

Mobile phones and Teenagers: Impact, Consequences and Concerns

- Parents/Caregivers Perspectives

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## Declaration



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This thesis is submitted in partial fulfilment of the requirements for the Unitec degree of Master of Computing.

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I confirm that:

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## **Abstract**

### **Background:**

It is a common sight - cell phones (mobile phones) in the hands of people, especially teenagers. Literature has provided in-depth evidence of the uses, advantages, disadvantages, impact, consequences and concerns about the use of mobile phones. Why teenagers fancy this device, is an interesting observation where the experts attach its significance to teenagers' identity factor. The usage of mobile phones has re-shaped, re-organised and altered several social facets. Particularly focussing on teenagers' mobile phone usage, literature has provided evidence of them being used for both positive purposes and negative reasons. Is the gap between uses and negative impact widening? Are consequences and concerns superseding positive uses? How do parents/caregivers perceive the overall usage of mobile phones by their teenagers? Are there any solutions, possibilities and avenues to address such problems? These are the basic queries that drive this study.

PACG is the acronym for parents/caregivers used in this document.

### **Objectives:**

This study is centred around parents/caregivers' (PACG) perceptions of their teenagers' mobile phone usage:

- To gain an overall understanding of teenagers' mobile phone usage (positive purposes and negative impacts)
- To understand the influence of texting on teenagers (such as text language on proper language, text messaging on communication skills)
- To understand the effects on teenagers' physical (such as driving, health) and psychological (such as bullying, un-monitored time usage, family time) safety issues.

### **Methods:**

A mixed methods approach was employed to explore the research problem. Quantitative data was collected through questionnaires (18 closed and 02 open-ended questions) and qualitative data through interviews (approximately 21 questions). The survey and interview participants were parents/caregivers of teenagers aged 13 to 19 years irrespective of their teenagers' mobile phone possessions. They were broadly divided into seven ethnic groups. 115 PACG completed the questionnaires through survey and 07 participants from the survey sample were interviewed (one from each ethnic group).

## Results:

Teenagers possessing mobile phone/s were 96.5% (n=111). A further breakup of age groups indicated that all the 17-19 olds had mobile phones. In addition, not possessing mobile phone/s is higher in the age bracket 15-16 year olds when compared to 13-14 olds.

Chi-Square tests established significance between independent and dependent variables, in the following relationships. The results are briefly mentioned.

- *'Gender' with 'teenagers sharing with PACG, if bullied'*: A high percentage of PACG said that their teenagers share with them if they are bullied. It was also evident that girls share more with PACG, if bullied, than boys do
- *'Ethnicity' with 'Interruption of personal time with PACG'*: A high percentage of PACG said that their personal time is to 'some extent' interrupted due to social bonding enabled by their teenagers' mobile phone usage
- *'Ethnicity' with 'PACG feeling secure with teenagers' un-monitored times usage'*: A high percentage of PACG said that they feel secure with their teenagers' mobile phone usage during un-monitored times
- *'Ethnicity' with 'PACG feeling using mobile phones while driving is risky'*: A high percentage of PACG said that using mobile phones while driving is risky
- *'Ethnicity' with 'PACG feeling to ban mobile phone use while driving'*: A high percentage of PACG supported a ban to use
- *'Ethnicity' with 'PACG feeling to have an age limit to possess a mobile phone'*: More than fifty percentage of PACG supported a minimum age limit for possessing a mobile phone either by saying 'yes' or 'probably'.

**Conclusion:**

Parents/caregivers of this study express both positive and negative impact towards teenagers' mobile phone usage.

On a positive note, PACG perceive that mobile phones are very useful devices for communication and co-ordination of activities. They also find that they are compulsory as they are used as safety devices especially in emergencies. Voice and text features are considered as the basic required facilities in teenagers' mobile phones by PACG.

On the negative side, PACG express that teenagers are addicted and obsessed with texting, while some of the PACG feel that it distracts the teenagers from their study time and other important activities. Some PACG hold the service providers responsible for this because of texting plans. Bullying and abusive messages have been perceived as the major problem mediated by mobile phones. PACG express that teenagers with their mobile phones are out of control for them. They also add that teenagers lose control over the information enabled by their mobile phones. Every interviewed PACG expressed concerns on internet access via teenagers' mobile phones.

The overall findings from this study reveal that parents/caregivers' perceptions of teenagers' mobile phone usage are not satisfactory. Although they express a mixed opinion, they lean towards negative impacts. A very high number of interview participants expressed the view that negative impacts outweighing positive purposes with teenagers' mobile phone usage.

This further leads to recommendations from PACG on proper usage, future research, avenues and possibilities to implement solutions for problems. PACG mainly perceive that educating teenagers (on consequences and tackling issues) and providing mobile phones to teenagers from the age of 14 years (the legal age to stay home unsupervised and mature enough) will help in ameliorating the negative impacts. In addition, PACG support to ban using mobile phones while driving. These are the outcomes of the study.

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## **Chapter 1: Introduction**

### ***1.1 Introduction***

This research reflects my personal undertaking to comprehend the impact of mobile phones on teenagers, from parents/caregivers' perspective. Impact includes consequences and concerns that arise from the literature and the current study. Particularly, this chapter narrates the background that gave an inspiration and initiation for the topic. It also outlines the research title, the main research question and the sub-questions. Significance of the work is mentioned and the chapter ends with a summary of the matters that have been discussed in this chapter.

### ***1.2 Background for the Study***

I graduated with a Bachelor of Science qualification in 1989 majoring in Mathematics, Physics and Chemistry. Although I wanted to enrol in a Masters degree, owing to my personal family circumstances, I had to take up a job in the Indian Railways as an administrative assistant. However, the urge to pursue higher studies remained my ambition over the years. Alongside my studies, there was another line of interest that tapped my spirit at a very early age and made up my personality. That was my involvement in voluntary social activities through 'Scouts and Guides' from the age of 8. My societal contribution as a Girl Guide gave me an opportunity to represent India through 'Scouts and Guides' at Youth 92, held at Costa Rica in 1992, which was a preparatory forum for the Earth Summit held at Rio later in 1992. One of the main concerns expressed by the delegates of Youth 92 and the Earth Summit was the impact of emerging technologies on communities and the environment as a whole. Having witnessed and been involved personally in the mission, helped me to contemplate the social consequences of technology.

After migrating to New Zealand in 1999 with my husband and our 4-year old daughter, I was employed doing relieving jobs at early childhood centres in and around Auckland. It continued until the birth of my second child in 2003. By that time we were reasonably settled which allowed me to give up my job and stay at home with the little one for the first two years of his life and also enabled me to start the groundwork needed to return to my longed for studies and determine which course to take and at what level to begin.

My curiosity about how e-mail works, and how we are able to chat with people miles apart, created a fascination for technology. For me the technological innovations and their power to communicate were magical. This provided the momentum to venture into a totally new area of studies, 'Computing'. Now the dilemma of which area to enrol in was solved. The subsequent steps of where to study and at which level to begin, started. After initial consultation with Shirley Elliot, the programme director for the graduate diploma at Unitec, I started at levels 6 and 7 and chose courses that had both technical and communication elements in them such as Internet Applications to Business, Systems Analysis, and Project Management. Good grades at this level were sufficient to gain a scholarship for pursuing Masters' studies, which gave a totally new turn to my academic life.

Being grateful to Unitec, with confidence, I stepped into doing Masters. One of the compulsory courses, 'Impact of IT on Society' was the one that I thoroughly enjoyed for several reasons. The lecturer Becky Blackshaw, was a wonderful person who could engage her students with her ability to speak and motivate them with her rich experiences. The course was designed to investigate the social side of technology. It tapped the real person within me: technology with a community conscience. The first two assignments for this course were to choose a particular technology that has had an impact on a particular sector of society. My study on the 'Impact of mobile phones on teenagers' originated then. A thorough research project was done to understand the affinity between mobile phones and teenagers that helped me produce two assignments.

At this juncture, there came another very significant turn. With encouragement from Dr. Savae Latu, who is also associate supervisor for this thesis, I converted those two assignments into a paper titled; 'Social consequences of cellular phones', and submitted it to the Australasian Conference on Information Systems (ACIS) 2007 held at University of Southern Queensland, Toowoomba, Australia. This paper was selected and presented at the conference. There I was encouraged by the other delegates, who attended the conference, to take up the topic for further research. That was the driving force and laid the foundation to study the topic further as a thesis topic.

Research Methods was another compulsory paper wherein one of the assignments was the draft for a research proposal. Professor Kay Fielden is one more lecturer that needs a special

mention at this stage. Her approach and her course work helped me to be more of a reflective practitioner, which I feel is quintessential for handling research. The research proposal, research design, survey questionnaire and the interview questions were framed and thoroughly scrutinised and the credit goes to Professor Fielden who is also the principal supervisor for this work.

Due to ethical reasons, I was only able to study perceptions of parents/caregivers (PACG) of teenagers and not the perceptions of teenagers themselves. The purpose for my research set the scope of the research that directed me to define the research title underpinning the research problem and research question/s. This was how my journey started.

PACG is the acronym for parents/caregivers used throughout the document. Cell phones are also known as mobile phones and hence these terms are used interchangeably in the text.

### ***1.3 Introduction to the Topic***

The world is a comprehensive cyber community that has been connected by a network of wired and wireless devices through the *World Wide Web* (WWW). Today most of us have secured a room in cyber space by having e-mail accounts, doing online transactions and through e-learning. All these online activities can be performed through both wired and wireless devices. Both these types of devices function through wireless transmission. Thus, the intangible thread that has united the virtual world is wireless technology. Undoubtedly, without nature providing the electro-magnetic spectrum, wireless transmissions through radios, televisions, computers, mobile phones and even remote controlled toys are not possible. The only device in the list that can embed several gadgets together is a mobile phone.

With the growing number of gadgets embedded in modern mobile phones (particularly 3G and 4G phones ) such as the MP3, Internet, Camera (still and video), TV, and the decrease in the size and the price of such devices, mobile phones have become omnipresent. The mobile phone is an anytime and anywhere tool, boosting the tendency to do things discreetly as well as openly. The internet has removed geographical boundaries and so have mobile phones that has blurred the borders between public and private lives (Caronia & Caron, 2004, p. 122). It is very common to see people talking about personal issues whilst using mobile phones in

front of strangers and also using the same inaudibly (such as text messaging) in the presence of their families and friends. The fact is, with the use of cell phones, people sometimes lose the capacity to manage the boundaries between appropriate and inappropriate usage (Ling, 1997). This means that cell phones have not only blurred the boundaries of lives but have also shifted the borders of usage. How much cell phones have influenced teenagers' on blurring the boundaries between their public and private lives and how far their usage is accepted by PACG of teenagers are the two main starting points for the research problem.

Moreover, in a family setting, there is a blend of different generations of people living under the same roof. One of the factors that determine the perceptions of PACG on their teenagers' mobile phone handling is the level of acceptance of technology (in this case it is mobile phones) by PACG. According to Prensky (2001), teenagers of today's generation are digital natives and parents/caregivers that belong to previous generations are referred to as digital immigrants.

Fielden and Malcolm (2008) classified the levels of Digital Citizenship into six classes that are based on Prensky (2001). Added to the six classes is another level of perception that fitted between Immigrant (3) and Permanent Resident (4) (shown in table 2.2), and is based on Vaidyanathan and Latu (2007). The added category was 'Refugee (3A)'. The classes, explained with the levels of confidence, are shown in table 1.1.

Table 1.1 *Levels of digital citizenship*

| <b>Category</b>       | <b>Description</b>  |
|-----------------------|---|
| Alien (1)             | Totally against IT – feared, never uses   |
| Immigrant(2)          | Learned to adapt, will only use IT if there is no other alternative   |
| Immigrant(3)          | Learned to adapt and will use IT - as a 'second language'   |
| Refugee (3A)          | Adapted to IT to some extent but feels inferior to the digital natives ( <b>low level of confidence and hence viewed as unfit by the natives</b> )                  |
| Permanent Resident(4) | Grew up with old IT (e.g. land lines phones) will use new IT – but prefers old IT ( <b>medium level of confidence and been accepted to some extent by natives</b> ) |
| As If Native(5)       | Not born with however grew up with old IT. Relates well to natives – on the same wavelength ( <b>high level of confidence and been accepted fully by natives</b> )  |

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Native(6)      Grew up with IT, can parallel process and multi-task. Views “IT as friend”

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(Fielden & Malcolm, 2008; Vaidyanathan & Latu, 2007)

Supplementing the notion of digital natives and digital immigrants with the multi-dimensional usage of cell phones by teenagers (Geser, 2004), the levels of acceptance of technology by adults (Fielden & Malcolm, 2008; Vaidyanathan & Latu, 2007) also influence the perceptions of PACG on their teenagers’ cell phone handling.

The reasons mentioned in table 1.2 reveal that the patterns of choice vary in teenagers, depending on their gender and age groups. There is also a noticeable difference when comparing the choices expressed by teens and adults such as price, make and availability of mobile phones. This further underpins the notion expressed by Prensky (2001) on digital natives and digital immigrants.

Table 1.2 *Statistics of reasons for choosing mobile phones in the UK*

| <b>The single most important reason for choosing a particular mobile phone</b> | <b>All %</b> | <b>Boys %</b> | <b>Girls %</b> | <b>11-14 %</b> | <b>15-17 %</b> | <b>Parents %</b> |
|--|--------------|---------------|----------------|----------------|----------------|------------------|
| Style (size, looks, colour)  | 31           | 23            | 41             | 29             | 35             | 16               |
| Functionality  | 26           | 32            | 20             | 23             | 30             | 31               |
| Price  | 7            | 8             | 5              | 6              | 8              | 28               |
| Make of the mobile phone   | 2            | 3             | 2              | 2              | 3              | 11               |
| Recommendation from a friend   | 2            | 3             | 2              | 2              | 3              | 2                |
| Availability   | 0            | 0             | 1              | 0              | 1              | 3                |
| None of these  | 1            | 1             | 1              | 1              | 1              | 8                |
| I was given, I didn’t choose it  | 29           | 30            | 28             | 38             | 20             | na               |

Source: YouGov (2006)

Thus, putting all the pieces together and to understand further, literature laid a strong basis to comprehend the multi-dimension usage of mobile phones (both in general as well as focussing on teenagers’) and perceptions of parents/caregivers across the globe. The researcher has reviewed the existing literature in order to understand the ways in which this piece of technology is being used and the impact (consequences and concerns) it has had on account of teenagers usage.

Parents/caregivers being the direct relation to their children, feel the first-hand impact of their teenagers' mobile phone usage. Hence, the study, from the standpoint of parents/caregivers (PACG) of teenagers, is to understand whether they are happy or unhappy or have a mixed opinion on the overall usage of mobile phones by their teenage children.

The areas underpinning the research problem are first to understand the uses and Impact (consequences and concerns) of teenagers' mobile phone usage and, secondly, to know the influence of texting by teenagers via mobile phones and, thirdly, to comprehend effects on teenagers psychological and physical safety aspects concerning their mobile phone usage. Thus, the research problem has a multi-dimensional view that comprehends the perceptions of PACG on the overall usage of mobile phones by their teenage children. Thus, the problem is scoped down into three research objectives.

### ***1.4 Research Objectives***

The focus of this research is centred on the perceptions of PACG on their teenagers' mobile phone usage:

- To gain an understanding of teenagers' mobile phone usage (positive purposes, negative impacts)
- To understand the influence of texting on teenagers (such as text language on proper language and text messaging on communication skills)
- To understand the effects on teenagers' physical (such as driving, health) and psychological (such as bullying, un-monitored time usage, family time) safety aspects

### ***1.5 Research Title***

Mobile phones and Teenagers: Impact, Consequences and Concerns

*Parents/Caregivers' perspectives*

#### **1.5.1 Research question**

What is the overall perception of PACG on their teenagers' mobile phone usage?

##### ***1.5.1.1 Sub questions***

- How do PACG feel about the safety of their teenagers' mobile phone use, especially with bullying?
- Do the teenagers share with their PACG if they are bullied via mobile phones?

- How do PACG feel about the security of their teenagers' mobile phone use, such as usage during un-monitored times?
- What is the impact on family time because of social bonding enabled by mobile phones?
- What is the impact of text language usage on proper language?
- What is the impact of text messaging on communication skills?
- Is mobile phone use, while driving, risky?
- Should mobile phone use be banned, while driving?
- Should there be a minimum age limit to possess a mobile phone?

## ***1.6 Significance of the Work***

As mentioned earlier, this study is about teenagers' mobile phone usage from a PACG perspective. Mobile technology, a rapidly pacing sector, is bringing in a new prototype for communications and thus a new paradigm of society. The pillars for this new society are youth. Family is a mini society and the budding begins at home. Emphasising the aspect of family that intersects with technology on a daily basis, and hoping for wholesome family health and thus society, this study looks into the social aspect (focussing on family) of technology (mobile phones) use:

- To comprehend the perceptions of PACG on the overall usage of mobile phones by their teenagers (considering both advantages and disadvantages)
- To identify the areas of concerns where PACG perceive the negative impacts are soaring (based on the majority of PACG from this study expressing concerns)
- To know whether PACG consider using the phone while driving is risky and recommend a ban (to reduce the mishaps and make roads safer)
- To know whether PACG support having a minimum age limit for their teenagers to possess a mobile phone (for mature handling of the device and its capabilities)
- To reflect on the recommendations of PACG in negating the negative consequences (highlighting the avenues and possibilities for implementation)

## ***1.7 Chapter Summary***

The opening chapter of the document contains the background of the study that helped to gain an initiative to understand the topic and then arrived at the research problem. The research objectives with suitable research question and sub-questions were outlined.

Significance of this work has been mentioned. The next chapter will now review the literature that has laid a strong knowledge base and added strength and authority to the study.

## **Chapter 2: Literature Review**

### ***2.1 Introduction***

In this chapter, existing literature that discusses the ways mobile phones are being used and the impact their usage has had on teenagers and their families is presented. This literature review provides the basis for the current study to understand whether PACG of teenagers are happy or unhappy or have a mixed opinion on the overall handling of mobile phone/s by their teenage children.

A simple understanding of how mobile phones function (from a technical point of view) gives an opening to the chapter. Section 2.3, mobile phone usage and impact, gives a broader view of the topic with an overview of the study shown in figure 2.1, which further elaborates on major areas of impact (particularly focussing this study). The sections from 2.3.1 to 2.3.9 underline the areas of impact that were identified from the literature. Since each section is centred on a particular premise, a summary of the section is given at the end of every section.

Statistics of mobile phone usage in New Zealand and the UK are shown. Consequences and concerns on teenagers' mobile phone usage emerged from the literature, laid the basis for a literature-based framework as shown in figure 2.2. A literature map, designed showing the contribution of experts on the study, is shown in figure 2.3. The chapter ends with a summary of the matters discussed in this chapter.

### ***2.2 Technical Background for Mobile Phones***

Mobile phones have an internal memory called *Number Assignment Module* (NAM). Each NAM has its own *Mobile Identification Number* (MIN) programmed into it, which is a wireless phone number. The phone also contains an *Electronic Serial Number* (ESN), which acts as recognition for the phone and helps as a security against cell phone fraud. A number identifying the cell phone with which it works is called the *System ID* (SID) (Gralla, 2002).

Cellular networks are made up of many cellular base stations that communicate with the phones, which are located in that particular area. An area is referred to as a *Cell*. When a cell phone is turned on, it reaches the nearest base station and establishes a communication link and this process is called 'Registration'. This communication takes place wirelessly with the base stations. Base stations are made up of hardware such as antennas, amplifiers, receivers, and transmitters and software for receiving and sending signals and for converting Radio Frequency waves into audio signals and vice versa (Gralla, 2002). Base stations uplink and transmit calls back and forth to the *Mobile Switching Center* (MSC). These uplinks and transmissions are often sent over a microwave. MSC function as the brains of the cellular networks. Each MSC handles communications with a set of base stations and cells (Gralla, 2002).

The MSCs are also linked to several databases called *Home Location Registers* (HLR) that contain the information of each cell phone subscriber. The HLR has the capacity to track the geographical location of all the cell phones that are covered under the area of that particular MSC. There are also other important databases that play a very vital role like the authentication centers where the subscriber's call is validated (no pirated calls) and messaging centers that route the *Short Message Service* (SMS) to cell phones (Gralla, 2002). In fact, to send a text message, use of a wireless device is not mandatory. Use of e-mail to send messages in the form of number@company'sdesignatedsite will serve the purpose. For such facility, a *Text Messaging Interface* (TMI) is necessary on a company's website (Steeh, Buskirk, & Callegaro, 2007).

### ***2.3 Mobile Phones: Usage and Impact***

"The new digital environment presented an exceptional array of possibilities for communication, interaction, and information retrieval at the fingertips that was never before available" (Montgomery, 2007, p. 110). It is a general understanding that mobile phones have fastened the society in various aspects through its variety of functionalities. While cell phone expansion is at 'breath-taking speed' (Geser, 2004, p. 4), SMS through cell phones is pervading 'like a wild-fire' (Vaidyanathan & Latu, 2007, p. 4).

The literature reveals how much people depend on this practical device and how helpful a cell phone is in organizing things, right from waking one up (as an alarm clock) to wrapping

up the day with reminders about things to do (erasing the need for post slips), networking with friends and staying in touch with family. “The mobile phone is competing with, or perhaps supplementing, the wristwatch as a way to coordinate social interaction in a way cutting the ‘middleman’ out” (Ling, 2004c, pp. 69, 70). For teens especially, this technical invention has become a social fad.

Mobile phones contain an amalgamation of gadgets and some of the uses were identified to comprehend teenagers’ cell phone use, as shown in table 2.1.

Table 2.1 *Mobile phone and its uses*

| <b>Features/Gadgets</b>    | <b>Uses</b>  |
|----------------------------|--|
| Phone -Voice Communication | Stay in contact with parents/guardians and peers   |
| SMS - Text Messaging       | Safety and Emergencies<br>Cast vote (TV shows)<br>Schedule/re-schedule affairs<br>Gossip or flirt<br>For building romantic relationships<br>Health advice during teenage pregnancies |
| Clock                      | Time and Alarm clock   |
| PDA                        | To know the location   |
| Games                      | Play<br>Pass time  |
| Camera                     | Take still and video pictures  |
| Music Player               | Listen to music  |
| Internet                   | Browse on the net<br>Download music<br>Add flexibility to shopping and purchases   |
| Others                     | Have fun with ring tones and screen savers   |

(Buckley, 2005; Byrne & Findlay, 2004; Ling, 2006; Livingstone & Bober, 2005; Livingstone, Bober, & Helsper, 2005; Vaidyanathan & Latu, 2007).

With the amalgamation of gadgets, cell phone usage has unfolded three main ‘independent axes’ that have resulted in its multi-dimensional use:

- Usage intensity: Usage of the product regardless of applications (frequency)

- Usage breadth: Number of people connected through the product (popularity)
- Usage variety: Usage of various applications depending on the situation (variety)

(Geser, 2004, p. 6).

Teenagers' cell phone usage encompasses all three axes, either while interacting with their friends or staying in contact with their family. In addition, a cell phone adds two completely new and innovative dimensions to the typical telephone. These are termed by the authors as 'de-location of communication' and 'embodiment of the object':

- 'De-location' enlightens the space-free, locus-independent nature of the kind of telephone call that constitutes for the possibility of mobile or nomadic communication.
- The idea of 'embodiment' refers to the process of integrating the object with the user's own body, making it work as a part of one's physical self.

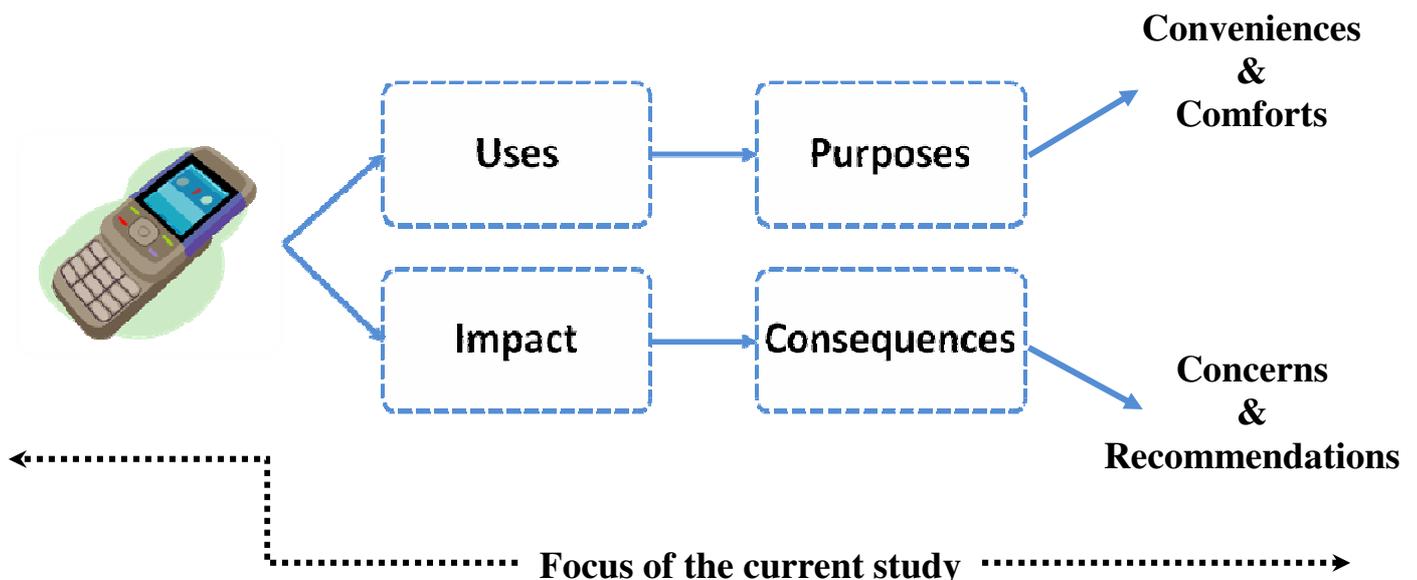
(Caronia & Caron, 2004, p. 30)

Expanding on the dimension of de-location, Srivastava (2004) adds that the 'sense of belonging to place' is slowly fading away and being taken over by 'sense of belonging to the communications network' (p.7). "Mobile phones allow users to construct their own 'at-home' environment regardless of where they find themselves in physical space" (Srivastava, 2004, p. 7). The difference between an incoming call on a fixed line (landline) and an incoming call on a mobile phone is that the former is restricted to a place and not to a person, whereas the latter is restricted to a person and not to a place. Hence with mobile phones, place is no longer a portal to the person (Srivastava, 2004).

Referring to the idea of embodiment, Prensky (2005) cites the direct words of a Japanese student who said, "if you lose your mobile phone you lose part of your brain" (p. 1). This statement truly reflects the idea of embodiment. In Finland, the mobile phone is commonly referred to as *kännykkä*, which means 'an extension of the hand' (Campbell & Park, 2008). The authors say, "Personal communication technologies are distinctive from other network technologies (e.g. the computer) in that they are often worn on the body, are highly individualized, and regarded as extensions of the self" (Campbell & Park, 2008, p. 2). Ling (2004a) supports the notion by categorising mobile phones with jewellery, clothing and other accessories that play a vital role in the growing personalization of the device.

It is evident that the positive purposes of mobile phones have added tremendous comforts and conveniences to our living. They are witnessed in every aspect of activities, for those who possess them. With several advantages there are also some disadvantages too that accompany the usage of mobile phones that are explored in this current study.

An overview of the study (with a focus) is shown in figure 2.1. The figure portrays that mobile phones have two basic aspects: its uses with purposes and its impact with consequences. Although the researcher looks into both aspects of mobile phones (through literature review and from PACG perceptions), this study has a particular focus on the impact, consequences and concerns, as expressed by PACG, with the support of published literature.



*Figure 2.1* Pictorial overview of the current study

The areas of uses and impacts derived from the literature, focussing on teenagers and also suitable to the current study, are detailed further in the following sections (2.3.1 to 2.3.9).

### 2.3.1 Identity and self-esteem

Identity is central to new communication, for it is a common trope of the literature that new media bring about fundamental transformations in the way our sense of our self is developed and in the role that identity plays in social interactions and social situations (Cavanagh, 2007, p. 15).

“Mobile phone is a medium for the assertion of its own identity and autonomy” (Srivastava, 2004, p. 13). The possibility to maintain intense and informal social networks through mobile phones is the main force for teens to stay connected with this device. It not only provides social interaction but also provides the individual with a sense of self (Ling, 2004a).

Therefore, mobile phones have become a symbol of identity and a symbol of status to explore their possible selves and to cultivate a private self. A quest/thirst for this identity is one of the vital and fundamental changes that teens undergo in their transition periods of biological, cognitive and emotional changes (Montgomery, 2007; Srivastava, 2004). The mobile phone serves as an emblem or a token, for teens.

The findings from a video ethnography, supplement the facts of how a mobile phone is used by a teenager for identity purposes and is summarised by the author as “to strike a stance-taking self amid the contradictions of post-modern home life” (Tutt, 2005, p. 58).

Self-identity and individuality, the distinctive features of adolescence, could be the key reasons that trigger teens to possess a mobile phone. Caronia and Caron (2004) added that the mobile phone resulted in a ‘drastic’ social performance and is perceived to be a ‘detonator’ of social thinking. “Cell phone provokes reflective thinking on the ethics, etiquette and aesthetics of everyday action and social life that includes identity-making processes such as presentation of oneself on a public scene” (Caronia & Caron, 2004, p. 28).

The authors note that adopting a technology is beyond the matter of acquiring and applying technical knowledge. It involves a high degree of social knowledge concerning when, where, and for what purposes. To put it simply, it is a matter of a specific form of communicative competence that plays a vital role in the process of identity-making (Caronia & Caron, 2004).

Thus, identity for a teenager is also associated with a set of conventions associated with the usage of mobile phones along with its possession, particularly in the context of popularity.

Considering the context of popularity via cell phones in a peer group networking is its 'quantification of popularity' (p.12). The capacity to send and receive messages and the facility to enter several numbers in the automated dialling registers in mobile phones actually help teens to measure and quantify their popularity. Adolescents who spend time with friends exhibit a higher sense of self-esteem (Ling & Yttri, 2003) and hence mobile phones add a dimension of confidence that adds value to their identity.

### **Section Summary**

It is evident that mobile phones provide a sense of self for teenagers by adding an identity for them, which in turn boosts their self-esteem. The process of identity appears to be associated with teenagers perceptions of themselves by portraying oneself in the public space thus gaining popularity. There are particular tenets associated in the process of exhibiting oneself through which the popularity is gained. Hence, teenagers' possession of mobile phones which amalgamates well, particularly, with their adolescent phase, has a close relationship with their identity making.

### 2.3.2 Family relationships

The collective identity of a family or people living at the same place has been diluted through the use of member's individual mobile phones. In other words, unity has given way to a multiplicity of channels. and hence, the identity of the family unit becomes less about 'oneness' and more about 'many-ness' (Srivastava, 2004, p. 7).

Society is a web that is comprised of rituals, experiences, emotions, power and relationships (both static and dynamic). All these aspects, in fact, contribute to the bonding of a society and are also witnessed within a family. The relationship between parent and teenager is never static. Traditions in society, the legal relational power system, familial structure and hierarchical dimensions all have an influence in a relationship between parents and teenagers. The roles of both parents and teenagers operate within these confines (Ling & Yttri, 2003). Hence, parent-teenager relationship tends to be more dynamic and matures with the age of the teenager. A 13 year old is at the entry level of adolescence (stepping into adulthood), whereas an 18 year old is considered to be more mature (transitioned deeper into adulthood). Hence, the bonding between parent and the teenager varies and is highly dependent on the age of the teenager (Rosenberg & Turner, 1981).

The two Cs - Communication and Coordination - are the main activities that trigger a connection in a society. A family is a mini society and bonding usually begins at home (Vaidyanathan & Latu, 2007). "Family functioning is a measure of the whole-family unit in the context of whole-family interaction" (Wise, 2003, p. 19). Ling says that the intensity and weight of interaction welds the social group together, while Vaidyanathan and Latu (2007) add that the presence of the two Cs ties parents and children together.

"One of the crucial issues of adolescence is emancipation from one's parents and the establishment of one's independence (Ling, 2001b, p. 24). It is a period in which parents and teens go progressively on their separate ways and, especially for teens, the peer group is a fundamental institution" (Ling, 2007, p. 61).

Linking the dimension of de-location mentioned by Caronia and Caron (2004), to the context of communication in a family, Srivastava (2004) feels that there is a decrease in the use of

landlines where the connection is mostly 'via' and resulted in increase in the use of mobile phones where the connection is 'direct'. Hence, mobile phones are more personal as they directly connect the call sender and the call receiver. In addition, mobile phones have the added feature of being able to be switched off which gives freedom and convenience to the mobile phone call receiver who can filter calls. This facility of identifying the caller even before picking up the phone has, in fact, given birth to a vital societal transformation.

Thus, "The ability to quickly coordinate activities in a complex society is probably the most significant contribution of the mobile telephone" (Ling, 2004a, p. 12). In addition to quick communication, for a better understanding and a healthier relationship, a face-to-face interaction is emphasized because especially adults consider this type of communication automatically superior than other modes of communication (Livingstone & Bober, 2005).

Referring to Engelstad (n.d), the 'power' and 'control' both from teenager and parent's perspective has been analysed and proved legitimate. From a teenager's perspective it is the period that is characterized by desire for freedom and on the other side, from a parent's angle, it is the desire to instigate their offspring on a sustainable path. Hence the power of push and pull perceptions of one over the other is considered justifiable (Ling & Yttri, 2003). "Adolescence is a time in which the child is engaged in the establishment of their own identity, sometimes in the form of a revolution against the world of their parents" (Ling, 2001a, p. 4). In this adolescent phase, mobile phones allow a channel for communication that is free from the supervision of one's parents, the opportunity for individualization. At the same time it leads teenagers to engage in orientation and networking with peers (Ling, 2001a).

On the other hand, findings from the research carried out in Cardiff, UK, revealed that mobile phones enabled the shift from traditional parental authority such as setting boundaries to teenagers (the power and push perceptions mentioned by Ling and Yttri (2003)), to a more liberal approach such as working on negotiations (Williams & Williams, 2005). Hence, it could be summarised that the relationships especially between parents and teenagers tend to become more informal with boundaries blurred, discussions happening two-way and restrictions such as house rules being more relaxed. Tutt's (2005) findings reveal that, "mobile phone is a key communication and performance tool with which teenagers strike a balance between abiding by and opposing house rules" (p.60). The mobile phone is

associated to an umbilical cord between parent and child (using mobile phone). This discrete link gives freedom as well as keeps an eye on the child that enables teenagers move feely within the parameters of home (private) or away (public) (Ling, 2004a).

Expanding on the private and public spaces, the authors say that the mobile phone is depicted as a 'private meeting place' located inside the family because the conversation takes place exclusively between the owner of the phone and the person on the other side of the conversation. In this situation, although the conversation takes place inside a home, family members are considered as unaddressed or unofficial participants (Caronia & Caron, 2004).

As a result, the use of mobile phones inside a home not only defines the status of family members but also public and private spaces. Home becomes a public space wherein the teenager makes his own private space through the mobile phone, within that public space (Caronia, 2005). However, with such freedom and with the increase in communication with their peers, it is suspected and feared that there would be a dilution in the interaction within the family (Vaidyanathan & Latu, 2007). The competing attentions of peers and family, the confusions that crop up in separating public and private spaces, the contradictory household rules that interfere with one's own personality and the imbalance between independence and dependence on the family, are some of the areas where the majority of cell phone impacts are felt, both by teenagers and families (Tutt, 2005).

With the personal space concept, there is a difficulty experienced by adults dealing with the non-face-to-face communication environment enabled by the new technology (Livingstone & Bober, 2005; Prensky, 2005; Vaidyanathan & Latu, 2007). Thus, there is a significant impact on the family life of teenagers with the entry of mobile phones in their lives.

There is another dimension not to be missed out regarding why mobile phones have entered into the lives of individuals in households. Katz (1997), states that, with the increase in the number of mothers at work, there is a decline in the traditional ways of supervision, and also co-ordination of parents with their children. At this juncture of dilution (of traditional ways), mobile phones take over to sustain family ties irrespective of geographical distances. The research in UK revealed that teenagers felt their mobile phones resulted in strengthening their bonds with their family as well as their grandparents (YouGov, 2006). At the same time, the author's concern is that "It will also exacerbate centrifugal forces by making in-person

supervision and monitoring less necessary and therefore less frequent, perhaps thus loosening family bonds” (Katz, 1997, p. 241).

Because of the unrestricted nature of mobile phone access, mobile phones have occupied the very intimate and private space of a person. Thus, the family feels the impact. The attachment to this device, both physically and emotionally, is on a gradually increasing scale that is resulting in a dilution in the family relationships.

Whether cell phones are diluting or strengthening relationships, it is a device that enables a two-way communication as well as facilitates a one-to-many information source (Wei & Lo, 2006).

### **Section Summary**

From the previous section, it is understood that teenagers love to be identified with their mobile phones. The impact of such identity is first felt at the family level. Mobile phones have engulfed the adolescent phase of a teenager that, in turn, is bringing about a change in the family life of the teenager. The aspiration for freedom in the adolescent phase of teenagers, is loosening the concept of control and slowly diminishing away the holding centre of the family (the push and pull perceptions of one over the other). The dilution of control is experienced by parents/caregivers through teenagers’ mobile phones because connection through a mobile phone is ‘direct’ and no more a ‘via’. Thus, the notion of personal space through mobile phones is addressing the necessity for autonomy and paving way for a diluted state of face-to-face communication within a family setting. In some situations, mobile phones take over to strengthen family bonds where the family members are scattered geographically.

Although, the literature reveals mixed opinions about the entry of mobile phones in teenagers’ lives, viz. loosening as well as strengthening family bonds, the majority of literature indicates that mobile phones give autonomy to teenagers, which in turn is diluting family relationships.

Therefore, the concern that arises from this section is the loosening of family bonds.

### 2.3.3 Networking with peers

“Today’s digital generation are media savvy. They crave connection, having an incessant desire to communicate and nurture social relationships” (Carlson, 2004, p. 23).

The complexity of social networks and interactions increases with one’s age. To keep up to the pace, Ling (2004) says these mobile phones facilitate teens with access. For teenagers, owning a mobile phone is the first step to gaining independence from parents and teachers (Tutt, 2005). “Mobile phone has lowered the threshold for communication especially for teens who take peer group interaction very seriously” (Ling, 2007, p. 5). In addition, mobile phones are communication devices they are mainly used to sustain social networks (Ling, 2004a). It is used as a planning device for teenagers to connect with their friends or family (Vaidyanathan & Latu, 2007). Srivastava (2004) adds that mobile phones, especially through text messages, have provided a platform for a virtual network of peers, even late at night.

The communication that is enabled by a mobile phone, in one way or another, results in tight integration within small groups and enables a strong bond via the use of this device (Ling, 2004a, 2007). Mobile phones act as a portal for teens to unleash their freedom. Thus the networking and acquaintances that are being enabled by mobile phones transcend the boundaries of their own family for a teenager (Geser, 2004). “The strengthening of contact enhances their autonomy and life satisfaction rather than creating pressure and unrest” (Thulin & Vilhelmson, 2007, p. 250).

Caronia (2005) brings in a new facet to the meaning of private and public spaces that are created by teenagers’ mobile phones. The author says that mobile phones have reversed the socially-shared cultural meaning of a home from private space to a public arena. Teenagers create their own personal space in this public home spectrum. The meaning has not only changed in the context of home but also in the context of public spaces such as schools. Teenagers are able to bring their personal space through mobile phones into a public arena, thus producing a change and reversing the meaning of public and private spaces. “The real place of the ‘here’ and ‘now’ recedes (at least temporarily) as the place of orientation” (Höflich, 2004, p. 2) As a result, the identity of the actors that interact in these spheres has also changed. Studies show that teenagers use their mobile phones as a symbolic capital,

indicating that they belong and are connected to a group (Ling & Helmersen, 2000). Therefore, mobile phones have become the identity construction devices by making or receiving calls in front of peers.

In a survey among Taiwanese college students, it was found that “the cell phone supplements the fixed telephone as a means of strengthening users’ family bonds, expanding their psychological neighbourhoods, and facilitating symbolic proximity to the people they call” (Wei & Lo, 2006, p. 53). The symbolic proximity also leads to amalgamation of other factors such as physical and psychological nearness.

Certain conversations can induce emotional and bodily responses, which may be quite incompatible with their perceptions of their physical location. Hence, mobile phone requires its users to manage the intersection of the real present and the conversational present in a manner that is mindful of both (Plant, 2000, p. 50).

In order to bring in a balance between the location (physical) and the conversation (psychological) demands, mobile users have introduced a new body language in their everyday life through new stances, gestures and movements (Plant, 2000).

The main activity that takes place between friends via mobile phones is making arrangements to meet. Teens use their mobile phones for co-coordinating and micro-coordinating, which usually happens in the weekends (Ling, 2000). The traditional meaning of making an appointment and meeting at a particular place has been diluted with the use of mobile phones. Micro-coordination enables friends to arrange a progressive follow-up on a meeting. This, in turn, has re-defined the concepts of time and place too that are inherent in the process of making appointments (Caronia, 2005). A study on Tokyo teenagers’ mobile phone use cited by Tutt (2005) reveals that teenagers have become loose about time and place. “People have become more careless about timekeeping. Postponements and interruptions have become more socially acceptable in everyday life” (Thulin & Vilhelmson, 2007, p. 249).

A study in Sweden revealed that frequent use of mobile phones leads to spending more time in face-to-face interaction and travel (outside home environment) which means that there is a complementary relationship between various modes of communication. The findings also revealed that less frequent users spend relatively less time in interaction and are mostly

homebound using internet for chatting with friends (Thulin & Vilhelmson, 2007). Thus, the literature strongly supports the notion that peer group networking is enhanced with one's mobile phones.

### **Section Summary**

It is evident that the process of identity making has a direct relationship with bonds between teenagers and their peers. Mobile phones strengthen the bonds between teenagers and their peers and thus teenagers' identity is strengthened. Contacts via mobile phones have become more intense, frequent, closer and expanded and teenagers have adopted custom-made behaviour associated with the mobile phone possession and usage. The bonding of teenagers with their peers has an obvious link with the identity of the teenagers and the loosening of links from the family.

The ability to micro-coordinate through mobile phones has changed the concept of making appointments, and thus, influenced the notion of time and place inherent in the process of meeting. Postponements and disruptions are socially acceptable notions. Literature supports that with frequent use of mobile phones, there is a notable increase in mixing various forms of communication such as face-to-face, voice and text messaging.

Therefore, the concern that arises from this section is the intensity of social bonding and how much is tolerable from a PACG perspective.

### 2.3.4 Text messaging

Digital natives are also called the 'Thumb Generation' mainly because of the intense exchange of text messages, which are generated using the thumb. Text messages are compared to the telegraphic writing sent in bits and pieces, by Ling (2004c). Text language carries different meanings and they depend on the '*power distance*' of a particular culture say Sarker & Wells (2003) who compared the adoption, seriousness and the usage of the text language in two different countries - Korea and Norway. Text language is considered as a 'serious offence' in the former (*high power distance cultures*) and 'not very offensive' with the latter (*lower power distance cultures*) (p. 37). "Power distance is defined as the extent to which the less powerful members of a country accept and expect that power is distributed unequally" (Hofstede, 2005, p. 46).

Text messaging originated in Europe and spread to the United States in the late 1990s with the advent of digital technology. According to a report from the Federal Communication Commission (FCC) "by December 2004, 4.7 billion text messages were being sent each month, compared to 2 billion messages per month a year earlier in the US" (Steeh et al., 2007, p. 61). Text messaging is being used for voting on TV shows like 'American Idol' 'New Zealand Idol' and 'Dancing with the Stars'. It is also used to take part in quizzes related to various subjects and current events. Messages are keyed in faster with the additional feature of predictive text messaging which again opens up enormous learning opportunities. But, teenagers are less supportive of predictive typing technology, as it makes the common use of abbreviations and short-hand (text language) practically unusable (Eldridge & Grinter, 2001).

A good point of SMS/text messaging is that the sender need not draw the immediate attention of the receiver. "What the text message offers is a lack of obligation" (YouGov, 2006, p. 22). The receiver can access the message at his/her convenience. In addition, the sender has the opportunity to compose or edit the message before sending. It allows the sender and the receiver time to think, unlike live conversations where the information exchange is spontaneous (Eldridge & Grinter, 2001; Ling, 2004a). "Digital natives are used to receiving information really fast as they like to parallel process and multi-task" (Prensky, 2001, p. 2). Prensky (2001) says that students are used to interactivity, immediacy and instantaneity and

they have little patience. Ling adds that text messaging has a particular focus on teenage culture (Ling, 2004b).

In New Zealand *Short Message Service* (SMS) or text messaging is much cheaper, when compared to making a call, unlike some countries like the USA. It is a regular practice in Germany, Netherlands, UK, Japan and Norway to prefer SMS to a phone call (Ling, 2004a). From the user's perspective, SMS is the most preferred option as it is less expensive, convenient and can be sent quietly (lessening noise pollution) as against speaking over a mobile phone. Teenagers are more in control of their costs with their text messages. It is sometimes difficult to know the cost of a mobile phone call and thus SMS plays a cost-effective role (Eldridge & Grinter, 2001).

Citing the comments of Auckland University digital commerce senior lecturer, Davis, in the NZ Herald, "Mobile phone companies never expected text messaging to be a killer application. It was just a service loaded on the phones that had gained in popularity because consumers had quickly adapted the language to communicate to friends and family" (Keown, 2006). In a study in secondary schools in south Cambridgeshire, teenagers complained that messages were sometimes sent to the wrong person by mistake which left them in embarrassing situations (Eldridge & Grinter, 2001).

Taylor and Harper (2002) say that some teenagers attach an emotional significance to memorable text messages. Text messages are easy to recall through later readings that teenagers consider as gifts when they carry a symbolic meaning. Sending messages to friends such as 'good night' before going to bed (Eldridge & Grinter, 2001) or saying 'I love you' reflects the intimacy between friends and also promotes social binding. "The written text messages are thus seen to bear the hallmarks of the crafted gift" (Taylor & Harper, 2002, p. 441). Stefan Bardega, cited by Stones (2004) said, "A teenager's phone has information that will tell you more about them than a half-hour conversation would" (Stones, 2004, p. 37).

Another very important characteristic feature of SMS is its ability to be accessed by deaf people. It means that deaf people need not necessarily rely on special telephones and translation services for coordinating their activities (Ling, 2004a). It is so thrilling to discover such an innovative usage of this feature. Although Ling focussed on the Norwegians, it is equally applicable to deaf people in other parts of the world.

Although a mobile call or SMS helps to keep people in contact and maintain relationships, sometimes it might be at the cost of a personal visit. This sometimes leads to the problem of shrinking the relationship (deSouza, 2006). On the other hand, a study in Sweden in 2007 revealed that youngsters are more physically available and sociable with the use of mobile phones as they are no longer tied to landlines. The mobile has transformed 'passive' time, such as waiting time and travelling time, by filling the 'empty gaps' and thus allowing for distractions. The authors concluded that it is a 'space-time' adjusting technology (Thulin & Vilhelmson, 2007).

Teenagers send or receive SMS even at midnight while lying in bed (under the sheet) and in public places, because text messages are discrete (Eldridge & Grinter, 2001; Ling, 2004c). "It's not public, and not overheard. Texts are not vetted or intercepted" (YouGov, 2006, p. 23). In the event of contemptible text messages, the authors suggest that they should never be replied to nor deleted. If reported to authorities, such messages would be useful for tracking the miscreants (Strom & Strom, 2005).

Mobile phones have not only re-defined communications but have also reshaped the space in which the interaction takes place. In this book, the author expands the notion of public and private spaces that were discussed in sections 1.3.2 and 1.3.3 "As long as people participate in the shared communications of the group, they seem to be considered by others to be present" (Rheingold, 2002, p. 6). Enfolding of contexts (defined by Rheingold, 2002) or doubling of space (defined by Scannell) takes place through such shared social connections through communication technologies (deSouza, 2006). However, with mobile technologies "it is precisely the possibility of moving through space while interacting with others who are both remote and in the same contiguous space via one's relative location to other users" (deSouza, 2006, p. 269). Mobile devices have enabled the possibility of being 'always-on' not just through social interaction but also through connection to the information space by means of the internet.

Mobile phones, especially through text messages, have the capacity not only to micro-coordinate such as organising a meeting and specifying an appointment (Ling, 2000), but also to macro-coordinate such as mob congregations and political manifestations (Srivastava, 2004). Text messages play a key role in spreading information economically to the wider public at a faster pace.

Consequences of macro-coordination via mobile phones resulted in the death of two teens Jane Ada Young and Hannah Rossiter Perkins, both 16, at a party in Christchurch on the night of 3rd May 2007.

Jane Young and Hannah Rossiter were killed when a car ploughed into a crowd of youths that gathered outside a Christchurch party. It is believed up to 500 people had gathered at the Edgeware Road party, with word being spread by text message and a sign on the fence outside the house in the week leading up to it (OneNews & NewstalkZB, 2007).

Commenting upon the incident, Archer reported, “rumours of memorial gatherings and parties this weekend were circulating throughout Christchurch, especially through text messaging” (NZPA, 2007).

It is known that text language is used for text messaging, where language is simplified to bring out the best meaning possible with minimum letters. It is a known fact that most teenagers are fascinated about using text language. To what extent the pervasion and use of text language is agreeable is a question mark. NZQA deputy chief executive of qualifications Bali Haque said “credit would be given in this year's NCEA exams if the answer "clearly shows the required understanding", even if text abbreviations were used” (Smith & NZPA, 2006). “The first problem concerns the evolving language of text messaging. Although many abbreviations’ and short hands have been adopted, mainly to ease and speed up typing, these are sometimes misunderstood” (Eldridge & Grinter, 2001, p. 3).

Commenting on text language, Auckland University digital commerce senior lecturer, Davis, said in the NZ Herald, “The English language has been chopped up, shortened and squeezed to fit into the mobile phone, and grammar, spelling and punctuation have been made largely redundant in the texting world. But does that matter?” The lecturer adds, “It is a hidden way to deal with an issue that should be dealt with face-to-face”. The level of acceptance of text language from a personal pursuit is reasonably high. However, it is not yet very clear whether it has become a totally new branch of the English language.

Text messaging through mobile phones plays an important role in structuring the (sub) culture with peers (Tutt, 2005). It is envisaged that mobile phones may subsume all forms of

communication and interaction including other devices such as computers, cameras, clocks and calendars. "Text messaging is also a great way to flirt without exposing oneself" (Keown, 2006).

Some of the facts of text messaging analysed by Fielden and Malcolm (2007) contribute to the concerns on the impact of text messaging on language, communication and even safety issues. The data is more relevant as the research was conducted in 2007 targeting New Zealand schools. The facts are:

- Cost dictates that sending SMS messages is the most common form of communication between students
- Students had developed the need for instant answers and the authors believed that cell phone use had contributed to this need for instant responses
- There was a huge number of SMS messages sent between students each month and students were sending SMS messages rather than talking to each other
- SMS language had affected writing in school with students using SMS language rather than correct grammar and spelling.

(Fielden & Malcolm, 2008, p. 9)

Referring to the pedagogical uses of mobile phones, Srivastava adds, "Although concerns of the popularity of SMS and its effect on literacy have been raised, with developments in handset technology, such as the videophone, the delivery of educational services will be further enhanced" (Srivastava, 2004, p. 37).

Vaidyanathan and Latu (2007) revealed the findings of their study that teenagers are losing the skills of communication such as eye-to-eye contact and good posture while speaking. The findings also revealed that teenagers are more affluent in answering back through text messages rather than speaking back. Parents are concerned about their teenagers losing communication skills and consider it a huge disrespect and disregard (it was not apparent whether it was culturally a based perception). This also implies that there is a gap between adults (digital immigrants) and teenagers (digital natives), in terms of understanding, that each technology brings in its own form of communication pattern. "The generation gap is

biggest between young people and their parents in relation to attitudes to texting while in conversation” (YouGov, 2006, p. 19).

Underpinning the research on media literacy conducted in Ireland through focus groups it was felt that although texting constituted a different language skill, it did not interfere with, and much less affect their conventional writing and expression skills. The focus groups aimed at testing aural communication skills that are growing in students, as a consequence of extensive use of mobile phones (Brereton & O’Connor, 2007).

### **Section Summary**

Text messaging has formed a new form of communication. Text messaging is beneficial for the sender/receiver to respond at convenience. It helps the message receiver to think before replying unlike live conversations wherein the answers are more spontaneous. It also aids in filling the empty times by turning passive time into active usage. Cost is a factor for preferring text messaging as an option to communicate.

Although text messaging has advantages, the impact is felt on co-ordination, communication and language. Because of the discrete nature of text messages, teenagers find it easy and fascinating to send messages without the knowledge of parents/caregivers, such as sending messages during night times. In addition, sending text messages sometimes might be at the cost of a personal visit, which leads to the problem of shrinking a relationship.

Mobile phones help not only in micro-coordination but also in macro-coordination. Macro-coordination is basically to send messages to a group for congregation purposes. Nevertheless, unfortunately such text messaging is resulting in chaos and mishaps. There are a couple of cases in New Zealand wherein the affects of macro-coordination were felt. With the advent of text messaging, teens are experiencing difficulty in communicating properly with appropriate body language. In a similar manner, text language has an impact on the use of proper language and is sometimes used even in exams. The ability for teenagers to shift comfortably between using text language and proper language is an area of concern identified and similarly with their communication skills. The other concerns are the possibility of discrete usage enabled by mobile phones and the intensity of messages sent via teenagers mobile phones to either micro-coordinate or macro-coordinate.

### 2.3.5 Gender related

Although men were early adopters of mobile phones, it is women, in particular younger women, who seem to have a broader register when sending text messages. In addition they have more respectful prose with more control on their text messages (Ling, 2004c, pp. 164-165).

Literature has revealed that through mobile phones there is a blurring of traditional ways in a family setting (Srivastava, 2004), redefinition of public and private spaces (Caronia & Caron, 2004), smudging of physical and psychological proximities (deSouza, 2006), and researchers are keen to understand the gendered usage of mobile phones.

The following statements echo the significance of adolescence associated with gender:

- Adolescence is that period when one's understanding of sexuality and interactions with the opposite gender are put most firmly into place (Ling, 2001a, p. 3).
- From a perspective of development psychology, a gendered appropriation of the cell phone is more pronounced during adolescence than in any other life phase (Döring, Hellwig, & Klimsa, 2004, p. 3).

Analysis by Ling (2001a) revealed that although both boys and girls are enthusiastic users of mobile phones, girls tend to be the driving force for social networking to gain relatively larger and intense social groups than young male adults. Occasions such as birthdays and anniversaries are remembered and nurtured, mainly by women, in order to maintain the fibre of family bonds and social relationships. Mobile phones in the hands of girls sustain this nurturing quality of womanhood with which they mature.

Even though electronic media brought the public realm (rational accomplishments and brutal competitions) into the home, and private female sphere of home (intuition, emotion, intimate topics, images, and sounds) into the public sphere (Meyrowitz, 2004), Ling (2004b) states that there is a noticeable difference in terms of women and men using cell phones. A Norwegian study revealed that while boys tend to converse on matters that are to be addressed immediately, such as appointments and scheduled meetings, girls are more likely to use it in a social context irrespective of the need. Boys use more voice telephony but less text messaging than girls (Ling, 2001a).

Research findings confirmed the hypotheses framed by the authors, which goes as follows:

- Teenage girls communicate more intensely over cell phones than boys do (which means that the usage is more frequent with girls when compared to boys)
- Teenage boys concern themselves more with mobile communication technology than girls do (which means that girls fancy things such as colour and look of the phone, whereas boys are more enthusiastic about the technical features of the phone)
- Teenage girls communicate in a more emotional manner over cell phones than boys do (which means that girls add more expression and feeling via their cell phone communication than boys) (Döring et al., 2004, pp. 3,4).

Research conducted in south Cambridgeshire among 15-16 year old boys and girls, revealed that the average number of messages sent and received by girls is higher than that of boys (Eldridge & Grinter, 2001). Fielden and Malcolm (2008) found that girls are more likely to bully others with SMS messages, than boys. Research in UK revealed that the figures are greater for girls suffering harassment via mobile phones than for boys (YouGov, 2006).

Table 2.2 *Gender related reasons and impact of mobile phones*

| <b>Reasons/Impact</b>                                   | <b>% of Boys</b> | <b>% of Girls</b> |
|---|------------------|-------------------|
| Mobile phone chosen as one of the five electronic items | 36               | 17                |
| Carrying mobile phones makes them feel better           | 89               | 72                |
| Bullying via mobile phones                              | 10               | 16                |

Source: YouGov (2006)

**Section Summary**

The use of mobile phones has given birth to different patterns of communication and one such variation is noticed in gendered usage. Literature reveals that there are significant differences in girls and boys using mobile phones. While girls are more likely to use them in social contexts, boys use them for matters of doing things. Girls are keener to use for safety purpose than boys are. While girls are more inclined towards the look of the mobile phone, boys are more interested in functionality.

Girls communicate more intensely than boys do. Importantly, girls are more likely to bully others than boys, and girls are victims of harassment/bullying via mobile phones more often than boys are. The concern that arises from here is to understand the impact that mobile phones have on girls and boys with a particular focus on bullying and will they share incidents of bullying with their parents/caregiver?

### 2.3.6 Emergency/safety purposes and concerns

The mobile telephone has developed a role of a 'lifeline' and is seen as a useful way of being 'on call' or for 'summoning help' for people with a chronic need or having physical impairment, for aid at an accident or in threatening medical situations, or to contact emergency services (Ling, 2004c, p. 47).

Mobile phones are a very handy device for those who are in need of help and are required to be contactable. Emergency calls in the United States have increased markedly since 1988 and in other countries such as Australia, France, Israel, Spain, and The Czech Republic. In addition, mobile phones are handy devices for women who work odd hours to stay in contact with their children through their babysitters, or at times for those who feel left out and intimidated and for elderly women who live alone (Ling, 2004c).

The increase in the number of mobile phones, particularly among younger children, is mainly for safety reasons and, in particular, during unsupervised hours such as after school (Srivastava, 2004). Hence, it can be said that the contribution of a mobile phone towards safety and emergency situations is one of the vital uses of possessing and carrying the device. Ling sums up the use of cell phone as "a prop or symbolic icon of connectedness" (Ling, 2004c, p. 45).

The tragic events at the *World Trade Center* (WTC) in the US are unforgettable. Mobile phones were used by those who were on board the planes as well as in the WTC. Ling says, "It is mainly to communicate with loved ones in attempts to comfort one another in the face of an unthinkable situation" (Ling, 2004c, p. 46). Thus, a mobile phone established a link between the loved ones as well as being a lifeline.

The cell phone enabled survivors to tell their loved ones, 'I am ok' and it gave victims a chance to say 'I love you' one last time to family and friends. These instances highlighted the new, critical role of the cell phone in keeping family and community connected when other means of communications are denied (Wei & Lo, 2006, p. 54).

A recent incident that happened on 29<sup>th</sup> of Dec 2008 in the Bay of Plenty, New Zealand, signified that mobile phones are very useful in emergencies. A boat carrying two men and

three children aged 12, 13 and 14 was stuck in the mid sea. A brief text message was sent to the mother of one of the children and a subsequent one, the following day after about 24 hours, which enabled the Coast Guard to locate and rescue the stranded victims (Cousins, 2008).

Text messaging is considered an effective way to communicate in an emergency for the hearing impaired. Availability of information on the location is an added advantage to respond to the emergency (Srivastava, 2004). According to the report of Net Imperative (2002) mentioned by Srivastava (2004), "A survey carried out by the Birmingham Institute of the Deaf (BID) found that 98% of hearing impaired people use SMS, and 85 per cent would like to use text messaging to contact the police" (Srivastava, 2004, p. 37).

Although mobile phones are used as a safety device, the negative consequences that take place via the safety device are bullying and abuse. It is alarming that text messaging led to increased bullying amongst teenagers. "The challenge for most mobile phone owning young people and their parents is how to balance their need to carry a phone for personal safety reasons vs. the threat of mobile phone crime" (YouGov, 2006, p. 20).

"Of the 36 countries sampled in the survey of year four students, only Kuwait, Qatar, Taiwan and New Zealand fared worse than Australia" despite the fact that "child-health experts and education bodies, have been running strict anti-bullying programmes in schools over the past six years" (AAP, 2008Dec, 15).

Bullying in schools is a serious problem and the research demonstrates that technology is supplying new ways of tormenting victims. Bullying has been around since time immemorial. Before it was possible to go home and close the bedroom door and escape, but in an online environment it is 24/7 (Brown, 2007, p. 2).

Netsafe (2005) revealed the findings that the percentage of parents/caregivers who are aware of the ways text messages are used by their teenagers is less than those who do know. The details are shown in table 2.3. The research was done in 2005 (which is about three years ago) and it is not known if the situation now is the same, or better or worse.

Table 2.3 *Impact of mobile phones on teenagers*

| <b>Impact of Mobile phone on teenagers</b>   | <b>% of PACG<br/>who know</b> | <b>% of PACG<br/>who do not know</b> |
|--|-------------------------------|--------------------------------------|
| Text message being used in a fight or argument   | 39                            | 71                                   |
| Receiving an offensive, pornographic, abusive or threatening text or picture   | 23                            | 41                                   |
| Sending an offensive, pornographic, abusive or threatening text or picture   | 14                            | 25                                   |
| Using the phone for texting or calls at least once a day during school hours when they are not allowed to, e.g. during classes | 28                            | 42                                   |

Source: Netsafe (2005)

Access to the internet via mobile phones is another area where the safety of people is hampered. Such access is particularly possible through 3G and 4G phones through broadband features. Accessing internet has its own advantages such as having information at ones fingertips, connected 24-7-365 and, especially with wireless devices, these activities entire can happen while on the move. Uploading and downloading information are just the same as with wired devices such as a computer.

The disadvantages, whether using computers or mobile phones, are escalating. Although phones such as 3G and 4G are equipped with such facilities, it is only at the cost of high charges; access to the internet is possible. Another disadvantage of the internet over mobile phones from a parent/caregiver perspective, is the control on their teenagers, with a particular concern on the information available at the fingertips, away from the vicinity of parents or caregivers in which case teenagers' safety becomes all the more a worry. Hence, whether to provide teenagers with a mobile phone that is connected to the internet is a vital decision that lies in the hands of parents/caregivers considering both cost factors and information access.

### **Section Summary**

Mobile phones are immediate rescue devices and are used for many purposes for the simple purpose of staying in contact to emergency situations. For young children, in particular, parents consider mobile phones a useful device, especially for supervision during un-monitored times.

Unfortunately, the safety aspect is diluted with mobile phones, particularly with issues like bullying and abusive messages. In some cases, teenagers' mobile phone usage is not even known to their parents, which creates a concern for the family as well as for society.

As mentioned earlier, macro-coordination via mobile phones is causing a major threat to safety. Internet via mobile phones is an advantage as well as a disadvantage. The advantages of internet access via mobile phones are the same as using the internet via computers, with the added feature of access while on the move, however, it applies to the disadvantages too. Youngsters are more vulnerable to threats when they are away from supervision. Hence, although call phones are used as a safety device, how safe teenagers are with this device is a concern for parents/caregivers.

Particular concerns are centred on usage during un-monitored times, bullying and abusive text messages, chaos arising out of macro-coordination, and awareness/unawareness factors of PACG of their teenagers' mobile phone usage.

### 2.3.7 Associated risks while driving

“The leading cause of teen crashes is failure to maintain attention. Teens are the most likely drivers to use cell phones or send text messages while driving. The danger is clear” SmartRide (2008).

Mobile phones offer possibilities of communicating while on the move, but at the cost of dangerous distractions. One such possibility is causing accidents while driving.

Research in the US was done on driving performance which was measured in terms of four categories of behaviour that were significantly impacted when drivers were concurrently talking even on a hands-free phone. The findings prove the dangers of drivers being distracted by cell phone conversations such as traffic violations, driving maintenance, attention lapses and response time (Beede & Kass, 2006).

Further supported by findings of research from the University of Utah, the driving performances of both younger and older adults were influenced by cell phone conversations (the research examined the effects of hands-free cell phone conversations). They are compared with single-task (i.e., driving only) conditions:

- when drivers used cell phones their reactions were 18% slower
  - their following distance was 12% greater
  - they took 17% longer to recover the speed that was lost following braking
  - there was a two-fold increase in the number of rear-end collisions
- (Strayer & Drews, 2004)

A 2002 national telephone survey and observations of motorists at controlled intersections in the same year in US revealed that:

- one in three drivers reported using a cell phone while driving during at least some trips and one in four reported using a phone during at least half of all trips
  - an estimated 4% of drivers of passenger vehicles were talking on handheld cell phones at any given time during daylight hours, which is up from 3% in 2000
- (McCartt & Geary, 2004)

“Drivers aged 17-25 years were more likely to use their mobile phone on a daily basis while driving, than drivers aged 26 years and over” (Walsh, White, Watson, & Hyde, 2007, p. x)

### ***Top Ten Causes of Teen Crashes***

1. Inability to maintain attention
2. Difficulty adjusting speed
3. Not searching ahead
4. Not searching to side
5. Failure to maintain distance
6. Not searching to the rear
7. Overreacting to emergencies
8. Basic control problems
9. Traffic controls
10. Driver-vehicle issues

(SmartRide, 2008)

Driving  
Distractions

***Cell phone conversations***

***Text messaging***

***Passengers***

***Radios and music players***

***Objects or activity on the side of the road***

A study conducted by the Faculty of Education, University of Auckland, published in January 2006, concludes that cell phone use while driving is a risky affair and supports a ban on the use of phones while driving. “Unlike many similar countries, New Zealand has no specific legislation (Cellular-news, 2008) restricting the use of cell phones in vehicles. Several factors suggest that legislation may be introduced in the near future” (Townsend, 2006, p. 1).

Observations in a study in the UK revealed two important factors that make the drivers stop using a mobile phone while driving. They are first, legislation or rules imposing penalties and, secondly, an awareness of the consequences. With the intention to follow the rules, there is likelihood of stopping using mobile phones only for a short period, whereas with proper awareness of dangers, people restrict using while driving long-term. Hence, awareness of the dangers of using mobile phones while driving should be given importance, along with imposing a legal ban. (Johal, Napier, Britt-Compton, & Marshall, 2005).

Regardless of one's State laws, parents should prohibit their teens from using cell phones while driving. If your teen must use a cell phone, they should first park their vehicle in a safe place before placing a call, and complete the call before driving again" - SmartRide (2008).

Contrary to the evidence that cell phone use while driving is risky, prohibiting their use while on the move was not recommended for the following reasons. They were arrived at by quantifying the risks and benefits associated with cell phone use while driving and the estimates were found to be uncertain:

- including the extent to which cell phone use increases a driver's risk of being involved in a crash
- the amount of time drivers spend using cell phones (and hence their aggregate contribution to crashes, injuries, and fatalities) and
- the incremental value to users of being able to make calls while driving (J. T. Cohen & Graham, 2003, p. 5).

### **Section Summary**

There is evidence that using mobile phones while driving is dangerous, whether using hand-held or hands-free devices. Inability to maintain attention and the possibility of distraction is higher among teen drivers and is rated the topmost cause for teen crashes. Mobile phone conversations and text messaging are the two main factors that contribute to drivers' inability to maintain attention while driving. On the other hand, the value added to users of being able to make calls while driving does not outweigh the risks.

Factors suggest that legislation may be introduced in New Zealand. Literature supports that more than imposing a legal ban, it is the awareness of dangers that will convey the message and bring about a long-term effect. Research proves that the negative impact of using mobile phones while driving outweighs the other factors, which lends weight to the fact that a ban should be implemented.

The concern that arises from this section is to understand whether the parents/caregivers of teenagers consider it as risky and will support implementing a legal ban.

### 2.3.8 Health issues

“The *Independent Expert Group on Mobile Phones* (IEGMP) accepted that mobile phone radiation may produce biological effects, but it did not think that such radiation caused adverse health effects” (Maier, 2006, p. 865).

“A mobile handset represents a significant source of RF field exposure, because of the presence of the phone-transmitting antenna close to head, neck, and hand of the user” (Krewski et al., 2007, p. 288). Findings of a study in Sweden imply an increased risk of acoustic neuroma associated with mobile phone use of at least 10 years' duration, although they do not indicate an increased risk related to short-term mobile phone use (Lonn, Ahlbom, Hall, & Feychting, 2004). The risk is more with analogue phone users rather than the users of digital or cordless phones. “However, use of either an analogue or a digital phone on the same side of the head as the tumour was associated with an increased risk of brain cancer” (Krewski et al., 2007, p. 302).

A case-control study was conducted in five US academic medical centres between 1994 and 1998 on acoustic neuroma cases related to the use of mobile phones. The findings revealed that there was a tendency to suffer from hearing problems due to laterality effect on the side of the tumour (Muscat et al., 2000).

With regard to the radiation from the base stations, there is no scientific evidence that radiation triggers cancer in people who are in proximity to the base stations. However, “protracted exposure causes more pronounced effects than short exposures of high intensity” (Krewski et al., 2007, p. 289). Even so, reports in *The Sunday Times*, dated 22nd April 2007, are alarming. Breast cancer among women, tumours among adults and nosebleeds among young school children were some of the health issues that were attributed to mobile phone masts that were in proximity for over 15 years (Foggo & Chittenden, 2007). Another likely health risk is disproportionate headaches and migraines due to exposure to mobile masts (Drake, 2006).

The Ecolog study published in Germany was given to the *Human Ecological Social Economic* (HESE) project, UK, which examined the effect of electromagnetic fields on health. Ecolog's report, which analysed dozens of peer-reviewed studies, stated: “Given the

results of epidemiological studies, it can be concluded that electromagnetic fields with frequencies in the mobile telecommunications range do play a role in the development of cancer. This is particularly notable for tumours of the central nervous system” (Foggo, 2007).

### **Section Summary**

Although there is no significant scientific evidence, the following impacts are more likely with prolonged usage of mobile phones and protracted exposure to base stations:

- Acoustic neuroma associated with mobile phone usage
- Hearing problems due to laterality effect
- Radiation may produce biological effects
- Radiation from mobile phone base stations may trigger cancers, tumours and nose bleeds.

### 2.3.9 Environmental concerns

If the phones are dumped in landfill, poisonous substances contained in the phones get into the ground water, contaminate the earth and even enter the food chain. Hence, it is recommended to recycle the mobile phones which is possible at most of the retailers (Trust, 2006).

Increase in demand for *Electrical and Electronic Equipment* (EEE) such as computers, mobile phones and televisions in our modern society, coupled with the extensive availability of latest designs leads to the rapid obsolescence of devices well before their end-of-life use (Herat, 2008). In the USA, more than half a billion cell phones were swapped for newer models in 2007, according to a study by the research firm Gartner. ReCellular, the nation's largest cell-phone recycling facility, based in Dexter, recycles more than half a million phones. Interestingly, more than 50% of phones that arrive for recycling can be fixed and reused (Greene, 2008).

Each year, more than 130 million mobile phones in the United States and over 105 million mobile phones in Europe that are unusable, go into the landfill as E-waste. E-waste contains more than 1000 different substances out of elements such as lead, mercury, cadmium, hexavalent chromium and brominated flame-retardants, and are a major threat to human health and the environment (Herat, 2008).

The environmental issue of E-waste causes soil pollution. There are an estimated 10 million mobile phones just lying around not being used in the homes and offices in Australia. On top of this, Australians procure nearly 4 million new mobile phones in a year.

According to the Sunday Times, sparrows may be disappearing very soon in the UK because of the radiation from mobile masts. The population of sparrows has decreased by half since the 1970s. The electro-magnetic energy may also be disrupting the natural navigational systems of birds with the increase in the number of the masts. Cited by Foggo and Elliot (2007), Ingrid Dickenson, a researcher into electromagnetic pollution said, "Birds' sense of navigation is affected by this kind of radiation as they carry magnetised crystals in their brains". This will have an impact on the birds' behaviour due to electrical charges on their feathers created by pulses. The report published in *Electromagnetic Biology Medicine*

supports the negative affects with respect to the behaviours as well as the number of sparrows (Foggo & Elliott, 2007).

According to the research carried out by Joris Everaert and Dirk Bauwens at the Research Institute for Nature and Forests in Belgium, the stronger the signal from base stations, the fewer were the sparrows found in that area. The impact is also apparent on bee colonies in America where it is suspected that their collapse is due to radiation from mobile masts. In Britain alone there are 47000 phone masts (Foggo & Elliott, 2007).

The impact of cell phone use on the environment (lessening noise pollution) and on health (acoustic neuroma) is very much reduced when text-based messages (SMS) instead of audio calls are used (Geser, 2004, p. 38). “Even without considering the claimed health issues, the masts are seen as degrading their environment and the mobile phone as diminishing social interaction” (Drake, 2006, p. 404).

### **Section Summary**

Environmental concerns are something that need immediate attention because they have a close relation with human health and, in addition, there is an imbalance in the natural setting in which humans live.

There are substances used in mobile phones that are harmful when they are exposed to the soil which constitute E-waste. E-waste contains harmful components that are of major threat to human health and the environment. Soil pollution is caused by dumping mobile phones into the landfill. Hence, recycling mobile phones will reduce the adverse affects of E-waste. The next aspect is radiation from mobile masts causing harm to sparrows and bee colonies, which adds to the imbalance factor in nature.

Although mobile phones with a text messaging facility, reduce noise pollution, at what cost is a thought that needs to be pondered. The main concern lies here about how far people are aware of the environmental damage caused by improper recycling of mobile phones and the increase in the number of masts.

## 2.4 Statistics of Mobile Phones in New Zealand

A survey was done on 1528 students from a metropolitan decile four high school in New Zealand. The sample was comprised of 52% boys and 48% girls, whose ages ranged between 12 and 19 years. The average overall age for both genders was 15 years old. (Netsafe, 2005)

Table 2.4 Use of mobile phones in NZ

| Use of Mobile phone  | % of students used |
|--|--------------------|
| Using mobile phones  | 73                 |
| Not using mobile phones  | 17                 |
| Using more than one phone<br>(the highest number of phones used by an individual was 11) | 24                 |
| Talk and text with friends   | 56                 |
| To have contact with family  | 17                 |
| Safety aspect  | 23                 |
| Other reasons like 'to look cool,'   | 4                  |
| No idea of how much they spend on phone bills  | 41                 |
| Spending more than \$100 on cell phone bills   | 4                  |
| Pinching money (stealing) for paying these bills   | 13                 |
| Using at least once during class where they are not supposed to                          | 29                 |
| Receiving text message or phone calls in the night                                       | 11                 |
| Receiving offensive, pornographic, abusive or threatening texts or pictures              | 23                 |
| Number sharing about receiving such messages   | 34                 |
| Those who admitted that they also sent such untoward messages                            | 46                 |
| Parents/caregivers unaware of them using a mobile phone                                  | 31                 |
| Get woken every night by a text message or a call parents/caregivers who do know         | 11                 |

Source: Netsafe (2005)

Looking at the survey results shown in table 2.4, there are lots of issues that are of concern, not just for family members but also for society. Parents/caregivers who are unaware of teenagers mobile phone usage is a reasonably high percentage. Pinching money, receiving offensive messages and text messaging every night add to the list of concerns. Is this what we expected with emerging technologies?

## 2.5 *Statistics of Mobile Phones in the UK*

Similar to New Zealand the study in the UK also added some concerns shown in table 2.5.

Table 2.5 *Statistics of issues concerned with mobile phone in the UK*

| <b>Issues concerned with mobile phone usage amongst children</b>  | <b>Children</b> | <b>Parents</b> |
|---|-----------------|----------------|
| Agreeing that it is unreasonable to use their mobile phone for texting while in conversation with someone | 52%             | 77%            |
| Less worried that their mobile phone might harm their health  | 24%             | 34%            |
| More worried that having a mobile phone could make them a target for mugging                              | 56%             | 28%            |
| Feel unwanted if a whole day went by when their mobile phone did not ring                                 | 26%             | 11%            |
| Feel it is reasonable for parents to be able to keep track of children aged 13-16 via their mobile phone  | 35%             | 71%            |

Source: YouGov (2006)

In brief, the findings reveal that parents are more caring and worried, and teenagers are more vulnerable and less worried. The sublime indication from this is that mobile phones in the hands of teenagers are issues of concern. Whether positive purposes of mobile phones will negate the concerns, is something that is expected to come out of this study.

## ***2.6 Summary of the Sections (2.3 to 2.5)***

It is clear from the literature that mobile phones are delicately and complexly intertwined into teenagers' lives. The points raised in the literature are not to draw the boundary between teenagers' and their parent/caregivers, as it is with the adolescents, rather to understand teenagers association with their mobile phones and subsequent concerns.

The basic purpose of mobile phones, is to communicate and interact. They are achieving a faster response rate especially among teens, as they are physically attached and emotionally identified with the device. The faster connection and response rate are some of the reasons that help intensify the relationships, especially with their peers. The other factors that are credited to the additional gadgets embedded in the mobile phones, such as a camera, help teens express pictorially what is not possible with any other communication devices. Frequency, intensity, expression are some of the greatest advantages in mobile phones through which the connections are established. Such connections are bringing in several changes in family and peer-to-peer relationships. On one side, it is helping teens grow socially and connect emotionally and on the other hand it is hampering home-front relationships.

Text messaging is a great service provided in mobile phones and is used to micro and macro-coordinate affairs, which has its own advantages and disadvantages. The effects of text language on proper language, and text messaging on communication skills, are other areas of concern where the perceptions of teenagers and their parents/caregivers varied. Teens consider it as normal where as adults view it as a diversion from traditional patterns.

Health issues, environmental concerns and using mobile phones while driving are proving to have negative consequences on one's physical, emotional and societal health. An increase in bullying via text messaging is becoming a major problem, especially for girls.

Mobile phones are influencing the concept of control for PACG, not just in terms of control over their teens, but with concerns on control over the content. PACG anxiety over control reflects their trust in their teenagers as well as awareness of their teenagers' mobile phone usage.

The findings revealed in table 2.6, such as stealing money for paying mobile phone bills, using them inappropriately (with respect to content) and unknowingly (to their parents/caregivers), add to the list of concerns of digital immigrants (PACG in this context) on their digital natives (teenagers in this context). Moreover, the study by Netsafe was done in 2005. After a further three years, do the statistics reveal the same numbers or higher or lower, which needs a further probe. Are there any other factors that can be added to the list, such as macro-coordination issues and increases in bullying and related matters?

With the boom of mobile phones in the hands of teenagers, the following queries arise for family and society:

- What is the future of mobile phone trends?
- How much are mobile phones integrated into teenagers' lives?
- How much are mobile phones changing the ways in which teenagers interact with family and peers?
- How much are they affecting the unity of families?
- How safe and secure do the PACG feel with their teenagers' mobile phone usage?
- Is this what was expected when mobile phones were introduced?

The gadgets/features of mobile phones considered for this study are voice, SMS, Camera, Internet and MP3 players and Games. Although there are other gadgets such as PDA and Calculators embedded in mobile phones, they are not highlighted in this study. A pictorial overview of uses and impacts that emerged from the literature is shown in figure 2.1. This picture is used as a basis while interpreting the responses of PACG in chapter six.

## 2.7 Literature-based Framework

*(Basing on Features/gadgets, Uses and Impacts of Mobile Phones)*

- Communicate with family
- Safety/Security reasons
- Used in emergencies
- Social networking
- Micro co-ordinate
- Macro co-ordinate
- Listen to music
- Download information
- Play and have fun with games and ring tones
- Texting is discrete, no noise pollution

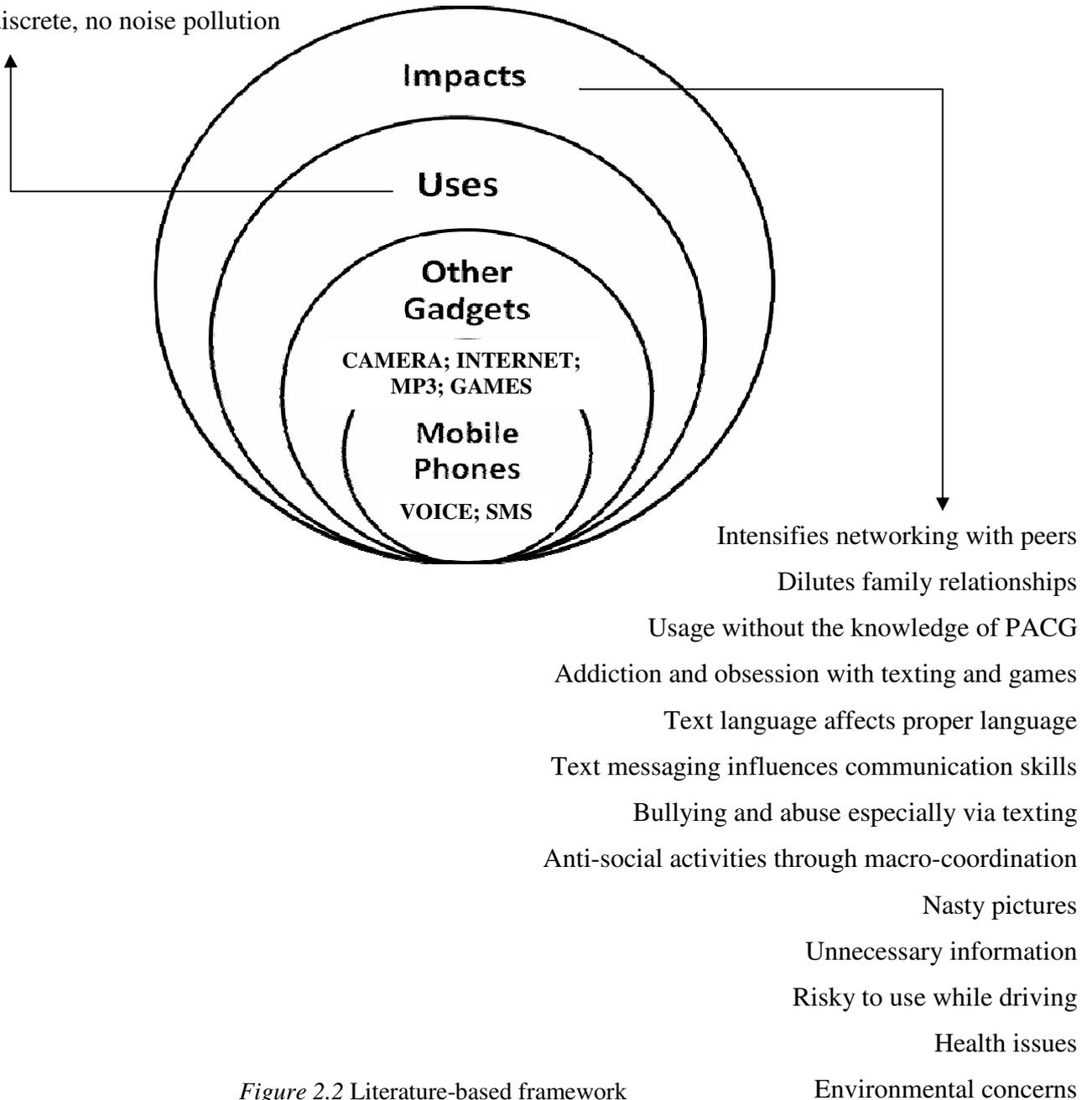


Figure 2.2 Literature-based framework

## 2.8 Literature Map

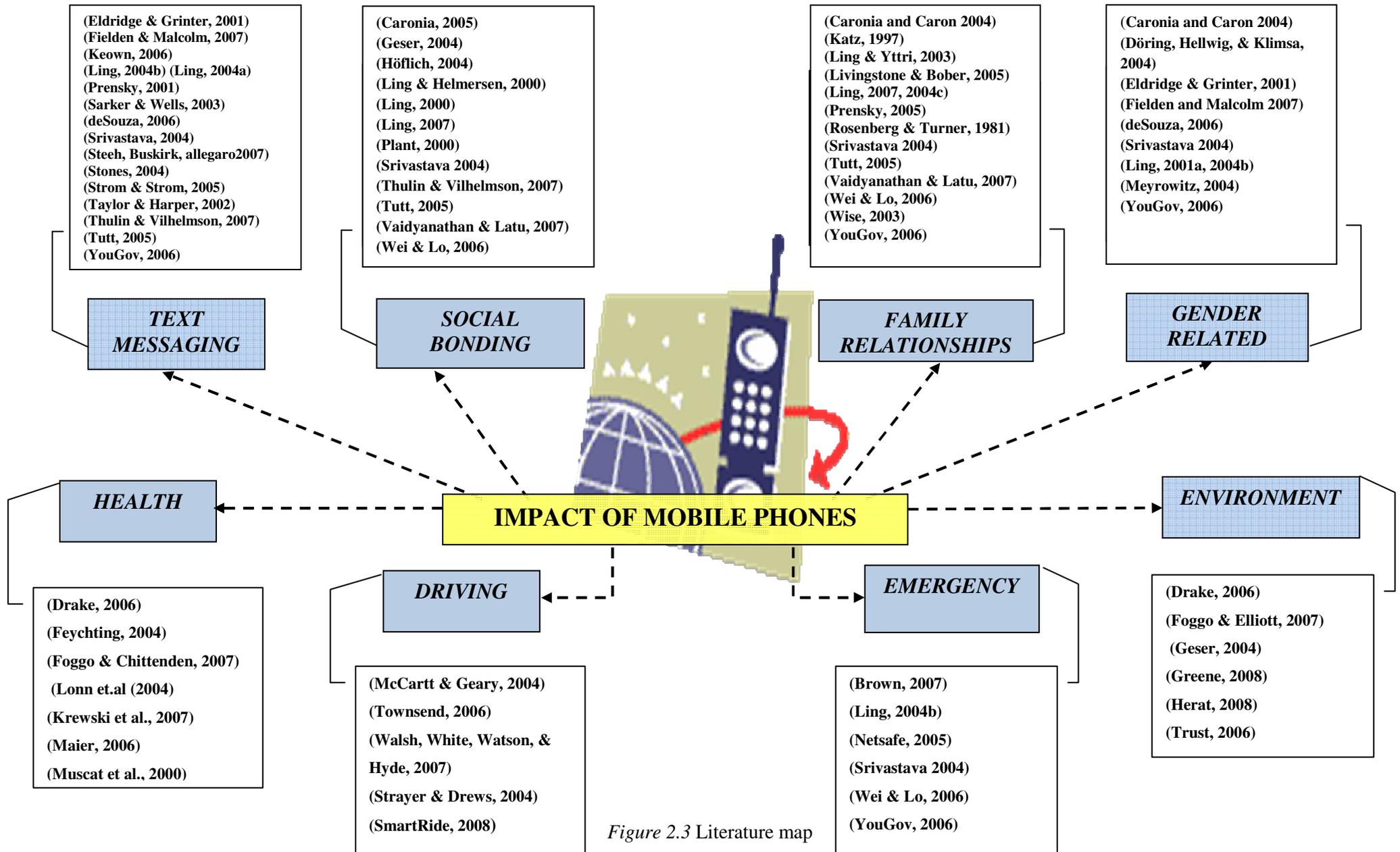


Figure 2.3 Literature map

## 2.9 *Chapter Summary*

Technical background of mobile phones set the scene for the chapter. General uses of mobile phones through its variety of features and various gadgets were discussed, which in turn brought out some of the important areas of impact. Each section centred on a particular aspect (sections 2.3.1 to 2.3.9) and a summary of each aspect was discussed at the end of the section.

Figures showing the use of mobile phones in NZ and in the UK are shown in table 2.4 and table 2.5. Summary of sections gives an overall understanding at a macro level, on the impact of mobile phones on teenagers in different areas. Significant uses and impacts that emerged from the literature, laid the basis to structure a literature-based framework (figure 2.2). This framework is used to map the responses of PACG that are discussed in chapter six.

Pictorial overview of literature map (figure 2.3), gave an 'at a glance' view of the experts' contributions. This chapter smoothly leads to the next chapter that describes the methodology and methods adopted for the study.

## **Chapter 3: Methodology and Methods**

### ***3.1 Introduction***

This chapter provides a rationale for the methodology, research design and selection of methods used in the research. The chapter elaborates on the entire research design including sampling, data collection and data analysis. Further to this, ethical concerns considered in the entire research process are outlined.

The formalities observed while researching, such as storage, destruction of study materials, dissemination of findings are outlined and the chapter ends with a summary.

### ***3.2 Methodology***

“Research methodology is a way to systematically solve the research problem” (Kothari, 2005, p. 8). Research methodology has several dimensions that include designing the research process with suitable research methods. The researcher formulates a methodology for any study mainly to bring in some logical reasons in the context of research such as what research methods to use in the study and why, what type of data is to be collected and from whom, and how the data to be collected is analysed. The researcher also supports the applicability, reliability and validity of the research process wherever needed (Kothari, 2005).

Embedded in designing a methodology, this research was carried out with both reflective and reflexive approaches. “Reflective research has two basic characteristics: careful interpretation and reflection” (Alvesson & Skoldberg, 2000, p. 5). A reflexive approach is an approach where the researcher reflects on reflection by interpreting one’s own interpretations throughout the research. According to Gergen and Gergen, cited by Alvesson and Skoldberg (2000), “The reflexive attempt is thus relational, emphasizing the expansion of the languages of understanding” (p. 243). Hence, a thorough reflective/reflexive approach has been applied throughout the study by the researcher to work well with the data and gain an in-depth awareness of the study.

This research was carried out methodically in the following phases:

Phase 1: Selecting the research topic (derived from the works of the researcher)

Phase 2: Designing the research (suitable to the research topic)

Phase 3: Selecting a method/testing its appropriateness (based on research design)

Phase 4: Collecting data (suitable for the chosen research method)

Phase 5: Analysing and triangulating with discussion (interpreting the data in the context of published literature)

Phase 6: Mapping the individual responses of interviewed PACG and the responses from surveys of PACG (with the literature-based framework), and derive a wholesome understanding of the impact, consequences and concerns.

Phase 7: Conclusion and recommendations (from the discussion that added to the existing knowledge base).

### 3.3 Research Design

“Research design is the plan and the procedure for research that spans the decisions from broad assumptions to detailed methods of data collection and analysis. It involves the intersection of philosophic assumptions, strategies of inquiry and specific methods” (Creswell, 2009, p. 233).

Figure 3.1 depicts the structure of the research design used in this study. The data was collected sequentially and analysed simultaneously. The results were linked with the literature for meaningful analysis that helped address the research question. The reason for sequential data collection and the intention behind concurrent data analysis are further explained in this chapter.

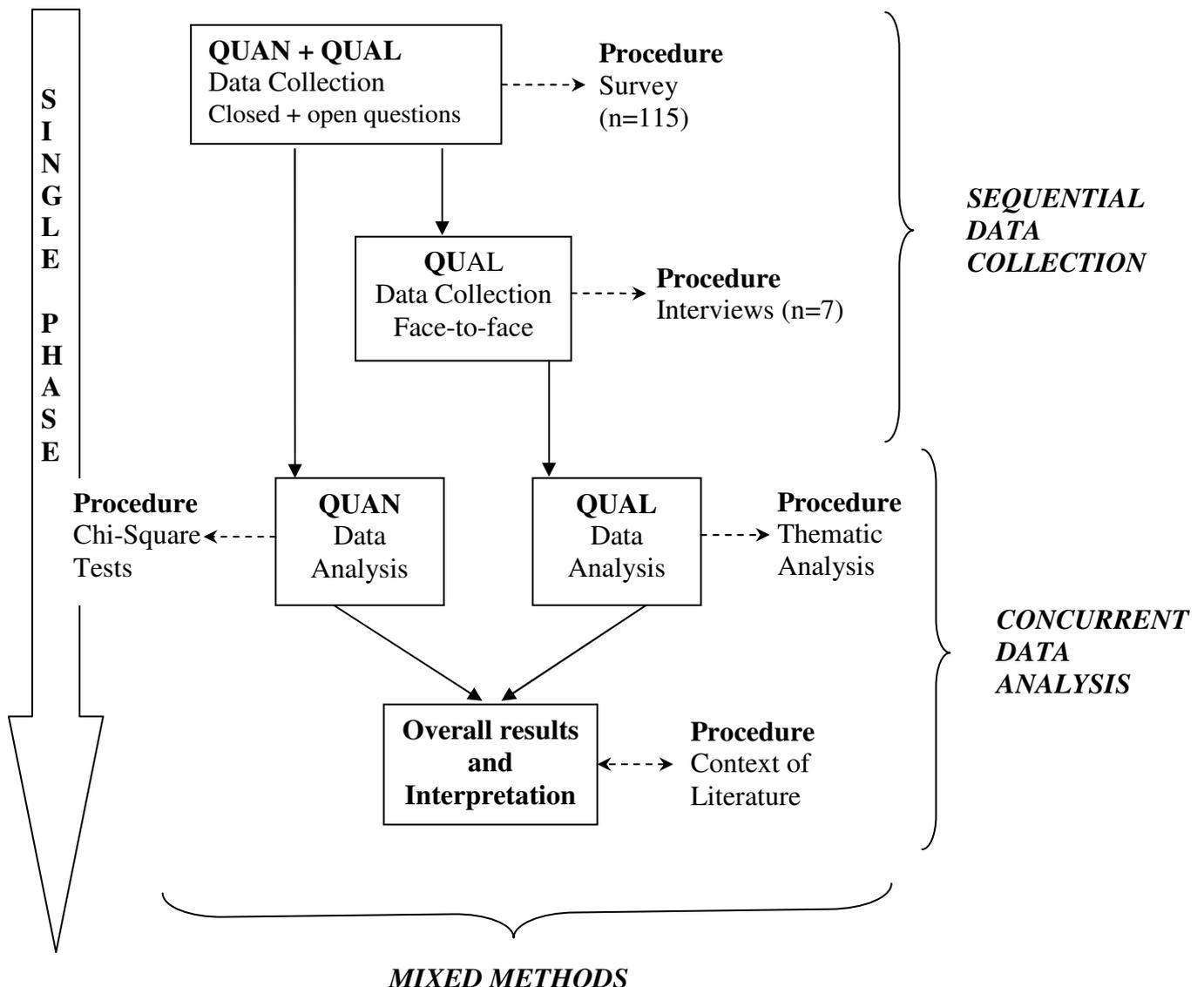


Figure 3.1 Research design

### 3.3.1 Mixed methods

The study was done using both qualitative and quantitative research methods. “Mixed methods research is formally defined as the class of research where the researcher mixes or combines quantitative and qualitative research techniques into a single study” (Johnson & Onwuegbuzie, 2004, p. 7). Research using mixed methods is very suitable to the topics related to social sciences and behavioural patterns (Collins, Onwuegbuzie, & Jiao, 2007). Since the topic has a close relationship to the behavioural patterns of teenagers, and thus understanding a social aspect of a technology, this method was chosen to gather the data, interpret the facts and analyse the results.

The following advantages of mixed methods were also considered before choosing the method for the study. Since the study involved obtaining data from PACG coming from various cultural backgrounds, the suitability of mixed methods in such scenarios was supported through relevant literature that provided information on cultures and research methods:

- Mixed methods research provides comprehensive evidence for studying a research problem when compared to using just one method
- The method provides strengths that offset the weaknesses of both quantitative and qualitative research
- The method encourages the researcher to use both words and numbers using inductive and deductive thinking in solving the research problem
- Using mixed methods from across cultural biases keeps the connection to the general (abstract) phenomenon as well as helps raise through the levels of abstraction from abstract to concrete
- Diversity in methodologies, with each having its own cultural bias, makes it less likely that one would be relying on any *one set* of cultural assumptions so as to explain some well-defined psychological phenomenon.

(Creswell & Clark, 2007, pp. 9-10; Tashakkori & Teddlie, 2003, p. 125)

An example cited by Creswell and Clark (2007) states, “In mixed method research the researcher collects data using a quantitative survey instrument and follows up with interviews with a few individuals who participated in the survey to learn more detail about the survey responses” (p. 11). The current study adopted the pattern of the example.

Table 3.1 *Decision matrix for determining a mixed method design*

| <b>Implementation</b>          | <b>Priority</b>  | <b>Integration</b>                           |
|--------------------------------|--|--|
| No sequence - Concurrent       | Equal<br>✓ <i>(used in this study)</i>                           | At data collection                           |
| Sequential – Qualitative first |  | Qualitative<br>✓ <i>(used in this study)</i> |
|                                | Sequential – Quantitative first<br>✓ <i>(used in this study)</i> | Quantitative                                 |
| With some combination          |  |  |

Source: Tashakkori and Teddlie (2003)

### 3.3.2 Data collection and Analysis design

The design chosen for the study was Triangulation Strategy, with a mixed methods approach. Triangulation design is a single-phase research design in which the researcher implements the quantitative and qualitative methods during the same time frame giving equal or unequal importance (Tashakkori & Teddlie, 2003). It is also called concurrent triangulation design because of the single-phase timing of the design. “This strategy is selected as a model when the researcher uses two different methods in an attempt to confirm, cross-validate, or corroborate findings within a single study” (Creswell & Clark, 2007, p. 64).

Explaining the decisions taken for this study (shown in table 3.1), quantitative was implemented first and then qualitative. The quantitative data was collected prior to the qualitative data only for the purpose of obtaining leads to the PACG interested in taking part in the interviews, required to gather the qualitative data (with an intention to get un-biased answers from PACG unknown to the researcher). Priority given was equal because of the nature of the topic. The design varied from the standard concurrent triangulation method only in terms of the sequence of collecting quantitative and qualitative data. In this study, data gathering was sequential (first survey and then interviews) but not data analysis. However, at integration stage, the analysis and interpretation of both quantitative and qualitative data were done simultaneously.

The notion of making suitable changes in the research design is supported by the experts who say, “By identifying small number of generic types, it can be suggested that the mixed methods researcher has the flexibility to choose and innovate within the types to fit a particular research question” (Tashakkori & Teddlie, 2003, p. 223). This supports the deviation (not collecting concurrently) that the researcher adopted from the standard triangulation strategy, by collecting data sequentially.

According to Morgan, cited by Creswell and Clark (2007), it was stated clearly that a triangulation research design describes the order in which the researcher uses the data rather than collects the data. Therefore, although the research was not entirely concurrent triangulation, the majority of the research was based on the philosophy of triangulation. Hence, to sum up, this study adopted sequential pattern for data collection and concurrent pattern for data analysis and interpretation.

### **3.3.3 Survey design and Interview schedule**

A survey questionnaire was designed that included eighteen closed and two open-ended questions (Appendix A). Every question contained an option for the participant to answer as well as to skip any question such as ‘don’t know’ and ‘can’t say’. The questionnaire began with demographic data viz. ethnicity, gender and moved to multiple choices that contained a verbal frequency scale and two simple open-ended questions. The advantages of the verbal frequency scale include “firstly, the ease of assessment and response by those being surveyed and secondly, when respondents are unable or unwilling to compute exact percentages”(Alreck & Settle, 1995, pp. 119,121). Demographic data are considered as independent variables. Frequency scale responses are considered as dependent variables.

It is understood that the variables in a questionnaire could be categorical or numerical. While categorical variables are made up of a set of attributes, numerical variables are made up of numbers that carry mathematical meaning (Seale, 2004). The questions in the questionnaire for this study contained both the types of variables. “A survey design provides a quantitative or numeric description of trends, attitudes, or opinions of a population by studying a sample of that population. From the sample results the researcher generalises or makes claims about the population” (Creswell, 2009, p. 145).

Hence, a statistical survey through questionnaire was employed as an instrument of data collection in the quantitative phase (Appendix A). The advantages of using a survey questionnaire are:

- The participant can fill in the form at leisure
- The design is suitable for any group of people to participate in
- It gives the participant some private space to think and give factual information
- It can be easily quantified (McNabb, 2004).

Qualitative data collection can be carried out in several ways such as face-to-face interviews, using on-line media and telephone interviews (Seale, 2004). For this study, face-to-face interviews were the chosen method for qualitative data collection. Interview questions were structured (Appendix B) making the participants express freely within the scope of the question.

The advantages of face-to-face interviews mentioned by Seale (2004) laid the basis for considering this method:

- The presence of an interviewer allows for complex questions to be explained, if necessary, to the interviewee
- Even if the interviews are longer than self-completion techniques, the interviewee is less likely to be put off by the length or give up half way through
- There is more scope to ask un-structured questions since there is no writing involved in the process for the respondents
- Visual aids can be used in the face-to-face situations
- The interviewer has a control over the context and the environment in which the interview takes place (Seale, 2004, p. 165).

Particular attention was paid while questioning interview participants, such as avoiding questions that are sensitive to ask/answer in a face-to-face environment and where there would be likelihood of biased answers. Two questions that were asked in the questionnaires, where there is anonymity of the participant, were not asked in the interviews.

- Is your family time interrupted on account of your teenagers' mobile phone?
- How secure are you with your teenagers' mobile phone usage during un-monitored times?

On the whole, both survey and interview questions were formulated with the aim to serve the purpose of the research. Designing and devising variables in both the questionnaires and interviews, were based upon the measures shown in table 3.2 (Blaikie, 2003).

Table 3.2 *Designing and devising measures for variables*

| Research Objectives   | Research Questions |     |     |
|-----------------------|--------------------|-----|-----|
|                       | What               | Why | How |
| <i>Exploration</i>    | ✓                  |     |     |
| <i>Descriptive</i>    | ✓                  |     |     |
| <i>Explanation</i>    |                    | ✓   |     |
| <i>Understanding</i>  |                    | ✓   |     |
| <i>Prediction</i>     | ✓                  |     |     |
| <i>Intervention</i>   |                    |     | ✓   |
| <i>Evaluation</i>     | ✓                  | ✓   |     |
| <i>Assess Impacts</i> | ✓                  | ✓   |     |

Source: Blaikie (2003)

Every question in both the survey questionnaire and the interviews was designed to make sure that they contained at least one of the three components of ‘what’, ‘why’ and ‘how’ fulfilling the research objectives shown in table 3.2. For example, the research objectives *Exploration*, *Descriptive* and *Explanation* were met through the open-ended questions in the questionnaire and through interviews. Objectives of *Understanding* and *Prediction* were met in the questionnaire through questions with units of measurements of verbal frequencies. *Intervention*, *Evaluation* and to *Assess Impacts* were the underlying measures contained in the questionnaires and in the interviews.

### 3.3.4 Sampling process

#### 3.3.4.1 Sample size

Owing to the nature of the topic and data collection process, a participation rate could not be computed. Attempts were made to get the statistical figures of parents/caregivers of teenagers in Auckland from Client Information Advisor; Statistics New Zealand (Appendix C and D), but exact figures could not be computed because of the costs and time involved. Hence, in consultation with the supervisors it was agreed that a sample size of 100 PACG participants,

using culturally appropriate data collection processes in practice would be an adequate target to ensure reliability and validity of data.

The process entailed networking with different community groups and extending the invitation to all parents who met the criteria. At the end, PACG who voluntarily consented to participate totalled 115 (n=115). The only criterion for selection was that the participant should either be a parent or caregiver of a teenager aged between 13 and 19 years of age, irrespective of their teenagers possessing mobile phone/s.

### ***3.3.4.2 Quantitative data sampling***

A non-probability technique was used in the study in the quantitative data collection phase. The three procedures that were used for collecting data using this non-probability technique were Purposive Sampling, Dimensional/Quota Sampling and Snowball Sampling.

***Purposive sampling*** “As its name suggests, the sample is chosen for a specific purpose. Particular characteristics are sought in order to build a sample that is satisfactory to the specific needs of the researcher” (L. Cohen, Manion, & Morrison, 2007, pp. 114-115). In this study, this sampling technique was mainly used to determine the sample that fulfilled certain criteria such as the participant is either a parent or caregiver, has a teenager aged between 13 and 19 years, irrespective of possessing mobile phone/s.

***Dimensional/Quota Sampling*** This sampling technique is a further refinement of quota sampling which is used to reduce the problem of sample size obtained through quota sampling (L. Cohen et al., 2007). However, quota sampling ensures that “certain characteristics of a population sample will be represented to the exact extent that the investigator desires” (Zikmund, 2000, p. 352). In this study, this sampling technique was mainly used to obtain representative participation from all ethnic groups that were mentioned in the questionnaire. The groups were Pakeha, Pasifika, Maori, Indian, Fijian, Chinese and Others (who do not fall under other groups). Although, no desired number was specified for participation from each ethnic group, the technique helped to spread the focus equally across all ethnicities in obtaining a reasonable sample size from each ethnic community.

***Snowball Sampling*** “A sampling procedure in which initial respondents are selected by probability methods and then additional respondents are obtained by information provided by the initial respondents” (Zikmund, 2000, p. 353). The researcher also used snowball sampling

for collecting the data. Through this snowball referral method, data was eventually obtained from a reasonable size of sample from an unbiased and representative sample. “Snowballing technique is used when a researcher needs to gain access to certain types of people or a particular group, but only knows a few who fit into the category and there is no publicly available listing” (Bouma, 2000, p. 122).

### ***3.3.4.3 Qualitative data sampling***

From the completed questionnaires, the details of PACG who were interested in taking part in the interviews with the researcher were obtained. Unlike the quantitative sampling technique, which was non-probability, in the qualitative phase a probability sampling technique was used. Under this sampling technique, the two procedures that were used were stratified sampling and simple random sampling.

***Stratified sampling*** This probability sampling technique was used to divide the sample of the PACG who volunteered to take part in the interviews into sub-groups or strata basing on their ethnicities. Ethnicity was taken as a basis and criterion for stratification. This was mainly done to obtain equal representation for all ethnic groups. “A probability sample procedure in which sub-samples are drawn from samples within different strata that are more or less equal on some characteristics” (Zikmund, 2000, p. 355).

***Simple random sampling*** This simple random sampling procedure was then used to choose PACG within a stratified sample for the qualitative data collection (through interviews). “A sampling procedure, that assures each element in the population an equal chance of being included in the sample” (Zikmund, 2000, p. 353). This technique was used assuming that the samples belonging to one particular stratum were relatively homogeneous for the characteristics of interest. Hence, with this technique, there was participation from each sub-group.

## ***3.4 Data Collection Process***

### ***3.4.1 Survey questionnaires***

The sample of PACG who had teenagers in the 13 to 19 age group, were targeted through:

- Education websites and yellow pages
- Schools through leads to Parent/Teacher Forums

- Community organisations
- Word of mouth through friends and families
- Local meeting places such as churches and temples.

The forms were distributed to PACG in person as well as through electronic formats. The completed forms were returned to the researcher by PACG in person, and through mutual contacts. Out of 115 PACG, 12 PACG gave answers over the phone and the researcher filled-in the questionnaire on their behalf.

### **3.4.2 Interviews**

Contained within the questionnaire was a question asking whether the participant was willing to take part in an interview with the researcher on the same topic. At the time of collecting data through the survey, some PACG volunteered to join in an interview and there was a column for the participant to leave their contact details. PACG were thus contacted and the researcher organised suitable times and places for interviews.

With informed consent from the interviewee, a voice recorder was used to record the conversation between the researcher and the participant. The data collected after every interview was burnt onto a CD. Each interview was also transcribed before doing the next interview. The reason for immediate transcriptions was mainly to stay fresh with the data collected.

## ***3.5 Data Analysis Methods***

### **3.5.1 Organising the data**

The quantitative data was organised using the software package, “Statistical Package for the Social Sciences (SPSS) for Windows. The qualitative data obtained from the interview questions was organised using spreadsheets and word documents.

### **3.5.2 Techniques for data analysis**

“Analysis is the interplay between researcher and data” (Strauss & Corbin, 1998, p. 13). Since the study involved collecting data through two different methods, different analysing techniques were adopted that were appropriate for the methods.

### 3.5.2.1 *Quantitative data*

Descriptive and inferential analytical techniques were applied for the quantitative data. While descriptive analysis focussed more on the understanding of terms without losing the sense of the information, inferential analysis provided assumptions and trends of the population through the samples. A non-parametric technique of Chi-Square test for relatedness or independence was applied for inferential analysis. The assumptions underpinning the choice of Chi-Square as the statistical technique are as follows:

- Data is in the form of frequency counts
- Interest focuses on how many participants fall into different categories
- Independence of observations
- Observations are representative of the population of interest
- The overall sample size should be equal or greater than twenty.

(Coakes, 2005; Peers, 1996)

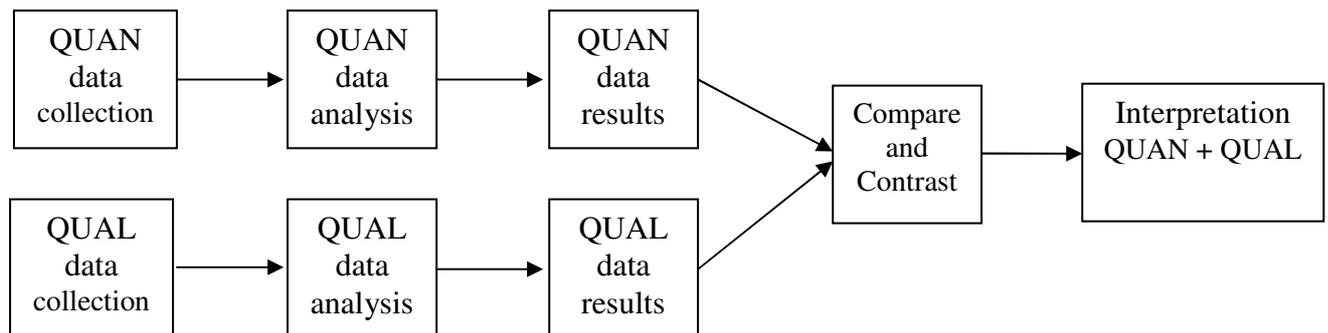
From the questionnaires, all the demographic data were analysed (independent variables) and then the scale responses (dependent variables). They were then analysed by cross-tabulating with three major independent variables, which were ethnicity, gender and age group with all the dependent variables. For each cross-tabulation the percentage was calculated across the variables vertically (column wise), such as across all the ethnic groups between both genders and across all age groups. Vertical comparison was done mainly to understand the impact of mobile phones on teenagers across ethnicity, gender and age group (rather than within the ethnicity, gender and age group). Using Chi-Square tests for independence or relatedness for each cross-tabulation allowed the researcher to understand the impact on a wider perspective.

### 3.5.2.2 *Qualitative data*

Thematic analysis suggested by Boyatzis (1998), is the encoding model that was used in this study to analyse the data from interviews as well as the answers for the open-ended questions in the questionnaires. Thematic analysis is a process of encoding qualitative information that encompasses the way of seeing the data, making sense of meanings, analysing the information, observing the pattern and linking the results to the quantitative data (Boyatzis, 1998).

### 3.5.3 Linking the results

In this study, a convergence model was chosen as a variant under triangulation design where the quantitative and qualitative data were collected and analysed separately and then the results were converged during the interpretation phase, as shown in figure 3.2. Convergence model is used so that the problem is best understood. “The researcher attempts to merge the two data sets typically by bringing the separate results together in the interpretation or by transforming data to facilitate integrating the two data types during the analysis” (Creswell & Clark, 2007, p. 64).



Source: Creswell and Clark (2007)

Figure 3.2 Triangulation design: Convergence model

## 3.6 Ethical Issues

### 3.6.1 Participation and Withdrawal

The study was conducted with the approval of *Unitec Research Ethics Committee* (UREC registration number - 2008.794). As per UREC, the participants were duly informed (Appendix C) about the aim, purpose and the period of study through verbal, electronic and printed consent forms (Appendix D). At the same time, participants were also informed about their right to withdraw from the study. In case of withdrawal, they were requested to inform the researcher within two weeks of sending their completed questionnaires back to the researcher or the information provided through interviews (prior to using the data for analysis). However, none of the participants volunteered to withdraw at any stage of the study.

### 3.6.2 Anonymity and Confidentiality

The participant's right to privacy was given due respect during the entire research project. Participants were assured that the information provided by them would be solely used for the

purpose of study and their personal identity would not be reflected anywhere throughout the study. “The essence of anonymity is that information provided by participants should in no way reveal their identity” (L. Cohen et al., 2007, p. 64). The survey participants were identified only with identification numbers such as 001, 002, 003. The interview participants were identified as PACG 1, PACG 2, PACG 3, PACG 4, PACG 5, PACG 6 and PACG 7.

The access to the information was restricted only to the researcher and supervisors. Although the completed questionnaires contained information about their ethnicity, age group and also contact details (those who volunteered to take part in the interviews) a high degree of confidentiality was maintained. “Although the researcher knows who has provided the information or is able to identify participants from the information given, they will in no way make the connection known publicly” (L. Cohen et al., 2007, p. 65). This was achieved through building trust with the participants.

### ***3.7 Storage and Destruction of Study Materials***

All the completed questionnaires, audio CDs and transcripts are stored safely. They are accessible only by the researcher and supervisors. The data in electronic format are stored in computers that are accessible only by the researcher with authenticated user name and password. Integrity and autonomy of the research was given due respect and maintained throughout. In accordance with Unitec New Zealand’s regulations on research projects, the data, both in the printed and electronic formats, will be stored safely for five years before secure disposal.

### ***3.8 Dissemination of Findings***

The findings of the study would be disseminated in the following ways:

- The abstract of the study would be shared with the participants who wished to receive a copy of it
- A copy of the entire document will be available at the Unitec library
- Information may further be used towards publishing journal articles
- Findings may be revealed at conferences in the form of presentations.

### ***3.9 Chapter Summary***

This chapter detailed the design of the entire research. Research design, sampling process, data collection and analysis were the main aspects that were detailed, and justified with

literature wherever necessary. Suitable methods were individually considered for quantitative and qualitative processes. Ethical issues were addressed to maintain the anonymity of the participants and their contributions to the data. Storage of research related materials and usage of the data were also detailed. The next chapter will now look into the results of the quantitative data.

## Chapter 4: Results of Quantitative Data

### *4.1 Introduction*

This chapter analyses the results of the quantitative component of the survey. Background information on how the survey was designed, and how the data were collected and entered was detailed. Demographic data, which are considered as independent variables, are explored and so are the dependent variables. Dependent variables are in the form of verbal frequency scale.

Inferential analysis was done by cross-tabulating three major independent variables (gender, age group of the teenager and ethnicity) with all the dependent variables. Chi-Square tests were done for all cross-tabulations. Results of Chi-Square tests that showed significant relationship between independent and dependent variables were detailed further. The chapter ends with a summary.

### *4.2 Background Information for the Survey*

The total number of participants (PACG) that completed the survey questionnaire, consisting of twenty questions, was 115 (n=115).

Information was gathered from PACG of teenage boys and girls aged 13-19 years. The teenagers were grouped into three groups: 13-14, 15-16 and 17-19 years for easy computation. Every PACG was requested to use one form for each teenager he/she has. For example if the PACG had two teenagers, then, he or she completed two forms, one for each teenager. This was mainly done to obtain tailor-made answers that were suitable to each teenager's individual mobile phone usage.

Four PACG used a single form for two of their teenagers. When asked to use two forms, PACG replied that they had the same responses applicable for both their teenagers' mobile phone usage. In such cases, the data was entered twice based on his/her teenagers' gender and age group (the two demographic variables that varied). Although PACG used individual forms for each of their teenagers, for calculation purposes the total number of completed forms was considered as the total number of PACG that took part in the survey and the total

number of teenagers. To put it simply, in this study it was considered as 115 PACG of 115 teenagers, who responded to the survey.

The following demographic information was considered as independent variables and was obtained from the first seven questions of the questionnaires. Options were provided in the questionnaire (*Appendix A: Q 1 - 7*):

1. Ethnic background of the PACG
2. Gender of their teenager/s
3. Age group of their teenager/s
4. Possession of mobile phone/s
5. Who pays the monthly bill
6. Relationship of PACG with the teenager
7. Age group of the PACG.

The following ten dependent variables reflect PACG perceptions on their teenagers' mobile phone usage. Options were provided to choose, and all the options were in the form of verbal frequency scales (*Appendix A: Q 9 - 18*):

1. Rate of happiness
2. Teenagers' safety with mobile phones
3. Teenagers sharing with PACG if bullied
4. Loss of proper language on account of text language
5. Loss of communication skills on account of text messaging
6. Interruption of personal time
7. Feeling secure during un-monitored time usage
8. Mobile phone usage while driving
9. Ban on use of mobile phones while driving
10. Minimum age limit to possess a mobile phone.

Each dependent variable sourced data to meet a particular research objective. Cross-tabulations were done across all the independent variables with all the dependent variables. Dependent variables and their corresponding research objectives are shown in table 4.1.

Table 4.1 *Dependent variables and corresponding research objectives*

| <b>Dependent Variables</b><br>(frequency scale responses) | <b>Research Objectives</b><br>(PACG perceptions on)  |
|---|--|
| Rate of happiness   | To gain an understanding of teenagers' mobile phone usage  |
| Teenagers safety with mobile phones                       | To understand the effect on teenagers psychological and physical safety aspects with regards to their mobile phone usage |
| Teenagers sharing with PACG if bullied                    | To understand the effect on teenagers psychological and physical safety aspects with regards to their mobile phone usage |
| Loss of proper language on account of text language       | To understand the influence of texting on teenagers  |
| Loss of communication skills on account of text messaging | To understand the influence of texting on teenagers  |
| Interruption of personal time                             | To gain an understanding on teenagers mobile phone usage   |
| Security during un-monitored time usage                   | To understand the effect on teenagers psychological and physical safety aspects with regards to their mobile phone usage |
| Mobile phone usage while driving                          | To understand the effect on teenagers psychological and physical safety aspects with regards to their mobile phone usage |
| Ban to use mobile phone while driving                     | Outcome for the study  |
| Minimum age limit to possess a mobile phone               | Outcome for the study  |

### 4.3 Descriptive Analysis of Demographic Data

#### 4.3.1 Ethnic participation of survey participants

PACG from various ethnic groups such as Maori, Pakeha, Pasifika, Indian, Fijian, Chinese and others took part in the survey. PACG hailing from other than the ethnic groups mentioned were grouped as ‘Others’, while PACG from Cook Island, Samoa and Tonga were grouped as Pasifika. The response from Pasifika was the highest with 32 out of 115 that contributed to 27.8% of the total. Table 4.2 shows the details of ethnic groups both in terms of counts as well as in terms of percentage.

Table 4.2 *Ethnic participation*

| <b>Ethnicity</b> | <b>Count</b> | <b>Percentage</b> |
|------------------|--------------|-------------------|
| <i>Maori</i>     | 9            | 7.8               |
| <i>Pakeha</i>    | 16           | 13.9              |
| <i>Pasifika</i>  | 32           | 27.8              |
| <i>Indian</i>    | 24           | 20.9              |
| <i>Fijian</i>    | 8            | 7.0               |
| <i>Chinese</i>   | 10           | 8.7               |
| <i>Others</i>    | 16           | 13.9              |
| <b>Total</b>     | <b>115</b>   | <b>100.0</b>      |

#### 4.3.2 Gender and age groups of teenagers

PACG of boys were 62 and PACG of girls were 53 making a total of 115. A further breakdown of both boys and girls, as per their age groups, revealed that there were more PACG of 17-19 year olds who completed the forms with a count of 54 out of 115 (47%). This could also be because there were three ages 17, 18 and 19 in this group 17-19 when compared to other groups (13-14 and 15-16) that comprised only two ages in each group (table 4.3).

Table 4.3 *Age groups of teenagers*

| <b>Age group</b> | <b>Count</b> | <b>Percentage</b> |
|------------------|--------------|-------------------|
| <i>13-14</i>     | 25           | 21.7              |
| <i>15-16</i>     | 36           | 31.3              |
| <i>17-19</i>     | 54           | 47.0              |

|              |            |              |
|--------------|------------|--------------|
| <b>Total</b> | <b>115</b> | <b>100.0</b> |
|--------------|------------|--------------|

### 4.3.3 Mobile phone possession

Possession of mobile phones by teenagers (all age groups put together) is significantly higher with a percentage of 96.5 than those not possessing a mobile phone. Teenagers possessing mobile phone were 111/115 and not possessing were 4/115. A further breakdown of age groups indicated that all the teenagers in the group 17-19 had mobile phones. In addition, not possessing a mobile phone is higher in the age bracket 15-16 year olds when compared to 13-14 olds.

### 4.3.4 Bill payment

Coming to the aspect of bill payment, the overall figures showed that PACG take the responsibility for paying the bills of mobile phones used by their teenage children. Three PACG left the question unanswered. 64.3% of PACG pay the bills of their teenagers' mobile phone usage, and 33% of PACG said that teenagers pay their own bills.

A further breakdown of bill payment revealed (table 4.4) that, as the teenagers grow older, they take the responsibility of paying their mobile phone bills. It was also observed, that there were teenagers in the age group 13-14 who paid their own bills. It was not known, whether they were in paid employment to be able to afford paying their own bills.

Table 4.4 *Mobile phone bill payment*

| <b>Age group</b> | <b>Figures</b>     | <b>Not mentioned</b> | <b>PACG</b> | <b>Teenager</b> | <b>Total</b> |
|------------------|--------------------|----------------------|-------------|-----------------|--------------|
| 13-14            | Count              | 0                    | 21          | 4               | 25           |
|                  | % within age group | 0%                   | 84.0%       | 16.0%           | 100.0%       |
| 15-16            | Count              | 1                    | 28          | 7               | 36           |
|                  | % within age group | 2.8%                 | 77.8%       | 19.4%           | 100.0%       |
| 17-19            | Count              | 2                    | 25          | 27              | 54           |
|                  | % within age group | 3.7%                 | 46.3%       | 50.0%           | 100.0%       |
| Total            | Count              | 3                    | 74          | 38              | 115          |
|                  | % within age group | 2.6%                 | 64.3%       | 33.0%           | 100.0%       |

### 4.3.5 Relationship and Age groups of PACG

The figures revealed that 63.5% of the survey participants (73/115) were mothers and 30.4% (35/115) were fathers of teenagers. The rest of PACG fall under the category of others who were 6.1% of the total. Details are in table 4.5 with its corresponding graph in figure 4.1.

Table 4.5 Age groups of PACG

| PACG   | Figures            | Under 30 | 31-40  | 41-50  | Above 50 | Total  |
|--------|--------------------|----------|--------|--------|----------|--------|
| father | Count              | 0        | 3      | 21     | 11       | 35     |
|        | % within age group | .0%      | 15.8%  | 30.0%  | 47.8%    | 30.4%  |
| mother | Count              | 0        | 16     | 48     | 9        | 73     |
|        | % within age group | .0%      | 84.2%  | 68.6%  | 39.1%    | 63.5%  |
| other  | Count              | 3        | 0      | 1      | 3        | 7      |
|        | % within age group | 100.0%   | .0%    | 1.4%   | 13.0%    | 6.1%   |
| Total  | Count              | 3        | 19     | 70     | 23       | 115    |
|        | % within age group | 100.0%   | 100.0% | 100.0% | 100.0%   | 100.0% |

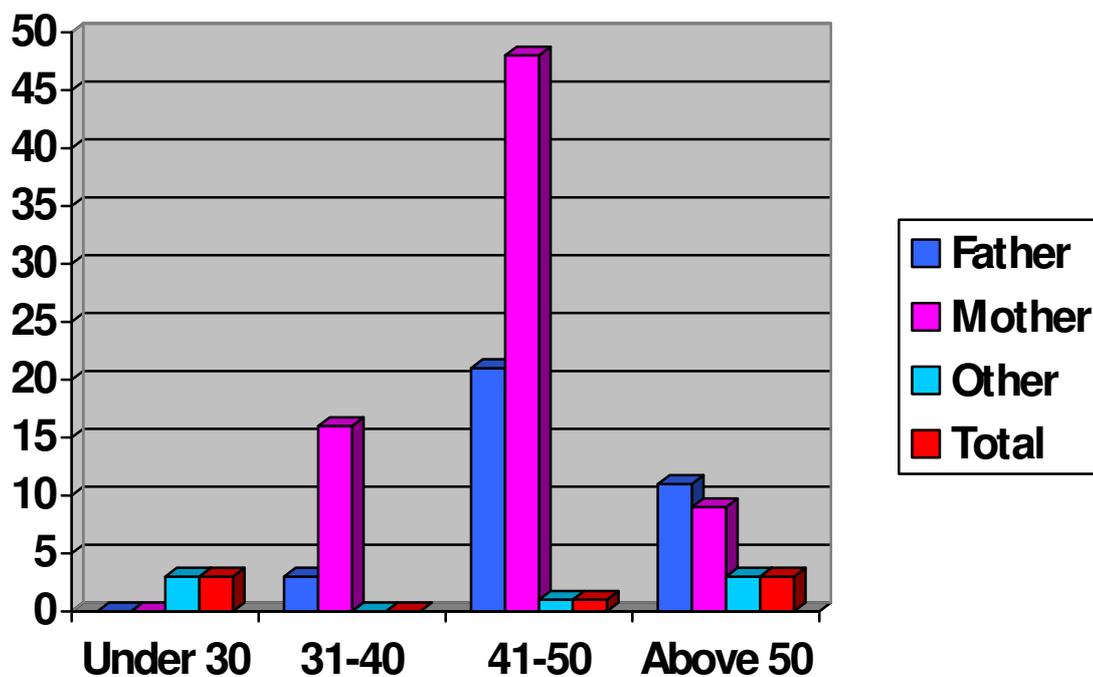


Figure 4.1 Age groups of PACG

## 4.4 Descriptive Analysis of Scale-based Responses

### 4.4.1 Rate of happiness

*How happy are you to see them use mobile phone? (Appendix: A, Q 9)*

The responses revealed that there were 50.4% PACG (n= 58) who said ‘Satisfactory’ and they stood highest, followed by 40.9% PACG (n=47) who answered ‘Happy’. There was one missing data. Details are given in table 4.6.

Table 4.6 *Rate of happiness*

| <b>Options</b>      | <b>PACG Count</b> | <b>Percentage</b> |
|---------------------|-------------------|-------------------|
| <i>Happy</i>        | 47                | 40.9              |
| <i>Satisfactory</i> | 58                | 50.4              |
| <i>Unhappy</i>      | 7                 | 6.1               |
| <i>Can't say</i>    | 2                 | 1.7               |
| <i>Total</i>        | 114               | 99.1              |
| <i>Missing data</i> | 1                 | .9                |
| <b>Total</b>        | <b>115</b>        | <b>100.0</b>      |

### 4.4.2 Feeling safe with teenagers' mobile phone usage

*How safe do you feel their mobile phone use is? (Appendix: A, Q 10)*

The figures revealed that 45.2% PACG (n=52) said ‘Safe’ meaning that they believed that their teenagers are safe while using mobile phones. They stood highest followed by 40.9% PACG (n=47) who answered ‘Satisfactory’. There was one missing data. Details are shown in table 4.7.

Table 4.7 *Feeling safe with teenagers' mobile phone usage*

| <b>Options</b>      | <b>PACG Count</b> | <b>Percentage</b> |
|---------------------|-------------------|-------------------|
| <i>Safe</i>         | 52                | 45.2              |
| <i>Satisfactory</i> | 47                | 40.9              |
| <i>Unsafe</i>       | 11                | 9.6               |
| <i>Can't Say</i>    | 4                 | 3.5               |
| <i>Total</i>        | 114               | 99.1              |
| <i>Missing data</i> | 1                 | .9                |

|              |            |              |
|--------------|------------|--------------|
| <b>Total</b> | <b>115</b> | <b>100.0</b> |
|--------------|------------|--------------|

#### 4.4.3 Teenagers sharing with PACG if bullied

*Does your teenager share with you if they get bullied by anyone via mobile phone? (Appendix: A, Q 11)*

The answers showed that 40.9% PACG (n=47) said ‘Always’ meaning that they believed that their teenagers shared with them if they were bullied through mobile phones. This was followed by 24.3% PACG (n=28) who answered ‘Sometimes’. Details shown in table 4.8.

Table 4.8 *Sharing with PACG if bullied*

| <b>Options</b>      | <b>Count</b> | <b>Percentage</b> |
|---------------------|--------------|-------------------|
| <i>Always</i>       | 47           | 40.9              |
| <i>Sometimes</i>    | 28           | 24.3              |
| <i>Never</i>        | 16           | 13.9              |
| <i>Don't know</i>   | 20           | 17.4              |
| <i>Total</i>        | 111          | 96.5              |
| <i>Missing data</i> | 4            | 3.5               |
| <b>Total</b>        | <b>115</b>   | <b>100.0</b>      |

#### 4.4.4 Text language affecting proper language

*Do you feel that your teenager loses proper language skills using text language? (Appendix: A, Q 12)*

The responses revealed that 41.7% PACG (n=48) said ‘No’ meaning that they believed that their teenagers were not losing proper language while using text language. This was followed by 31.3% PACG (n=36) who answered ‘Some extent’. There were two missing data. Details are in table 4.9.

Table 4.9 *Losing proper language*

| <b>Options</b>     | <b>Count</b> | <b>Percentage</b> |
|--------------------|--------------|-------------------|
| <i>No</i>          | 48           | 41.7              |
| <i>Some extent</i> | 36           | 31.3              |
| <i>Yes</i>         | 20           | 17.4              |
| <i>Don't know</i>  | 9            | 7.8               |
| <i>Total</i>       | 113          | 98.3              |

---

|                     |            |              |
|---------------------|------------|--------------|
| <i>Missing data</i> | 2          | 1.7          |
| <b>Total</b>        | <b>115</b> | <b>100.0</b> |

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#### 4.4.5 Text messaging impinging on communication skills

*Do you feel that text messaging impinges on their communication skills? (Appendix: A, Q 13)*

The figures revealed that 36.5% PACG (n=42) said 'No' meaning that they believe that their teenagers are not losing communication skills while using text messaging. This was followed by 35.7% PACG (n=41) who answered 'Some extent'. There were two missing data. Details are shown in table 4.10.

Table 4.10 *Losing communication skills*

| <b>Options</b>      | <b>Count</b> | <b>Percentage</b> |
|---------------------|--------------|-------------------|
| <i>No</i>           | 42           | 36.5              |
| <i>Some extent</i>  | 41           | 35.7              |
| <i>Yes</i>          | 22           | 19.1              |
| <i>Don't know</i>   | 8            | 7.0               |
| <i>Total</i>        | 113          | 98.3              |
| <i>Missing data</i> | 2            | 1.7               |
| <b>Total</b>        | <b>115</b>   | <b>100.0</b>      |

#### 4.4.6 Interruption of personal time

*Do you feel that your personal time with your teenagers is interrupted because of social bonding enabled by their mobile phones? (Appendix: A, Q 14)*

The figures revealed that there were 41.7% PACG (n=48) who said 'Some extent' meaning that their personal time is interrupted to some extent with their teenagers social bonding via mobile phone, and this was followed by 33.9% PACG (n=39) who answered 'No'. Details are given in table 4.11.

Table 4.11 *Interruption of personal time*

| <b>Options</b>      | <b>Count</b> | <b>Percentage</b> |
|---------------------|--------------|-------------------|
| <i>No</i>           | 39           | 33.9              |
| <i>Some extent</i>  | 48           | 41.7              |
| <i>Yes</i>          | 22           | 19.1              |
| <i>Don't know</i>   | 4            | 3.5               |
| <i>Total</i>        | 113          | 98.3              |
| <i>Missing data</i> | 2            | 1.7               |
| <b>Total</b>        | <b>115</b>   | <b>100.0</b>      |

#### 4.4.7 Feeling secure during un-monitored time usage

*How secure do you feel when your teenager uses a mobile phone during non-monitored periods such as after school and before parents arrive from work? (Appendix: A, Q 15)*

The responses revealed that 53% PACG (n=61) said ‘Secure’ meaning that they believed their teenagers are secure while using mobile phones during un-monitored periods. This was followed by 30.4% PACG (35) who answered ‘Some extent’. There were four missing data. Table 4.12 shows the details.

Table 4.12 *Feeling secure with un-monitored time usage*

| <b>Options</b>      | <b>Count</b> | <b>Percentage</b> |
|---------------------|--------------|-------------------|
| <i>Secure</i>       | 61           | 53.0              |
| <i>Some extent</i>  | 35           | 30.4              |
| <i>Not secure</i>   | 6            | 5.2               |
| <i>Don't know</i>   | 9            | 7.8               |
| <i>Total</i>        | 111          | 96.5              |
| <i>Missing data</i> | 4            | 3.5               |
| <i>Total</i>        | 115          | 100.0             |

#### 4.4.8 Mobile phone usage while driving is risky

*Do you consider using a mobile phone while driving is risky? (Appendix: A, Q 16)*

The figures showed that 67.8% PACG (n=78) responded ‘Yes’ meaning that they believed that it is risky to use a mobile phone while driving. This was followed by 22.6% PACG (n=26) who answered ‘No’. Details are shown in Table 4.13.

Table 4.13 *Using mobile phone while driving is risky*

| <b>Options</b>      | <b>Count</b> | <b>Percentage</b> |
|---------------------|--------------|-------------------|
| <i>No</i>           | 26           | 22.6              |
| <i>Probably</i>     | 8            | 7.0               |
| <i>Yes</i>          | 78           | 67.8              |
| <i>Don't know</i>   | 1            | .9                |
| <i>Total</i>        | 113          | 98.3              |
| <i>Missing data</i> | 2            | 1.7               |
| <b>Total</b>        | <b>115</b>   | <b>100.0</b>      |

#### 4.4.9 To ban mobile phone usage while driving

*Should there be a ban to use a phone while driving? (Appendix: A, Q 17)*

The answers revealed that 70.4% PACG (n=81) said ‘Yes’ meaning that they agreed that there should be a ban to use mobile phone while driving. This was followed by 13.9% PACG (n=16) who answered ‘Probably’. 13% said ‘No’ (n=15). Details are given in table 4.14.

Table 4.14 *To ban mobile phone usage while driving*

| <b>Options</b>      | <b>Count</b> | <b>Percentage</b> |
|---------------------|--------------|-------------------|
| <i>No</i>           | 15           | 13.0              |
| <i>Probably</i>     | 16           | 13.9              |
| <i>Yes</i>          | 81           | 70.4              |
| <i>Don't know</i>   | 1            | .9                |
| <i>Total</i>        | 113          | 98.3              |
| <i>Missing data</i> | 2            | 1.7               |
| <b>Total</b>        | <b>115</b>   | <b>100.0</b>      |

#### 4.4.10 Age limit to possess a mobile phone

*Should there be an age limit to possess a mobile phone? (Appendix A Q 18)*

The figures showed that 35.7% PACG (n=41) responded ‘No’ meaning that there should not be an age limit for teenagers to possess a mobile phone. 27.8% PACG (n=32) felt that there should be an age limit followed by 25.2% (n=29) who said ‘Probably’. Details are shown in table 4.15.

Table 4.15 *Age limit to possess a mobile phone*

| <b>Options</b>      | <b>Count</b> | <b>Percentage</b> |
|---------------------|--------------|-------------------|
| <i>No</i>           | 41           | 35.7              |
| <i>Probably</i>     | 29           | 25.2              |
| <i>Yes</i>          | 32           | 27.8              |
| <i>Don't know</i>   | 11           | 9.6               |
| <i>Total</i>        | 113          | 98.3              |
| <i>Missing data</i> | 2            | 1.7               |
| <b>Total</b>        | <b>115</b>   | <b>100.0</b>      |

## 4.5 Inferential Analysis

Chi-Square test for relatedness or independence was the preferred technique for inferential analysis of quantitative data.

Major independent variables chosen:

1. gender
2. age group
3. ethnicity.

## 4.6 Cross-tabulation: Independent Variables with Dependent Variables

### *Patterns of response: Gender with dependent variables*

Cross-tabulations have been done between the independent variable: 'gender' and all the dependent variables. Chi-Square correlations were used, to assess for significance. Through these tests, the following dependent variable established a significant relationship:

- Teenagers sharing with PACG if bullied ( $p = 0.05$ ).

### *Patterns of response: Age group with dependent variables*

Cross-tabulations between the independent variable: 'age group' and all the dependent variables established no significance.

### *Patterns of response: Ethnicity with dependent variables*

Cross-tabulations have been done between the independent variable: 'ethnicity' and all the dependent variables. Chi-Square correlations were used, to assess for significance. Through these tests, the following dependent variables established a significant relationship:

- Interruption of personal time ( $p = 0.05$ )
- Feeling secure during un-monitored time usage ( $p = 0.001$ )
- Mobile phone usage while driving is risky ( $p = 0.002$ )
- Banning mobile phone usage while driving ( $p = 0.010$ )
- Age limit to possess mobile phone ( $p = 0.026$ ).

The following sections detail the results of cross-tabulations that have established a significant relationship through Chi-Square tests.

#### 4.6.1 Gender Vs Teenagers sharing with PACG if bullied

Gender of the teenager established a significant relationship with the perceptions of PACG on the issue of sharing with PACG, if bullied. The Chi-Square results revealed a significant score,  $X^2(3, N = 111) = 7.718, p < .05$ .

44.7% of PACG of boys (n=21) said 'always' and 55.3% of PACG of girls (n=26) said 'always' meaning that they always share with their PACG if bullied. It can be concluded that girls share with PACG more than boys do.

The percentage of PACG of boys and girls who said 'sometimes' meaning that their teenagers sometimes share with them was the same (50% each).

62.5% of PACG of boys (n=10) said 'never' meaning that their teenage boys do not share with them, and the percentage of girls was 37.5% (n=06), which indicated that the percentage of boys that never share with PACG is higher than that of girls. It can be concluded that boys share less with PACG than girls do.

80% of PACG of boys and 20% of PACG of girls said 'don't know' which implied that they know neither whether they are being bullied nor whether they are sharing.

Table 4.16 shows the analysis and its corresponding figure (figure 4.2) shows the graphical picture.

Table 4.16 *Sharing with PACG if bullied (gender based)*

| Gender | Figures          | Always | Sometimes | Never  | Don't know | Total  |
|--------|------------------|--------|-----------|--------|------------|--------|
| boy    | Count            | 21     | 14        | 10     | 16         | 61     |
|        | % across Genders | 44.7%  | 50.0%     | 62.5%  | 80.0%      | 55.0%  |
| girl   | Count            | 26     | 14        | 6      | 4          | 50     |
|        | % across Genders | 55.3%  | 50.0%     | 37.5%  | 20.0%      | 45.0%  |
| Total  | Count            | 47     | 28        | 16     | 20         | 111    |
|        | % across Genders | 100.0% | 100.0%    | 100.0% | 100.0%     | 100.0% |

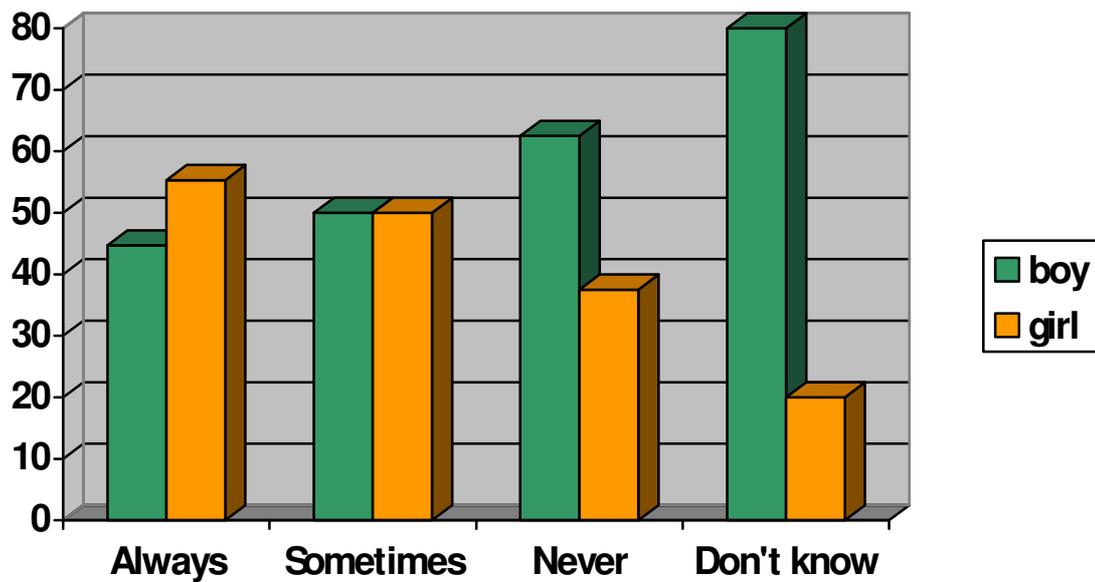


Figure 4.2 Gender based sharing with PACG if bullied

#### 4.6.2 Ethnicity Vs interruption of personal time

Ethnicity of the PACG has an established significant relationship in PACG perceptions on teenagers' mobile phone interrupting their personal time. The Chi-Square results revealed a significant score,  $X^2(18, N = 113) = 28.747, p < .05$ .

25.6% (n=10) of Pasifika said 'no' meaning that there is no interruption of personal time with their teenagers followed by 20.5% (n=8) of Pakeha.

33.3% of Indian (n=16) and 29.2% of Pasifika PACG (n=14) stated that their personal time is interrupted, 'some extent'.

27.3% (n=6) of Pasifika PACG responded 'yes' meaning that their personal times with their teenagers are interrupted, while 22.7% (n=5) of Indian PACG said the same.

Only PACG from Pasifika and Others opted 'don't know' for the question, with 50% each (n=2).

Details concerning responses viz. 'no', 'some extent' and 'yes' and 'don't know' are shown in descending order across all ethnic groups in table 4.17. Figure 4.3 displays the corresponding graph.

Table 4.17 PACG response on interruption of personal time

| Responses       |           |              | No              |           |              | Some extent     |           |              | Yes             |          |            | Don't know |  |  |
|-----------------|-----------|--------------|-----------------|-----------|--------------|-----------------|-----------|--------------|-----------------|----------|------------|------------|--|--|
| Ethnicity       | Count     | %            | Ethnicity       | Count     | %            | Ethnicity       | Count     | %            | Ethnicity       | Count    | %          |            |  |  |
| <i>Pasifika</i> | 10        | 25.6         | <i>Indian</i>   | 16        | 33.3         | <i>Pasifika</i> | 6         | 27.3         | <i>Pasifika</i> | 2        | 50         |            |  |  |
| <i>Pakeha</i>   | 8         | 20.5         | <i>Pasifika</i> | 14        | 29.2         | <i>Indian</i>   | 5         | 22.7         | <i>Others</i>   | 2        | 50         |            |  |  |
| <i>Others</i>   | 8         | 20.5         | <i>Fijian</i>   | 6         | 12.5         | <i>Pakeha</i>   | 4         | 18.2         | <i>Maori</i>    | 0        | 0          |            |  |  |
| <i>Maori</i>    | 5         | 12.8         | <i>Pakeha</i>   | 4         | 13.6         | <i>Others</i>   | 3         | 13.6         | <i>Pakeha</i>   | 0        | 0          |            |  |  |
| <i>Chinese</i>  | 5         | 12.8         | <i>Maori</i>    | 3         | 6.2          | <i>Chinese</i>  | 2         | 9.1          | <i>Indian</i>   | 0        | 0          |            |  |  |
| <i>Indian</i>   | 2         | 4.5          | <i>Chinese</i>  | 3         | 6.2          | <i>Maori</i>    | 1         | 4.5          | <i>Fijian</i>   | 0        | 0          |            |  |  |
| <i>Fijian</i>   | 1         | 2.6          | <i>Others</i>   | 2         | 4.2          | <i>Fijian</i>   | 1         | 4.5          | <i>Chinese</i>  | 0        | 0          |            |  |  |
| <b>Total</b>    | <b>39</b> | <b>100.0</b> | <b>Total</b>    | <b>48</b> | <b>100.0</b> | <b>Total</b>    | <b>22</b> | <b>100.0</b> | <b>Total</b>    | <b>4</b> | <b>100</b> |            |  |  |

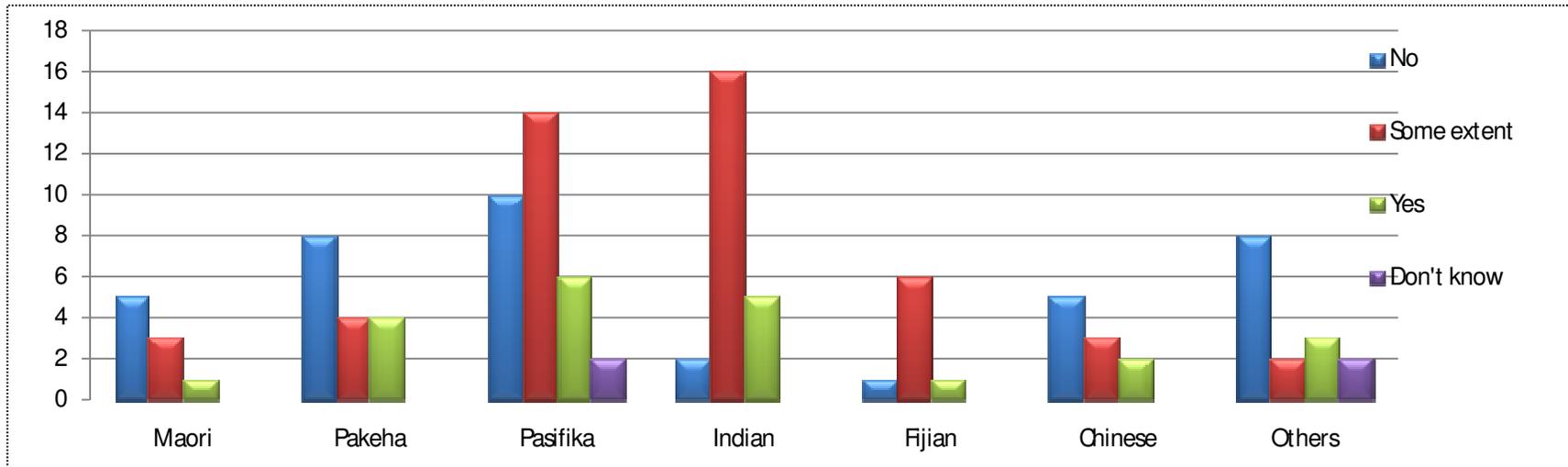


Figure 4.3 Ethnic responses on interruption of personal time

#### 4.6.3 Ethnicity Vs security using mobile phones during un-monitored time

Ethnicity of the PACG has an established significant relationship in PACG perceptions on feeling secure/not secure with their teenagers' use of mobile phones during un-monitored times. The Chi-Square results revealed a significant score,  $X^2(3, N = 111) = 43.070, p < .05$ .

26.2% (n=16) of Pasifika PACG expressed that they feel 'secure' with their teenagers' mobile phone usage during un-monitored times followed by Indian PACG who were 23% (n=14).

It was again PACG of Pasifika and Indian who said 'some extent', with 34.3% (n=12) and 22.9% (n=8) respectively.

66.7% (n=4) of Fijian PACG felt 'not secure' followed by 33.3% (n=2) of Pasifika PACG.

22.2% (each n=2) of Pasifika PACG and other PACG gave the answer as 'don't know' meaning that they do not know whether their teenagers were bullied or whether they shared with them.

Details concerning responses viz. 'secure', 'some extent' and 'not secure', and 'don't know' are shown in descending order across all ethnic groups in table 4.18. The corresponding graph is displayed in 4.4.

Table 4.18 PACG responses on feeling secure during un-monitored time usage

| Responses       | Secure    |              | Some extent     |           |              | Not secure      |          |              | Don't know      |          |              |
|-----------------|-----------|--------------|-----------------|-----------|--------------|-----------------|----------|--------------|-----------------|----------|--------------|
| Ethnicity       | Count     | %            | Ethnicity       | Count     | %            | Ethnicity       | Count    | %            | Ethnicity       | Count    | %            |
| <i>Pasifika</i> | 16        | 26.2         | <i>Pasifika</i> | 12        | 34.3         | <i>Fijian</i>   | 4        | 66.7         | <i>Pasifika</i> | 2        | 22.2         |
| <i>Indian</i>   | 14        | 23.0         | <i>Indian</i>   | 8         | 22.9         | <i>Pasifika</i> | 2        | 33.3         | <i>Others</i>   | 2        | 22.2         |
| <i>Pakeha</i>   | 12        | 19.7         | <i>Others</i>   | 7         | 20.0         | <i>Maori</i>    | 0        | 20.5         | <i>Maori</i>    | 1        | 11.1         |
| <i>Chinese</i>  | 6         | 9.8          | <i>Maori</i>    | 3         | 8.6          | <i>Pakeha</i>   | 0        | 12.8         | <i>Pakeha</i>   | 1        | 11.1         |
| <i>Others</i>   | 6         | 9.8          | <i>Pakeha</i>   | 3         | 8.6          | <i>Indian</i>   | 0        | 12.8         | <i>Indian</i>   | 1        | 11.1         |
| <i>Maori</i>    | 5         | 8.2          | <i>Fijian</i>   | 1         | 2.9          | <i>Chinese</i>  | 0        | 4.5          | <i>Fijian</i>   | 1        | 11.1         |
| <i>Fijian</i>   | 2         | 3.3          | <i>Chinese</i>  | 1         | 2.9          | <i>Others</i>   | 0        | 2.6          | <i>Chinese</i>  | 1        | 11.1         |
| <b>Total</b>    | <b>61</b> | <b>100.0</b> | <b>Total</b>    | <b>35</b> | <b>100.0</b> | <b>Total</b>    | <b>6</b> | <b>100.0</b> | <b>Total</b>    | <b>9</b> | <b>100.0</b> |

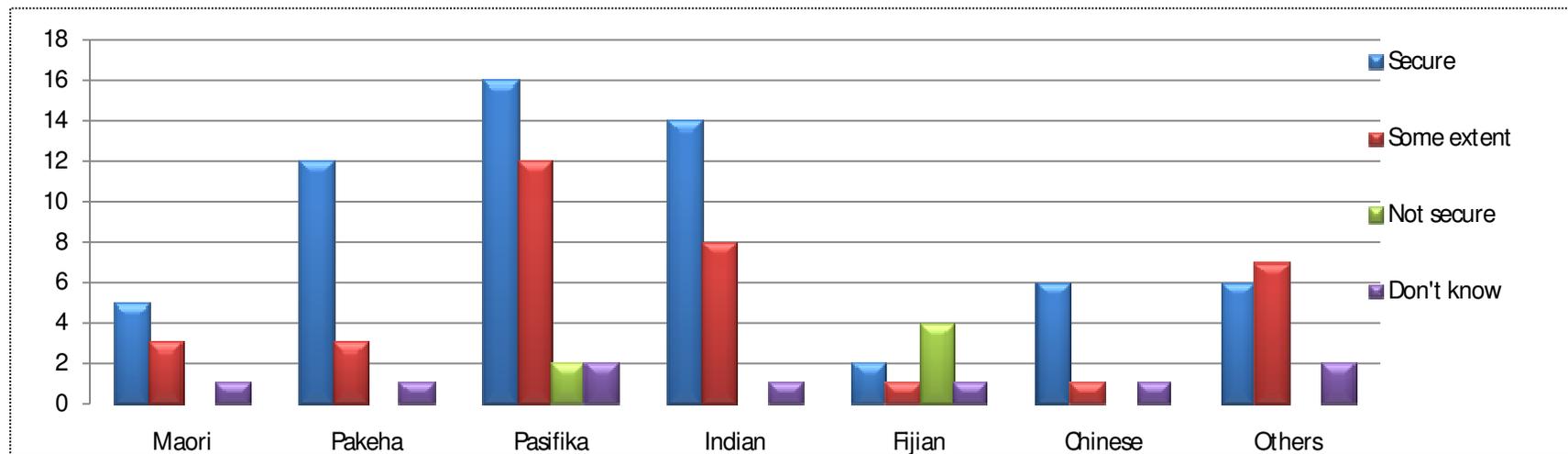


Figure 4.4 Ethnic responses on feeling secure during unmonitored time usage

#### 4.6.4 Ethnicity Vs using mobile phone while driving is risky

Ethnicity of the PACG has an established significant relationship in PACG perceptions on whether using mobile phones while driving is risky. The Chi-Square results revealed a significant score,  $X^2(18, N = 113) = 40.099, p < .05$ .

57.7% (n=15) of PACG of Pasifika followed by 11.5% (n=3) of Fijian and Chinese PACG said 'no' meaning that mobile phone usage while driving is not risky.

37.5% (n=3) of PACG of Maori and Pasifika each said 'probably' meaning that usage might be risky while driving followed by 25% (n=2) of Indian PACG.

24.4% (n=19) of Indian PACG followed by 19.2% (n=15) of Pakeha and other PACG answered 'yes' meaning that mobile phone usage while driving is risky.

Only one (100%) Pasifika PACG expressed 'don't know'.

Details concerning responses viz. 'no', 'probably' and 'yes' and 'don't know' are shown in descending order across all ethnic groups in table 4.19 with its corresponding graph displayed in figure 4.5.

Table 4.19 PACG response on whether using mobile phone while driving is risky

| Response        | No        |            | Probably        |          |            | Yes             |           |            | Don't know      |          |            |
|-----------------|-----------|------------|-----------------|----------|------------|-----------------|-----------|------------|-----------------|----------|------------|
| Ethnicity       | Count     | %          | Ethnicity       | Count    | %          | Ethnicity       | Count     | %          | Ethnicity       | Count    | %          |
| <i>Pasifika</i> | 15        | 57.7       | <i>Maori</i>    | 3        | 37.5       | <i>Indian</i>   | 19        | 24.4       | <i>Pasifika</i> | 1        | 100        |
| <i>Fijian</i>   | 3         | 11.5       | <i>Pasifika</i> | 3        | 37.5       | <i>Pakeha</i>   | 15        | 19.2       | <i>Maori</i>    | 0        | 0          |
| <i>Chinese</i>  | 3         | 11.5       | <i>Indian</i>   | 2        | 25.0       | <i>Others</i>   | 15        | 19.2       | <i>Pakeha</i>   | 0        | 0          |
| <i>Maori</i>    | 2         | 7.7        | <i>Pakeha</i>   | 0        | 0          | <i>Pasifika</i> | 13        | 16.7       | <i>Indian</i>   | 0        | 0          |
| <i>Indian</i>   | 2         | 7.7        | <i>Fijian</i>   | 0        | 0          | <i>Chinese</i>  | 7         | 9.0        | <i>Fijian</i>   | 0        | 0          |
| <i>Pakeha</i>   | 1         | 3.8        | <i>Chinese</i>  | 0        | 0          | <i>Fijian</i>   | 5         | 6.4        | <i>Chinese</i>  | 0        | 0          |
| <i>Others</i>   | 0         | 0          | <i>Others</i>   | 0        | 0          | <i>Maori</i>    | 4         | 5.1        | <i>Others</i>   | 0        | 0          |
| <b>Total</b>    | <b>26</b> | <b>100</b> | <b>Total</b>    | <b>8</b> | <b>100</b> | <b>Total</b>    | <b>78</b> | <b>100</b> | <b>Total</b>    | <b>1</b> | <b>100</b> |

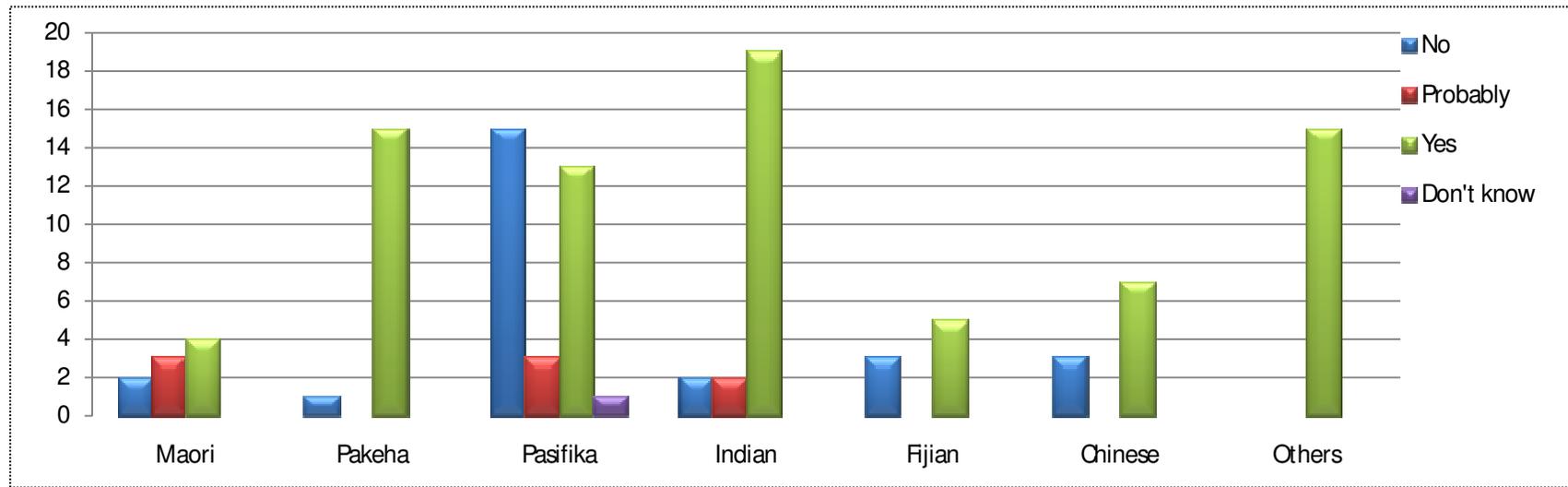


Figure 4.5 Ethnic response on whether using mobile phone while driving is risky

#### 4.6.5 Ethnicity Vs to ban using mobile phone while driving

Ethnicity of the PACG has an established significant relationship in PACG perceptions to ban using mobile phones while driving. The Chi-Square results revealed a significant score,  $X^2(18, N = 113) = 7.718, p < .05$ .

73.3% of PACG of Pasifika followed by 13.3% of Maori PACG said 'no' meaning that there should be no ban on using mobile phone while driving.

37.5% of PACG of Pasifika said 'probably' followed by 18.8% of Maori, Pakeha and Indian agreeing to the answer.

24.7% of Indian PACG followed by 18.5% of Pakeha PACG answered 'yes' meaning that mobile phones should be banned to use while driving.

There was only one Pasifika PACG (100%), who responded 'don't Know'.

Details concerning responses viz. 'no', 'probably' and 'yes', and 'don't know' are shown in descending order across all ethnic groups in table 4.20 with its corresponding graph displayed in figure 4.6.

Table 4.20 PACG response to ban using mobile phones while driving

| Response        |           |            | Probably        |           |            | Yes             |           |            | Don't know      |          |            |
|-----------------|-----------|------------|-----------------|-----------|------------|-----------------|-----------|------------|-----------------|----------|------------|
| Ethnicity       | Count     | %          | Ethnicity       | Count     | %          | Ethnicity       | Count     | %          | Ethnicity       | Count    | %          |
| <i>Pasifika</i> | 11        | 73.3       | <i>Pasifika</i> | 6         | 37.5       | <i>Indian</i>   | 20        | 24.7       | <i>Pasifika</i> | 1        | 100        |
| <i>Maori</i>    | 2         | 13.3       | <i>Maori</i>    | 3         | 18.8       | <i>Others</i>   | 15        | 18.5       | <i>Maori</i>    | 0        | 0          |
| <i>Pakeha</i>   | 1         | 6.7        | <i>Pakeha</i>   | 3         | 18.8       | <i>Pasifika</i> | 14        | 17.3       | <i>Pakeha</i>   | 0        | 0          |
| <i>Chinese</i>  | 1         | 6.7        | <i>Indian</i>   | 3         | 18.8       | <i>Pakeha</i>   | 12        | 14.8       | <i>Indian</i>   | 0        | 0          |
| <i>Indian</i>   | 0         | 0          | <i>Fijian</i>   | 1         | 6.2        | <i>Chinese</i>  | 9         | 11.1       | <i>Fijian</i>   | 0        | 0          |
| <i>Fijian</i>   | 0         | 0          | <i>Chinese</i>  | 0         | 0          | <i>Fijian</i>   | 7         | 8.6        | <i>Chinese</i>  | 0        | 0          |
| <i>Others</i>   | 0         | 0          | <i>Others</i>   | 0         | 0          | <i>Maori</i>    | 4         | 4.9        | <i>Others</i>   | 0        | 0          |
| <b>Total</b>    | <b>15</b> | <b>100</b> | <b>Total</b>    | <b>16</b> | <b>100</b> | <b>Total</b>    | <b>81</b> | <b>100</b> | <b>Total</b>    | <b>1</b> | <b>100</b> |

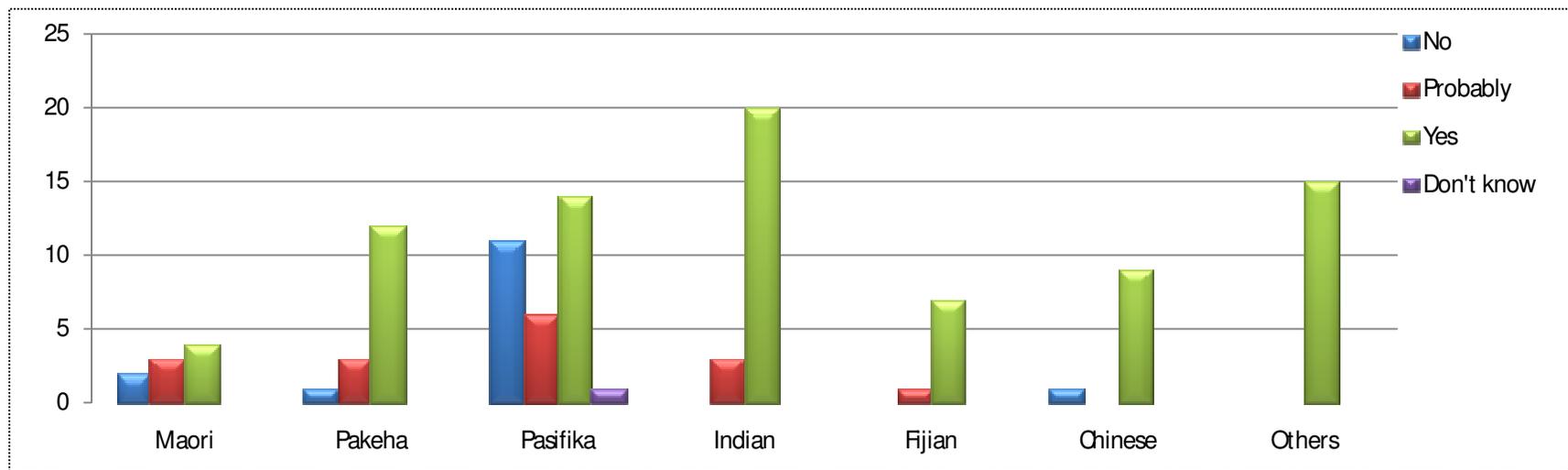


Figure 4.6 Ethnic response to ban using mobile phones while driving

#### 4.6.6 Ethnicity Vs age limit to possess a mobile phone

Ethnicity of the PACG has an established significant relationship in PACG perceptions to set a minimum age limit for teenagers to possess mobile phones. The Chi-Square results revealed a significant score,  $X^2 (18 \text{ N} = 113) = 31.360, p < .05$ .

51.2% (n=21) of PACG of Pasifika followed by 14.6% (n=6) of Pakeha PACG said 'no' meaning that there should be no age limit to possess a mobile phone.

37.5% (n=10) of Indian PACG said 'probably' followed by 18.8% (n=4) of Pakeha, Others and Maori PACG agreeing to the response.

25.0% (n=8) of Indian PACG followed by 21.9% (n=7) of Pasifika PACG responded 'yes', meaning that there should be an age limit to possess a mobile phone.

There was an equal percentage of 18.8% (n=2) of each from Pakeha, Pasifika, Fijian, Chinese and Others PACG, who expressed 'don't know' followed by 9.1% (n=1) of Indian PACG. There were no Maori PACG gave the 'Don't know' as an answer.

Details concerning responses viz. 'no', 'probably' and 'yes' and 'don't know' are shown in descending order across all ethnic groups in table 4.21 with its corresponding graph shown in figure 4.7.

Table 4.21 PACG response for age limit to possess mobile phone

| Responses       |           |            | No              |           |            | Probably        |           |            | Yes             |           |            | Don't know |  |  |
|-----------------|-----------|------------|-----------------|-----------|------------|-----------------|-----------|------------|-----------------|-----------|------------|------------|--|--|
| Ethnicity       | Count     | %          |            |  |  |
| <i>Pasifika</i> | 21        | 51.2       | <i>Indian</i>   | 10        | 37.5       | <i>Indian</i>   | 8         | 25.0       | <i>Pakeha</i>   | 2         | 18.2       |            |  |  |
| <i>Pakeha</i>   | 6         | 14.6       | <i>Pakeha</i>   | 4         | 18.8       | <i>Pasifika</i> | 7         | 21.9       | <i>Pasifika</i> | 2         | 18.2       |            |  |  |
| <i>Maori</i>    | 4         | 9.8        | <i>Others</i>   | 4         | 18.8       | <i>Chinese</i>  | 5         | 15.6       | <i>Fijian</i>   | 2         | 18.2       |            |  |  |
| <i>Indian</i>   | 4         | 9.8        | <i>Maori</i>    | 3         | 18.8       | <i>Others</i>   | 5         | 15.6       | <i>Chinese</i>  | 2         | 18.2       |            |  |  |
| <i>Others</i>   | 4         | 9.8        | <i>Fijian</i>   | 3         | 6.2        | <i>Pakeha</i>   | 4         | 12.5       | <i>Others</i>   | 2         | 18.2       |            |  |  |
| <i>Fijian</i>   | 2         | 4.9        | <i>Chinese</i>  | 3         | 0          | <i>Maori</i>    | 2         | 6.2        | <i>Indian</i>   | 1         | 9.1        |            |  |  |
| <i>Chinese</i>  | 0         | 0          | <i>Pasifika</i> | 2         | 0          | <i>Fijian</i>   | 1         | 3.1        | <i>Maori</i>    | 0         | 0          |            |  |  |
| <b>Total</b>    | <b>41</b> | <b>100</b> | <b>Total</b>    | <b>29</b> | <b>100</b> | <b>Total</b>    | <b>32</b> | <b>100</b> | <b>Total</b>    | <b>11</b> | <b>100</b> |            |  |  |

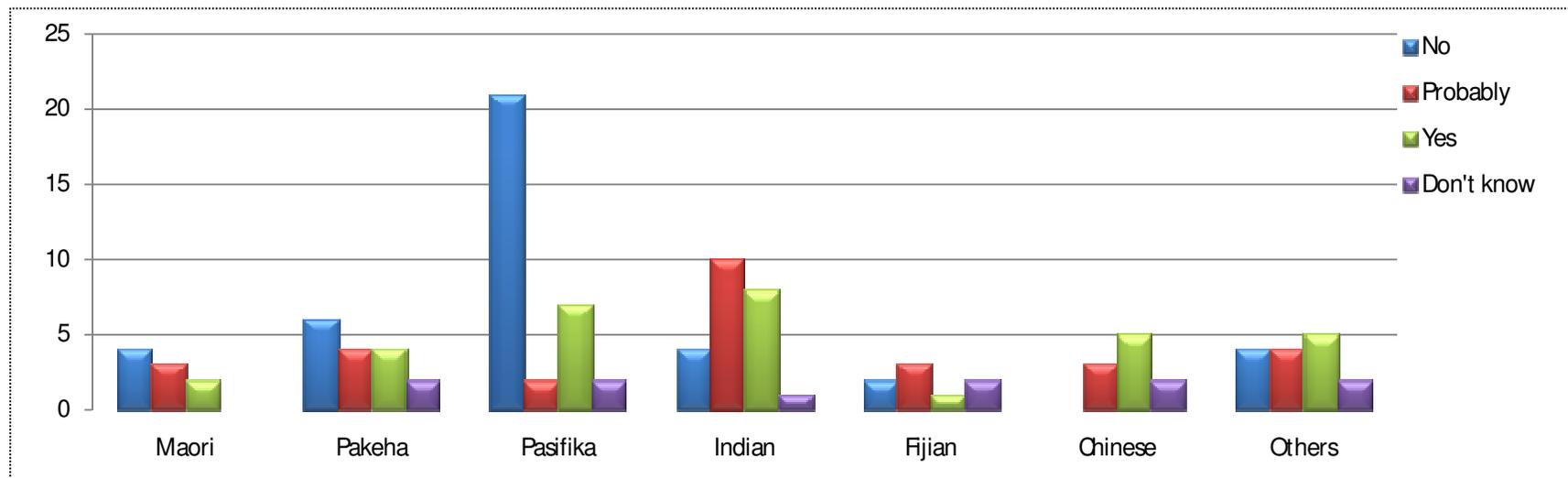


Figure 4.7 Ethnic responses for age limit to possess mobile phone

## 4.7 Chapter Summary

The chapter detailed on the entire process of survey. Dependent variables (demographic data) and independent variables (frequency scale responses) were detailed. Inferential analysis through cross-tabulations and Chi-Square tests gave a detailed picture of relationships between dependent and independent variables.

Chi-Square tests established significance with the following relationships:

- ‘Gender’ with ‘teenagers sharing with PACG, if bullied’
- ‘Ethnicity’ with ‘PACG feeling secure during un-monitored times’
- ‘Ethnicity’ with ‘Interruption of personal time with PACG’
- ‘Ethnicity’ with ‘PACG feeling use of mobile phones while driving is risky’
- ‘Ethnicity’ with ‘PACG supporting with banning of mobile phone use while driving’
- ‘Ethnicity’ with ‘PACG agreeing with having to have an age limit to possess a mobile phone’.

The results of this chapter are discussed in the next chapter, in the context of qualitative data and published literature.

## **Chapter 5: Thematic Analysis, Triangulation and Discussion**

### ***5.1 Introduction***

This chapter brings out the background information for analysis, which details the process of the conventions used in the study. An overview of triangulation and discussion of qualitative responses and quantitative results with the literature is shown in table 5.1.

Each section narrates on the themes which emerged from qualitative data (interviews and survey open-ended questions) and the results of quantitative data. The themes and results are then triangulated in the context of published literature. Each section is based on its own discussion because of the nature of the themes and results. Syntheses of discussions aligned with research question/sub-questions are given. Brief summary of the chapter is given at the end.

### ***5.2 Background Information for Analysis***

As mentioned in the methodology chapter, although PACG were chosen based on their ethnicity, they were not identified with their ethnicity. The reason to suppress the ethnic identity was that there was only one PACG representing each ethnic group. Thus, to maintain anonymity of their ethnicity, the seven interview participants were labelled as PACG 1 to PACG 7. Excerpts from interview participants, are reproduced with their identification labels given for each participant. Hence, the interpretations of responses were solely based on the relationship of the participant, i.e., as a parent or caregiver (PACG) to the teenager and not reflecting their ethnicity.

The interview phase of the study explored some of the areas that were not covered in the questionnaires. These included perceptions of PACG on the matters such as gadgets in mobile phones (such as camera, internet), their personal opinion on text messaging, text language in NCEA exams, health and environmental issues (Appendix B).

As mentioned in chapter three, questions that were sensitive to ask in a face-to-face situation were avoided such as:

- Is your family time interrupted on account of your teenagers' mobile phone?

- How secure are you with your teenagers' mobile phone usage during un-monitored times?

The researcher, in consultation with the supervisors, avoided the situation where there would be a likelihood of biased answers and also felt that it was unethical to place the PACG in a delicate and susceptible position to answer. However, those questions were raised through survey questionnaires in which the PACG personal identity was anonymous and PACG were asked to only choose one from the given options, rather than explaining the chosen option. Responses to such questions through the survey sourced information to understand the relationship of PACG and their teenagers, with the use of mobile phones.

The themes that emerged from interview responses as well as the qualitative component of the survey (open-ended questions) are triangulated with the survey quantitative results and are discussed in the context of available literature. Only those quantitative results (sections 4.3.16 to 4.3.21) that have established significant relationship through Chi-Square tests are triangulation. Comparison and validation of data was done wherever possible as detailed in table 5.1.

Table 5.1 *An overview of triangulation and discussion*

| No | Section Number | PACG perceptions on                                | Responses |           | Literature available | Comments   |
|----|----------------|--|-----------|-----------|----------------------|--|
|    |                |  | Survey    | Interview |                      |  |
| 1  | 5.3            | teenagers' mobile phone possession                 | Yes       | Yes       | Yes                  | Compared & contrasted in the context of literature |
| 2  | 5.4            | consequences of mobile phones usage                | Yes       | Yes       | Yes                  | Compared & contrasted in the context of literature |
| 3  | 5.5            | teenagers bullying related issues                  | Yes       | Yes       | Yes                  | Compared & contrasted in the context of literature |
| 4  | 5.6            | teenagers security during un-monitored times usage | Yes       | No        | Yes                  | Data not compared but supported with literature    |
| 5  | 5.7            | Interruption of personal time                      | Yes       | No        | Yes                  | Data not compared but supported with literature    |
| 6  | 5.8            | using while driving is risky and hence to ban      | Yes       | Yes       | Yes                  | Compared & contrasted in the context of literature |
| 7  | 5.9            | setting an age limit to possess a mobile phone     | Yes       | Yes       | No                   | Only compared the data. No literature available    |

### 5.3 PACG Perception on Teenagers' Mobile Phone Possession

#### 5.3.1 Thematic Analysis: Interview responses

PACG expressed their opinions and views on the query, why their teenagers should/shouldn't possess a mobile phone (*Appendix B, Q 3*). Answers of PACG that intended the same meaning or similar reasons (purposes) for teenagers' mobile phone possession, were grouped together as shown below.

- *Contact* and *Communicate* (responses of PACG 1, 2, 4 and 6) meant similar reasons and thus the theme 'Communication' was used
- *Security* (response of PACG 1) is connected to 'Safety & Security'
- *Lack of Control* (response from PACG 3) was identified as 'Control'
- Mobile phone used for *reaching the teenager* (response of PACG 5) reflected a sense of safety, hence, it was considered under the theme 'Safety & Security'
- *Contact in case of trouble* (response of PACG 7) implied emergency purposes and thus considered 'Emergency' as a theme.
- *Organise pickups* implied to co-ordinate with teenager and hence the theme 'Micro-coordination'.

The themes thus drawn from the responses of PACG are shown in table 5.2.

Table 5.2 PACG interview responses and themes on teenagers' mobile phone possession

| PACG   | PACG responses             | Themes emerged                                 |
|--------|----------------------------|--|
| PACG 1 | Security, Contact          | <b>Safety &amp; Security and Communication</b> |
| PACG 2 | Communication, Contact     | <b>Communication</b>                           |
| PACG 3 | Losing control on teenager | <b>Control</b>                                 |
| PACG 4 | Organise pickups, Contact  | <b>Micro-coordination and Communication</b>    |
| PACG 5 | reach the teenager         | <b>Safety &amp; Security</b>                   |
| PACG 6 | Contact                    | <b>Communication</b>                           |
| PACG 7 | Contact in case of trouble | <b>Emergency</b>                               |

Selected responses with differing views given by PACG 3 (why teenagers should not possess mobile phones) and PACG 5 (why teenagers should possess a mobile phone), are reproduced here:

*PACG 3: You know once you have a cell phone, it is not just for communication but use it for many other uses, such as crimes and wrong things. It just gets out of control from parent/caregiver perspective and I think somewhere we have to draw a line.*

*PACG 5: I would actually like to rephrase your question, Why not a teenager should have one? Because the list will go on to say why a teenager should have one. I would definitely ask why not. Now mobile phone I think is no more a luxury. I think people of all age groups, not only teenagers, all humans should possess one for the simple reason that all of us stay away from our landline phones most of the time. It is a very vital instrument to be reached or if you want to reach anyone. There are many other reasons there. Therefore, I think a teenager not just my son; I think all teenagers should possess one, as it is a very useful tool to have.*

To summarise the comments mentioned above, PACG 3 feels that teenagers are out of control with mobile phone possession, where as PACG 5 considers it as a necessary device.

### 5.3.2 Thematic Analysis: Survey qualitative component

In a similar pattern, as that of interview responses, the answers from the survey open-ended question ‘why do you think your teenagers should/shouldn’t possess a mobile phone?’ (*Appendix A, Q 8*) were grouped together and the themes emerged as shown below.

Themes from the responses of PACG (open-ended question) originated as follows:

- *keeping in touch* or *staying in touch* linked to the theme ‘Communication’
- *organise pickups* are allied to the theme ‘Micro-coordination’
- *To know the whereabouts* is more likely a safety aspect and hence taken under the theme ‘Safety and security’
- *Fashion* and *to familiarise with technology* are lined to ‘Trend’
- *Internet* and *Music* are considered as ‘Gadgets’.

Themes thus emerged from responses are shown in table 5.3.

Table 5.3 PACG survey responses and themes on teenagers’ mobile phone possession

| PACG responded | Responses   | Themes emerged               |
|----------------|---|------------------------------|
| 71             | To stay in touch/keep in touch with family and/or friends | <b>Communication</b>         |
| 35             | Emergencies   | <b>Emergency</b>             |
| 13             | To know whereabouts                                       | <b>Safety &amp; Security</b> |
| 11             | Safety  | <b>Safety &amp; Security</b> |
| 07             | Organise pick ups   | <b>Micro-coordination</b>    |
| 06             | Security  | <b>Safety &amp; Security</b> |
| 02             | Music   | <b>Gadgets</b>               |
| 02             | Fashion   | <b>Trend</b>                 |
| 01             | Games   | <b>Gadgets</b>               |
| 01             | To leave messages   | <b>Micro-coordination</b>    |
| 01             | Familiarise with technology                               | <b>Trend</b>                 |

The major themes are Communication, Emergency, Safety & Security and Micro-coordination. All these themes are inter-linked although serving different purposes.

### 5.3.3 Triangulation and Discussion

From the interviews, six out of seven PACG said that their teenagers possessed mobile phones. Only one PACG (PACG 3) said that their teenager does not have a mobile phone. From the survey, out of 115 PACG, 111 PACG expressed that their teenagers possessed mobile phones. Although interview participants were drawn from the survey sample, both these data (survey and interviews), source evidence for the fact that more than ninety percent of teenagers possess a mobile phone.

Six out of seven interviewed PACG expressed that mobile phones are basically meant for contacting, communication and reaching their teenagers. Only one PACG (PACG 3) expressed that mobile phone possession gets teenager out of control, for their parent/caregiver.

In the interview excerpts cited in page 103, PACG 3 used the words *out of control*, if his teenager was given mobile phones, which reflects upon control over his teenager. Hence, PACG 3 did not allow his teenager to possess a mobile phone. Contrary to the answer given by PACG 3, PACG 5 thinks that it is a *compulsory* and *useful* device for *reaching the teenager*. The answer supported a need for mobile phones for teenagers in today's changing life styles.

Ling and Yttri (2003) clearly mentioned that the power of the push and pull concept prevails in a family setting between a parent/caregiver and their children especially in their adolescent phase. Williams and Williams (2005) added that mobile phones are shifting the concept of traditional parental authority on teenagers, such as setting boundaries to a liberal environment. The interview responses of PACG 3 very much reckon with the notions on control and freedom. Moreover, Prensky (2001) referred to today's generation (teenagers in this context) as digital natives, and adults (PACG in this context) as digital immigrants. Fielden and Malcolm (2008) further classified levels of digital citizenship. From the interview responses, it was evident that digital immigrants (PACG 3 and PACG 5 in this context) had diverse perceptions on the acceptance of technology and thus positioned themselves at different levels of citizenship. However, the exact levels of digital citizenship, such as whether they fit as 'PR' or 'as if native' (shown in section 1.3 - table 1.1), could not be determined with the data available.

The perception of PACG 5 that mobile phones are a compulsory device, is supported by literature, and that mobile phones are communication devices (Montgomery, 2007) with other extensive possibilities of usage such as in emergencies (YouGov, 2006), for safety (Ling, 2004c), to micro-coordinate activities such as to know the whereabouts and organise pickups (Ling, 2000). According to Netsafe (2005), nearly 25% of teenagers in New Zealand use their mobile phones as a safety device. Vaidyanathan and Latu (2007) add that teenagers use mobile phones to listen to music.

Above all, mobile phones for teenagers act as an identity that boosts their self-esteem (Montgomery, 2007; Srivastava, 2004), and act as a portal to freedom (Geser, 2004) which is why teenagers fancy possessing mobile phones. Caronia and Caron's (2004) research findings revealed that teenagers are identified with the models of their phones, its functionalities and etiquettes associated with their usage.

Although findings revealed that mobile phone possession is high in teenagers, reflecting upon the comments of PACG in this study and connecting with the literature, mobile phones for teenagers have added a concern for PACG to feel out of control and, at the same time, to feel it is a requirement and a necessity.

## 5.4 PACG perceptions on Teenagers' Mobile Phones Usage

### 5.4.1 Thematic Analysis: Interview answers

#### 5.4.1.1 Positive purposes

Interview answers regarding positive purposes of teenagers' mobile phone usage (*Appendix B, Q 15*) are summarised and shown in table 5.4.

Table 5.4 *Positive purposes of mobile phones from interview answers*

| <b>PACG</b> | <b>Answers given by PACG for positive purposes of mobile phones</b>             |
|-------------|---|
| PACG 1      | Contact, Emergency  |
| PACG 2      | Communicate, Contact, Emergencies   |
| PACG 3      | Life saving device, Emergency, Communicate                                      |
| PACG 4      | Contact and Emergency   |
| PACG 5      | Emergency, Contact, Organise pickups, Change of plans, Cost effective - Texting |
| PACG 6      | Contact and Communicate   |
| PACG 7      | Emergency and Contact   |

#### 5.4.1.2 Negative impacts

Interview responses concerning negative impacts of teenagers' mobile phone usage (*Appendix B, Q 16*) are summarised and shown in tables 5.5.

Table 5.5 *Negative impacts of mobile phones from interview responses*

| <b>PACG</b> | <b>Answers given by PACG for negative impacts of mobile phones</b>                     |
|-------------|--|
| PACG 1      | Unnecessary picture, unnecessary messaging   |
| PACG 2      | Arguments and fights across cell   |
| PACG 3      | Nasty information, pictures, unnecessary information                                   |
| PACG 4      | Texting while driving  |
| PACG 5      | Nasty information, misuse, unnecessary information<br>numerous calls which add to cost |
| PACG 6      | Scope for bullying   |

## 5.4.2 Thematic Analysis: Survey qualitative component

### 5.4.2.1 Positive purposes

There were no questions in the questionnaire seeking PACG opinion on the aspects of positive purposes. Hence, the answers and themes shown in table 5.2 that reflected positive uses of mobile phones are used here, to cross-validate and compare with similar interview responses.

### 5.4.2.2 Negative impacts

Although there was no direct question seeking PACG to write on negative aspects of mobile phones, PACG expressed their opinion on the question '*Are there any other comments that you would like to add?*' (Appendix A, Q 21). The responses of PACG that contained negative aspects of mobile phones were summarised and are shown in table 5.6.

Table 5.6 *Negative impacts of mobile phone from survey responses*

| <b>Answers specified by PACG for negative impacts</b>              | <b>Number of PACG responded</b> |
|--|---------------------------------|
| Radiation, radio wave emissions                                    | 03                              |
| No texting: Waste of time  | 03                              |
| Unnecessary messages and high charges                              | 02                              |
| Group message spreading, insecure, rapes, violence, causing crimes | 02                              |
| Misuse   | 01                              |
| Using while driving  | 01                              |
| Messages such as alone, bored (sympathy seeking)                   | 01                              |
| Using text language at school: school notes, exams, homework       | 01                              |
| Interruption of study time on account of texting                   | 01                              |
| Irritating: games  | 01                              |
| Lack of control  | 01                              |
| Lack communication skills  | 01                              |
| Anti-social  | 01                              |

### 5.4.3 Themes emerged from interview and survey responses

#### 5.4.3.1 Positive purposes

PACG interview responses (shown in tables 5.2 and 5.4) and the survey responses/themes (shown in table 5.3) on positive purposes initiate major and sub-themes shown in table 5.7. When compared across both the data, it was certain that the prime positive uses of mobile phones were to communicate, use in emergencies and to micro-coordinate. Major and sub-themes, both common and varying, are detailed in table 5.7.

Table 5.7 Themes emerged for positive purposes of mobile phones

| Interview                 |                          | Survey                    |                             |                         |
|---------------------------|--------------------------|---------------------------|-----------------------------|-------------------------|
| Major Themes              | Sub Themes               | Major Themes              | Sub Themes                  |                         |
| <b>Communication</b>      | Contact                  | <b>Communication</b>      | To stay in touch            |                         |
|                           | Communicate              |                           | To keep in touch            |                         |
| <b>Emergency</b>          | Emergencies              |                           | <b>Emergency</b>            | Contact family, friends |
|                           | Life saving device       | Emergencies               |                             |                         |
| <b>Micro-coordination</b> | Change of plans          | <b>Micro-coordination</b> | In case of trouble          |                         |
|                           | Organise pickups         |                           | Organise pickups            |                         |
| <b>Cost factors</b>       | Cost effective with text |                           | <b>Safety/Security</b>      | Running late            |
|                           |                          | Leave messages            |                             |                         |
|                           |                          | <b>Music</b>              | To know whereabouts         |                         |
|                           |                          |                           | <b>Games</b>                | Gadgets                 |
|                           |                          |                           |                             | <b>Trend</b>            |
|                           |                          |                           | Fashion                     |                         |
|                           |                          |                           | Familiarise with technology |                         |

Communication, Emergency and Micro-coordination are the major themes, which emerged from both interview and survey responses.

### 5.4.3.2 Negative impacts

Emerged themes from PACG interview answers (shown in table 5.5) and survey responses/themes (shown in table 5.6) on negative impacts revealed commonalities between both the sets of data. The major concern expressed by PACG was on their teenagers' text messaging and associated problems. The common themes and the varying themes of both sets of data are shown in the table 5.8.

Table 5.8 Themes emerged for negative impacts of mobile phones

| Interview             |   | Survey  |   |
|-----------------------|---|---|---|
| Major Themes          | Sub Themes  | Major Themes                                    | Sub Themes  |
| <b>Text messaging</b> | Unnecessary messaging<br>Unnecessary information<br>Nasty information | <b>Text messaging</b>                           | Waste of time<br>Sympathy seeking<br>Interruption<br>Addiction<br>Lack of<br>communication skills |
| <b>Bullying</b>       | Arguments and fights  | <b>Health</b>                                   | Radiation and radio<br>wave emissions   |
| <b>Control</b>        | Lack of control   | <b>Macro-<br/>coordinating/<br/>Anti-social</b> | Group messaging<br>Rapes, violence,<br>crime, Misuse  |
| <b>Driving</b>        | Texting   | <b>Driving</b>                                  | Using   |
| <b>Anti-social</b>    | Misuse  | <b>Control</b>                                  | Lack of control   |
| <b>Cost factor</b>    | Numerous calls  | <b>Cost factors</b>                             | High charges  |
| <b>Pictures</b>       | Unnecessary pictures<br>Nasty pictures                                | <b>Safety &amp; Security</b>                    | Insecure  |
|                       |   | <b>Text language</b>                            | Use at school   |
|                       |   | <b>Games</b>                                    | Irritating  |

Text messaging, bullying and control are the major themes, which emerged from interview responses. Text messaging, health issues and macro-coordination/anti-social are the main themes emerged from survey responses.

#### 5.4.4 Triangulation and Discussion

Literature provided evidence for all the themes/sub themes that emerged from the present study (deSouza, 2006; Ling, 2000; Rheingold, 2002; Srivastava, 2004). The themes Communication, Emergency, Micro-coordination, and Safety & Security were discussed in section 5.3.3. The other positive themes shown in table 5.8 are Gadgets, Trend and Cost Factor. Gadgets and Trend have a close relation with each other as well as it shows the social changes in terms of technology, which is evident in the day-to-day living. Regarding cost factor, according to Eldridge and Grinter (2001), text messaging is certainly a cost effective means of communication. The authors add that teenagers are more in control of their costs with their text messages.

Text messaging has emerged as a major concern for PACG. Text messaging has particularly been adopted by teenagers and formulated a teen culture (Ling, 2004b). Taylor and Harper (2002) said that messages carry an emotional significance for teenagers and in this context, one PACG mentioned *sympathy seeking messages* such as *alone, bored* that has emotions attached to the messages.

The research findings of Vaidyanathan and Latu (2007) support that, text messaging has altered the traditional communication patterns such as having eye contact, and good body posture while speaking. Also in this study, PACG expressed concerns on communication because of text messaging. YouGov (2006) claims that, because of the generation gap between parents and teenagers, texting while in conversation is not acceptable. Alongside, the other concern expressed was, the *use of text language at school*, and impacting on proper language, which was supported by literature (Eldridge & Grinter, 2001; Vaidyanathan & Latu, 2007).

Staying connected with friends is a big factor that intensifies and widens teenagers' friendships, which Geser (2004) refers to as 'usage breadth' (p.6), and Ling and Yttri (2003) refer to as 'Quantification of popularity' (p.12). Because of the intensity of connection enabled by mobile phones, teenagers tend to stay connected to the device which, in this study, PACG deem as addiction or a waste of time. Ling (2004b), who says that teenagers send or receive SMS even at midnight while lying under the sheets in the beds, supported the notion of PACG further. On the contrary, Thulin and Vilhelmson (2007) state that mobile phones

have turned passive time to active time by taking over the empty times and making them productive. However, this idea was not mentioned by PACG in this study.

Chaos through macro-coordination that resulted in deaths of young teens is an appropriate example that happened in New Zealand (OneNews & NewstalkZB, 2007). The associated problems of text messaging are *macro-coordination/anti-social activities* and *bullying* as expressed by PACG in this study and as supported by literature (Srivastava, 2004; YouGov, 2006). The findings of a study conducted by Netsafe (2005) confirmed claims by PACG of *nasty pictures* and *unwanted information* received via mobile phones.

Coming to the aspect of playing games, they are educational and a pastime (Prensky, 2005; Vaidyanathan & Latu, 2007). Games are an additional gadget in some mobile phones. The pastime activity is viewed as *irritating* to one PACG in the survey. Therefore, how is it possible to measure the point where a pastime activity turns into an irritating matter, is a subject matter to be explored further.

From this study, health issues have emerged as one of the major concerns in the survey. In addition, driving and associated risks are considered as negative from both survey and interviews. Both these concerns are alarming issues that attract immediate and strong actions and are supported by literature (Drake, 2006; Krewski et al., 2007; Muscat et al., 2000).

All the seven PACG were asked which one weighs more: positive purposes or negative consequences (Appendix B, Q 17). Six out of seven PACG said that they believe negative impacts outweigh positive purposes. Hence, it is concluded that the perceptions of PACG of this study show concerns on negative consequences of mobile phones, which brings forth the need to consider the social aspects of emerging mobile technologies.

## 5.5 PACG Perceptions on Bullying Issues via Teenagers Mobile Phones

### 5.5.1 Thematic Analysis: Interview answers

PACG expressed concerns on bullying in their negative impacts on teenagers' mobile phone usage (shown in table 5.5). All the seven PACG agreed that mobile phones are potential devices for bullying to take place. Three PACG answers are reproduced here who had expressed opinions on bullying.

*PACG 2 Scope for arguments with the text messaging plans. They tend to argue and fight through cell phones. Hence, lots of bullying takes place and parents are not happy about it.*

*PACG 4 Yeah, I did. I used to work with someone who was going to secondary school to talk to students about bullying and how bad it was.*

*PACG 5 Yes, any gadget or use of technology could have a detrimental effect. I would not say no. Bullying is an issue... and there could be eve-teaser, women chasers, paedophiles who have access to mobile phones, but that does not mean that they are detrimental aspects of mobile phones. Mobile phones are useful always and if they are misused, we only need to trap the culprit and see what can be done but not take the mobile phones to task. It is definitely responsibility of the service provider to have a good database of incoming and outgoing calls and to catch such mischief-makers.*

All the PACG expressed that mobile phones are potential devices for bullying to take place. While PACG 5 suggested that they should lend a hand to catch the culprits, PACG 2 held service providers responsible for text-messaging plans that provided an opportunity for arguments and bullying to take place. PACG 4 was personally involved in educating about the consequences of bullying.

Major themes that emerged from the responses of all the PACG are the 'Role of Service providers' and 'Educating on the consequences'.

### 5.5.2 Inferential Analysis: Results of quantitative data

From the quantitative results, 'gender' of the teenager established a statistically significant relationship in the aspect of sharing with their PACG, if bullied (section 4.6.1):

- 55.3% of PACG of girls and 44.7% of PACG of boys said that their teenagers 'always' share with their PACG, if bullied
- 62.5% of PACG of boys and 37.5% of PACG of girls said 'no', meaning that they do not share with them.
- 80% of PACG of boys and 20% of PACG of girls said 'don't know', meaning that they do not know if they are bullied or if they are sharing.

In addition, it is also observed that there is a wide gap in perceptions of PACG of boys and girls. Overall, the figures showed that the percentage of girls sharing with PACG is higher than that of boys.

### 5.5.3 Triangulation and Discussion

It was evident through the interview findings, that mobile phones are potent devices for bullying to take place. The other issue acknowledged by survey results, was whether teenagers share with their PACG, if they are bullied. The pattern that emerged from this issue was gender related, which established a statistically significant relationship. The percentage of girls' sharing with PACG was higher than that of boys and similarly, boys' not sharing with PACG was higher than that of girls. Hence, it can be concluded that girls share with PACG, if bullied, more than boys do.

Literature supports the notion that girls have a tendency to communicate more intensely and frequently via text messaging and also add an element of emotion to their messages (Döring et al., 2004). With the inherent quality of communication among girls, it is more likely that they share with their PACG, if bullied. Thus, the research supports the established relationship between 'sharing bullying issues with PACG' and 'gender of the teenager'.

Researchers also say that girls are more likely to bully others, and more girls are victims of harassment/bullying via mobile phones than boys. Girls are victims as well as victimisers. Both these observations reveal that bullying is higher through mobile phones of girls. To understand why bullying is predominantly higher among girls, and why they share with PACG more than boys do, are two areas for further research.

## ***5.6 PACG Perceptions on Interruption of Personal Time with Teenagers***

### **5.6.1 Inferential Analysis: Results of quantitative data**

From the quantitative results, 'ethnicity' established a statistically significant relationship with interruption of teenagers' personal time with PACG:

- 33.9% of PACG said 'no' meaning that their personal time with teenagers is not interrupted because of their social bonding enabled by their teenagers' mobile phone
- 41.7% percent of PACG said that their family time with teenagers is interrupted to 'some extent'
- 19.1% agreed that their family time is interrupted.

A further breakdown of figures revealed the following facts:

- 25.6% of Pasifika PACG followed by 20.5% of Pakeha PACG said that it is not interrupting their personal time
- 33.3% of Indian PACG followed by 29.2% of Pasifika PACG who said to 'Some extent'
- 27.3% of Pasifika PACG and 22.7% of Indian PACG said that it does interrupt their personal time with teenagers.

### **5.6.2 Discussion**

The results reveal that the percentage of PACG who feel their personal time is interrupted to 'some extent', because of social bonding enabled by teenagers' using mobile phones, is higher than that of those who answered 'yes' or 'no'. A further analysis revealed that a higher percentage of Pasifika and Indian PACG say 'yes', that their personal time is interrupted or to 'some extent'. It is also noted, that Pasifika and Pakeha PACG feel that it is not interrupting their personal time with their teenagers.

Literature supports strongly that there is an intense social bonding enabled by teenagers using mobile phones, which is why researchers say that it has a focus on the teen culture (Ling, 2004b). The intensity of their social bonding hampers the relationships at family level and one such impact is felt on the personal time between the teenager and their PACG.

The possession of mobile phones by individuals of the family has diluted the collective identity of a family (deSouza, 2006). “Adolescence is a time in which the child is engaged in the establishment of their own identity, sometimes in the form of a revolution against the world of their parents” (Ling, 2001a, p. 4). Tutt (2005) attributes the notion of teenagers’ revolution against parents to two aspects viz. contradictory household rules and competing attention between peers. Vaidyanathan and Latu (2007) add that the attachment to this device both physically and emotionally, is on a gradually increasing scale that is resulting in a dilution of the family relationships. A study in UK showed that 77% of parents/caregivers agree that it is unreasonable to use their mobile phone for texting while in conversation with someone (it could be that PACG also feel that their personal time is interrupted because their teens keep texting while conversing with them).

In this study, Pasifika and Indian PACG expressed that mobile phones have come in the way of their personal time with their teenagers. The reasons for PACG feeling this way could be, as mentioned by the researchers, because of the contradicting house rules (Tutt, 2005) still staying in the traditional parenting norms (Williams & Williams, 2005), and concepts of control on their teens (Ling & Yttri, 2003). The other reason could be the strong social bonding that takes the teenagers away from spending time with their PACG. The reasons why mainly Pasifika and Indian PACG expressed that their personal time is being interrupted, is not very clear at this stage. It is assumed that it could be because of the strong family settings in those cultures.

It is interesting to note that the earlier results, on how secure PACG feel about their teenagers mobile phones during un-monitored time, revealed that Indian and Pasifika PACG expressed ‘secure’ whereas the same ethnic PACG have expressed that it interrupts their personal time with their teenagers. By pulling the pieces together, analysis of the two results leaves the following observations:

- Both Indian and Pasifika PACG acknowledge that their teenagers’ mobile phones are interrupting their personal time
- At the same time, they feel secure about their usage during un-monitored times.

While the first observation speaks about the intensity of social networks, the second observation clarifies that the content is secure and, hence, PACG establish a trust/reliance on their teenagers or frequent monitoring although it is not evident in PACG awareness/unawareness of teenagers' mobile phone usage.

The themes that emerged from the responses given by PACG on negative impacts are that texting is considered a waste of time, an addiction, and an obsession (shown in table 5.8). This further confirms that the thumb generation are more intense with texting and the bulk of time allocated to this activity is very high. To gossip, flirt, start or break up romantic relationships, send text messaging just because they are in plans such as text 2000 are some of the reasons why teenagers use mobile phones for (covered in section 2.3.4). All these activities are time-consuming deeds and tend to take away time that would normally be spent on other activities such as time spent with PACG, study time, or exercise time.

Hence, literature clearly indicates that mobile phones have come in the intersection of PACG and their teenagers. At what other levels the impact is felt (in the present study, it is on PACG personal time with teenagers) and at what intensity, are some aspects that could be researched further.

## ***5.7 PACG Perceptions on Secure with Teenagers' Un-monitored Times Usage***

### **5.7.1 Inferential Analysis: Results of quantitative data**

From the survey quantitative results, 'ethnicity' emerged as a significant variable in determining PACG perceptions on feeling secure with teenagers' using mobile phones during un-monitored times

- 53% percent of PACG said that they feel secure about their teenagers' mobile phone usage during un-monitored hours, such as after school and before parents arrive home from work
- 30.4% of PACG indicated as to some extent, meaning that they feel secure only to some extent
- 5.2% of PACG agreed that they do not feel secure about their teenagers' mobile phone usage during un-monitored times.

A further breakdown based on ethnicity revealed the following:

- 26.2% Pasifika PACG felt 'Secure' followed by 23% of Indian PACG
- 34.3% of Pasifika responded that they feel secure only to 'Some extent' followed by 22.9% of Indian PACG who feel the same
- 66.7% of Fijian PACG feel 'Not secure' followed by 33.3% of Pasifika who feel the same
- 22.5% of Pasifika and Others PACG said 'Don't know'.

### **5.7.2 Discussion**

The results reveal that the percentage of PACG who feel secure is higher than that of those who do not feel secure. A further analysis revealed that Pasifika and Indian PACG feel more secure when compared to PACG hailing from other ethnicities. The feeling of secure for PACG can be associated with two aspects viz. first, PACG having trust on their teenagers' mobile phone usage during un-monitored times and, secondly, parents monitoring their teenagers' usage. In the former instance, teenagers might be behaving in a mature manner such as using mobile phones for positive purposes or having the capacity to tackle troubles, if

any, via mobile phones. In the latter aspect, the monitoring of PACG might be more intense and frequent over their teenagers.

Katz (1997) states that an increasing number of mothers in the workforce affected the coordination of parents with their children, which in turn has led to a dilution of traditional ways of supervision. At this juncture, mobile phones have two significant roles. Firstly, to sustain family ties in spite of geographical distances such as reaching the teenagers, communicating (from work place) with the teenager (at home) and enquiring about their security. Secondly, family bonds are diluted, as monitoring becomes less frequent than that of a face-to-face environment.

There is another concern expressed by researchers that teenagers send or receive SMS even at midnight while lying under the sheets implies the discrete nature of the communication and also the impracticality of monitoring (Eldridge & Grinter, 2001; Ling, 2004c). The research carried out in NZ in 2005 by Netsafe, revealed that the percentage of parents unaware of the usage of mobile phones for illegal activities is significantly higher than those who are aware (section 2.3.7). The same study revealed that 31% of parents/caregivers are unaware of whether teenagers are woken every night by a text message or a call (table 2.4).

Therefore, PACG feeling secure or not secure depends upon how much they are aware of teenagers' usage during un-monitored times. In this study, Indian and Pasifika PACG exhibit higher levels of feeling secure (not sure of whether PACG are aware or unaware) about teenagers' mobile phone usage, while Fijian and Pasifika PACG report a lower level of secure feeling (not sure of whether PACG are aware or unaware). It is interesting to note that it is again Pasifika and Indian PACG who expressed 'some extent' with medium secure feeling (not sure of whether PACG are aware or unaware) about their teenagers. There is no data determining the awareness/unawareness of PACG and, hence, the notion is not explored further.

In addition, the percentage of PACG who said 'don't know' is significantly high. The findings also reveal that Pasifika PACG responded in high percentages across all the options viz. feeling 'secure', 'some extent', 'not secure' and 'don't know'.

By linking the literature with the findings of this study, in addition to PACG trust/reliance and/or PACG frequent monitoring that contribute to their secure feeling, another factor determines the perceptions of PACG on teenagers' mobile phone usage during un-monitored times. This factor is PACG awareness/unawareness of teenagers' mobile phone usage.

Although there is literature-based evidence on parents/caregivers (in general) for the factors mentioned above, there is no literature available that is based on cultural perceptions. In a multi-cultural country like New Zealand, ethnicity plays a major role in the society. Hence, the gap thus identified paves the way for future research, and the researcher suggests a further probe into aspects such as ethnicity intersecting with technology on a daily basis.

## 5.8 PACG Perceptions on Risks and to Ban Using Mobile Phones while Driving

### 5.8.1 Thematic Analysis: Interview answers

All the PACG expressed that mobile phone usage while driving is risky and recommended a ban. Considering this as a vital issue, comments of all the PACG, are reproduced in table 5.9.

Table 5.9 PACG responses on risks and to ban using mobile phones while driving

| PACG   | To ban | PACG Responses   |
|--------|--------|--|
| PACG 1 | Yes    | <i>When you are driving, using cell phone is very risky. My teenage son will never answer his phone when he is driving, which is very crucial.</i>   |
| PACG 2 | Yes    | <i>Not at all happy using a cell phone while driving as I have older teenagers and some of them drive. I care for their lives and it is definitely risky.</i>  |
| PACG 3 | Yes    | <i>It is dangerous while driving. So many countries, they banned use of cell phone while driving but New Zealand is somewhat mellow. Use of cell phone while driving should be banned.</i>   |
| PACG 4 | Yes    | <i>Driving is the main concern to me. The main thing is, I just see people texting. My sister texts while she is driving and it is very annoying and dangerous and you will see they are not turning because they are on the phone... texting. The other thing I don't like when it comes to cell phones, is when you're driving and someone else is texting or on the phone, which is also no good. There should be no cell phones used inside a car not just drivers but other passengers too.</i>   |
| PACG 5 | Yes    | <i>It is a major hazard to use mobile phones while driving. I think I would strongly advocate if I have chances to amend or make laws that no one should be on their mobile phone while driving. Yes! The world will not end when you don't take calls while driving And if it is that extremely urgent going back home from the hospital and the patient is dying and you're wanted at the hospital I would definitely advice such people to pull over, have a conversation, and drive back but that is only for doctors and police. I think all others can survive their driving without cell phones. There should be an absolute ban.</i> |
| PACG 6 | Yes    | <i>Mobile phones during driving should not be used at all.</i>   |
| PACG 7 | Yes    | <i>Driving is a big thing. I have seen people talking and texting on the phone while driving and it is quite annoying as you are on the road. Concentrate on mainly driving, is a concern. Yeah there should be a ban.</i>   |

The summarised responses that provide evidence to consider a ban on using mobile phones while driving are:

- Very risky
- Very crucial
- Care for teenagers lives
- Texting while driving
- Annoying and dangerous
- Passengers using also distracts the driver
- It is a major hazard
- Should not be used at all
- Talking and texting while driving
- Driving is a concern
- Concentrate while driving

Themes thus emerged from the responses of PACG are shown in table 5.10.

Table 5.10 *PACG responses and themes on using mobile phones while driving*

| <b>Reflections</b>                   | <b>PACG responses</b>   | <b>Themes emerged</b>                  |
|--------------------------------------|---|--|
| Responses that reflected risks       | Very risky<br>Very crucial<br>Dangerous<br>Passengers using cell phones also distracts the driver<br>major hazard | <b>Dangerous</b><br><b>Distraction</b> |
| Responses that reflected concerns    | Texting while driving<br>Texting and talking while driving  | <b>Texting</b>                         |
| Responses that reflected suggestions | Care for lives<br>Concentrate while driving<br>Should not be used at all  | <b>Care</b><br><b>Concentration</b>    |

### 5.8.2 Inferential Analysis: Quantitative data results

From the quantitative results, 'ethnicity' established a statistically significant relationship with both using mobile phones while driving is risky as well as proposing a ban:

- 67.8% of PACG considered mobile phone usage while driving is risky and 70.4% recommended a ban to use while driving
- 07% of PACG considered that mobile phone usage might probably be risky and 13.9% said that probably there should be a ban
- 22.6% of PACG felt it is not risky and only 13% felt that there should be no ban on using mobile phones while driving.

A further breakdown based on ethnicity revealed the following:

- The highest percentage of PACG, hail from Indian ethnicity who consider mobile phone usage while driving is risky (24.4%) and who propose a ban on use (24.7%)
- Pasifika PACG were the highest in percentage who said 'no' to both driving associated risks (57.7%) and to propose a ban (73.3%)
- The highest percentage who consider risky and said 'probably' was Maori PACG (37.5%) whereas the highest who support ban and said 'probably' were the Pasifika (37.5%).

There is a similarity in responses with ethnic groups in responses for the options 'yes' (Indian PACG for considering risky and supporting ban) and 'no' (Pasifika PACG for considering risky and supporting ban). There is dissimilarity in responses from ethnic groups was noticed with regards to the option 'probably' (Maori PACG for considering risky and Pasifika PACG for supporting a ban).

### 5.8.3 Triangulation and Discussion

From both the results, it was evident that a high percentage of PACG (100% in interviews and 67.8% percent from survey) are claiming that it is risky to use a mobile phone while driving and recommend a ban on use while driving (100% from interviews and 70.4% percent from survey). In addition to this, PACG expressed their concerns about driving while responding as a negative impacts of mobile phones (shown in table 5.8).

From the interviews, the two major themes associated with risks are 'Dangerous' and 'Distraction' which were repeated by more than one PACG. 'Care for lives' and 'Concentrate while driving' are the two suggestions that emerged out of the themes. Also in the interviews, PACG 03 compared New Zealand with other countries that already have banned using mobile phones while driving. He used the word *mellow*, which depicts that this country is slow and placid in taking decisions on such a vital issue.

The literature clearly suggests that using a mobile phone while driving is dangerous and risky (Townsend, 2006). However, whether the public follows the rules if a ban is imposed is again an issue. If banned, is it going to be a short-time effect until there is silence on the issue or a long-time acceptance with proper awareness to the dangers? This became a concern for the researchers who observed the patterns of mobile phone usage before and after the legal ban in the UK in December 2003. The same researchers observed the patterns after a year and noted that mobile phone usage was back to the regular levels of usage despite the ban (Johal et al., 2005). As mentioned by PACG in this study, and supported by the above, it is a particular concern for teen drivers (Walsh et al., 2007).

It can be concluded that PACG consider using mobile phones while driving is risky and hence propose a ban. Whether it is going to be a short-term adherence or long-term acceptance is again something to wait and watch. However, literature clearly indicates that there are risks associated with driving and mobile phones, and proposes a ban. Appendix E shows the countries that have banned/proposed ban using mobile phones.

## 5.9 PACG Perceptions on Supporting an Age Limit to Possess Mobile Phones

### 5.9.1 Thematic Analysis: Interview answers & survey qualitative component

Considering this as an important issue, and is also the outcome for the study, all the answers of interview PACG are reproduced in table 5.11

Table 5.11 PACG responses on considering an age limit to possess a mobile phone

| PACG   | Age limit | PACG answers   |
|--------|-----------|--|
| PACG 1 | 13        | <i>No, I don't think it is needed because teenagers need it and that too only to contact the family.</i>   |
| PACG 2 | 16        | <i>Yes, an age limit is good. From this age, teenagers are mature enough to handle contents of mobile phones.</i>  |
| PACG 3 | 16        | <i>That is a borderline for them to be mature enough to handle the activities of cell phones. It again depends on the family situation. If the PACG feels confident of their teenager then they can have it earlier, if not even later.</i>  |
| PACG 4 | 16        | <i>That is the age they will be old enough to use it.</i>  |
| PACG 5 | 14-15     | <i>This can be the minimum age because at 14-15 kids are mature enough to handle mobile phones and probably do require them, as they have to be independent while going to school/home. Having a cell phone at this time can be handy to communicate in case of any problems or any emergency.</i>                       |
| PACG 6 | 14        | <i>14 is a good age because they are legally allowed to stay alone at home and also they will be mature enough to handle it. It again depends upon the family situation. In case of a single parent, the necessity is higher. On negotiation can have it a little earlier but I say it should be 14 years and above.</i> |
| PACG 7 | 14        | <i>would consider having an age limit on possessing a cell phone, I think 14 would be good only because with the constant threat of text bullying from others, anyone younger would find it difficult to deal with.</i>  |

Calculating the average of all the minimum ages mentioned by PACG, according to the present study, 14 years is the recommended age for teens to possess mobile phones.

The themes thus emerged from the responses are shown in table 5.12.

Table 5.12 *PACG responses and themes on age limit for teenagers to possess mobile phones*

| <b>Reflections</b>                     | <b>PACG responses</b>  | <b>Themes emerged</b>                   |
|--|--|---|
| Responses that reflected age factor    | Mature enough to handle the contents of mobile phones<br>Border line to exhibit maturity<br>PACG confidence on teenagers to determine<br>Old enough<br>they will be independent<br>Legal age to stay at home | <b>Maturity</b><br><b>Legal</b>         |
| Responses that reflected concerns      | Threat of bullying<br>Younger teenagers would find it difficult to deal with bullying  | <b>Bullying</b><br><b>Vulnerability</b> |
| Responses that reflected uses          | Communications<br>emergency purposes<br>Single parent<br>other family situations   | <b>Need</b>                             |
| Responses that reflected other factors | Only for contacting parents  | <b>Control</b>                          |

The major themes are ‘Maturity’ of teenagers and ‘Legal age’. Both these themes reflect the level of physical and psychological development in teenagers that in turn establishes a confidence with their PACG to provide them with a mobile phone. Need for the device reflects that mobile phones are a necessity from an appropriate age for some family situations. Concerns expressed are bullying and vulnerability of teenagers to handle the consequences. Control is another factor where PACG determines the purpose of their teenagers’ mobile phones.

It can be concluded, that a minimum age of 14 years to possess a mobile phone might reduce the chaos being caused because of mobile phones, as the teenagers will be ready to handle the phones well and tackle the unwanted contents.

### **5.9.2 Inferential Analysis: Results of quantitative data**

The ethnicity of the PACG has an established significant relationship in PACG perceptions on whether to have an age limit for teenagers to possess a mobile phone.

- 35.7% of PACG expressed that there should be no age limit for teenagers to possess mobile phone.
- 25.2% say 'probably' there should be an age limit
- 27.8% agreed that there should be an age limit
- 9.6% PACG said 'don't know'.

A further breakdown basing on ethnicity revealed the following:

- 25.0% of Indian PACG, followed by 21.9% of Pasifika PACG, responded 'yes', meaning that there should be an age limit to possess a mobile phone.
- 37.5% of Indian PACG said 'probably', followed by 18.8% of Pakeha, Others and Maori PACG agreeing to the response.
- 51.2% of PACG of Pasifika, followed by 14.6% of Pakeha PACG, said 'no', meaning that there should be no age limit to possess a mobile phone.

### 5.9.3 Discussion

Connecting the major themes that emerged from interview responses, with the quantitative data results, it is evident that having an age limit for teenagers to possess a mobile phone is considered as an option by many PACG. Although the percentage of PACG who said 'no' is relatively higher than the others, the collective response of 'yes' and 'probably' add up to the highest percentage.

Some of the assumptions underpinning the quantitative results with interview responses are:

- PACG who expressed 'yes' must have considered the maturity of teenagers or the legal age of teenagers to stay alone as the factors to determine cell phone possession.
- PACG who responded 'probably' imply that other factors will determine their teenagers possessing cell phones such as a single parent situation, confidence in PACG on their teenagers that they can handle the cell phones.
- PACG who expressed 'no' could prefer to set some controls over their teenagers such as allowing them to use their phones only for contacting their parents/caregivers or it could demonstrate their trust and reliance on their teenagers.

Hence, it can be concluded that having an age limit for teenagers to possess a mobile phone is a recommendation by the PACG from this study. Setting an age limit can either be legal or by PACG (tailor-made solution for each teenager). Above all, educating teenagers on proper use of mobile phones, highlighting the consequences of negative impacts and training them to handle and tackle the problems are some of the solutions that will bring forth the best possible use of mobile phones. Such education should also be on a regular basis and some of the avenues for possession are PACG, extended family members, schools, peers, media and service providers.

There is no literature-based support for this proposal and hence this leaves scope for further research.

### 5.10 *Synthesis of Discussion*

Three major demographic variables were chosen as independent variables (ethnicity, gender and age group) and were cross-tabulated with all the dependent variables (frequency scale responses). There was no significant relationship established between ‘age group’ of the teenagers and the dependent variables through Chi-Square tests.

Chi-Square tests established significance with the following relationships:

1. ‘Gender’ with ‘teenagers sharing with PACG, if bullied’
2. ‘Ethnicity’ with ‘Interruption of personal time with PACG’
3. ‘Ethnicity’ with ‘PACG feeling secure during un-monitored times’
4. ‘Ethnicity’ with ‘PACG feeling using mobile phones while driving is risky’
5. ‘Ethnicity’ with ‘PACG feeling to ban mobile phone use while driving’
6. ‘Ethnicity’ with ‘PACG feeling to have an age limit to possess a mobile phone’.

‘Gender’ established a significant relationship with the aspect of teenagers sharing with PACG, if bullied and the results revealed that girls share more than boys do.

It is explicit that ‘ethnicity’ is the only variable that established relationship with five dependent variables. The results revealed that:

- PACG feel secure on teenagers’ usage of mobile phones during un-monitored times
- Their personal time is interrupted on account of teenagers’ social bonding via mobile phones
- PACG consider using mobile phones while driving as risky
- They support ban on using mobile phones while driving
- PACG consider that there ‘should be’ or ‘probably should be’ an age limit for teenagers to possess a mobile phone.

‘Ethnicity’ having established a relationship with five dependent variables gave a new focus to the study as there is no literature available (as far as researcher knows) to support or oppose this relationship. The summaries of discussions where the triangulation was done in context of the literature (from section 5.3 to 5.9) are presented here. They also provide answers for the research question/sub-questions that are mentioned beneath each summary.

**Summary of Section 5.3:** PACG consider mobile phones as a useful and essential device for teenagers and, at the same time, they express a concern that teenagers would be out of control for PACG, if they were provided with mobile phones.

*Research question: What is the overall perception of PACG on their teenagers' mobile phone possession (both positive purposes and negative impacts)?*

**Summary of Section 5.4:** On a positive note, PACG express that the basic purpose of a mobile phone is to communicate, co-ordinate, use in emergency purposes and is a safety device. Raising the negative consequences of teenagers' using mobile phones, PACG show concerns on text messaging, and health aspects, issues related to macro-coordination and risks while driving.

*Research question: What is the overall perception of PACG on their teenagers' mobile phone usage (both positive purposes and negative impacts)?*

**Summary of Section 5.5:** All the interviewed PACG declare that mobile phones are potential devices for bullying to take place. In this context, independent variable 'gender' established a significant relationship with whether the teenagers share with their PACG, if bullied. The pattern thus emerged showed that girls share this information with PACG more than boys do. On the other hand, literature stated that girls are more likely to be victims and victimisers.

*Research sub questions: How PACG feel about safety of their teenagers' mobile phone use, especially with bullying? & Do the teenagers share with their PACG if they get bullied via mobile phones?*

**Summary of Section 5.6:** In this study, the independent variable 'ethnicity' showed significance with the issue of PACG feeling interrupted/un-interrupted with the social bonding enabled by their teenagers' mobile phone. Indian and Pasifika PACG responded 'yes' and 'to some extent' that their personal time with teenagers is interrupted because of social bonding enabled by teenagers' mobile phones. Pasifika and Pakeha PACG express 'no', meaning that it does not interrupt. Literature supported the notion of PACG that the intensity of social bonding enabled by teenagers' mobile phones distracts teenagers from doing other activities such as study time and exercise time. According to this study, it could apply to family time also.

*Research sub question: What is the impact on family time because of social bonding enabled by teenagers' mobile phones?*

**Summary of Section 5.7:** In this study, the independent variable ‘ethnicity’ showed significance with the issue of PACG feeling secure/not secure with their teenager’s mobile phone usage during un-monitored times. Indian and Pasifika PACG responded that they feel ‘secure’ with their teenagers using mobile phones during un-monitored times and the same group PACG expressed ‘to some extent’. Fijian and Pasifika PACG expressed that they feel ‘not secure’ with their teenagers using mobile phones during un-monitored times. It was assumed that it was because PACG trust their teenagers and/or undertake regular supervision. PACG awareness/unawareness of teenagers’ mobile phone usage could not be explored.

*Research sub question: How PACG feel about security of their teenagers’ mobile phone use, such as use during un-monitored times?*

**Summary of Section 5.8:** All the PACG from the interview (and nearly 70% of survey participants) expressed that using mobile phones while driving is risky and hence support a ban. The literature has strong evidence to support the responses from the current study both in terms of risks associated with using mobile phones while driving and to ban their use. In this issue also, the independent variable ‘ethnicity’ showed significance with both the risks associated while driving and supporting a ban.

*Research sub questions: Is mobile phone use risky while driving? & Should mobile phone be use be banned, while driving?*

**Summary of Section 5.9:** All the PACG from the interviews express that an age limit would be beneficial for teenagers to possess a mobile phone. The average age suggested by PACG is 14 years. The reasons for the suggested age are teenagers’ will be more mature and it is a legal age for teenagers to do activities (such as staying alone at home) independently. Survey results support that there ‘should be’ or ‘probably should be’ a minimum age for teenagers to have a mobile phone. However, there is no literature available to support this notion. Bullying is expressed as a major concern and the issues of handling this becomes a problem for teenagers

*Research sub question: Should there be a minimum age limit to possess a mobile phone?*

Two research sub-questions viz. the effects of text language on proper language and text on communication skills have not established significant relationships through Chi-Square tests, they were expressed by PACG as concerns both via surveys as well as interviews. However, PACG express concerns on texting of teenagers such as teenagers being obsessed and addicted to texting. They also feel that teenagers tend to use text language at school and associated activities (further highlighted in the next chapter) and, similarly, text messaging is expressed as hampering communication skills. The concerns are further explored in the next chapter where the individual responses of PACG are assessed.

### *5.11 Chapter Summary*

The chapter discussed the perceptions of PACG, both from the interviews and from the survey, about the possession of mobile phones by their teenagers, in the context of the published literature. Then the positive purposes and negative impacts of teenagers' mobile phone use were discussed. Some important themes were brought out , were discussed, and triangulated with the literature.

Those quantitative results that a established significant relationship through Chi-Square tests were discussed and triangulated with the interview responses (wherever possible) They included bullying issues, interruption of personal time, mobile phone usage during un-monitored times, driving and associated risks, ban to use while driving and age limit for teenagers to possess a mobile phone.

The chapter ended with a synthesis of discussions. The next chapter will highlight the responses of individual PACG from interviews that are mapped against the literature-based framework (figure 2.1).

## Chapter 6: Mapping PACG Responses

### 6.1 *Introduction:*

This chapter looks at the responses of individual PACG from the interviews, and the answers from the open-ended questions in the survey. These responses are mapped against the literature-based Framework on Uses and Impacts of Mobile Phones (figure 2.1) with the coding key shown in figure 6.1.

Individual PACG frameworks and survey responses are organised in three matrices viz. features/gadgets in mobile phones, uses of mobile phones and Impact of mobile phones, which are further explained. Responses of PACG laid the basis for a PACG-based framework as shown in figure 6.9. A summary of the framework is provided and the chapter ends with a chapter summary.

### 6.2 *Background Information for Mapping*

The responses that emerged from the entire interview (not just focussing on particular questions) and open-ended questions of survey are compared against the literature-based framework. By doing so, the following are identified:

- The basic features/gadgets that PACG prefer to have in their teenagers' mobile phones
- The main uses (positive purposes) stated by PACG.
- The impact (consequences and concerns) that PACG expressed in relation to mobile phones
- Other uses or impacts that were not mentioned in the initial literature-based framework shown in figure 2.1
- The similarities and differences between the literature-based framework (figure 2.1) and PACG responses
- Gaps that give scope for further research.

While reproducing the interview excerpts, the researcher is identified with the initials as 'SR' and the PACG are identified with their identification numbers from PACG 1 to PACG 7.

The following colour coding scheme shown in figure 6.1 is used on the figures 6.2 to 6.8 that highlight the responses of interviewed PACG. It is also used in the matrices (tables 6.1 to 6.3) that highlight the overall responses from both the interviews as well as the survey qualitative component.

The colour coding is only used to indicate the weighting given by PACG between uses (positive purposes) and impacts (consequences and concerns)

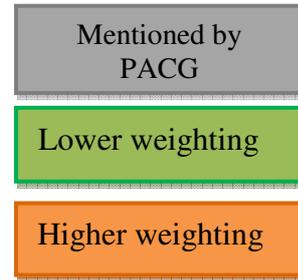
As mentioned, responses include gadgets/features of mobile phones, their uses and impacts.

|   |  |
|---|--|
|    | Un-shaded were not mentioned by PACG   |
|    | Grey shaded were mentioned by PACG   |
|  | Green shaded indicates that PACG considers this area has lower weighting than the orange shaded  |
|  | Orange shaded indicates that PACG considers this area has higher weighting than the green shaded |

*Figure 6.1* Coding key

### 6.2.1 PACG 1

- Communicate with family
- Security reasons
- Used in emergencies
- Social networking
- Micro-coordinate
- Macro-coordinate
- Listen to music
- Download information
- Play and have fun with games and ring tones
- Texting is discrete, no noise pollution



*Impacts outweigh uses for PACG 1*

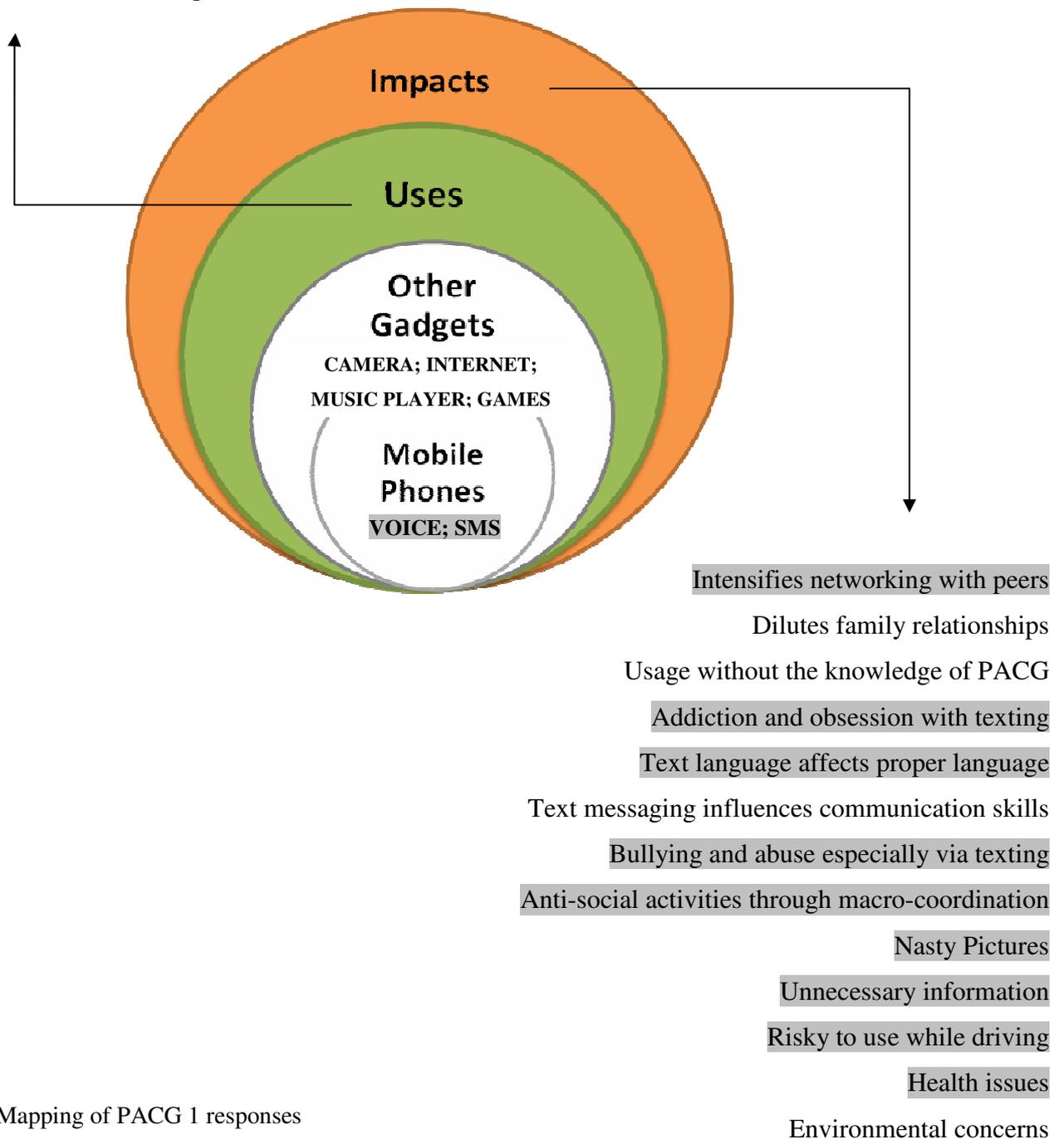


Figure 6.2 Mapping of PACG 1 responses

**PACG 1 is the mother of a teenage girl. She has provided her teenager with a mobile phone.**

PACG 1 says that teenagers mobile phone is meant for communication with PACG for security reasons and is also used in case of emergency. Considers voice and text as features required for her teenager's mobile phones. Some of the interview excerpts are reproduced here that clearly state that PACG has set boundaries for her teenagers mobile phone usage (control issue).

*SR: Why do you feel that your teenager should have a mobile phone?*

PACG 1: Only for parents to contact them and only for them to contact me. I am a full time employee and we need to contact her for security purposes.

*SR: What are the facilities/gadgets you think your teenager's phone should have?*

PACG 1: Just text messaging and voice

*SR: What is your opinion on text messaging?*

PACG 1: I hate it. I do not like it. Not only just in terms of the English vocabulary, also in terms of how much time children spend on text messaging. It is an addiction.

PACG 1 has clearly defined terms for allowing her teenager to use a mobile phone. Considering that text messaging affects language and is an addiction, she has her teenager on a plan that enables her teenager only to contact PACG. She considers she is not happy with the unnecessary messages that pour in via mobile phones and hence feels insecure. Because of such distractions, her teenager's mobile phone is connected only to contact PACG. She expresses unhappiness over group texting and anti-social activities. She considers radiation from mobile phones, is a health issue, and using while driving as a risk. She strongly opposes using text language in exams.

It is noted that PACG 1 feels negative impacts outweigh positive purposes and, hence, exhibits a strong control over her teenager's mobile phone use. She considers the minimum age should be 13 to possess a mobile phone, for connection only to their PACG.

6.2.2 PACG 2

Communicate with family

Security reasons

Used in emergencies

Social networking

Micro co-ordinate

Macro co-ordinate

Listen to music

Download information

Play and have fun with games and ring tones

Texting is discrete, no noise pollution

Mentioned by PACG

Lower weighting

Higher weighting

*Impacts outweigh uses for PACG 2*

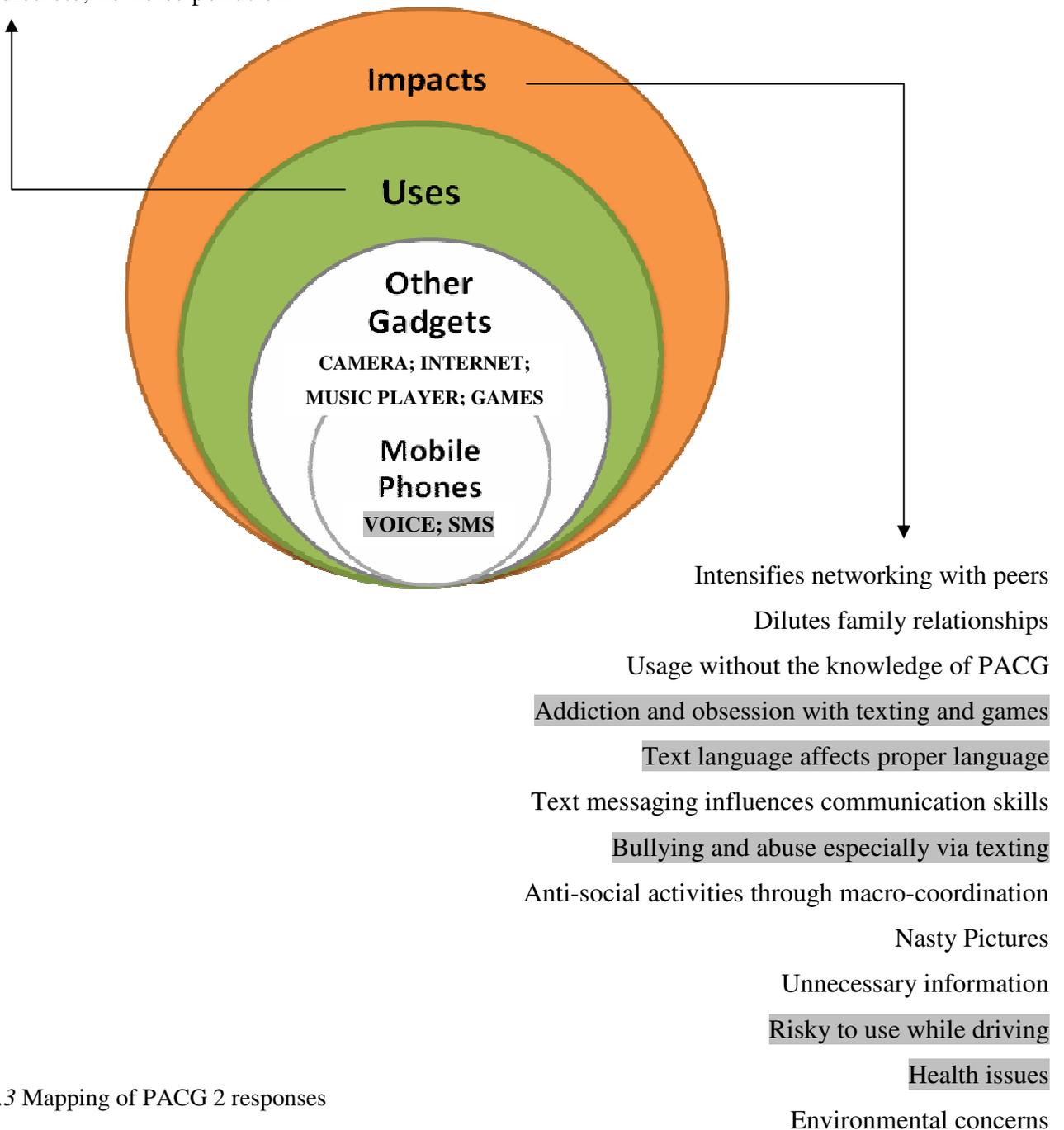


Figure 6.3 Mapping of PACG 2 responses

**PACG 2 is the mother of three teenage boys. All her boys have mobile phones for themselves.**

PACG 2 considers that mobile phones are basically for contacting family, security and emergency purposes. Some of the interview excerpts are reproduced here that clearly state that, because of mobile phones, teenagers tend to become lazy (Health issue). Considers that voice and text necessary for teenagers mobile phones. Some of the interview excerpts are reproduced here

*SR: Do you have any health concerns with teenagers using mobile phones*

PACG 2: Walking is good for health. With text messaging, they tend to communicate from home and stay back and feel too lazy to spend time outside.

*SR: How about using them while driving?*

PACG 2: Not at all happy using a cell phone while driving as I have older teenagers and some of them drive. I care for their lives and it is definitely risky.

*SR: Which one do you feel weighs more: Positive purposes or negative impacts?*

PACG 2: Definitely negatives. More bad than good. My husband still hesitates to get cell phone/s for our grown up children. So, mobile phones are not recommended for children unless they are mature enough to handle them.

PACG 2 expresses that her teenagers' mobile phone is bringing in more un-happiness to the family. She feels that mobile phones are a good medium for bullying to take place. She feels that using phones while driving is risky and is worried about her older teenagers who use mobile phones while driving. She strongly opposes using text language in exams.

It is noted that PACG 2 feels negative impacts outweigh positive purposes. Recommends an age limit for teenagers to possess a mobile phone, which should be 16 years. She connects the age to the level of maturity to handle the consequences.

6.2.3 PACG 3

- Communicate with family
- Security reasons
- Used in emergencies
- Social networking
- Micro-coordinate
- Macro-coordinate
- Listen to music
- Download information
- Play and have fun with games and ring tones
- Texting is discrete, no noise pollution

- Mentioned by PACG
- Lower weighting
- Higher weighting

*Impacts outweigh uses for PACG 3*

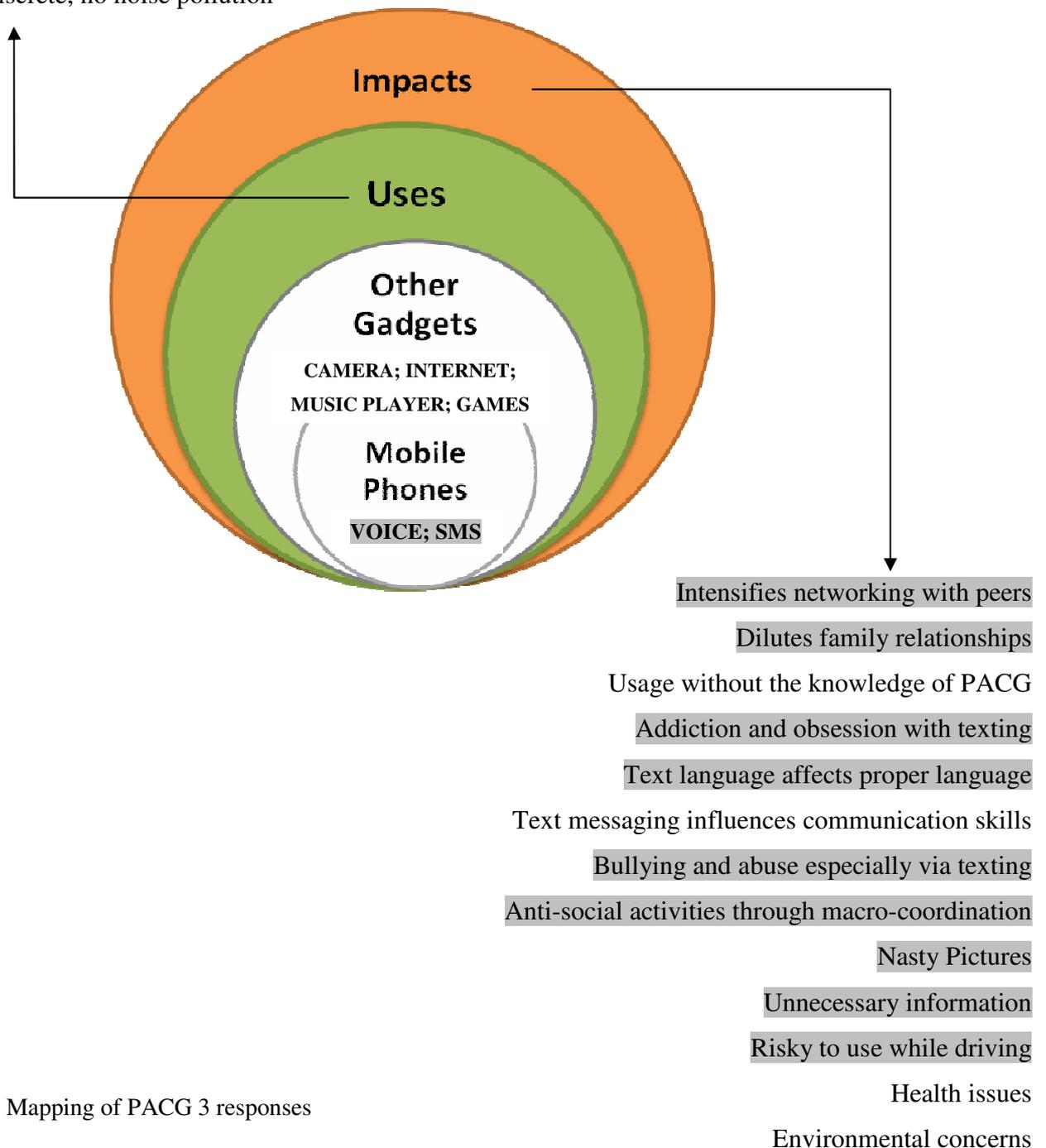


Figure 6.4 Mapping of PACG 3 responses

**PACG 3 is the father of a teenage boy. The teenager does not possess a mobile phone.**

He considers mobile phones for teenagers are basically for contacting parents for emergency and security reasons. He uses the word *insurance* if you have a mobile phone, meaning that it helps you in case of emergencies. Considers that voice and text are necessary for teenagers' mobile phones. Part of the interview excerpts are given here. His answers on negative aspects of mobile phones give a greater insight into PACG concerns.

*SR: What is your opinion on text messaging?*

PACG 3: It has reached a point where it is too much. You know how many texts teenagers send a day. We have some students who cannot stop it. It is just a security thing. It is addiction and insecure. Text message is one of the tools to grab your identity such as who you are. It is a connection between your friends and just by using text message, you can reveal to them who you are and it is insecure... as it is connected within the circle.

*SR: Is there anything else you would like to add to our discussion today?*

PACG 3: It is just overwhelming information in one hand in a small box. That's what it is, it is too much information for one individual I think. The company comes up with gadgets every single year. For economy, they have to add those unnecessary features...gadgets... to grow up teenage customers. You know, you watch TV; they are targeting teenagers using those tagging, designs.... Therefore, I think everything brings together a hip-hop culture in New Zealand, and cell phone culture, internet culture in New Zealand. Stop somewhere and it can make everything the way you want. So we have to have some kind of restriction otherwise you know, just have destruction I think. Technology has to stop somewhere. If you get to the maximum, maybe we should stop right there and just turn.

PACG 3 has strong opinions about his teenager possessing mobile phones. He fears losing control over his teenager if he is provided with one because he thinks that mobile phones are detrimental for teenagers' progress because of distractions and insecurity. He has expressed his unhappiness over the way technology is heading and bringing in chaos and indiscipline.

He said negatives definitely outweigh positives and suggests a minimum of 14 years to possess a mobile phone.

6.2.4 PACG 4

Communicate with family

Security reasons

Used in emergencies

Social networking

Micro-coordinate

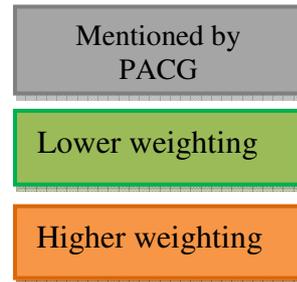
Macro-coordinate

Listen to music

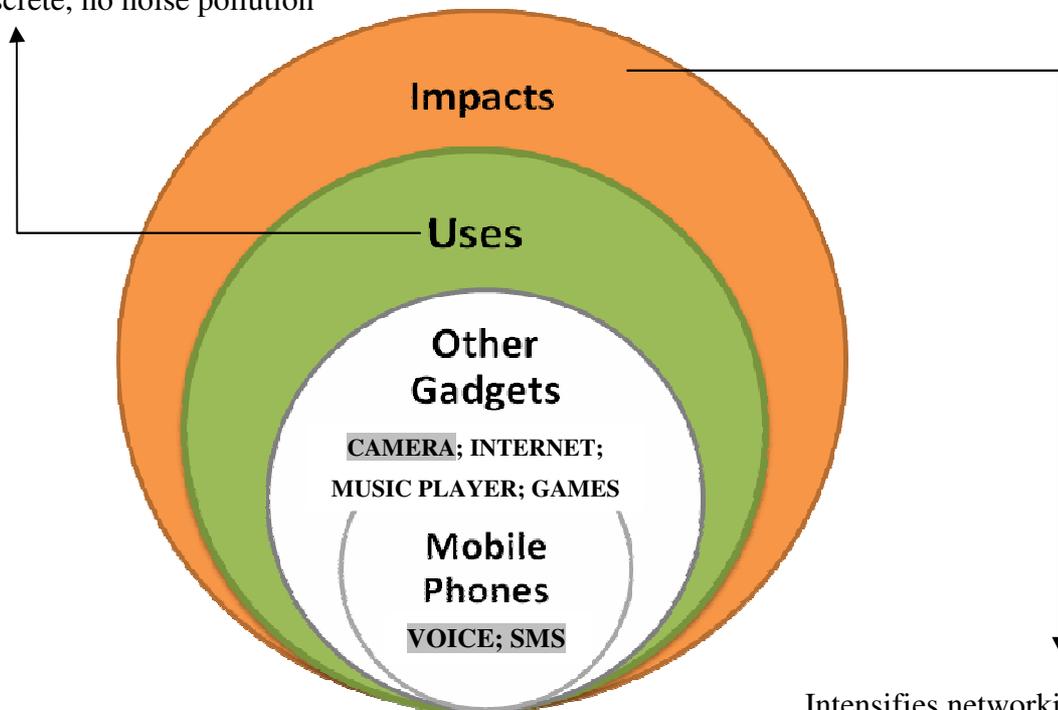
Download information

Play and have fun with games and ring tones

Texting is discrete, no noise pollution



*Impacts outweigh uses for PACG 4*



- Intensifies networking with peers
- Dilutes family relationships
- Usage without the knowledge of PACG
- Addiction and obsession with texting
- Text language affects proper language
- Text messaging influences communication skills
- Bullying and abuse especially via texting
- Anti-social activities through macro-coordination
- Nasty Pictures
- Unnecessary information
- Risky to use while driving
- Health issues
- Environmental concerns

Figure 6.5 Mapping of PACG 4 responses

**PACG 4 is the guardian of a teenage girl. The teenager possesses a mobile phone.**

PACG 4 considers teenagers' mobile phones are basically to contact, and co-ordinate at a micro-level. Also used for security reasons and emergencies. Considers that voice, text as necessary and camera to be OK for teenagers' mobile phones. Parts of interview excerpts are reproduced here.

*SR: What do you think of risks, using mobile phones while driving?*

PACG 4: I just see people texting, my sister texts while she is driving and it is very annoying and then it's like when you're on the road and you'll see they're not turning because you're on the phone texting. That is the only thing I do not like when it comes to cell phones, is when you're driving and someone else is texting or on the phone which is again a distraction, it slows down your reflexes.

*SR: Are you aware of any adverse aspects of using mobile phones, such as bullying or harassment?*

PACG 4 Yeah, I did. I used to work with someone who was going to secondary school to talk to students about bullying and how bad it was.

*SR: Any health issues you worry about with mobile phone usage?*

PACG 4: When you are charging the phone, you are not supposed to be on the phone as well. That is the only health risk I see.

PACG 4 expresses that teenagers are using mobile phones for inappropriate purposes. She feels that texting is an addiction and annoys her although she considers texting plans such as 'Text 2000' is good (credit on phones not needed to make a call) and cost-effective. She expresses concern over primary school children having a mobile phone and says 'that is bad'. Bullying is expressed as a major concern for PACG 4. She strongly opposes using text language in exams. PACG 4 opposes using mobile phones while driving. She considers even co-passenger speaking over phone while driving, also as a distraction. The health concern expressed was radiation from mobile phones, although she has personally not witnessed any such impact. She has no environmental concerns.

It is noted, that PACG 4 feels negative impacts outweigh positive purposes. Recommends an age limit for teenagers to possess a mobile phone, which should be 16 years.

6.2.5 PACG 5

- Communicate with family
- Security reasons
- Used in emergencies
- Social networking
- Micro-coordinate
- Macro-coordinate
- Listen to music
- Download information
- Play and have fun with games and ring tones
- Texting is discrete, no noise pollution

- Mentioned by PACG
- Lower weighting
- Higher weighting

*Uses outweigh impacts for PACG 5*

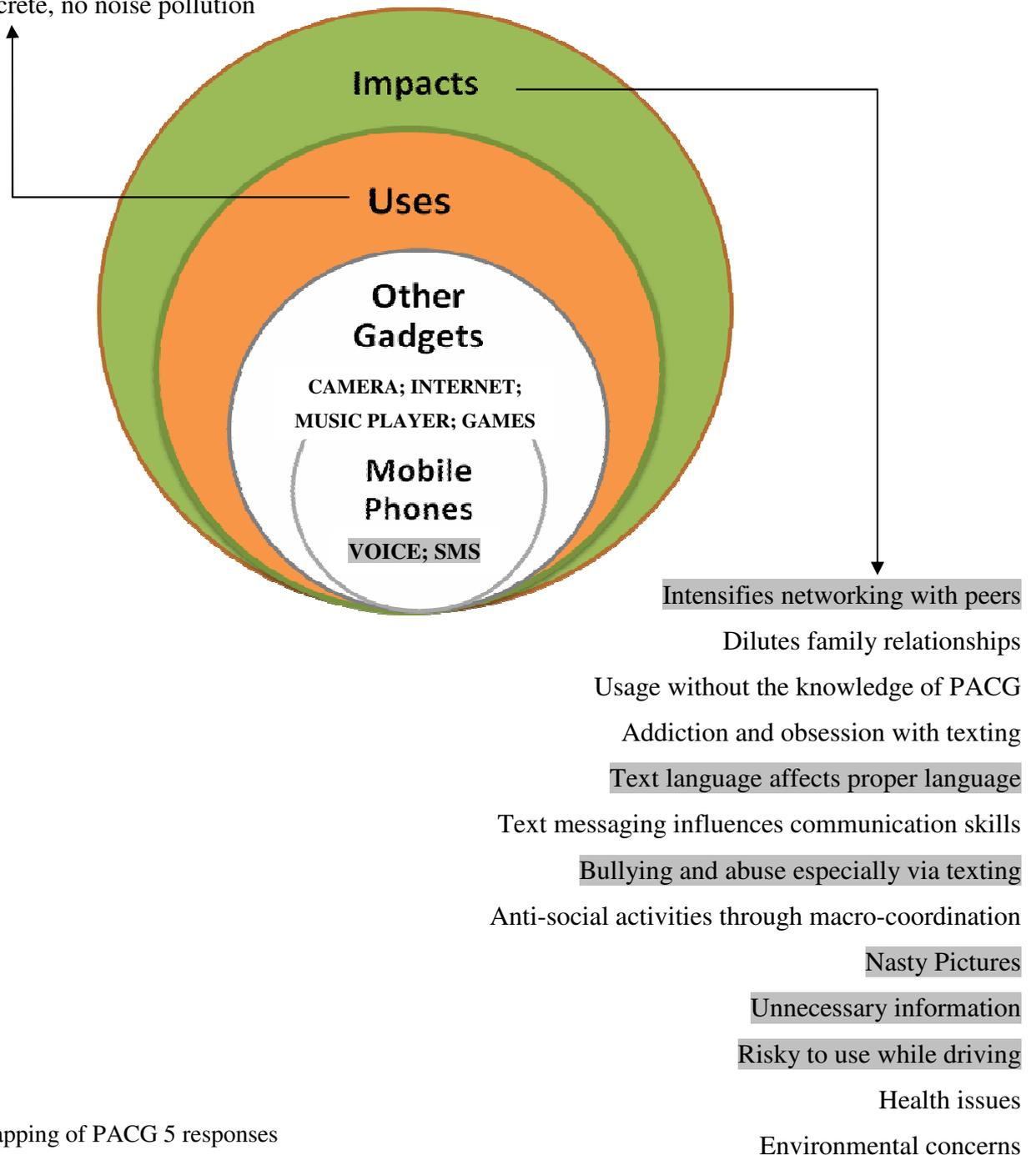


Figure 6.6 Mapping of PACG 5 responses

**PACG 5 is the father of a teenage boy. The boy has two mobile phones.**

The teenager of PACG 5 has two mobile phones with the same service provider with two different plans: One phone with texting plan and the other with calling plan. Considers that voice and text are required for teenagers' mobile phones. Some of the interesting excerpts are reproduced here.

*SR: Does your teenager have mobile phone?*

PACG 5: Yes! I have one boy who is 17+ just entering uni this year and he has two mobile phones.

*SR: Is it from two different providers like Vodafone and Telecom, or from the same provider?*

PACG 5: Good question, anybody would have thought, it would have been two different providers. No, he has both attached to Vodafone. One is prepaid, another is billing, and as you might have known, you know these service providers endure and entice you with different kinds of options. So I think, he uses one mainly for texting purposes with peers, where he is on a big texting plan. On the other, it is for us to call him or he calls us.

*SR: What is your opinion on text messaging?*

Cost is the main factor. Actually, with text messaging, the advantage I would see is if I am speaking to you now and if there is a text message, I would definitely look at it later and I can be in a position to reply. Whereas if I miss a call now, definitely I have to call the person again because they would have left a message on my phone. Whereas texting it is there and one can view it and reply to it at a later stage which is convenient. So it is not the cost factor alone, cost is also another factor but I would say in terms of convenience and priority, I would say text messaging is better than calls.

PACG 5 is a strong supporter of mobile phones and says that mobile phones have eased comfortably their lives. He wishes that with more competition the prices could come down. He adds that mobile phones keep people cheerful and happy. Concerns expressed, in addition to bullying, are talking over the phone loudly, which he thinks is *exasperating*, ring tone is a *nuisance* and claims them to be social behaviour. He strongly opposes using text language in exams. PACG 4 feels positive purposes outweigh negative impacts he recommends that 14-15 years should be the minimum age as teenagers are mature and independent by then.

6.2.6 PACG 6

- Communicate with family
- Security reasons
- Used in emergencies
- Social networking
- Micro-coordinate
- Macro-coordinate
- Listen to music
- Download information
- Play and have fun with games and ring tones
- Texting is discrete, no noise pollution

Mentioned by PACG

Lower weighting

Higher weighting

*Impacts outweigh uses for PACG 6*

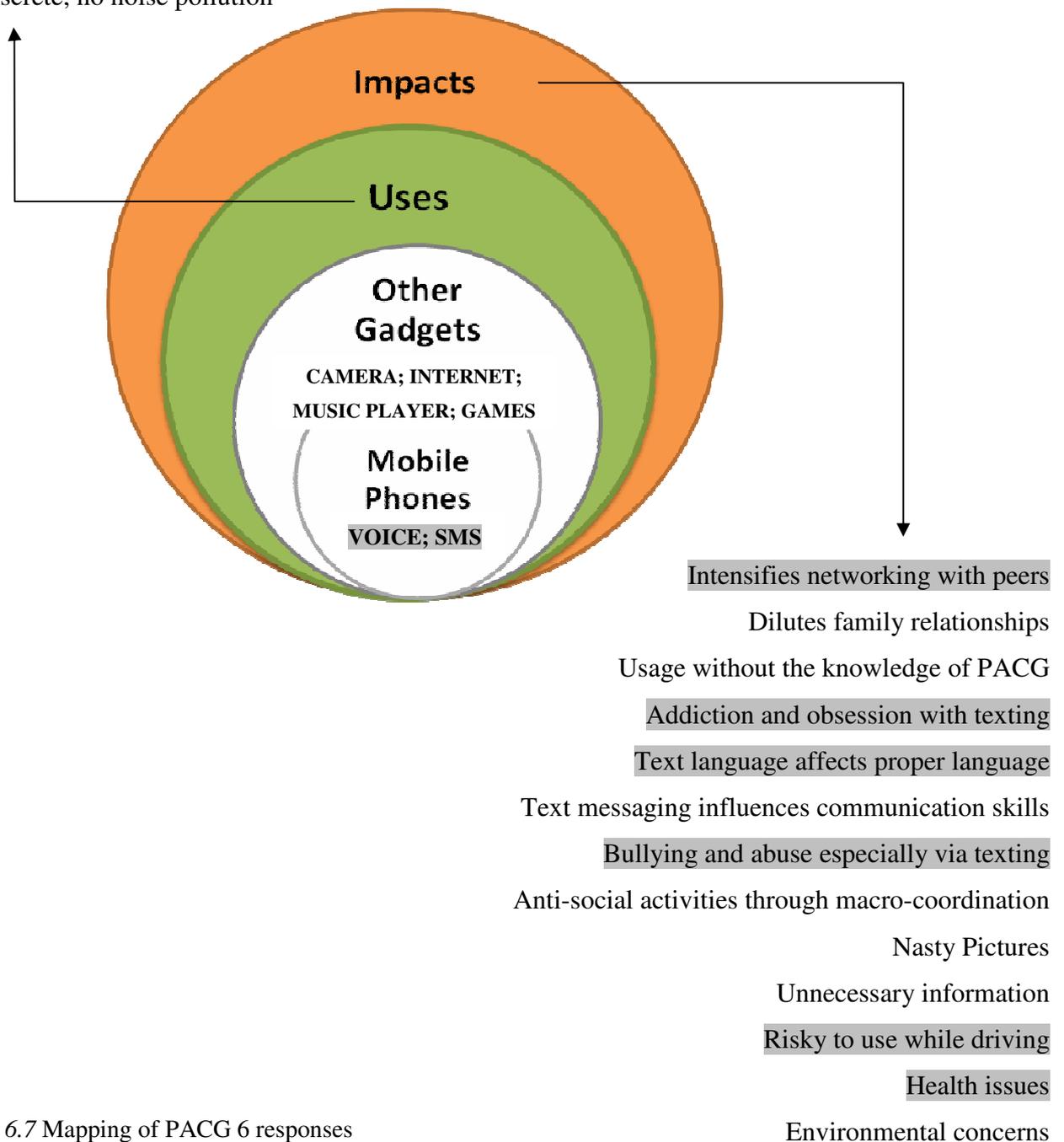


Figure 6.7 Mapping of PACG 6 responses

**PACG 6 has one teenage boy who has a mobile phone, which is suspended temporarily because of some technical repairs.**

PACG 6 main purpose for her teenager's mobile phone is to contact her and feels it is necessary for her family situation, as she is a solo parent. Security and emergencies are the other reasons that she raised in the conversation. PACG 6 approves of only voice and text for her teenager's mobile phones. Parts of interview excerpts are reproduced here.

*SR: What is your opinion on text messaging?*

PACG 6: It's probably a cheaper and more economic way to contact but when my son keeps receiving text messages and it's really silly and all the time sending receiving text messages like... what's up... just nonsense and wasting the time and so....

*SR: Are you aware of any adverse aspects of using mobile phones, such as bullying or harassing?*

PACG 6: Yes, my son has been getting some a while ago. When he saw abusive messages, he did not like it and he switched it off. He went next day, and asked another friend and he was also receiving similar messages that was kind of a worry to me, but he changed school after that (meaning that he started going to high school) and it is no longer a problem.

*SR: Should there be an age limit to possess mobile phones? If so, why?*

PACG 6: 14 is a good age because they are legally allowed to stay alone at home and they will be mature enough to handle it. It again depends upon the family situation. In case of a single parent, the necessity is higher. On negotiation they could have it little earlier but I say it should be 14 years and above.

PACG 6 expresses concerns on brain damage while using mobile phones and strongly advocates not to use them while driving and supports a ban. Although her son received abusive messages, she complimented her son for switching off the phone and checking with his other friend if they are getting similar ones. This also implies that her son shares with PACG in such situations. Although she has expressed that it is a useful device for her family situation, she feels that negatives outweigh positives. She strongly opposes using text language in exams.

6.2.7 PACG 7

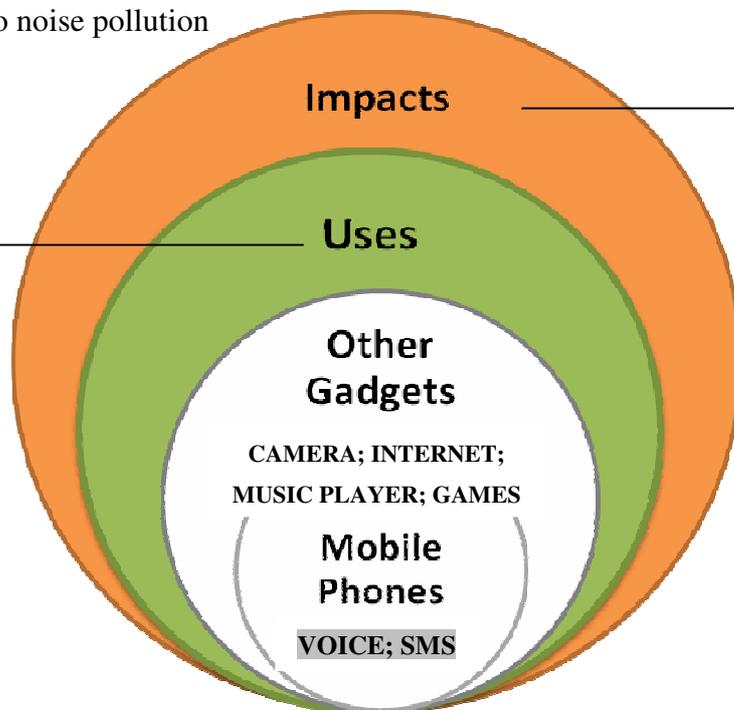
- Communicate with family
- Security reasons
- Used in emergencies
- Social networking
- Micro-coordinate
- Macro-coordinate
- Listen to music
- Download information
- Play and have fun with games and ring tones
- Texting is discrete, no noise pollution

Mentioned by PACG

Lower weighting

Higher weighting

*Impacts outweigh uses for PACG 7*



- Intensifies networking with peers
- Dilutes family relationships
- Usage without the knowledge of PACG
- Addiction and obsession with texting and games
- Text language affects proper language
- Text messaging influences communication skills
- Bullying and abuse especially via texting
- Anti-social activities through macro-coordination
- Nasty Pictures
- Unnecessary information
- Risky to use while driving
- Health issues
- Environmental concerns

Figure 6.8 Mapping of PACG 7 responses

**PACG 7 is the mother of a teenage girl. The girl has a mobile phone.**

PACG 7 main purpose of her teenager's mobile phone is to contact her. Security and emergencies are the reasons that she mentioned in the conversation. PACG 7 approves only voice and text for her teenager's mobile phone. She strictly says no to Camera. Parts of interview excerpts are reproduced here.

*SR: Why do you think other features/gadgets are not necessary?*

PACG 7: It is because I cannot control the content.

*SR: What is your opinion on text messaging?*

PACG 7: That is fine to some extent. Maybe people get a bit dodgy when they are texting, and cannot really stop. I find it annoying as well as it is more personal. I am not a big fan of texting; I do not know its standards, but we need to speak and write proper English. Texting is not proper English.

PACG 7 considers texting and driving at the same time is very bad. She feels that negatives outweigh positive uses and supports having an age limit for using mobile phones. She says, "I think 14 would be good only because with the constant threat of text bullying from others, anyone younger would find it difficult to deal with".

### 6.3 Matrices of PACG Responses (interview and survey responses)

Individual PACG responses (section 6.2.1 to 6.2.7) and responses of PACG from the survey qualitative component (open-ended questions) are summarised and shown in the matrices (table 6.1 to 6.3). They are classified into three categories:

- 1) The features/gadgets that PACG recommend for teenagers mobile phones (table 6.1)
- 2) The uses (positive purposes) of teenagers' mobile phones (table 6.2)
- 3) Impact (consequences and concerns) from teenagers' mobile phone usage (table 6.3)

#### 6.3.1 Perceptions of PACG on features/gadgets in a mobile phone

Features/gadgets that PACG feel are required for teenagers' mobile phones both interviews (from the entire interview) and survey, are shown in table 6.1.

Table 6.1 Summary of PACG responses on features/gadgets in mobile phones

| Responses | 1 | 2 | 3 | 4 | 5 | 6 |
|-----------|---|---|---|---|---|---|
| PACG 1    |   |   |   |   |   |   |
| PACG 2    |   |   |   |   |   |   |
| PACG 3    |   |   |   |   |   |   |
| PACG 4    |   |   |   |   |   |   |
| PACG 5    |   |   |   |   |   |   |
| PACG 6    |   |   |   |   |   |   |
| PACG 7    |   |   |   |   |   |   |
| Survey    |   |   |   |   |   |   |

1. Voice
2. SMS
3. Camera
4. MP3 (Music Player)
5. Games
6. Internet

Not mentioned by  
PACG

Mentioned by  
PACG

All the interviewed PACG said that, only Text and Voice are required for their teenagers' mobile phones excepting PACG 4 who said camera is OK. The survey participants mentioned that mobile phones are basically for communicating and contact. Hence, it is presumed that

surveyed PACG require text and voice facility in their teenagers' mobile phone (because there was no question in the questionnaire that gave data for this). Also, from the survey responses, two PACG expressed that their teenagers use their mobile phones to listen to music, and also attached a negative expression to it (such as obsession and teenagers' choice). Similarly, another PACG also had a negative comment on teenagers' games in mobile phones (teenager is obsessed with it).

It is interesting to note that no PACG in survey questionnaires, mentioned a camera facility in their teenagers' mobile phones. PACG 4 from the interview was the only one to say that it is OK to have a camera in her teenager's mobile phone (not mentioning any usage or significance such as clicking pictures, for this gadget to be in teenagers' mobile phones).

Internet is the facility that was vehemently opposed by the interviewed PACG, and there was absolutely no mention about this in the survey questionnaires. The reasons given by PACG were high costs involved for accessing internet via mobile phones, high prices for mobile phones with internet facilities and the control aspect. PACG felt that teenagers would be out of control and they would have no control over the information.

Therefore, it could be interpreted that although PACG have expressed their views about Voice, SMS, Camera, Music and Games either in interviews or through questionnaires, the majority feel that the basic voice and text features are good enough for teenagers' mobile phones.

### 6.3.2 Perceptions of PACG on the uses of mobile phone

The uses of teenagers' mobile phones that are derived from the responses of interview (from the entire interview) and survey PACG, is shown in table 6.2. They are compared against the uses from the literature-based framework (figure 2.1).

Responses from the interview participants are highlighted further with the same colour-coding (figure 6.1), signifying the weighting given by interview PACG. As used in individual PACG responses, the weighting is compared between the uses and impacts. Hence, the comparison of weighting is between table 6.2 (uses) and table 6.3 (impacts). However, the responses from the open-ended questions are colour coded as just 'mentioned', because PACG did not reveal the weighting in the survey questionnaires.

Table 6.2 Summary of PACG responses on uses of mobile phones

| Responses | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|-----------|---|---|---|---|---|---|---|---|---|----|
| PACG 1    |   |   |   |   |   |   |   |   |   |    |
| PACG 2    |   |   |   |   |   |   |   |   |   |    |
| PACG 3    |   |   |   |   |   |   |   |   |   |    |
| PACG 4    |   |   |   |   |   |   |   |   |   |    |
| PACG 5    |   |   |   |   |   |   |   |   |   |    |
| PACG 6    |   |   |   |   |   |   |   |   |   |    |
| PACG 7    |   |   |   |   |   |   |   |   |   |    |
| Survey    |   |   |   |   |   |   |   |   |   |    |

1. Communicate with family
2. Security reasons
3. Used in emergencies
4. Social networking
5. Micro-coordinate
6. Macro-coordinate
7. Listen to music
8. Download information
9. Play and have fun with games and ringtones
10. Texting is discrete, no noise pollution

|                       |
|-----------------------|
| Not mentioned by PACG |
| Mentioned by PACG     |
| Lower weighting       |
| Higher weighting      |

PACG 1 to PACG 7 expressed that mobile phones are basically used for communicating. In addition, security reasons and emergency purposes were also mentioned. Both PACG 4 and PACG 5 mentioned that they are for co-ordinating things on a micro-level. PACG 5 mentioned that his teenager uses it for socialising with friends. Survey participants also mentioned all the uses that interview participants revealed. In addition, they also mentioned about teenagers mobile phones being used for listening to music as well as playing games.

During interviews, PACG declared the weighting that they gave, either to uses (positive purposes) or to the impact (consequences and concerns), and hence, the responses are colour coded in orange (PACG consider higher weighting) and green (PACG consider lower weighting). However from the survey responses it was not evident whether PACG considered positive purposes outweighed negative impacts or vice versa and hence they are colour coded grey indication as 'mentioned'.

Listening to music was mentioned by two PACG from the survey and the reason given by one PACG was that, her teenager bought the cell phone with *his money* and *he wanted* to have music facility in it. The other PACG used the word *obsession* regarding her teenager listening to music via mobile phones. One PACG from the survey mentioned that the games in his teenager's cell phone are *irritating* as the teenager is *obsessed* with it.

PACG from the survey added that possessing mobile phones is a fashion and familiarises people with technology. Hence, the added purpose of 'Trend' is included in the PACG-based framework, which was not there in the literature-based framework (figure 2.1).

Considering the negative comments from the survey PACG, with respect to music and games, and based on table 6.2, table 5.2, and table 5.3, and it is concluded that the main purpose of teenagers' mobile phones are:

1. Communicate with family
2. Security reasons
3. Used in emergencies
4. Social networking
5. Micro-coordinate
6. Trend

### 6.3.3 Perceptions of PACG on the impacts of mobile phone

Impact of teenagers' mobile phones that are derived from responses of interviewed (from the entire interview) and surveyed PACG is shown in table 6.3. They are compared against the impacts from the literature-based framework (figure 2.1).

As mentioned in previous section responses from the interview participants are highlighted further with the same colour-coding (figure 6.1), signifying the weighting given by interview PACG. The comparison of weighting is between table 6.2 (uses) and table 6.3 (impacts). The survey responses are indicated as 'mentioned' as there is no data indicating the weighting.

Table 6.3 Summary of PACG responses on impacts of mobile phones

| Responses | 1                 | 2                | 3 | 4                 | 5                 | 6                 | 7                 | 8                 | 9                | 10                | 11                | 12                | 13 |
|-----------|-------------------|------------------|---|-------------------|-------------------|-------------------|-------------------|-------------------|------------------|-------------------|-------------------|-------------------|----|
| PACG 1    | Higher weighting  |                  |   | Higher weighting  | Higher weighting  |                   | Higher weighting  | Higher weighting  | Higher weighting | Higher weighting  | Higher weighting  | Higher weighting  |    |
| PACG 2    |                   |                  |   | Higher weighting  | Higher weighting  |                   | Higher weighting  |                   |                  |                   | Higher weighting  | Higher weighting  |    |
| PACG 3    | Higher weighting  | Higher weighting |   | Higher weighting  | Higher weighting  |                   | Higher weighting  | Higher weighting  | Higher weighting | Higher weighting  | Higher weighting  |                   |    |
| PACG 4    |                   |                  |   | Higher weighting  | Higher weighting  |                   | Higher weighting  |                   |                  |                   | Higher weighting  | Higher weighting  |    |
| PACG 5    | Lower weighting   |                  |   |                   | Lower weighting   |                   | Lower weighting   |                   | Lower weighting  | Lower weighting   | Lower weighting   |                   |    |
| PACG 6    | Higher weighting  |                  |   | Higher weighting  | Higher weighting  |                   | Higher weighting  |                   |                  |                   | Higher weighting  | Higher weighting  |    |
| PACG 7    |                   |                  |   | Higher weighting  | Higher weighting  | Higher weighting  | Higher weighting  |                   |                  |                   | Higher weighting  | Higher weighting  |    |
| Survey    | Mentioned by PACG |                  |   | Mentioned by PACG |                  | Mentioned by PACG | Mentioned by PACG | Mentioned by PACG |    |

1. Intensifies networking with peers
2. Dilutes family relationships
3. Usage without the knowledge of PACG
4. Addiction and obsession with texting and/or games
5. Text language affects proper language
6. Text messaging influences communication skills
7. Bullying and abuse especially via texting
8. Anti-social activities through macro-coordination
9. Nasty pictures
10. Unnecessary information
11. Risky to use while driving
12. Health issues

Not mentioned by  
PACG

Mentioned by  
PACG

Lower weighting

Higher weighting

### 13. Environmental concerns

All the PACG from the interviews expressed that text language affects proper language and hence did not support using text language in exams. This was also raised by PACG from survey. They also considered bullying and abuse via mobile phones as a major concern. In addition, all the PACG considered using a mobile phone while driving is risky which was also mentioned by the survey PACG.

The other major issue was texting, which was described by PACG as an addiction, obsession, irritating. The good thing about texting, as expressed by PACG, is the cost factor. PACG consider it is cost effective and convenient for contacting and organising pick-ups, which was also noticed in survey responses.

The two issues that were not mentioned either by PACG in interviews or through survey, were teenagers using mobile phones without the knowledge of PACG, and Environmental concerns.

It is difficult to determine whether teenagers are using mobile phones without the knowledge of PACG, as this study is from the standpoint of PACG. Regarding environmental concerns, although PACG mentioned about radiation and radio wave emission, they were only referring to it from a teenagers' health point of view, but not as an environmental concern. Lack of awareness on the detrimental effects on the environment could be one of the reasons for PACG not to mention this factor.

There are other concerns (in addition to those mentioned in the literature-based framework) that PACG expressed, both via interviews and surveys and they are:

1. Lessens physical activity (included in health issues)
2. No text language in exams (included in text language affects proper language)
3. Social behaviour (such as speaking loudly and annoying ringtones in public places)
4. Loss of control for PACG over the teenager
5. Loss of control for teenager over the information
6. High calling rates (which is leading teenagers towards texting and, hence, no balance of use between voice and text).



By linking the factors on table 6.3 with the literature-based framework (figure 2.1) and the themes shown in table 5.8, it is therefore concluded that teenagers' mobile phones are creating the following impacts, consequences and concerns:

1. Intensifies networking with peers (which has more bad than good)
2. Dilutes family relationships
3. Addiction and obsession with texting and/or games
4. Text language affects proper language (should not be used in exams)
5. Text messaging influences communication skills
6. Bullying and abuse especially via texting
7. Anti-social activities through macro-coordination
8. Nasty pictures
9. Risky to use while driving
10. Health issues (lessens physical activity)
11. Social behaviour (such as speaking loudly and annoying ringtones in public places)
12. Loss of control for PACG over the teenager
13. Loss of control for teenager over the information
14. High calling rates (which is leading teenagers towards texting and hence, imbalance of use between voice and text).

Thus, the features/gadgets, uses of teenagers' mobile phones, impact (consequences and concerns) mentioned by survey and interview PACG, put together, aided to come up with the PACG-based framework shown in figure 6.3.

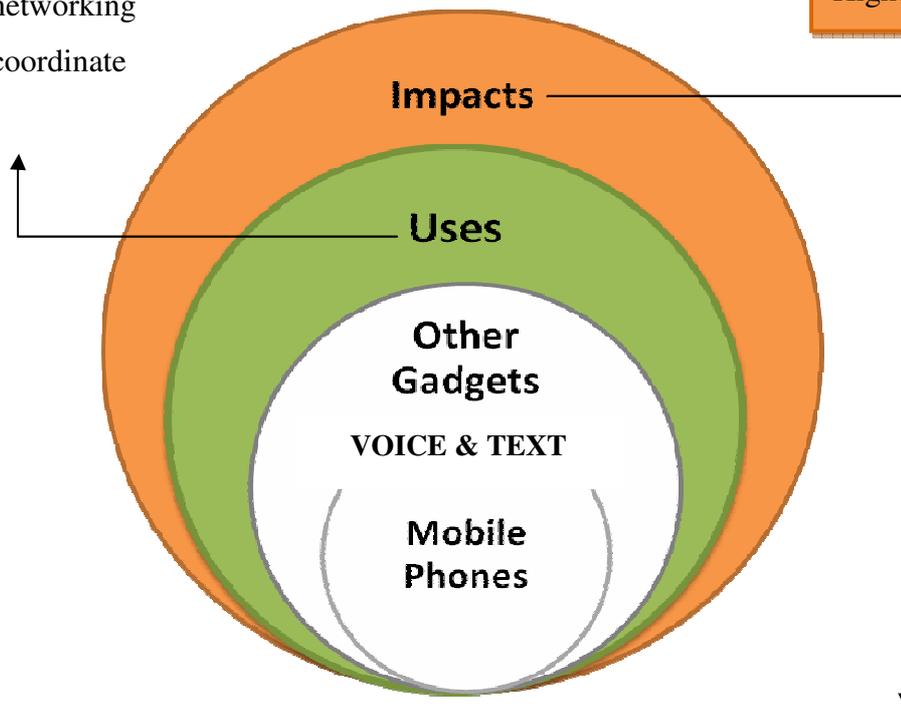
### 6.4 PACG-based Framework (interview and survey responses)

(Based on Features/gadgets, Uses and impacts of mobile phones)

- Communicate with family
- Security reasons
- Used in emergencies
- Social networking
- Micro-coordinate
- Trend

Lower weighting

Higher weighting



- Intensifies networking with peers
- Dilutes family relationships
- Addiction and obsession with texting and games
- Text language affects proper language
- Text messaging influences communication skills
- Bullying and abuse especially via texting
- Anti-social activities through macro-coordination
- Nasty pictures
- Unnecessary information
- Risky to use while driving
- Health issues
- Social behaviour
- Loss of control for PACG over the teenager
- Loss of control for teenager over the information
- High calling rates

Figure 6.9 PACG-based framework

## 6.5 Summary of the PACG-based Framework

**Features/Gadgets:** PACG consider that teenagers' mobile phones should have the two basic features of text and voice. Hence, only Voice and Text are shown in the PACG-based framework.

**Uses:** The uses of mobile phones are identified as follows:

1. Communicate with family
2. Security reasons
3. Used in emergencies
4. Social networking
5. Micro-coordinate
6. Trend

Hence, only these uses are mentioned in the PACG-based framework. Five other uses mentioned in literature-based framework were deleted. The additional use mentioned by PACG is to keep up with the technology and fashion, which is termed as 'Trend'.

**Impacts:** The impact, consequences and concerns raised by PACG are the following. The list has four more factors added to the initial literature-based framework. They are:

1. Social behaviour (such as speaking loudly and annoying ringtones in public places)
2. Loss of control for PACG over the teenager
3. Loss of control for teenager over the information
4. High calling rates (which is leading teenagers towards texting and hence, no balance of use between voice and text)

There are two impacts deleted from the literature-based framework because none of the PACG raised them in this study.

Six out of seven PACG consider that negative impacts outweigh uses (positive purposes), constituting eighty six percent. Therefore, the impacts are colour coded orange (PACG consider higher weighting when compared to uses) and the uses are coloured in green (PACG consider lower weighting when compared to impacts).

## 6.6 *Chapter Summary*

Individual responses of PACG from the interviews are mapped based on the literature-based framework and a figure is presented. The details of responses of PACG, including some excerpts from the individual interview sessions, are given after each PACG individual framework.

Then three matrices were derived based on features/gadgets, uses and impacts based on the responses of both individual and survey participants that gave an overall picture of PACG perceptions in this study. This helped to arrive at a PACG-based framework showing the features/gadgets, uses and impacts (consequences and concerns included) of PACG.

Based on chapter five (discussion and triangulation) and chapter six (PACG-based framework), the next chapter will provide a summary of the study with the concluding thoughts of the researcher and PACG-based recommendations.

## Chapter 7: Conclusion and Recommendations

### 7.1 Introduction

The final chapter of this thesis summarises the overall perceptions of PACG of teenagers' mobile phone usage particularly focussing on the impacts. Alongside, the concluding thoughts of the researcher are also highlighted.

Recommendations for promoting better use of mobile phones, mainly to outweigh the negative impacts, are acknowledged. In addition, some avenues for further research are identified. Strengths and limitation of the study are given, which helps the reader to understand the value and weight of the study. One of the most important factors of the research is to reflect upon the journey, which is expressed at the end of the chapter. Thus, this chapter sums up the thesis.

### 7.2 Summary and Concluding thoughts

This study focussed on understanding the impact of mobile phones from parents/caregivers' (PACG) perspective. A mixed methods approach was employed to explore the research question. Quantitative data was collected through questionnaires, and qualitative data through interviews. The survey and interview participants were parents/caregivers of teenagers aged 13 to 19 years, irrespective of whether they possessed a mobile phone.

The findings from this study revealed that parent/caregivers' perceptions on teenagers' mobile phone use are not satisfactory. Every interviewed PACG expressed concerns on internet via teenagers' mobile phones and a very high number (n=6, which is 86%) of them expressed negative impacts outweighing positive purposes of mobile phones.

67% (n=78) of survey PACG and 100 % (n=7) of interview PACG agreed that using mobile phones while driving is risky. Similarly, 70.4% (n= 81) of survey PACG and 100% (n=7) of interview PACG supported ban to use while driving. 27.8% of surveyed PACG said that there should be a minimum age limit to possess a mobile phone, and 25.2% of PACG said there probably should be, which together amounts to 53% (n=61).

The major concerns expressed by PACG through this study are:

- Addiction to texting
- Bullying and abusive text messages
- Interruption of family time, study time and other distractions
- Use of mobile phones while driving (including use by co-passengers)
- Anti-social activities through macro-coordination
- Health issues such as lessening physical activity,
- Loss of control for PACG over the teenager
- Loss of control for teenager over the information.

With the wireless industry celebrating the 25th anniversary of the first commercial cell phone call made on October 13, 1983 (CTIA, 2008), and considering the perceptions of PACG of this study, it is probably timely and a right topic to reflect upon.

Communication is the invisible thread that connects humans. Humans feel connected through technology only because connection is the main element of technology which speeds up, intensifies and widens communication. The fact that humans are connected in a virtual world through various devices is an invaluable contribution that technology has given to society. Society and technology are in an inseparable state. Society without technology may not accomplish all that it desires but it can be sustained, whereas to uphold technology without society is something next to impossible. Technology has the power to influence society but to what extent, is again dependent on to what extent society can make use of technology.

Carlson (2004) rightly said about teenagers, by using the word 'savvy' to demonstrate their digital ownership (technology) and 'crave' to exhibit their desire to communicate (connection) (p. 23). PACG, to set limits for their teenagers' association with mobile phones (which provides technical ownership) and to determine the levels for their aspiration for mobile phones (which enables connection) are something that has to be negotiated cautiously. This again depends on individual family situations, cultural influences and geographical locations. It is rightly said, "The issue of community in the digital age is positioned at the intersection between geography, communication and culture" (Cavanagh, 2007, p. 11).

Possibilities offered by technology can sometimes weaken one's resolve and incline them to possess the technological device (for teenagers in this case). In addition, the changing scenarios of society because of technology, in some ways influence the perceptions of people (PACG in this case). Considering the two-fold relationship of people with technologies, first, the way technologies create people's identities and, secondly, the way people make sense of technologies (Caronia, 2005), some assumptions underpinning the social/technological aspects portrayed by the researcher are outlined here:

- PACG and teenagers fall into two different generations, a social fact separated by technological pervasion
- Dissimilarity in communication patterns, a social understanding influenced by technological devices
- Shift of perceptions from traditional setting to flexible environment, a social situation changed by technological influences
- PACG are 'digital immigrants' and teenagers are 'digital natives', a social separation based on technological perceptions
- Levels of acceptance of technology vary between PACG and their teenagers, a social standing with a technological outlook
- Safety and security threats are increasing for teens and hence the concerns of PACG, inclusive of both social concerns and technological loopholes
- Impact of communication technologies on cultural aspects, which means impact of technology on cultural-based social attitude.

Thus the solutions for PACG concerns are both socially and technologically connected.

### 7.3 *Recommendations*

This study reveals that teenagers using mobile phones for co-ordinating their social life and subsequent distractions, have become appropriate/to some extent appropriate in some cultures and inappropriate in some. The alarming concerns of PACG have situated them in a position where they can neither accept the technology nor reject it. Thus, mobile phones, through which teenagers construct their selves and thus their community, have to find their place in culturally defined and socially shared practices. How is this possible?

There are no silver-bullet solutions to negate the negative consequences and to bring in a balance, but making an attempt will certainly reap rewards:

- Mobile phone makers and service providers researching on the social context of teenagers' mobile phone usage and then promoting products or services suitable to the research findings.
- Media taking a lead role in bringing to the knowledge of the general public about the negative consequences of mobile phone usage and tips to tackle such consequences.
- Allowing teenagers to use mobile phones by setting a minimum age limit (either legally or PACG to consider when it is appropriate) and by providing education (making the teens understand the negative impacts and the best ways to deal with them).
- PACG and the schools taking responsibility by portraying a bigger picture of the consequences, especially regarding bullying which is the most common problem in school going teenagers.
- Giving greater urgency in exploring the merits of curbing mobile phone use while driving, whether by education (highlighting the consequences of risks) and/or legislation (legally banning their use while driving).
- Above all, teenagers shouldering the responsibility for making the best possible use of the device.

#### ***7.4 Strengths and Limitations***

This study explored the impact, consequences and concerns of teenagers' mobile phone usage. A particular strength of this study is the parents/caregivers' viewpoint because their perceptions provide first-hand information with validity, potency, care and concern as the underpinning notions for their families as well as the society. Data were gathered from PACG of teenagers irrespective of teenagers' mobile phone possession. By doing so, the perceptions of PACG contained multifaceted information such as why teenagers should have mobile phones, why they should not have, what are the uses/implications if they have, and what if they do not have mobile phones.

The researcher's built-in love for the topic, prior publication and in-depth literature review laid a strong foundation upon which this study was built, and has two vital outcomes. First, PACG support the notion of setting an age limit for teenagers to possess mobile phones, which will help them with a mature handling of the device and thus reducing the negative impacts of mobile phones. This is a strength of the study because the suggestion appears to be the first of its kind and is an implementable solution. Secondly, PACG support the ban on use of mobile phones while driving. This will add strength to the existing research done on this issue and will provide evidence for the New Zealand government to consider.

The use of mixed methods is an added factor that has strengthened the foundation further. The survey sample size was reasonably large (although aimed at 100, reached to 115) which implies that the results could be applied to the population. The research design, with slight variation from the triangulation strategy, gave the researcher the scope and time to collect data from an un-biased sample. As mentioned in chapter three, the sequential data collection was mainly implemented to draw the interview PACG from the survey participants. By doing this, the researcher met the interviewee PACG for the first time and thus the possibility of getting un-biased answers was higher. In addition, a thorough scrutiny of questions with the help of supervisors for questionnaires and interviews aided the researcher to get the least biased responses from the participants.

The limitation of the study was mainly not having statistical information of the PACG of teenagers (ethnicity wise) although attempts were made (Appendices E & F), which in turn

made the researcher set a sample size without a basis. Although there was participation from all the three categories of PACG viz. mothers, fathers and others, the sample size contained more mothers (n=73) than fathers (n=35) and others (n=7), which was only a co-incidence. There was higher participation from certain ethnic groups (Pasifika and Indian) and minimal numbers from certain ethnic groups (Maori and Fijian) which was, again, a co-incidence.

### ***7.5 Further Research***

The findings of this research suggest that PACG of teenagers feel that negative impacts outweigh positive purposes from teenagers' mobile phone usage. The study also showed a significant relationship between gender of the teenager and the bullying issue. In addition, ethnicity has an established significance with many of the issues raised in the study. This gives a new focus for the study. Some of the areas for research, as indicated by the outcome of the study, are:

- Social implications of teenagers' mobile phone usage (particular focus on bullying and abusive text messages)
- Technical aspects of mobile phones in a social context (improve the functionality that can negate the negative consequences, at least to some extent)
- Ethnicity and mobile phone technology (study of individual ethnic groups)
- Educating teenagers on better usage (via media, service providers, schools and PACG)
- Schools and students' mobile phones (use of mobile phones for pedagogy purposes)
- Use of mobile phones while driving (both hand-held and hands-free)
- Minimum age limit for teenagers to possess a mobile phone (either PACG to implement or could be legal).

## 7.6 *Reflections on my Study:*

This thesis challenged me in several ways at various stages, right from setting a scope for the topic until coming to the end of the study. It set a platform for me upon which I could express my concerns on a particular aspect of technology (mobile phones) that is intersecting a particular section of society (family) and derive an utmost contentment that I ‘did my bit’ for society.

As mentioned in the introduction chapter, the social consciousness in me coupled with technology inquisitiveness directed me to choose this topic, which gave me ample scope to reflect upon the social perspective of technology. I realised that research is not a term, but a journey with an aim, which might lead to more such journeys in the future. Throughout this journey, I had several opportunities which made me sit back and think and in the process, have become more of a reflective practitioner. The process refined my understanding of people and their perceptions, linking the data and, importantly, improved my writing skills.

I feel proud to cite my supervisor, Fielden, who said, “Critical reflection is a multi-faceted activity that takes place internally within each person. Reflection embraces the ability to ‘stand back from the self’ and examine critically your own thinking patterns. Critical reflection also requires an internal honesty and integrity as we examine our own thoughts and assumptions”. These words have had a very strong impact on my thought process, not just in relation to this thesis work but also in application to the general understanding of thy self.

One thing that I thought over repeatedly throughout the study was, “I should have done this better or I should have written this better”. This helped me with particularly understanding my weaknesses and limitations and gave me the ability to strengthen my study.

Some of the issues that I would consider for a similar research in future are:

- to take an equal representative sample size of all ethnic groups
- conduct a focus group between PACG of teenagers who possessed mobile phones and PACG of teenagers who do not
- interview a selected number of PACG and their teenagers (with ethics approval) individually and get a pattern of their perceptions of mobile phones.

From this study, I realise that thesis work can be broadly divided into two episodes. The first episode begins with the selection of topic and ends with the results of the data collected. The second episode begins from analysing the data (making sense of it) and ends with one's honest reflections. I personally feel that the latter stage is much more difficult as it involves writing up, when compared to the earlier one. I should acknowledge that, as I proceeded in this study I could minimise the gap between my thought processes, verbal expressions and written language.

This journey would not have been possible without the valuable contributions from my supervisors who could anchor my work with a proper flow, and my children, who have given up their valuable time spent with their mum. They are highly invaluable. The good night words of my son who is five, especially in the last stages of completion of my thesis, still ring in my ears. He says, "*Can you please send a mail to your teacher that you are telling me stories and putting me to bed and cannot sit at the computer anymore?*"

The completion of this thesis brought a sense of satisfaction and accomplishment for me, whereas it is a sigh of relief for my children.

## Chapter 8: References

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## Chapter 9: Appendices

### Appendix A: Survey Questionnaire

| SURVEY QUESTIONNAIRE <i>(Please use one form for each teenager)</i>  |                              |                              |                              |                              |                              |                              |                              |
|--|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| 1. Ethnicity (Please tick one)   | Maori                        | Pakeha                       | Pacifica                     | Indian                       | Fijian                       | Chinese                      | Others                       |
| 2. Gender (Please tick one)  | Boys                         |                              |                              | Girls                        |                              |                              |                              |
| 3. Age group of the teenager<br>(Please tick one)  | 13 -14                       | 15- 16                       | 17-19                        | 13 -14                       | 15- 16                       | 17-19                        |                              |
| 4. Possession of mobile phone/s<br>(Please tick one)   | Yes<br>No                    |
| 5. Who pays the monthly bills?<br>(Please tick one)  | Parent<br>Teenager<br>Others |
| 6. Relationship of the person filling<br>in the form (with the teenager)?<br>(Please tick one)                     | Mother<br>Father<br>Other    |                              |                              |                              |                              |                              |                              |
| 7. Age group of the parent/<br>caregiver (Please tick one)   | Mother                       |                              |                              |                              |                              |                              |                              |
|  | Under 30                     | 31-40                        | 41-50                        | Above 50                     |                              |                              |                              |
|  | Father                       |                              |                              |                              |                              |                              |                              |
|  | Under 30                     | 31-40                        | 41-50                        | Above 50                     |                              |                              |                              |
|  | Other                        |                              |                              |                              |                              |                              |                              |
| 8. Why do you feel your teenager<br>should/shouldn't possess a mobile<br>phone? (Please provide a brief<br>answer) |                              |                              |                              |                              |                              |                              |                              |
| 9. How happy are you to see them<br>use the phone?(Pl tick one)  | Happy                        | Satisfactory                 | Unhappy                      | Can't say                    |                              |                              |                              |
| 10. How safe do you feel their<br>mobile phone usage is? (Please tick<br>one)                                      | Safe                         | Satisfactory                 | Unsafe                       | Can't say                    |                              |                              |                              |

|  |        |             |   |            |
|--|--------|-------------|---|------------|
| 11. Does your teenager share with you if they get bullied by anyone via mobile phones?   | Always | Sometimes   | Never   | Don't know |
| 12. Do you feel that your teenager loses proper language skills using text language? (Please tick one)   | No     | Some Extent | Yes   | Don't know |
| 13. Do you feel that text messaging impinges on their communication skills?  | No     | Some Extent | Yes   | Don't know |
| 14. Do you feel that your personal time with your teenagers is interrupted because of social bonding enabled by their mobile phones? (Please tick one)   | No     | Some Extent | Yes   | Don't know |
| 15. How secure do you feel when your teenager uses a mobile phone during non- monitored period such as after school and before parents arrive from work? | Secure | Some extent | Not secure  | Don't know |
| 16. Do you consider using a phone while driving is risky?  | No     | Probably    | Yes   | Don't know |
| 17. Should there be a ban to use a phone while driving?  | No     | Probably    | Yes   | Don't know |
| 18. Should there be an age limit to possess a mobile phone? (Please tick one)  | No     | Probably    | Yes   | Don't know |
| 19. Are there any other comments you would like to add?  |        |             |   |            |
| 20. Would you please be able to take part in an interview with the researcher on the same topic?   | Yes    | No          | If Yes, please provide your contact details below |            |

THANK YOU

## ***Appendix B: Interview Questions***

1. Did you have a mobile phone when you were a teenager?
2. Does your teenager have one?
3. If yes, then why do feel that your teenager should possess one? (if not, why do you feel your teenager should not possess one)
4. What are the facilities that you think your teenager's phone should have (such as internet, camera etc)?
5. Could you please explain why?
6. Who pays the monthly bills for your teenager's mobile phone usage?
7. What is your opinion on text messaging?
8. Is it OK for text language to be allowed in NCEA exams?
9. Could you please explain why?
10. What do you think about the risks of using mobile phones such as on Health (*covering physical, emotional and psychological factors*):
11. Environment (*such as noise pollution, heat radiation*):
12. Driving (*such as using handheld or hands-free sets in the cars*):
13. Do you remember any stories where a teenagers' mobile phone served as a lifesaver or was used in an emergency (could be anyone's teenager)? (*mainly to learn how they are used in emergencies*)
14. Are you aware of any adverse aspects of using mobile phones, such as bullying or harassing (could be anyone's teenager)? (*to know more about bullying and abuse*)
15. Can you please list the positives
16. Can you please list the negatives and
17. Which one do you think, weighs more (positives or negatives)?
18. Do you consider an age limit to possess a mobile phone
19. If yes, what should be the age and why
20. If no, please explain why
21. Any other comments you would like to add.

## *Appendix C: Information Sheet*



### **Information for Participants**

#### **IMPACT OF CELL PHONES ON TEENAGERS – PARENT/CAREGIVER PERSPECTIVE**

##### ***Kia Ora, Tena Koe, Talofa Lava, Hello, Namaste***

My name is Shanti and I am a student doing 'Masters in Computing' at UNITEC/ Mt.Albert/ Auckland. As part of my thesis work I have chosen the topic "Impact of Mobile Phones on Teenagers – parent/caregiver perspective" to do the research upon. My research is to understand the Impact of mobile phones on teenagers from the parent/caregiver's points of view.

##### ***What am I doing?***

I would like to have a deeper understanding on the topic that enables me to come up and recommend some solutions to mitigate negative consequences

I request you if you could spare some time for an interview on the said topic. The maximum time would be 30 minutes and I will use a note-taker to record our conversation and will be transcribing it (typing the conversation out) later. All features that could identify you will be removed and the information on the tapes used will be erased, once the transcription is done. Please let me know if it is OK with you. If not then I will manually jot down our conversation which might take a total of about 45 minutes (15 minutes more than the scheduled time)

You are free to withdraw from this project for whatever reason within two weeks of the interview.

##### ***What will I do with this?***

Every answer of yours will add value not only to my work but also for future research. By taking part in this you will be helping me to understand what are the social consequences being faced

and/or anticipated on account of mobile phone usage by teenagers. This will enable us (my supervisors and me) to find some practicable solutions for the problems, if any.

### ***Consent***

If you agree to participate, you will be asked to sign a consent form. This does not stop you from changing your mind if you wish to withdraw from the project. However, because of our schedule, any withdrawals must be done within 2 weeks after we have interviewed you.

Please contact us if you need more information about the project:

At any time if you have any concerns about the research project you can contact our supervisor:

### ***Confidentiality***

Your name and information that may identify you will be kept completely confidential. All information collected from you will be stored on a password protected file and the only access to your information is yourself, our supervisors and I.

### ***Thank you!***

***This study has been approved by the Unitec Research Ethics Committee from ( ) to ( ).  
If you have any complaints or reservations about the ethical conduct of this research, you may contact the Committee through the UREC Secretariat (Ph: 09 815 4321 ext.7254).  
Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.***

## *Appendix D: Consent Form*



### **Consent Form**

#### **IMPACT OF CELL PHONES ON TEENAGERS – PARENT/CAREGIVER PERSPECTIVE**

I have had the research project explained to me and I have read and understand the information sheet given to me.

I understand that I don't have to be part of this if I don't want to and I may withdraw at any time prior to the completion of the research project.

I understand that everything I say is confidential and none of the information I give will identify me and that the only persons who will know what I have said will be the researchers and their supervisor. I also understand that all the information that I give will be stored securely on a computer at Unitec for a period of 5 years.

I understand that my discussion with the researcher will be taped and transcribed.

I understand that I can see the finished research document.

I am aware that I may contact the Research coordinator/Supervisor ..... at Unitec, (09) 815-4321 ext. .... if I have any queries about the project.

I have had time to consider everything and I give my consent to be a part of this.

Participant Signature: ..... Date: .....

Project Researcher Signature: ..... Date: .....

*This study has been approved by the Unitec Research Ethics Committee from ( ) to ( ). If you have any complaints or reservations about the ethical conduct of this research, you may contact the Committee through the UREC Secretariat (Ph: 09 815 4321 ext.7254). Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.*

## ***Appendix E: Email from Researcher to the Statistics/New Zealand***

Name : *(Removed)*

Company : student/Unitec

Phone Number : 0212946394

Email : shanti.nz@gmail.com

Reason for requesting Statistics: University research purposes

Description of required Statistics: Detailed in the mail

Kia Ora and Good day

I am doing a Masters level research at Unitec. The topic is "Mobile phones and Teenagers (13yrs-19yrs): Impact Consequences and Concerns - A parent caregiver perspective". I am in need of the following information for my research work.

1. Statistics of teenagers aged 13 to 19 years in Auckland
2. Break down of the figures in genders
3. Statistics of parents/caregivers of teenagers aged between 13 and 19
4. Statistics of those parents and caregivers by ethnic groups

It would be great if you could please provide me the details ASAP - preferable in a week's time.

Thanks and Regards

*(Name of the student Removed)*

## *Appendix F: Reply from Statistics/New Zealand to the Researcher*

Student (*name removed*),

Here is a table of data created using the Table Builder tool available on the webpage. To meet the needs of your 3rd & 4th points would need a customised dataset, at a cost. These start at \$115 +GST an hour and there is several hours work here

Sue McGeough

Client Information Advisor

Statistics New Zealand

DDI (04) 931 4787

0508 525 525

[www.stats.govt.nz](http://www.stats.govt.nz)

### Age (Selected) by Sex, 2006 Census

| Sex             | Area<br>Age     | North           |                    |                    |               |                   |                  |                 |                      |            |
|-----------------|-----------------|-----------------|--------------------|--------------------|---------------|-------------------|------------------|-----------------|----------------------|------------|
|                 |                 | Total NZ        | Auckland<br>Region | Rodney<br>District | Shore<br>City | Waitakere<br>City | Auckland<br>City | Manukau<br>City | Papakura<br>District |            |
| Male            | 13 Years        | 31686           | 10401              | 708                | 1626          | 1515              | 2670             | 3096            | 405                  |            |
|                 | 14 Years        | 32466           | 10467              | 741                | 1626          | 1533              | 2754             | 3027            | 396                  |            |
|                 | 15 Years        | 32535           | 10470              | 708                | 1701          | 1572              | 2709             | 3012            | 405                  |            |
|                 | 16 Years        | 31380           | 10296              | 663                | 1539          | 1515              | 2766             | 3063            | 411                  |            |
|                 | 17 Years        | 30606           | 10317              | 642                | 1725          | 1455              | 2730             | 3072            | 372                  |            |
|                 | 18 Years        | 29616           | 9666               | 495                | 1623          | 1353              | 2868             | 2673            | 378                  |            |
|                 | 19 Years        | 28299           | 9480               | 516                | 1584          | 1311              | 3048             | 2487            | 312                  |            |
|                 | Female          | <b>13 Years</b> | <b>30123</b>       | <b>9714</b>        | <b>717</b>    | <b>1398</b>       | <b>1452</b>      | <b>2466</b>     | <b>2949</b>          | <b>369</b> |
|                 |                 | <b>14 Years</b> | <b>30654</b>       | <b>9903</b>        | <b>735</b>    | <b>1539</b>       | <b>1473</b>      | <b>2529</b>     | <b>2868</b>          | <b>396</b> |
| <b>15 Years</b> |                 | <b>31560</b>    | <b>10530</b>       | <b>750</b>         | <b>1662</b>   | <b>1590</b>       | <b>2760</b>      | <b>3006</b>     | <b>405</b>           |            |
| <b>16 Years</b> |                 | <b>30480</b>    | <b>9846</b>        | <b>654</b>         | <b>1539</b>   | <b>1482</b>       | <b>2595</b>      | <b>2808</b>     | <b>402</b>           |            |
| <b>17 Years</b> |                 | <b>29532</b>    | <b>9759</b>        | <b>591</b>         | <b>1521</b>   | <b>1407</b>       | <b>2769</b>      | <b>2793</b>     | <b>363</b>           |            |
| Total Sex       | <b>18 Years</b> | <b>28449</b>    | <b>9609</b>        | <b>495</b>         | <b>1548</b>   | <b>1296</b>       | <b>3033</b>      | <b>2670</b>     | <b>336</b>           |            |
|                 | <b>19 Years</b> | <b>27738</b>    | <b>9354</b>        | <b>429</b>         | <b>1524</b>   | <b>1200</b>       | <b>3093</b>      | <b>2547</b>     | <b>351</b>           |            |
|                 | 13 Years        | 61809           | 20112              | 1428               | 3024          | 2967              | 5136             | 6045            | 774                  |            |
|                 | 14 Years        | 63120           | 20367              | 1479               | 3165          | 3006              | 5283             | 5895            | 792                  |            |
|                 | 15 Years        | 64098           | 21003              | 1458               | 3363          | 3162              | 5466             | 6018            | 810                  |            |
|                 | 16 Years        | 61863           | 20145              | 1317               | 3078          | 2994              | 5358             | 5871            | 810                  |            |
|                 | 17 Years        | 60141           | 20073              | 1233               | 3246          | 2862              | 5502             | 5865            | 735                  |            |
| 18 Years        | 58065           | 19275           | 990                | 3171               | 2652          | 5904              | 5340             | 714             |                      |            |
| 19 Years        | 56034           | 18831           | 948                | 3111               | 2508          | 6141              | 5034             | 663             |                      |            |

### *Appendix G: Countries that Ban Mobile Phones while Driving*

| <b>Country</b>    | <b>Banned</b> | <b>Notes</b>   |
|-------------------|---------------|--|
| Australia         | Yes           | Banned in all states - fines vary though.  |
| Austria           | Yes           | Fines vary - up to US\$22 per incident   |
| Bahrain           | Yes           | Offenders face fines - possibly prison   |
| Belgium           | Yes           | Phones can be used without a hands-free unit when the car is stationary - but not while in traffic (such as at traffic lights)   |
| Brazil            | Yes           | Ban imposed Jan. 2001  |
| Botswana          | Being debated | The attorney general is drafting the legislation   |
| Canada            | Variable      | Banned in Newfoundland (Dec2002) fines up to C\$180 - Banned in Québec (Apr 2008) fines up to C\$100.  |
| Chile             | Yes           |  |
| China             | Yes           | Reported to be covered by general "good driving practice" legislation.   |
| Czech Republic    | Yes           |  |
| Denmark           | Yes           | Ban imposed July 1998 - US\$60 fine for infringements  |
| Egypt             | Yes           | Fines of about US\$100 per offence.  |
| Finland           | Yes           | Ban imposed January 2003 - US\$55 fine for infringements   |
| France            | Yes           | Banned 2003, EUR40 fine per infraction   |
| Germany           | Yes           | Ban imposed Feb. 2001 - usage allowed without a hands-free unit only when the engine is switched off. Fine of □40 per infraction   |
| Greece            | Yes           |  |
| Hong Kong         | Yes           |  |
| Hungary           | Yes           | Not often implemented by the police  |
| India - New Delhi | Yes           | New Delhi - Ban extended to ban all use of cell phones when driving, including use with a hands-free unit - July 2001<br><br>Andhra Pradesh - Ban now enforced with prison sentences |
| Ireland           | Yes           | Banned, with a US\$380 and/or up to 3 months imprisonment on a third offence. Handsfree kits allowed, although that is subject to review.  |
| Isle of Man       | Yes           | Banned since July 2000   |
| Israel            | Yes           |  |
| Italy             | Yes           | Fines of up to US\$124 per infraction  |
| Japan             | Yes           | Ban imposed Nov. 1999  |
| Jersey            | Yes           | Ban imposed Feb. 1998  |

|                 |               |  |
|-----------------|---------------|--|
| Jordan          | Yes           | Ban imposed Oct. 2001  |
| Kenya           | Yes           | Ban imposed late 2001  |
| Malaysia        | Yes           |  |
| Mexico          | Partial       | Ban in Mexico City   |
| Netherlands     | Yes           | Fines up to €2,000 or two weeks in jail  |
| New Zealand     | Being debated | Under debate - consultation being sought from interested parties   |
| Norway          | Yes           | Fines of over \$600 per infraction   |
| Pakistan        | Partial       | Banned in Islamabad  |
| Philippines     | Yes           |  |
| Poland          | Yes           | Fine of PLN200 (\$100) - can be higher if contested.   |
| Portugal        | Yes           |  |
| Romania         | Yes           |  |
| Russia          | Yes           | Ban imposed by Prime Minister - March 2001   |
| Singapore       | Yes           |  |
| Slovak Republic | Yes           |  |
| Slovenia        | Yes           |  |
| South Africa    | Yes           |  |
| South Korea     | Yes           | Ban imposed July 2001 - US\$47 fine + 15 points on the license.  |
| Spain           | Yes           |  |
| Sweden          | No            |  |
| Switzerland     | Yes           |  |
| Taiwan          | Yes           | If the driver is using a reflective screen on the car, local privacy laws forbid stopping the car for violating the ban. |
| Thailand        | Yes           | Bill proposed in May 2000  |
| Turkey          | Yes           |  |
| Turkmenistan    | Yes           | Signed into law with effect from May 1st 2003, by President Saparmyrat Turkmenbasy                                       |
| UK              | Yes           | Banned from December 2003  |
| Zimbabwe        | Yes           | Ban imposed in Sept 2001, announced via official news agency only though, so not confirmed                               |

Source: (Cellular-news, 2008)