the sociological approach to the mobile. Canadians, on the other hand, usually applied SMS technology for quick and simple questions or for answers that required less detail.

During the discussion focused on abbreviations, the majority of Canadian participants noted that they preferred to type out entire words, by using predictive messaging 'T9'. Abbreviations were viewed as being cumbersome, confusing, unprofessional and childish compared to the standard word. In contrast, Taiwanese participants thought that abbreviations were refreshing, cool and sought out actively for new words from blogs that often had the most innovative ideas. Acronyms and numeric were often combined used to create a new 'short-hand'. These findings with Taiwan participants were supported in earlier with studies documented in the literature, while the Canadian participants did not conform to the anticipated norm.

Nevertheless, the majority of Canadian and Taiwanese respondents agreed SMS was, for them, a secondary option which was most appropriate in situations that required only 'short-exchanges' in terms of the content length. Longer conversations should, in their opinion, be conducted over another medium that could support prolong dialogue (ie: voice calls, instant messaging). This was a surprising result with respect to of the Taiwanese population, as the researcher had originally hypothesized usage patterns similar to the 'thumb tribe' of Japan and

migrant workers in China, because of the relatively lower cost of SMS in Taiwan (Gao, 2005; Castells, Fernandez-Ardevol, Qiu, Sey, 2004).

In addition, participants' reaction towards 'group messaging' (also known as chain messages), illustrated a bias on the behalf of the Taiwanese, who favoured its appropriation, whereas the Canadian respondents largely rejected this same approach. It should be noted that, during the holiday seasons, there a sharp spike in SMS usage for Taiwan, while during the rest of the year its usage rate is stable, but according to FIND, these figures are slowly changing (FIND, 2005).

It was noted that abbreviations were not perceived by participants as dramatically affecting writing and comprehension. This was a major concern previously discussed by scholars such as Ling. The limited use of SMS by the Canadian population vastly reduced their likelihood of misspelling words or using them in the wrong context. On the other hand, the Taiwanese participants stated their diligence in keeping the realms of instant/text messaging separate from that of official school work. These insights were quite interesting since previous literature had not considered its effects into the discourse.

Although conclusive statements cannot be made on these results, the majority of participants in Taiwan and Canada agreed, that: cost, and length limitations on SMS messages were determining factors in affecting the growth of the application. Taiwanese participants also expressed a need to standardize or facilitate the typing process for non-Latin alphabets, and to proposed improve the technology by adding an advanced voice recognition system such as currently available in PCs. Since such ideas were not mentioned in previous literature, wireless telecom producers might well take note of these consumer insights. In terms of wireless telecommunication regulation and policy, both the Canadian and Taiwanese populations seemed to favour the caller-pays scheme due to its flexibility. Participants on both sides further indicated

that they would dramatically change their usage behaviour if they a foreign wireless telecommunication regime was imposed on them. The in-depth interviews did verify (Castells, Fernandez-Ardvol, Qiu, & Sey's, 2004) proposal that a caller-pays systems stimulates overall mobility activity.

C) Quantitative Data – Descriptive Survey Results

The quantitative portion of this study was designed to collect data on the sample population in order to determine if there were trends or differences in SMS usage of measurable significance. A large portion of the study analysis focused on cross-cultural (country) comparisons, with the aim of determining whether responses confirmed or refuted the original hypothesis. With respects to some statistical results are presented within the discussion here the data highlights the important trends within the context of this study. For a more complete source of data refer to the graphical tables and detailed Chi Square correlation results provided in the accompanied *CD*.

i) Demographic Data and Country Comparison:

There were 260 participants in the overall data set, with 130 respondents split equally between the two countries. A total 68 out of 130 (52.3%) of the participants in Canada were female; 74 out of 130 (56.9%) were female in the Taiwanese population.

When asked “What year of study are you in?”, the Canadian sample revealed, 53.1% second year students, followed by 17.7% first year, 14.6% third year, 11.5% fourth year respectively. The Taiwanese sample had a slightly different makeup: 36.2% of respondents were third year students, 31.5% fourth year, 21.5% second year and were 10.8% first year students. A

When asked “Which service provider do you use?” the Canadian sample produced the following results: the majority 64.6% of users were split equally between GSM providers,

Rogers Wireless Inc 32.3% and Fido 32.3%, followed by Telus Mobility 20.8%, Bell Mobility 13.1% while Virgin Mobile and others rounding out at 0.7%. On the Taiwanese front, incumbent provider Chunghua Telecom was prominent at 50.0%, followed by Taiwan Cellular Corporation 26.2%, with FarEastone close behind at 20.0%, and PHS service 3.9% rounding out the pack.

In order to determine user preferences for a particular network subscriber, the researcher asked, “What was the main reason for choosing your cellular provider?” The Canadian sample responded by indicating that the opportunity for personalized plans 33.9% was the most important factor to consider, followed by recommendations family members 26.2%, other reasons 24.6%, and intra-network discounts at 15.4%. These results contrast with those of the Taiwanese sample, where respondents indicated a slightly different rationale selecting their particular mobile providers. Over half indicated personalized plans as the most important factor in choosing a wireless provider 52.3%, with intra-network discounts second most frequent answer at 21.5%, family members also used the same provider was the third most cited response at 18.5% and other reasons, the least favoured at 7.9%.

ii) SMS Users:

In order to discover which gender appropriated SMS more frequently, a cross-tabulation was completed for each country with regard to the questions “Do you ever use SMS?” and “Please indicate your gender?” In Taiwan 62.6% of females replied positively to the former question, while only 54.4% of their Canadian counterparts did so, indicating that gender affected overall SMS usage, while a higher number of female participants in Taiwan used SMS compared to Canada. A Pearson Chi Square test was used to test the null hypothesis of no association between SMS usage and the individuals’ gender. This test showed a significant association with a (p-value = 0.0002) between the two variables.

To verify if those who utilized broadband internet also appropriated SMS, the researcher asked, “Do you use internet based instant messaging programs such as ICQ, MSN or Yahoo messenger?” and determined if responses correlated it with a further question “Do you ever use SMS?” In the Taiwanese sample 89.8% of those who used instant messaging applications also used SMS; identical results were obtained in the Canadian sample at 89.6%. A Pearson Chi Square test was used to test the null hypothesis of no association between instant messaging users and SMS users. This test showed an extremely significant association with a (p-value < 0.0001) between the two variables.

To test whether there was a correlation between SMS usage and an individuals reason for choosing a particular service provider, the researcher asked: “Do you ever use SMS?” with “What was the main reason in choosing your cellular provider?” In terms of the Taiwanese population who used SMS, 52.2% selected personalized plans as the most relevant issue to them followed by intra-network discounts at 24.4% and family members use it as well at 18.3%. A Fisher’s Exact test was used to test the null hypothesis of no association between SMS usage and the main reason for choosing a cellular provider. The test showed a significant association with a (p-value=0.0093) between these two variables. On the other hand, there was no predictive trend on the Canadian side of the equation according to the Pearson’s Chi Square analysis.

Another question the researcher sought to explore was whether there was any correlations among individual SMS users in Canada and Taiwan with regard to the appropriation of abbreviations. When asked “Do you ever use SMS?” with “Do you find text messaging abbreviations useful?”, almost half of the Taiwanese sample population who used SMS, 49.6% found it ‘somewhat useful’ and 45.2% found it ‘very useful’. Similar findings were reflected in the Canadian sample where 48.3% found it ‘somewhat useful’ and 39.5% found it ‘very useful’. A Pearson Chi Square test was used to test the null hypothesis of no association between SMS

usage and finding abbreviations useful. This test showed a significant association with a (p-value < 0.0001) between the two variables.

iii) SMS Behaviour:

In order to discover how frequently SMS was used on a daily basis in each country, the researcher asked: “What country are you from?” and correlated it with “Approximately how often do you use SMS text messaging?” Canadian sample participants indicated that they used it: one to five times a day 43.9%, five or more at 27.7%, never 17.7% and more than ten times a day at 10.7%. On the Taiwanese side of the equation, respondents indicated that they used SMS one to five times a day 62.3%, while those who did not appropriate text messaging came next at 20.0%, followed by five or more times a day 16.2% and 10 or more at 1.5%. A Pearson Chi Square test was used to test the null hypothesis of no association between country and frequency of text messaging usage. This test showed a significant association with a (p-value = 0.0006) between the two variables.

To understand if SMS users thought that text messaging maintains social relationships between individuals, the researcher asked, “Do you ever use SMS?” correlated against “Do you use SMS to maintain social relationships?” The results were surprising. The Taiwanese sample indicated 84.4% that they used SMS to maintain social relationships. Likewise, an astonishing 100 % of Canadian participants used text messaging to maintain social ties. A Fisher’s Exact test was used to test the null hypothesis of no association between SMS usage and the application appropriation for maintaining social relationships. The test showed a significant association with a (p-value = 0.0023) between these two variables for the Taiwanese sample; while, an even more precise result was observed for the Canadian sample at (p-value < 0.0001).

To find out with whom participants communicated most often by SMS, the researcher posed the questions “Which country are you from?” correlated with “Who do you send SMS

most to?” Both the Canadian sample 82.3% and Taiwanese sample 86.9% participants indicated ‘friends’ were the primary source of contact when it came to using SMS. A Pearson Chi Square test was used to test the null hypothesis of no association between country and individual with whom the user was in contact. This test showed a significant association with a (p-value < 0.0001) between the two variables.

In addition, the researcher sought to understand what was the propelling factor in adopting SMS usage for those who appropriate it on a daily basis, and therefore, examined a possible correlation between the questions “Do you ever use SMS?” with “What is your most important reason for using SMS?”. The Taiwanese sample population reported its ‘convenience’ 60.0%, followed by the fact that ‘friends use it’ 15.7%, and ‘price’ 12.2%. On the Canadian front, chief results included ‘convenience’ 66.7%, followed by ‘price’ 13.2%, as the primary reasons for using SMS. A Pearson Chi Square test was used to test the null hypothesis of no association between SMS usage and most important reason for its usage. This test showed a significant association with a (p-value < 0.0001) between the two variables.

To discover whether if SMS users appropriated the application during times of emotional stress the researcher posed the questions: “Do you ever use SMS” and correlated it with responses to “Do you feel SMS is a good alternative when it is difficult to communicate face to face?” For the Canadian sample population 54.3% ‘agreed’ while 35.7% ‘somewhat agreed’ that text messaging was a good alternative in such situations. In the Taiwanese sample population, to a stronger degree, 49.0% ‘agreed’ while 48.1% ‘somewhat agreed’ to the very same questions. A

A Pearson Chi Square test was used to test the null hypothesis of no association between SMS usage and using SMS to release emotional stress. This test showed a extremely significant association with a (p-value < 0.0001) between the two variables for the Canadian sample, but only (p-value = 0.05) between the same variables for the Taiwanese sample population.

Another hypothesis explored was that business marketing tactics could affect usage behaviour and perception, thus, the researcher posed the questions “Which country are you from” correlated with “Do you receive SMS often from advertisers & marketers?” The results were surprising, with 75.4% of participants in Taiwan indicating that they often received text messages from marketers while only 6.2% of the Canadian sample had similar experiences. A Fisher’s Exact test was used to test the null hypothesis of no association between country and receiving SMS from advertisers and marketers. The test showed an extremely significant association with a (p-value=0.0001) between these two variables.

Lastly, the researcher wished to find out how users in each country thought about SMS on the macro level, by asking, “In your opinion, do you think in [Taiwan/Canada] SMS is more pervasive compared to other countries?” 73.0% of Taiwanese thought that SMS was pervasive in their country, while only 23.0% of Canadians thought that SMS was pervasive in their country. A Pearson Chi Square test was used to test the null hypothesis of no association between country and feeling of SMS usage in the country. This test showed a significant association with a (p-value < 0.0001) between the two variables.

D) Quantitative Paper Survey Discussion and Analysis:

The paper survey was useful in uncovering certain factors behind SMS usage and the influences of aspects the macro-environment surrounding upon users. More importantly, the prominent explanations about mobile phone usage proposed by theorists such as Gaser and Fu in their studies were supported by certain of the results in this quantitative study.

With reference to Fu’s study on ‘subscriber bandwagons’, quantitative results from the current study verified his findings in that Chunghua Telecom, Taiwan Cellular Corporation, FarEastone Inc had over 96% of the market share in the Taiwanese sample. A similar trend was reflected in the Canadian portion of the survey with Rogers Wireless Inc and Fido leading the

way at 64.4% penetration rate among participants. Both sample populations indicated that the availability of personalized plans was a motivating factor behind their choice of these service providers. Perhaps alternate providers such as GSM are offering better options and customized plans to its customer base.

With regard to everyday usage of text messaging, preferences for using SMS and choice of respondents were similar for individuals in both countries. Convenience and use by friends were answers that appeared most often in the surveys. The fact that SMS is used to maintain social relationships, as previously suggested by some (Harper & Taylor, 2002; Castells, Fernandez-Ardvol, Qiu, & Sey 2004; Plant 2002) was confirmed by the results in this study since over 80% of respondents in both the Taiwanese and Canadian sample population agreed to this statement.

The results were surprising also for those who utilized both SMS and PC based instant messaging applications such as MSN, AOL and Yahoo Messenger. Although (Castells, Fernandez-Ardvol, Qiu, & Sey, 2004) mentioned that instant messaging usage was popular, they did not link its appropriation to SMS. In both of the present study's samples, over 89% of participants who used SMS were also current users of instant messaging applications. This result may indicate that instant messaging is a gateway towards SMS usage, since conversation can be carried over onto the text messaging platform, when users are on the move.

On the question of abbreviations, results were fairly consistent in both countries. While responses obtained during the in-depth interviews of the Canadian population can not be generalized to the larger population, the quantitative data depicted a higher than expected short-hand adoption rate. The Taiwanese sample population still had a higher rate of short hand use than those in Canada. The differences between the usage rates in the two countries was not as

overwhelming as initially anticipated as the 'agreed' and 'somewhat agreed' responses hovered around the 40% mark in both countries.

Another factor which should not be overlooked is the level of university of individual participants in each population pool. The Taiwanese group had relatively more third and fourth year students whose perceptions may reflect more maturity and a disassociation from usage patterns that of the global 'teenage' cohort. On the other hand, over 50% of the participants in the Canadian pool were in below third year, which may explain their tendency to be more inclined to use SMS to reach their friends. The usage patterns of the Canadian group may thus be more reflective of those that were described in the study by (Harper and Taylor, 2002).

With regard to macro-issues, however, theorists and academics have yet to offer any explanations which would explain the differences in perceptions about SMS usage that were obtained in this study. Text messaging usage between the two countries seems to be consistent with regard to many of the questions that were posed to participants. When asked if they thought their 'country's usage' was more pervasive than in other countries, the Taiwanese population left little doubt that they feel that they are one of the major users of SMS in the world. In Canada, the sample population, composed mostly of minorities, felt that Canada lags far behind other countries in terms of SMS appropriation.

Another interesting finding is the fact that, Canadian SMS users have been relatively unaffected by 'Spam' text messages disseminated by service providers and third parties. On the other hand, the Taiwanese sample population experiences a barrage of unsolicited text messages on a daily basis. Only 6% of participants in Canada feel the effects of such communication compared to that of a whopping 73% in Taiwan. More research in this area should be conducted to determine if commercial text messages supports SMS growth and usage, or if they constitutes a barrier to its appropriation. On the whole, however, SMS appropriation seems to be consistent

across the board, with the Taiwanese sample population appropriating it slightly more frequently than their Canadian counterparts.

SECTION FIVE: LIMITATIONS

This study offers a new contribution to current literature on the topic of SMS topic within a defined environment. It provides valuable insights into perceptions and usages of text messaging (SMS) among members of a selected young adult cohort, however, certain important limitations must be considered which impede its generalizability. Due to a lack of resources and limited time constraints, the researcher was not able to utilize randomized sampling techniques. As noted, previously participants in the study were comprised a convenience sample of university students in both Taiwan and Canada. As such these participants may not be representative of their regions or political states, the international scope of this research has made it possible to compare and contrast significant ways in which local economic, technological, political and cultural conditions shape the usage and perception of mobile text messages.

Many of the participants in the Canadian sample were of Asian descent, which may have further skewed the findings on usage patterns. This could be especially true if these participants were recent immigrants from East Asian or Northern European countries, or even international students with temporary status in Canada. The age of selected participants may have affected responses. SMS literature in the academic realm has previously focused on a younger cohort than the one currently studied. Future studies of this nature should, therefore, attempt to compare a number of different age groups in order to discover how this variable relates to with SMS usage.

The researcher had an ethical obligation to remain objective and non-intrusive and to avoid probing into personal details of participants' lives in order to safeguard their privacy. For this reason, the quantitative portion of the study did not record the specific ages of the participants and instead focused on year of study. Although the response rate was roughly at 90%

in both sample pools, however, representation was compromised by the relatively small sample size in each group (only 130 participants per pool of study) and by the fact that, the participants were members of disparate cultures, living in the same geographic region at the time the sample surveys were administered (especially true in the Canadian sample). In addition, social strata and social classes of participants were not identified which may have also influenced further skew the results of this study. Users who have been exposed to differing ideologies and lifestyles may have different usage patterns and concepts about SMS. A final influencing factor could be the location of the Canadian study. Simon Fraser University, in British Columbia's Lower Mainland, is largely an urban multicultural setting within a nation geographically much more diversified than Taiwan. More differences and similarities in SMS use and perception might emerge if there was an intra-Canadian study undertaken.

Another possible limitation is the placement of survey questions. Due to a lack of resources and qualified consultation, the quantitative survey form may have reflected biases which, ultimately, impacted on respondents' answers. The researcher felt that the questions posed may also have limited responses, since some questions may have been too broad to conceptualize, and the wording of specific phrases may have influenced or confused participants to what was actually being asked of them.

It may also be entirely possible that these distinctive trends and characteristics were completely different from the way that the general populations of both countries perceive the SMS application. Hence, this study must be regarded as exploratory in nature. It would be extremely intriguing to conduct research on less-industrialized countries, such as the Philippines, and African nations, where cellular networks dominate the telecommunication landscape.

Due to all of the previous limitations in scope and method, this investigation represents a preliminary study which offers one perspective on how people from very different and unique

cultures, regions and social backgrounds think about and use mobile phones for the purpose of sending text messages. The researcher recommends that additional research theories and backdrops be utilized to further explore these matters.

SECTION SIX: RECOMMENDATIONS

A) Recommendation for Academics

In conducting a follow-up research project, this investigator would attempt to further clarify differences and unexpected similarities that were uncovered in this study. More time and greater resources would allow the researcher to validate the current findings and illuminate the reasons behind the finding individuals from Taiwan apparently regard SMS as being widespread in their surrounding when, in fact, both sample populations had similar numbers of individuals reporting personal usage of the application. Likewise, it would be interesting to interview cellular vendors in both countries and obtain their perspectives on the purchasing and consumption habits of this particular demographic and age cohort. Moreover, further research might also be conducted to understand why Taiwanese participants liked receiving group-sent text messages but were very sensitive to marketing messaging and potential ‘scam activities’.

Another approach to obtaining a clearer picture of how text messaging is utilized in particular circumstances could be to conduct a cross-cultural analysis based on an ethnographic study. Researchers who thoroughly understand the lives and cultures of SMS users in each country would be better able to assess the relevancy of the current qualitative and quantitative study. By adopting a practical perspective within the context of daily life researchers could more accurately assess where SMS becomes advantageous as well as the limitations of the application.

Due to sampling limitations in the present study, investigators should further probe into the use of abbreviations/short-hand in the composition of text messages, in order to verify the current findings and to see if they are generalizable. This paramount issue merits further

investigation since ‘coded’ messages that are sent by a users are often the only time a ‘texter’ uses SMS in a particular day.

On the socio-cultural front, future research might examine the reasoning behind the use of mobile telephony in the context of social space, especially ‘dead space’ such as that experienced when traveling from one point to another. It might be interesting, for example to split Canadian SMS users according to those who utilize public transportation versus those that travel by private transportation to validate and define usage patterns.

Many of the ideas in this study were derived from Castells, Fernandez-Ardevol, Qiu, Sey’s research on a *Cross-cultural analysis of available evidence on the social uses of wireless communication technologies*. There were many similarities in perceptions and uses of mobile phones in that study which have resurfaced in this thesis. It would be intriguing if further research and collaboration could be conducted with these theorist/academics to learn about of their approach to studying youths in mobile societies.

B) Recommendation for Mobile manufacturers & Service Providers:

As noted by participants of both sample pools during the in-depth interview sessions, the cost of an SMS messages in both Taiwan and Canada is still the determining factor limiting appropriation on a mass level. To decrease costs and promote further penetration, mobile manufacturers, in conjunction with service providers should actively seek ways to increase the current allowable character limit per message. This change would be very pertinent to SMS development. In order to further grown text messaging as an alternative mode of communication to voice calls, it may be beneficial for service providers to examine information on how individuals appropriate text messaging on a daily basis, in order to create tailored ‘text’ packages that would suit individuals with differing consumption patterns. Based on current insights, mobile manufacturers and service providers would be wise to consult with Instant Messaging

providers to understand the propelling factors in the user appropriation within their specific domain. The p-values in the Pearson Chi Square correlations found in this study have demonstrated that SMS clients are also avid instant messaging users, encouraging such usage though advertising and promotion may further contribute to the growth of this application.

With evidence provided in one of the latter interview questions, participants recommended that cellular providers add, 'emoticons' through colour and graphics to provide a refreshing look and feel to what is currently, a mundane application. This would require a transfer of working knowledge documented in the instant messaging sector to the text messaging realm. It would be beneficial since the application targets consumers in younger age cohorts who traditionally enjoy experimenting with innovative value-added features.

The possibility of composing text messages through voice recognition was delineated in the interview sessions as a possible means of attracting those who currently regard text messaging as a hassle a way of interesting those who presently avoid using the application. This adaptation would open up 'two-way street' aiding both industry and consumers alike by creating a more enjoyable yet relatively inexpensive communication method at least comparable with current online instant messaging systems.

Learning from the Taiwanese experience, Canadian wireless operators may boost their sales figures by aggressively promoting text messages during the holiday season. The ads should portray individuals having fun, sending and receiving text message usage, similar to the teenagers described by study of Harper & Taylor. Whereas making a phone call to greet family members during the festive season might be touted as anachronistic, sending a text message would be marked as an innovative and creative concept. Instead of spending ridiculously large amounts of money on phone bills during the holiday season, a festive text message could be marketed as a great alternative, particularly for those who are away from their families or limited

budgets. By making these, miniscule but significant adjustments, the future of SMS could prove very lucrative for the service and production sectors.

C) Recommendation for Policy Makers and Regulators:

One of the most important policy regulations adopted in Europe and Asia is the establishment of the caller party pays regime. Psychologically, having mobile users pay to initiate a call, would dramatically curtail their number of voice calls. This, in turn, might translate into an upward surge of text message use. Without minimizing the importance of voice calls as a revenue generator, however, those who appropriate conventional voice calls will thus be more willing to pay for their usage. By switching to a system which displaces call discrimination (like the one currently employed in Canada), users are more likely to pick up their cell phones instead of their landlines to communicate with others and potentially have the opportunity to use text messaging options.

The previous point that was further reiterated in by Neil & Sanderson who appealed to the CRTC to revamp the mobile landscape in Canada to allow the country to catch up with the rest of the OECD, whose member countries have had a leeway in digital development and network infrastructure. In order to do this, the CRTC should actively seek alternative ways to re-energize a faltering 'universal subsidized' wire line service. The price difference between wire line and wireless service suggest the two are competing products, not substitutes for one another. Users will likely continue to depend on wire line service and as a consequence, SMS will probably continue to be a niche market product. Hence, wireless mobility may never reach its full potential in Canada, because of an unequal playing field. As long as wireless service remains an inferior telecommunication method to wire line, SMS will also continue to be a secondary application.

A change in the status quo with regard to Canadian control of telecommunication entities is needed to re-address the issue of foreign ownership. As stated by Lastewka (2003), Canadians must presently own, directly, or indirectly, not less than 80 percent of a corporation' voting shares. Foreigners are not permitted to own more than 46.66% of the voting shares. This limitation hinders both the necessary transfer of knowledge for infrastructure development by ensuring capital costs which are ultimately shouldered by the mobile subscribers themselves. Relaxing current restrictions of foreign ownership from 80% to 51%, the following would allow: A Canadian owned and controlled wireless telecom sector, increased funding for performing research and development on an imperfect application such as SMS and ultimately, the creation of jobs for Canadians in the national economy (Lastewka, 2003, p.28). By adopting the recommended changes proposed by the researcher, Canada's wireless sector could potentially be reinvigorated and offer new and more exciting applications including SMS.

CONCLUSION:

The sociological approach towards SMS in the context of the mobile phone allows individuals to shape the meanings of technologies for their individual use. Text messaging has become an unexpected phenomenon because of its unique ability to facilitate communication and interaction among individuals. Through the medium of text messaging, young people, in particular, perpetuate relationships, organize social gatherings and events, produce shared experiences, and circumvent barriers to communication.

A solid broadband infrastructure accompanied in North America, at least, by a relatively affordable local public switched telephone network, and the availability of alternate formats for communication has led individuals to consider SMS an auxiliary means of contacting individuals. In both countries, the majority of individuals in this study share several commonalities in their appropriation of SMS. They feel that convenience and friends are the

primary factors driving their current usage, and those who appropriate SMS are also instant messaging users. The majority further agreed that coordination and social grooming are their main reasons for using text messaging.

Taiwanese participants learned about new technologies and SMS lingo from Internet Blogs, while Canadians, in general preferred to rely on information from friends and their surrounding environment. Taiwanese participants may have become savvy 'blog users' because of their markets over utilization of clever advertising schemes and continuous barrage of spam text messages. Ultimately, their higher than normal usage of SMS during the holiday season for the purpose of 'gift giving', resembles that of other clusters of global teenage users who appropriate the application for similar reasons. The usage by female participants reflects closely that of Scandinavians. Respondents interest in sending jokes compare to activities of 'texters' in the Philippines while the reliance on SMS to fill 'dead space' during long commutes on the subways mirror Japanese usage patterns. Ultimately, young adults who use SMS in Taiwan have appropriated the application in situations that challenge the global teenage population. Although not to the point of dependency, Taiwanese have adopted the mobile culture of SMS to a degree unparalleled in the Canadian wireless landscape.

As Rowland notes out in his discursive study of digital systems and their formal rules of operation – "It is the form of the system and not the physical nature of the tokens or symbols employed that matters" (Wade, p.212, 1999). In a real sense, text messaging or, SMS, has evolved from purely a technological addendum to a vital tool for bridging communication 'gaps and uniting individuals in many walks of life. The true meaning of 'the medium is the message' can only be interpreted by its users including, the novel users of SMS who appropriate, dissect, invigorate and inscribe comprehension within a framework of everyday human social interaction.

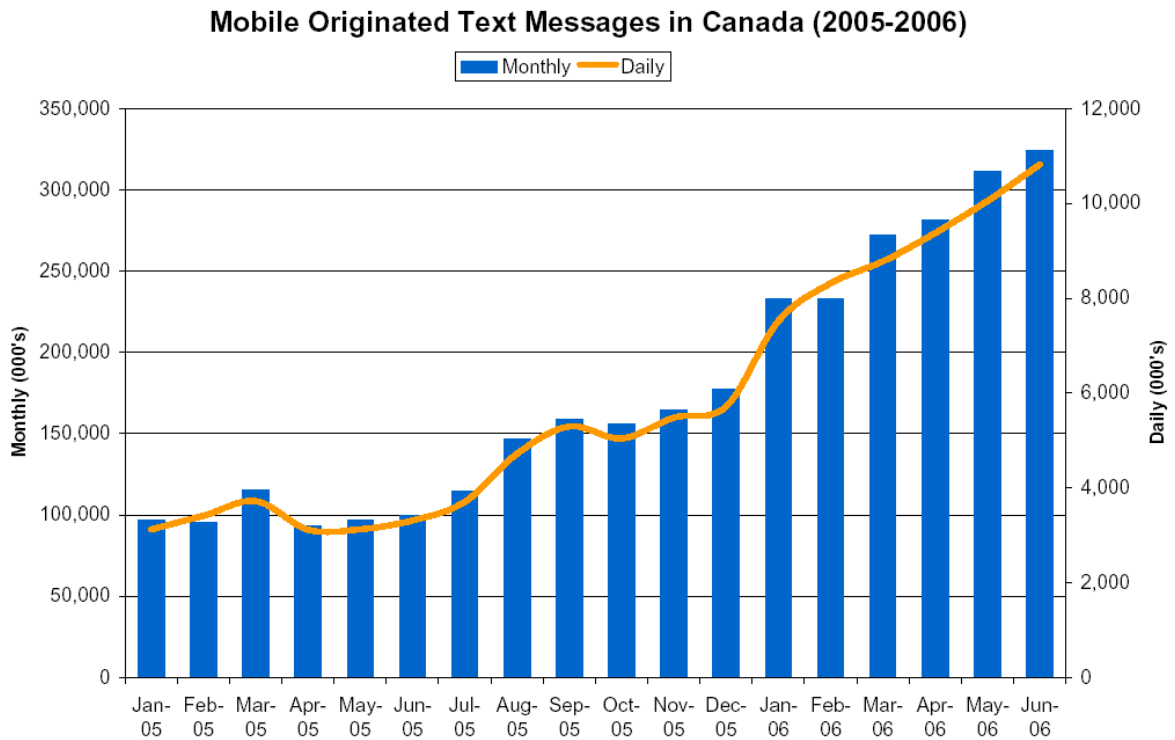
APPENDIX SECTION:

FIGURE A

Table 22.2		Examples of various types of SMS messages
THEMES	PERCENTAGES	EXAMPLES
Coordination	33	When does school start today? (F.16) Good night and sleep with a picture of the bear
Grooming	17	I don't have the car this evening & yes, no, ok
Answers	14	Which operator do you use? (M.15)
Questions	11	Did you colour your hair? (F.15)
Information	6	Have installed a new software program (M.15)
Commands & Requests	6	Call me and remember to buy Cola ((M.19)
Personal News	5	I didn't pass the exam (F.19)
Diverse Categories	9	Damn you! (M.13), Where are you?? (F.16)

(Ling, p.340, 2005)

FIGURE B



Canadian Wireless Telecommunications Association (CWTA)

FIGURE C

A Cross-Cultural Study: The Sociological Appropriation of SMS A Taiwanese Canadian Experience

Master Sheet Questions In the Study

- Q1 Please indicate your year of study at (Simon Fraser University/Ming Chuan University)?
- Q2 Please indicate your gender?
- Q3 What part of Canada or Taiwan are you from prior to attending University?
- Q4 Are you interested in new communication technologies?
- Q5 Do you use Internet-based Instant Messaging programs such as ICQ, MSN, Yahoo?
- Q6 Who pays your cell phone bills?
- Q7 Which Service Provider do you use?
- Q8 What was the main reason in choosing your cellular provider?
- Q9 Do you ever use SMS?
- Q10 Approximately how often do you use SMS?
- Q11 Do you find text messaging abbreviations useful?
- Q12 Do you use internet websites to send text messages?
- Q13 Do you use SMS to maintain social relationships
- Q14 Do you feel SMS is a good alternative when it is difficult to communicate face to face?
- Q15 Please state your feelings on the following statement "SMS usage is widespread in your surrounding?"
- Q16 Who do you send SMS messages to the most?
- Q17 What is your most important reason for using SMS?
- Q18 Do you receive SMS messages often from advertisers & marketers?
- Q19 In your opinion do you feel that in Canada/Taiwan, SMS is more pervasive compared to other countries?
- Q20 If you could improve SMS service, what would you consider improving?

Coding System

- Q1 1st year = 1, 2nd year = 2, 3rd year = 3, 4th year = 4, Other = 5, Mature Student = 6
- Q2 Male = 1, Female = 2
- Q3 North = 1, Central = 2, South = 3, East = 4, Island = 5, Not Taiwan = 6, Atlantic = 7, Central = 8, Western = 9, Pacific = 10, Territories = 11, Not From Canada = 12

- Q4 Very Interested = 1, Somewhat Interested = 2, Not very interested = 3, Not Interested = 4
- Q5 Yes = 1, No = 2
- Q6 Me = 1, Parents = 2, Other = 3
- Q7 Chunghwa = 1, TCC = 2, KG = 3, FarEast = 4, PHS = 5, Telus = 6, Bell = 7, Rogers = 8, Fido = 9, Virgin = 10, Others = 11

- Q8 Personalized Plans = 1, Intra-network Discounts = 2, Family members used it = 3, Other reasons = 4
- Q9 Yes = 1, No = 2
- Q10 10 or more = 1, 5 or more = 2, 1 to 5 = 3, None = 4
- Q11 Highly useful = 1, Somewhat useful = 2, Not very useful = 3, Not useful at all = 4
- Q12 Yes = 1, No = 2
- Q13 Yes = 1, No = 2
- Q14 Agree = 1, Somewhat agree = 2, Somewhat Disagree = 3, Disagree = 4
- Q15 Strongly agree = 1, Agree = 2, Disagree = 3, Strongly disagree = 4
- Q16 Friends = 1, Family members = 2, Co-workers = 3, People overseas = 4, Others = 5
- Q17 Price = 1, Convenience = 2, Friends Use it = 3, It's cool = 4, Privacy = 5, Other = 6
- Q18 Yes = 1, No = 2
- Q19 Yes = 1, No = 2
- Q20 Type longer messages = 1, Ability to change fonts = 2, Add an option for urgent or non-urgent message = 3, Other = 4

FIGURE D

In-Depth Interview Questions

1. When you think of the term technology what first pops into your mind?
2. Who do you think is more accepting of new technologies, college students or young professionals?
3. What communication technology do you use?
4. How do you learn of these communication technologies?
5. How do these technologies alter the way we communicate and live?
6. Do you use cellular phones, what model phone do you use and why did you choose it?
7. Are you familiar with text messaging or (SMS), can you describe what you know about the technology?
8. What are your reasons for using SMS? What's the best thing about having SMS?
9. So, who do you communicate mostly with on voice calls? SMS?
10. How do you learn about abbreviations? Do you make them up? Do they change often?
11. How long would you wait to answer an SMS message?
12. Would you say you generally have a conversation by SMS, or would you mostly use it for short exchanges?
13. Has using SMS changed the group you are in regular contact with? If someone isn't on SMS do you communicate with them less?
14. Has having SMS increased the number of regular telephone calls you make or reduced them? Why?

15. What kinds of groups of phone numbers have you stored in your address book? Have you got several groups of these?
16. How do you feel about receiving group messages?
17. Has having an SMS phone made it easier or harder to communicate in writing?
18. Do you find it easier to talk about difficult topics with text messaging?
19. Can you please tell me what you feel are the major advantages of using SMS compared to voice calls?
20. What would you like to see improved on SMS service to make your experience in using it more enjoyable?
21. Do you feel the regulatory framework of a country's telecommunication system affects the way people use text messaging (SMS)? Why?

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