

THE LEARNER PROFILE OF A TEENAGE CELL PHONE USER

A mini thesis submitted by
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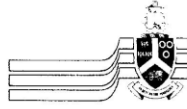
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CLEARANCE CERTIFICATE



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APPROVED

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3. It remains the students' responsibility to ensure that all the necessary forms for informed consent are kept for future queries.

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The following key words are used throughout this study:

Cell phone – A device that acts as a normal telephone moveable over great distances, whilst using a cellular network

Cell phone functionalities – Functions available on cell phones

Cell phone technology – Technology involving cell phones

Educational environment (Learning environments) – Systems that help learners take control of and manage their own learning

Educational tools – Tools that might prove helpful in an educational environment

Exploratory research – A type of research conducted because a problem has not been clearly defined

Learner profile – A learner profile is information relating to individual learners who are engaged in learning

Mobile technology – Technology capable of moving or being moved while operated

Teenage learner – Learner between the age of 13 and 19

Teenage learner needs – Needs of learners especially during adolescents

ABSTRACT

Today South Africa, along with the rest of the world, is witnessing a virtual social revolution related to the use of cell phones by teenagers. Although current estimates suggest that the majority of teenagers in South Africa have cell phones, very little research has been done on how they socially interact with it or how these digital devices can be used to facilitate educational pursuits.

A profile of a teenage learner in the physical, social, moral, cultural and psychological context utilising cell phone technology was developed to understand the way in which today's technologically advanced teenager grow up, learn, think, work, communicate and socialise. A profile like this can be of assistance to successfully introduce the cell phone as an educational tool to enhance and support the cognitive, affective and psychomotor skills of the learner. Technological resources are scarce in South Africa; therefore it is important for educators today to take advantage of all tools that are available to enhance the educational process. Although new technologies have the potential of transforming education it can not be guaranteed.

An exploratory study, using the mixed method (qualitative and quantitative) was done. A questionnaire was administered to measure the teenager's activities in today's technologically rich environment mainly focusing on quantitative questions regarding the use of the cell phone. The open ended questions from the questionnaire were divided into the groups and analysed to form part of the qualitative data. A male and female focus group (aged between 13 and 17 years) were conducted to form part of the qualitative material. Predetermined qualitative questions, focussing mainly on the teenager's attitude and use towards cell phone use, were asked. The participants' responses led to innovative questions. A quantitative logbook was kept by a few teenagers to get an understanding of the time teenagers spend using a cell phone and the functions mostly used on the cell phone.

The results indicate that no evidence could be found that the use of cell phones in a class room environment will detrimentally affect physical activities of teenage learners. Cell phones have become an integral part of the social lives of teenage learners and might in fact introduce an element of cognitive and affective skills as 'fun' and 'excitement' into the learning process. Although brand associations are extremely important to teenage learners it appears that the mere fact of owning a cell phone already satisfies this requirement for social acceptance. Teenage learners with reference to the moral concept have displayed the ability to distinguish between what is right and wrong with regards to the use of cell phones. Teenage learners were largely in favour of using cell phones in a classroom but were somewhat divided on some practicalities. Owning a cell phone satisfies the perceived requirement for peer acceptance in a multi-cultural and technologically well informed society even though the cell phone might not be the most modern model. With reference to the psychological concept teenage learners have acknowledged their own vulnerability and need for guidance, whilst at the same time emphasising the need to form their own opinion and identity through continued exploration and investigation of the world around them.

This study has shown a definite possibility to the positive use of a cell phone as educational tool, but to successfully introduce the cell phone into a classroom as an educational tool, further research is necessary.



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CHAPTER 1

INTRODUCTION

1 Introduction and background

This study is an explanatory investigation to determine a learner profile of a teenage cell phone user in South Africa.

Life without technology would be unthinkable to most westernised teenagers living in the 21st century. Technology surrounds all of us. Computers and the internet, digital games, MP3 players and cell phones are all everyday items in the lives of most teenagers in the Western world. Learners in our classrooms today are the first generation to have grown up using mobile electronic devices (Prensky, 2001).

Of all technological devices, cell phones are fast becoming the most popular. KWIKWAP ("Get your piece of the action," 2008), a South African internet provider, states that there are 8 times more cell phones than computers in South Africa. According to Statistics South Africa, the percentage of the population possessing cell phones increased from 32% in 2001 to 72.9% in 2007 ("Percentage of households with household goods in working order," 2007).

The use of cell phones is prohibited in most of South African schools. Facer (2004, p. 1) asked "how much sense does it make to continue to exclude from schools, powerful technologies that are seen as a normal part of everyday life?". This question is even more relevant in 2008 and this study addresses the feasibility of using an instrument, from which the technologically advanced teenager of today has already become inseparable, as an educational tool. It appears that, although many South African schools accept the fact that cell phones are here to stay and have become an integral part of the lives of their learners, they are still reluctant to recognise the educational potential of cell phones.

2 Rationale

Should the use of cell phones as an educational tool prove to be viable, the educational process could be greatly enhanced as we would then employ equipment that the teenager is already familiar with and which already forms part of their daily lives.

Dawes and Wegerif (2004, p. 3), stated that "the interdependence of personal development and social development can positively influence the teenager's contribution to their community". With reference to this statement, one can emphasise the positive potential of cell phones in a classroom environment in order to counteract the present negative uses of cell phones, like accessing undesirable sites and using a cell phone for cheating in tests.

Technological resources are scarce in South Africa. It is therefore imperative for educators to take

advantage of all tools that are available to assist the educational process. As an educator in a government school in South Africa I have unfortunately witnessed little change regarding the use of modern technologies in our classrooms. The only little bit of digital action a government school provides is an occasional visit to the computer lab, if it exists. A lack of infrastructure, insufficient funds and the challenge of implementing Outcomes Based Education (Kozma, 2005) as first priority, can be reasons for this, but the question still remains: Has new technology been successfully introduced in South African schools, government or private, that do not have these difficulties? If not, why?

In 1998 Reeves wrote: "Intelligent tutoring systems have not had significant impact on mainstream education because of technical difficulties inherent in building student models and facilitating human-like communication" (Reeves, 1998, p. 13). Although new technologies have the potential of transforming education (Brown, 2000; Stead, 2005) it can not be guaranteed. Ben Shneiderman as quoted in Holzinger said: "Successful technologies are those that are in harmony with end-users' needs" (Holzinger, Nischelwitzer, & Meisenberger, 2005, p. 2). If we want to build learning models that are in harmony with the end user's needs, we need to know how teenage learners use and interact with cell phones.

In South Africa the introduction of new technology in schools are high on the priority list of the government, parents and many organisations. In May of 2002, Professor Kader Asmal, then Minister of Education, and Microsoft South Africa signed an agreement to provide all 32 000 Government schools perpetual free access to the use of selected Microsoft software (Riordon, 2001). SchoolNet South Africa was established in November 1997 as a non-profit educational organisation. SchoolNet is developing and expanding the use of the Internet in South African schools (Riordon, 2001). Africa was chosen as one of only 2 countries in the developing regions to pilot the new project from Intel Innovation in Education "Teaching Thinking with Technology" through the use of online thinking tools. The report of the evaluation of the complete pilot process in South Africa is already available and indicates some interesting findings. Ideas about and approaches to teaching and learning has largely changed to accommodate OBE and not digital technology. In a country where almost 70 % of schools are still without computers (Riordon, 2001), we have a long way to go in introducing digital learning in our classrooms. These projects have been running for 5 years and no noteworthy change can be seen.

The literature has shown that a cell phone is able to promote positive feelings, gives an outlet for aggression, meet teenagers psychological needs, can be seen as entertainment and leisure, help in emotional coping from loneliness, stress, low self-esteem, it satisfy social needs – making new friends, strengthening relationships and last but not the least has the potential as a learning tool.

3 Problem Statement

Despite the fact that today's teenagers grow up with cell phones to the extent that cell phones have become an integral part of their daily lives, the potential positive application of cell phones as educational tools have not properly been researched and matched with the profile of the teenage learner. Some of the reasons for this state of affairs may be:

- Lack of knowledge (Prensky, 2005b). There is a perception that learners know more about cell phone technology than educators.
- The fact that cell phones may be used to cheat in tests and download obscene sites (pornography) from the internet.
- Cell phones may be distractive in classroom situations.
- The cell phone can be used to send information of immoral nature.

As early as 1920 Mackie and Hall had a theory in which the above problems could be solved. Mackie & Hall (1920, p. 118) believed that when educating teenagers one must utilise the best materials of the environment, in such a way to fit the learners for the environment in which they will spend most of their time. They also said that "not only the materials of education, but the method of instruction should be vitalized, humanized" (Mackie & Hall, 1920, p. 2). From the literature of Oblinger (2003, p. 37) we know that "an essential component of facilitating learning is understanding learners". She highlights that the "learning styles, attitudes, and approaches" of teenagers differ from other learners (Oblinger, 2003, p. 37). How well do educators and policy makers understand these differences? Do they take these differences into account when facilitating/designing learning material? That is why it is important to first develop the profile of the teenage learner using a cell phone before we can successfully introduce the cell phone as an educational tool.

Prensky (2005a, p. 9) further emphasizes that "as educators, we must take our cues from our students' 21st century innovations and behaviours, abandoning, in many cases, our own pre-digital instincts and comfort zones...pay attention to how their students learn, and value and honour what their students know...recognise that their students have acquired knowledge outside the classroom."

The introduction of cell phones as an educational tool should be a natural response to the unique needs of teenage learners and the opportunities provided by the technology itself (Kennewell, Parkinson, & Tanner, 2003). In order to incorporate cell phones as a tool into our classrooms, an essential aspect is to have a comprehensive understanding of how teenagers use and interact with their cell phones outside of the school environment. To facilitate this, educators need to know how teenagers behave when using cell phones.

4 Research Question

Despite some interesting and stimulating work, like the MOBIlearn (a worldwide European-led research and development project exploring context-sensitive approaches to informal, problem-based and workplace learning by using key advances in mobile technologies) and M-learning projects focussing on both the developing of new skills for educators and the study and implementation of mobile appliances in teaching and learning, there is little independent research on understanding teenage learners and their interaction with cell phones. From the above research problem the following research question arises.

What is the learner profile of a teenage cell phone user?

1. What are the behaviour patterns and pedagogic skills of teenage learners with reference to the use of cell phone technology?

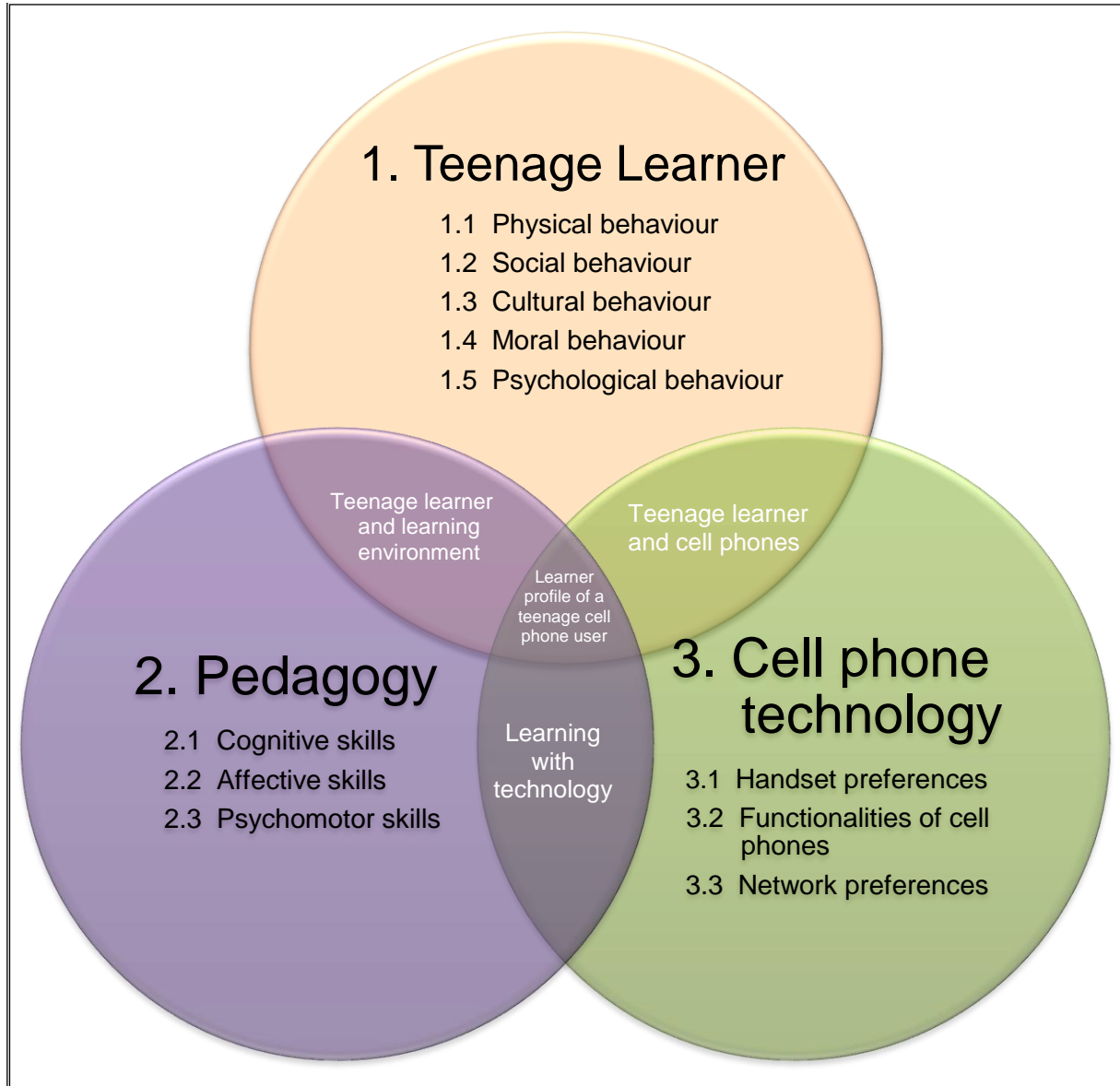
The interaction between the major areas in the above question i.e. behaviour patterns, pedagogical skills and technology will be discussed in accordance with results provided by the above and applying the framework provided by the next three research questions.

2. What type of technology do teenage learners prefer?
3. How do teenage learners prefer to interact with technology?
4. Could cell phone technology be employed as a learning tool?

4.1 Conceptual framework

To be able to answer the research questions, the following conceptual framework for this study has been constructed.

Figure 1: Conceptual Framework



In Figure 1 the three major interactive areas shown are the teenage learner, pedagogy and technology. The first basic component deals with the **teenage learners** with specific reference to their physical, social, cultural, moral and psychological behaviours. The second component addresses the **pedagogy**, including cognitive, affective and psychomotor skills. The third component comprises **technology**, which includes terminology, as mentioned above, handset and network preferences as well as phone functionalities. The study of this component will also demonstrate the enormous growth of cell phones compared to that of landline phones and computers.

The communality between the first and second components is teenage learners and their learning environment. The communality between the second and third components focuses on aspects of a teenager learning with the use of technology whilst the communality between the first and the third components focuses on teenage learners' interaction with cell phones. The combined overlapping area between areas one, two and three will give us an overview of existing research regarding teenage learners using cell phones, finally providing a learner profile of teenage cell phone user.

4.2 Theoretical arguments

The following preliminary statements can be made.

1. Our modern society incorporates the use and application of technology such as cell phones.
2. Cell phone technology could be applied in education as a tool to support and enhance teaching and learning.

5 Research Design

The research design addresses the research objectives, data collection methods, the analysis of the data and the study participants.

5.1 Research objectives

An exploratory study explores areas that we do not know the answer for yet. The purpose of this exploratory research was therefore to gain insight into the way teenagers interact with cell phone technology and the possibility to use cell phones as educational tools to support and enhance teaching and learning. Exploratory research also generates opportunities for further research.

The research was conducted according to the following objectives.

1. Analysing the profile of a teenage learner
2. Determining the factors that influence choice of technology
3. Application in pedagogy
4. Integration of the above (The profile)

5.2 Data collection methods

The natural sciences deal with investigations into the properties and laws of natural phenomena. The human sciences investigate the characteristics, behaviour and emotions of people. Both qualitative and quantitative research methods were applied in the research to determine the learner profile of the teenage cell phone user.

The following quantitative data collection methods were used to gather information.

- Designing a questionnaire containing both qualitative and quantitative questions [Chapter 3]
- Asking a preselected group of teenage learners to keep a logbook of cell phone related activities over a specified period of time

The following qualitative data collection methods were used to gather information.

- Video recording face to face interviews with selected focus groups
- Open-ended question of the questionnaire

Data was collected in accordance with the Table 1 below.

Table 1: Data collection

#	Question	Questionnaire	Focus Group	Logbook Entries
1.	What are the behaviour patterns and pedagogic skills of teenage learners regarding the use cell phone technology?	✓	✓	✓
2.	What type of technology do teenage learners prefer?	✓	✓	
3.	How do teenage learners prefer to interact with technology?	✓	✓	✓
4.	Could cell phone technology be employed as a learning tool?	✓	✓	

5.3 Analysis of data

The quantitative analysis was done using the online survey software ‘Question Pro’ available at <http://www.questionpro.com>. Data from the logbook entries was analysed by the Department of Statistics of the University of Pretoria. The qualitative data from the focus groups was transcribed and analysed.

5.4 Study participants

In this document the term ‘teenager’ refers to a typical South African teenager who can be described as a young adult, male or female, between the ages of 13 and 19, living in a multi-cultural, multi-lingual, multi-racial society. The study participants of the questionnaire, focus groups and keeping of a logbook were as follows.

5.4.1 Questionnaire

The participants varied widely in socio economic background - drawn from 4 different schools in Gauteng, representing our diverse South African population. Convenience sampling was done to select the 4 schools used in this exploratory research as the researcher was interested in getting a general estimation of the results, without incurring the cost or time required to select a random sample. All 811 questionnaires that were handed out were received back but only 796 were completed sensibly, although, as completing the questionnaires were completely voluntary, not all questions were necessarily answered on all questionnaires.

5.4.2 Focus group interviews

An open invitation was extended to teenagers in the researcher’s family and circle of friends to participate in the focus group interviews and also to invite their friends to participate – all on a

voluntary basis and subject to written permission by their parents/guardians [see addendum B]. Participants in the focus group interviews eventually comprised of 7 male teenage learners and 5 female teenage learners, all between the ages 15 to 17.

5.4.3 Logbook

Eighteen reliable teenage learners from Cornwall Hill College were selected with the assistance of one of their teachers and asked to keep a logbook over a period of time. Again it was explained that participation is voluntary and the scope and duration of the exercise was explained in detail. Prospective participants were again given the opportunity to decline after the above was explained. None of the prospective participants declined and they all undertook to keep the logbooks diligently.

6 Limitations of the study

1. The questionnaire was available only in English, which is the second language of most learners in the target groups.
2. For one of the target groups the questionnaire was handed out for completion on the final day of the school term, resulting in a logistical problem.
3. In the female focus group some of the younger members were dominated by some of the senior learners.
4. As this is a mini thesis research was focused to obtain specific results in what could be a very wide field of research.

7 Ethics

All research was done in accordance with the requirements of the ethics committee of the University of Pretoria. The application for ethical clearance for this research study was considered and approved on 18 March 2008. Clearance certificate nr CSO8/03/03 on page iv. The difference in the title between the ethical clearance and the final document was due to a change in the final title that did not change the context of the study.

The communities involved adhere to a rigorous consent procedure for research conducted in the schools. Teenage learners were free to decline to take part. They were not required to reveal their identities, nor was this information requested. Permission was obtained from the Gauteng Department of Education (GDE) and the principals of each of the four schools to administer the questionnaire. The letters written to the GDE and the principals were handed in at the University of Pretoria to be viewed by the ethical committee.

Teenagers taking part in the focus groups were told that the conversation would be videotaped and that they did not need to answer any questions they felt uncomfortable with. They were also told that if at any stage they felt threatened by the discussion, they were free to excuse themselves. The teenagers had to show consent from their parents by presenting a signed letter, given to them earlier.

A copy of this letter is available as Addendum B.

8 Value of the research

Although new technologies have the potential of transforming education (Brown, 2000; Stead, 2005) it cannot be guaranteed. Shneiderman, as quoted in Holzinger (2005, p. 1), said that "**successful technologies are those that are in harmony with end-users' needs.**"

The aim of the research done in support of this thesis is to create a better understanding of the positive potential of cell phones as an educational tool and the alignment of the use of cell phones in a classroom environment with the needs of teenage learners in today's technological world.

9 Outline of the thesis

This thesis is organised into 5 chapters as in Chapter 2: Introduction, Literature Review, Research Methodology, Findings and Conclusions and Recommendations.

Table 2: Outline of the thesis

#	Chapter	Content
1.	Introduction	Introduction and background
2.	Literature Review	Defining technology and the necessity for the integration of the cell phone in education. Chapter 2 reports on the literature that was reviewed to establish of the profile teenage cell phone user.
3.	Research Methodology	Description of the research methodology
4.	Findings	Description of the profile of a teenage learner utilising cell phone technology.
5.	Conclusions and Recommendations	Summary of the research and recommendations for further research

In Chapter 1 above the research question was formulated and the research mechanisms and procedures were outlined as an overview. In Chapter 2 available literature pertaining to the study will be overviewed.

CHAPTER 2

LITERATURE REVIEW

1 Introduction

The aim of this chapter is to review literature dealing with the teenage learner and cell phone technologies and how teenagers interact with technology inside and outside of a learning environment.

Before the three basic components of the conceptual framework [Chapter 1] can be discussed, it is important to have a clear understanding of terminology when used with reference to 'Cellular telephone/cell phone'.

- The term 'cell' was initially used to define the area covered by each antenna, and thereafter the term 'cellular' was applied to both the technology and the phones that used it (Wikipedia, 2006).
- Cellular telephone/cell phone: A device that acts as a normal telephone moveable over great distances, whilst using a cellular network. This differentiates the cellular/cell telephone from an ordinary 'cordless telephone', which only acts within a limited range and remains dependant on a fixed line telephone. For the purpose of this study referred to as 'cell phone'.

As stated in Figure 1 [Chapter 1] the first basic component deals with the **teenage learners** with specific reference to their physical, social, cultural, moral and psychological behaviours. The second component addresses the **pedagogy**, including cognitive, affective and psychomotor skills. The third component comprises **technology**, which includes terminology, as mentioned above, handset and network preferences as well as phone functionalities. The study of this component will also demonstrate the enormous growth of cell phones compared to that of landline phones and computers.

The communality between the first and second components is teenage learners and their learning environment. The communality between the second and third components focuses on aspects of a teenager learning with the use of technology whilst the communality between the first and the third components focuses on teenage learners' interaction with cell phones. The combined overlapping area between areas one, two and three will give us an overview of existing research regarding teenage learners using cell phones, finally providing a learner profile of teenage cell phone user. The research structure is illustrated in Figure 2 below.

Figure 2: Research structure

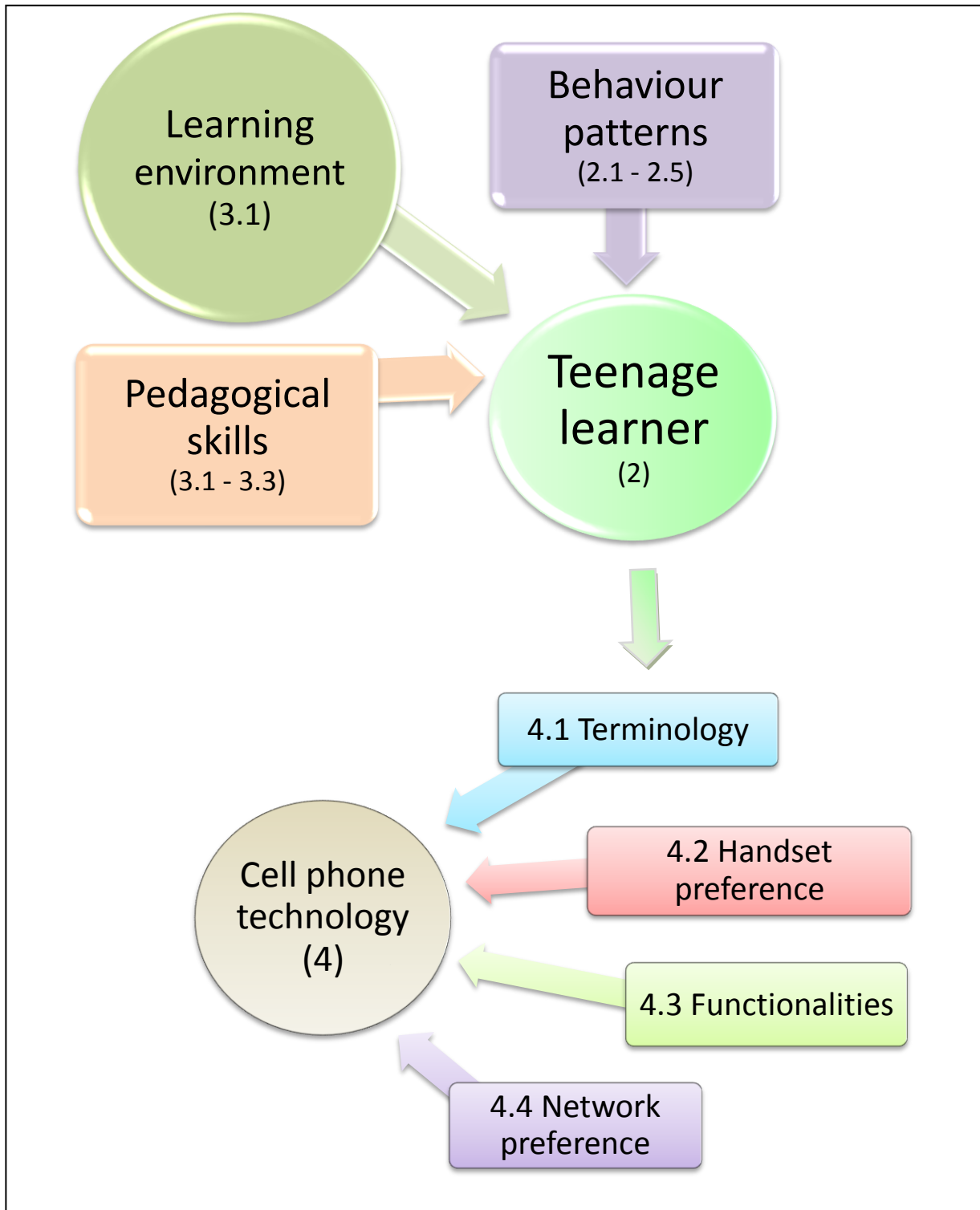


Figure 2 will be used as the guideline to discuss the literature reviewed on the topic. Throughout the discussion the common denominators are **highlighted** to enable the reader to follow the construct of the conceptual framework.

2 Teenage Learner

Teenage years are described as “difficult by any measure, and often teenagers will ‘share’ these difficulties with those living around them. From a psychosocial perspective, teenagers are frequently desperate for direction, encouragement, love, support, understanding and guidance” (Fontaine, Brookes, & Brookes, 2004, p. 4).

An article published in an online magazine “Activated” (“Teenagers: 10 Things Every Parent Should Know,” 2005) highlights 10 important factors to keep in mind when dealing with teenagers.

- Being a teenager is **not easy** - they seek **independence** but at the same time they are desperately in need of guidance.
- Teenagers experience a process of **constant change** - they require a lot of positive input to grow emotionally and intellectually.
- Teenagers differ from one another and have **different needs** - they need to be treated as **individuals**.
- Teenagers need **positive communication** - it is important to remain optimistic when communicating with teenagers.
- Teenagers struggle to find a balance between **fun and responsibility** - they need to be rewarded for responsible behaviour.
- Teenagers require clearly **defined boundaries** - enforce the limits of these boundaries firmly, but with love.
- They **need space** - but let them know you are there if needed.
- They need to experience a **sense of achievement** - help them to set reachable goals.
- Teenagers experience **peer pressure intensely** - influences can be positive or negative.
- Teenagers need to be **understood** - listen to them.

The above are guidelines to follow and discuss typical teenagers in terms of physical, social, cultural, moral and psychological behaviours. A more detailed discussion of these behaviours follows below.

2.1 Physical Behaviour

Early adolescence is a period characterised by fast and dramatic physical changes (Huebner, 2000). These rapid changes include:

- Height and weight
- Development of secondary sexual characteristics
- Continued brain development (Barnett, 2005)

Physical developments are the result of powerful **hormonal changes** that stimulate the body to grow and develop. These hormones **intensify moods** as well as physical growth. Because of hands and feet growing faster than arms and legs, teenagers may have coordination problems for a short period

of time (Philipp & Hooper, 1993). Differences as a result of early and late maturity may bring on **emotional uneasiness** (Philipp & Hooper, 1993). Leisure time and leisure time activities have changed dramatically since the emerging of digital technology. Traditionally, leisure time was simply 'free time'. For the modern teenager, leisure time is increasingly becoming time occupied by the use of digital devices that allow **interaction** with others (Brown, 2000). As using modern technological devices do not require any significant amount of physical effort, this perceived physical **inactivity** of teenagers has become a cause for concern amongst educators and parents (Schölvinck, Zelenev, & Zukang, 2007). These concerns might be unfounded, for what adults see as inactivity are in fact actions resulting in active engagement with others, thus **developing social and physical skills** (Barnett, 2005). These skills can include fine psychomotor skills.

Contrary to the belief held by many educators and parents that teenagers can only focus on one task at a time, some are masters at **multi-tasking**, for instance whilst eating supper, they may use the cell phone, watch television, type an e-mail, all at the same time. By using more than one communication medium at a time, these teenagers succeed in **achieving more than one result** in the same period of time (Brown, 2000; Wallis, 2006).

Following from the above it may be said that typical teenagers, whilst experiencing hormonal changes, intensified moods, coordination problems, emotional uneasiness, lead an apparent inactive lifestyle while at the same time displaying multi-tasking abilities.

2.2 Social Behaviour

Social development occurs at the same time as cognitive development in teenagers. Cognitive development allow teenagers to **form a concept** of themselves (Barnett, 2005). As they gain confidence and **self-awareness**, they develop their **own identities**, which make them more **comfortable when socialising** with others, enabling them to develop friendships based on **loyalty and intimacy** (Barnett, 2005).

Research has shown that teenagers today face a number of difficult social issues such as:

- Establishing an **identity**. Huebner (2000) identifies this as one of the most important functions of adolescence.
- Becoming **independent** and self-governed within relationships, allowing the teenager to become self-sufficient (Barnett, 2005; Huebner, 2000).
- Establishing **intimacy**. It is with their peers that teenagers learn how to start, maintain, and terminate relationships, practice social skills, and become intimate (Huebner, 2000).
- **Sexuality**. Sex education and exposure to sex will largely determine whether or not they develop a healthy sexual identity, which can be described as "developing positive feelings about one's changing body, expressing sexual feelings in appropriate ways, discriminating between healthy and unhealthy sexual activity, preparing for

responsible sexual relations” (Larew, 2000, p. 1).

- **Achievement.** Teenagers need to determine what they are good at and areas in which they are willing to strive for and achieve success (Huebner, 2000).

Acceptable and successful **social behaviour** is primarily **determined by communication**. As early as 1916 Dewey (1916) equated social interaction with communication and considered **social interaction to be educational**. Communication at the right time **enhances social experiences**. Effective communication could **change the attitude** of teenagers towards others (Stanton-Salazar & Spina, 2005).

Teenagers tend to **share and evaluate** each others’ attempts to develop new identities. In the absence of adults or in the company of indifferent adults, teenagers **support each other** emotionally. This mutual support facilitates healthy social development and **academic achievement** (Stanton-Salazar & Spina, 2005).

Teenagers constantly **re-evaluate and re-negotiate** the terms of their relationships. For this reason educators should be aware of the ways that teenagers cope with and recover from instances of norm violation, personal betrayal or rejection. Once teenagers can successfully cope with situations like these they may be regarded as **emotionally intelligent** (Goleman as cited in Stanton-Salazar & Spina, 2005). When measuring life competence, emotional intelligence is of greater importance than intellect associated with basic literacy and mathematical competence (Stanton-Salazar & Spina, 2005).

As can be surmised from available literature social behaviour of teenage learners is dominated by communication with peers in order to establish an own identity through association.

2.3 Cultural Behaviour

South Africa is a **multi-cultural** society comprising of eleven official language groups. According to Smith (2005) teenagers today, as a result of having a **bigger variety of choice** than ever before, are **well informed and influential** within their particular cultural environment.

According to Hood (2004) teenagers **define themselves** by clothing, language, hairstyles, common experiences and, most important, **group associations**. This is a clear indication that teenagers turn to external rather than internal stimuli in their **search for identity**. The media provide the external images that form the basis of teenagers’ experience of the world. Adherence to the values of popular cultures is vital for **social acceptance** and personal maturity. Teenagers may also **associate** with a particular brand or image and may assume an identity that is defined only by the values of the particular brand or image. **Critical analysis** is crucial for teenagers to decide which brands should be accepted or rejected.

The following are examples of factors that bare influence on how intensely teenagers embrace particular brands:

- demographics
- psychographics
- geographics
- income levels

Without **external references** teenagers would not be able to critically compare groups, nor would they be able to **compare themselves** to others within a particular group. Individuals either accept or reject images and ideas by **observing other** members engage in specific activities and **evaluating** the results of those activities (Hood, 2004).

Cultural behaviour is therefore influenced by external stimuli observed through the media, group association and brand acceptance. Although they are cultural sensitive, they are not culturally alienated.

2.4 Moral behaviour

Moral development entails a system containing values in terms of which choices between 'right and wrong' and 'good and bad' are made (DaegdeMott, 2001). DaegdeMott (2001, p. 1) describes 'values' as "underlying assumptions about standards that govern moral decisions". As teenagers become more aware of and expand their concept of 'society', and begin to reason more abstractly about 'right' and 'wrong' they experiment with different value systems (DaegdeMott, 2001).

Some important aspects of moral development are internalisation, moral construction and self-control (Berkowitz & Grych, 1998). These are especially important to enable teenagers to make important decisions, provided that they have clearly defined goals and objectives. Berkowitz and Grych (1998) identified seven psychological components of morality.

- Moral behaviour - pro-social, **sharing**, donating to charity, telling the **truth**
- Moral values - **believe** in moral goods
- Moral emotion - guilt, **empathy**, compassion
- Moral reasoning - about **right and wrong**
- Moral identity - morality as an aspect **self-image**
- Moral personality - enduring tendency to act with **honesty**, altruism, **responsibility**
- "Metamoral" characteristics meaning they make morality possible even though they are not inherently moral

Although teenagers grow up in a period of **rapid change** and face **moral dilemmas** on a daily basis, they display remarkable confidence in their own **judgment**. Teen Market Profile ("Teen Market Profile," 2004) They rely on their perceived knowledge of **human relations** (how to interact with others) and societal order (what are the **boundaries and rules**). Their knowledge of these two

aspects expands throughout adolescence as they experiment with various roles, relationships and activities to create their own **comfort zones**. As they progress into adulthood, moral thought and action become integrated into moral behaviour (Bandura, 1991). Baird (2006) furthermore states that the development of moral reasoning includes teenagers making gains in positive social values such as empathy and positive behavioural norms.

Moral behaviour in teenagers can be summarized as an awareness and the development of the ability to decide between 'good and bad' and 'right and wrong' and to act accordingly.

2.5 Psychological Behaviour

Adolescence is a very important part of a child's life. As they are a lot more **sensitive** about themselves, it is also the most vulnerable period (Barnett, 2005). Teenagers **need proper guidance** while they start shaping personal thoughts and beliefs. They will then be more likely to grow up to be worthy citizens (Packard, 2007).

To be able to provide proper guidance it becomes necessary for parents and/or educators to know more about teenagers' thinking processes. According to Todd-Yurgelun, as quoted in Packard (2007) **teenagers' brain process information differently** than adults' brain. The reason for this is that the **frontal cortex is not fully developed** yet. Teenagers constantly fluctuate between feeling like adults, with adult experiences and feeling like children trying to deal with difficult situations. These **conflicting feelings** directly impact their **self-confidence** and behaviour (Philipp & Hooper, 1993).

Conflict with parents usually arise when teenagers begin to **form their own opinion** of the world – an opinion that often differs from their parents' view (Barnett, 2005). Most teenagers spend a large part of their day in the company of friends or talking on the telephone. This is an important step towards **independence** and forming an identity outside of the family unit. It teaches them to **interact** with different kinds of people. Solidarity with friends is expressed by, externally, appearing similar. Teenagers have a need to **test and experience** new and, in some cases, dangerous situations. Opposition by parents may result in strained relationships, **mood swings** and rebellious behaviour (Philipp & Hooper, 1993). Rebellion against thoughts expressed by parents can be seen as an attempt at developing an **own identity** (Barnett, 2005).

Psychologically teenagers also vary. Some are **extroverted** and others are **introverted**. **Relationships** within the family also **change**. Parents become less important in their teenagers eyes as life outside the family unit develops. Many educators and psychologists are concerned that teenagers' **highly scheduled lives** do not allow sufficient family time (Wallis, 2006).

Teenagers experience being '**different**' or '**out**' very intensely. Being like a child in an adult body has a direct influence on their **self-confidence** and **behaviour**. Spending time in the company of their peers can be seen as an important step towards **becoming independent**. These friendships allow for the establishment of an **identity** outside of the family unit. Therefore the **parent becomes less**

important to the teenager. Having looked at the various behaviour patterns of teenage learners we will now investigate the pedagogic skills of teenage learners

3 Pedagogy

As this study is about teenage learners, merely knowing more about the physical, social, cultural, moral and psychological behaviour of the teenagers is not enough. What is learning and how does this important aspect interact with the above-mentioned behaviours of teenagers? The old question of how to get learners, especially teenagers, interested in learning still faces educators today.

Bloom (1956) divides learning into three areas, namely.

- The cognitive domain which includes higher and lower order thinking skills.
- The affective domain which mainly deals with feelings and emotions
- The psychomotor domain which deals with physical activities.

The learning processes of teenagers can be explained by applying the above three learning domains, bearing in mind that groups of learners and individuals might also differ in the way they like to work and learn (Sharple, Taylor, & Vavoula, 2005) [Table 3, p. 23].

3.1 Cognitive Skills

According to Bloom (1965) having cognitive skills can be divided into lower order thinking skills and higher order thinking skills.

Lower order thinking skills include the ability to:

- Knowledge - **memorise** facts and recall methods
- Comprehension - **understand** the meaning of, interpret, compare and group concepts and to be able to restate it in alternative ways.
- Application - acquire the ability to **use the information** gained in existing and new situations.

Higher order thinking skills include the ability to:

- Analysis - discern patterns, comprehend **hidden meaning** and identify different components
- Synthesis - **create new ideas** from old ones, recognise patterns from given facts and draw conclusions
- Evaluation - **differentiate** between ideas, critically **assess** the values of ideas, make **choices** based on argument, verify the evidence and recognise subjectivity

The ideal learning process would result in the **ability to evaluate**, having applied the concepts of lower and higher order thinking skills.

Inhelder and Piaget (1958) suggested that young people pass through four stages of development.

- Sensorimotor - infants explore the world through their senses and motor activity (They work towards mastering object permanence, now-you-see-it, now-you-don't and performing goal-directed activities.)
- Preoperational - children explore symbolic thinking and logical operations
- Concrete-operational - children in this stage can think logically
- Formal-operational - this stage marks the onset of the ability to perform hypothetical and deductive reasoning as well as imagine other worlds

The last stage in Piaget's theory applies to people from the age of about twelve years and older. We will focus on this stage as this is relevant to the age group that teenagers fall into. Children in this stage are capable of **thinking logically** and **abstractly**, and **reason theoretically**. Piaget considered this stage the final stage of development (Boeree, 1999).

Teenagers have the ability to develop from being children to adults as a result of their physical and cognitive development. This cognitive development happens at the same time as the development of **physically maturity** (Barnett, 2005). A study done by Luciana, Conklin, Hooper & Yarger (2005) suggest that the frontal cortex, which lies just behind the eyes and controls the brain's ability to think flexibly and sort out competing information, doesn't fully mature until about ages 16-17. These cognitive limitations should be kept in mind by parents and teachers, who might expect too much strategic or logic thinking, in particular from older teenagers when teenage learners find themselves in demanding situations (Luciana et al., 2005).

According to Huebner (2008) advances in thinking can be divided into the following stages:

- Developing advanced **reasoning skills**. These skills include the ability to hypothetically think about multiple options and possibilities. It involves asking and answering the question, "what if...?"
- Developing **abstract thinking skills**. Abstract thinking means thinking about things that cannot be seen, heard, or touched. Examples include things like faith, trust, beliefs and spirituality.
- Developing the ability to think about thinking in a process known as '**meta-cognition**'. Meta-cognition allows individuals to think about how they feel and what they are thinking. It involves being able to think about how one is **perceived by others**.

Barnett (2005) gives the following examples questions teenagers asks resulting in **abstract thoughts**:

- What am I good at?
- How do others perceive me?
- What will I do in the future?
- What are my personal characteristics?
- What kind of person am I?

Abstract thinking affects teenagers in the following ways:

- They think of themselves as always being on stage. They are very **sensitive** to public criticism. They are horrified at the slightest comment about their appearance or performance in any area. Teenagers tend to believe that everyone is as concerned with their thoughts and behaviours as they are. Therefore they think they are always been watched (Barnett, 2005; Huebner, 2000; Mitchell, 1998, p. 22). This implicates a strong **self-awareness**.
- Teenagers tend to believe that no one else has ever experienced **similar feelings** and **emotions**. They may say things like "You'll never understand," or "My life is ruined!" (Huebner, 2000).
- Moore and Rosenthal (as quoted in Mitchell, 1998) observe that teenagers tend to exhibit the "it can't happen to me" syndrome. This belief causes teenagers to take **unnecessary risks** like drinking and driving (I won't crash this car), having unprotected sex (I can't possibly get pregnant), or smoking (I can't possibly get cancer") (Mitchell, 1998, p. 32).
- Teenagers tend to become very **cause-oriented**. After reading about cruelty to animals a teenager may become a vegetarian and a member of 'People for the Ethical Treatment of Animals'. Another teen may become active in 'Green Peace' or 'Save the Whales' campaigns (Huebner, 2000).
- Teenagers are quick to **point out inconsistencies** between adults' words and their actions (Huebner, 2000).
- Other annoying behaviours that come from an ability to think abstractly include **sarcasm and satire** (Barnett, 2005).

According to Huebner (2000) the following are tips to help teenagers cope with the above behaviours.

- Involve teenagers in **discussing** their behavioural rules and consequences.
- Provide opportunities for teenagers to **participate in controlled risky behaviour**.
- **Provide opportunities** for teenagers to get involved in community service.
- **Talk** to teenagers about their views and be open to discussing your own.
- Try to build a genuine **relationship** with the teenager.

This brings us to the core question – Why are teenagers a problem in the classroom? Surely, if one applies the above principles the problems with teenagers as learners should disappear? As mentioned above the thinking processes of teenagers differ from those of adults as a result of the brain cortex being not yet fully developed and also as a result of the fact that their thought processes happen with '**lightning speed**' (Prensky, 2001). Another aspect that should be recognised by educators is the fact that teenagers have perfected the art of **multi-tasking**. Educators might not always appreciate new skills teenagers have acquired. Some educators prefer to teach the way they have been doing for years, not keeping in mind the "lighting speed" and multi-tasking abilities of the teenagers (Prensky, 2001).

According to Resnick (2002) the following is evident in learning.








- Learning is an active process in which learners create an awareness of their surroundings through actively analysing, researching, debating and contemplating.
- Successful learning occurs when learners are immersed in designing and creating things, especially things that are significant to them or those around them.

Various authors describe different styles of learning, for instance Gardner (1983) in *Frames of Mind*, discusses 'multiple intelligences'. Kolb describes four different learning styles which are based on a four-stage learning cycle (Kolb, Osland, & Rubin, 1995).

Mantle (2001) defines the following learning styles according to learner personalities, strengths and most effective learning method of the specific learning style as in Table 3. From Table 3 it can be deduced that there is more than one pedagogically sound way in which a learner can interact with the learning environment.

From the above it is clear that the active involvement of learners is one of the key concepts in cognitive development. It is important to take note of the different styles of learning of teenagers as adapted and summarised in Table 3 (Mantle, 2001).

Table 3: The seven learning styles of Tracy Mantle (2001)

Style	Learner personalities	Strengths	Most effective learning method
Linguistic 	Loves to read, write, and tell stories	Memorizes places, dates, names Tells tales Ability to retell everything	Saying, hearing, and seeing words
Logical 	Very logical, straight-forward	Mathematically inclined, enjoys solving problems	Building blocks, pattern puzzles Categorizing/ classifying Working with abstract patterns or relationships
Spatial 	Visualisers Day dreamers Watches movies Staying away from reality Drawing pictures	Good at working with colours/pictures Thinks about a particular problem but have yet to put it on paper Very artistic	Working with their senses and their natural artistic abilities
Musical 	Always busy humming a tune Listens to music	Notices details, pitches and rhythms Excellent at keeping tune Can turn abstract into concrete objects.	They learn best through rhythm, melody and music
Bodily 	Always on the move Touches everything Uses body language to convey feelings	Would rather play sports or do a craft than sit down and read a book. Can do more than one thing at a time	Needs active education Incorporates sensory development Interacts with space Changes subjects frequently Interdisciplinary lessons
Interpersonal 	'Social butterflies' Adapts easily Has many friends Excellent leaders	Patient Understanding Very empathetic Has the ability to mediate conflict	In a group situation as they compare, share, relate, and interview others
Intrapersonal 	Strong willed Has a deep understanding of themselves	Independent and original Tends to stand out from the crowd	Works best alone Self paced instruction Individualized projects Should be allowed to maintain own space.

As illustrated in the Table 3 above different learners will feel comfortable with different methods of learning, for instance the linguistic learner will learn best by reading or listening to stories, the logical learner will learn best by observing patterns and relationships, the spatial learner enjoys learning by

using his senses, the musical learner prefers learning through rhythm, melody and music, the bodily learner needs active education, the interpersonal learner wants to learn in a group comparing and sharing ideas and the intrapersonal learner works best when alone.

It would be ideal to identify the preferred learning method of each individual learner and to guide each learner to optimise his/hers chosen style of learning. This however would pose the question, of how one would cater for the learning preferences of 30 plus individual learners in one classroom at the same time.

A good way to start would be to understand the different learning styles and perceptions of learners. Unfortunately understanding alone will not bring about positive change. Should educators not recognize, for example, the potential of equipment in the training environment and acknowledge that some technological tools, when used correctly, can enhance some of the learning styles mentioned above?

3.2 Affective Skills

Affective skills are the ability to understand oneself emotionally and to find the balance in one's own life and to act accordingly in our relationships with other people (Brett, Smith, Price, & Huitt, 2003). According to King (2003) this includes:

- Discovering our **internal worth**
- Developing our **unique talents**
- Cultivating a **positive outlook**
- Increasing our **personal integrity**
- Accepting our **human fallibility**

As mentioned above [2.2 Social Behaviour] socialising with their peers is very important for teenagers and one of the key aspects of socialising is that teenagers use communication to convey feelings and/or emotions.

It is therefore important to understand how teenagers communicate and interact with one another; how their relationships function and how they affect others through what they say and do. The development of affective skills will assist teenagers in:

- Developing respect for themselves and others
- Accepting responsibility for their actions and how they affect those around them
- Improving their speaking and listening abilities
- Changing their life expectations
- Understanding and controlling their anger
- Increasing their ability to solve problems and set goals

The teenage years are a period during which a **personal identity** is developed and a sense of **self-**

purpose is established (Stewart, 2007). In order for teenagers to develop a healthy sense of personal identity they need the opportunity to **grow in confidence**, self-reliance, and self-understanding (Barnett, 2005).

The development of affective skills enables one to **receive input** from others through awareness, **attach a value** to the input and then to **react** accordingly. It is therefore important that teenagers be given the opportunity to **recognise their own worth** and to associate personal wellbeing with helping others. Stewart (2007) noticed that teenagers remain **self-centred** because they expect **recognition** for doing good and were not happy to do good simply for the sake of doing good. This observation emphasises the need for a system of recognition (Stewart, 2007).

It is therefore important for teenagers to build a strong self-image through recognition for their efforts to display positive affective skills.

3.3 Psychomotor Skills

The Macmillan English Dictionary (Boers, Carney, Channell, Cock, & Creese, 2002, p. 1) defines psychomotor skills as “the learning of **complex sequences of actions** that require perceptual information (input from the eyes, for example) and control of the muscles.” These are actions that have been performed so often that one does no longer consciously think about performing them, for example tying shoelaces, riding a bicycle and typing. These actions involve hand eye coordination skills.

According to the following psychomotor taxonomy adaptation developed by Dave as cited in Tomei (2005), psychomotor skills are acquired in the following sequence.

- Imitation of actions - **copy actions** of those round the
- Manipulation of actions - **follow instructions**
- Develop precision - **performing** the same action over and over again
- Articulation - **combine and integrate** related skills; fine tuning
- Naturalisation - automate, **become expert**

Once a particular action has passed through all the above stages we can assume that the psychomotor skill required to perform the action has been acquired. Looms (2002) suggests that **psychomotor skills** of teenagers have **improved** through using technology.

The **physical inactivity** of teenagers as a result of their preoccupation with modern technology remains a concern for educators and parents. Over the past decade our perception of **leisure time** and leisure time activities has changed dramatically. Traditionally leisure time was simply ‘free time’, where it is now seen as an opportunity to **develop social and physical skills** (DeDiego, 2005). A wide variety of technological devices make this development possible.

Teenagers that are otherwise well-balanced and live in a normal, supportive environment are not necessarily more inactive because of their usage of technology. Because parents and educators did not grow up with the same technology as teenagers of today, they find it difficult to understand that teenagers **can perform other tasks at the same time** as using a technological device. As mentioned above [2.1 Physical Behaviour] teenagers are well able to focus on more than one thing at a time and are adept at **multi-tasking**. Whilst, for instance, completing an assignment on a computer, teenagers can listen to music and maintain a running SMS conversation with another party.

Having spent some time investigating the pedagogic skills of teenage learners we will now turn our attention to the technology available in cell phones.

4 Cell phone technology

The World Book Dictionary ("The World Book Dictionary," 1996) defines technology as: "The body of tools, machines, materials, techniques, and processes used to produce goods and services and **satisfy human needs**." According to the The World Book Encyclopedia ("The World Book Encyclopedia," 1996) technology refers to how people use their inventions and discoveries to **appease their needs and wants**. The Computer Desktop Encyclopedia (2006) describes technology as applying a systematic technique, method or approach to **solve a problem**. In the educational environment technology refers to those tools/instruments that allow all role-players to **share their knowledge** with others (Reeves, 1998). In response to a question a female teenager described technology as: "anything that makes my **life easier** and that is **challenging and exciting**" (Oelofse, 2006).

My own contention is that technology can be anything that can be used to **simplify any task**. A pencil can be described as a piece of technology. The most important technological invention of the century is without doubt the computer. From its' beginning as a massive machine to the small **mobile** units of today the computer has been developed to **improve the quality of our lives**. Cell phones are a prime example of the development of computer technology combined with **communication technology** and have rapidly become **indispensable** to our modern way of life. This section is therefore describing to the importance of cell phones as technological devices.

Cell phones are best described as an extremely sophisticated radio combined with a telephone (Layton, Brain, & Tyson, 2000). Because cell phones are **small, portable and wireless** they can satisfy virtually all our **communication requirements**. Although cell phones were developed primarily as communication tools, they can today perform a **myriad of additional functions** to further simplify our lives. These functions will be discussed later on in section 4.3.

Although this study focuses on cell phones it is necessary to briefly also refer to Personal Digital Assistants (PDA's) and Smart phones [4.2 Handset Preference] as there are already devices available that combine the functions of cell phones, PDA's and smart phones (Rouse & Thing, 2007).

4.1 Terminology related to cell phone technology

The following terminology applies to cell phones in the context of teaching and learning that includes text, graphics, video, sound and animation.

AMPS: Advanced Mobile Phone System. First-generation cellular technology that uses separate frequencies or 'channels' for each **conversation**. Technology used by analogue cell phones (Rouse & Thing, 2007).

GSM: Global System for Mobile communication. A digital network that allows for **data to be sent and received**. Technology used by 2G cell phones (Rouse & Thing, 2007).

WAP: Wireless Access Protocol. This is a protocol for enabling **wireless dial-up** access to the Internet (Christensson, 2006).

GPRS: General Packet Radio Service. Mobile communications technology designed for data rather than voice transmission. This technology allows **faster data transmission** and internet access than WAP and there is **no need for dial up** (Tsai, 2008).

EDGE: Enhanced Data Rates for Global Evolution. This is an improvement on the GPRS network, as it not only allows users online connection, but also the ability to **send/receive data** (including **digital images**) and **browse websites** up to **3 times faster** than with any ordinary GSM/GPRS network. New services offered include **downloading of music/video clips**, full **multi-media messaging** and high speed **internet access and e-mail** (Rouse & Thing, 2007).

CDMA: Code Division Multiple Access. A multiple access scheme for digital radio to **send voice, data**, and signalling data (such as a dialled telephone number) between mobile phones and cell sites. It is a mobile digital radio technology where channels are defined with codes. CDMA permits many **simultaneous transmitters** on the same frequency channel ("CDMA2000," 2008).

WCDMA: Wideband Code-Division Multiple Access. Third-generation mobile wireless technology that promises much **higher data speeds** to mobile and portable wireless devices. WCDMA can support **mobile/portable voice, images, data, and video communications** at up to 2 Mbps. (Rouse & Thing, 2007)

UMTS: Universal Mobile Telecommunications Standard. It is a third-generation (3G) **broadband, packet-based transmission of text, digitized voice, video, and multimedia** at data rates up to 2 megabits per second (Rouse & Thing, 2007).

HSDPA: High Speed Downlink Packet Access. It is a packet-based mobile telephony protocol used in 3G UMTS radio networks to increase **data capacity and speed up transfer rates**. HSDPA, which

evolved from the WCDMA standard, provides download speeds at least **five times faster** than earlier versions of UMTS, allowing users of HSDPA networks a broader **selection of video and music downloads** (Rouse & Thing, 2007). HSDPA enables operators to not only **high-speed technology quickly** but also **cost effectively** (Tsai, 2008).

WiFi: **Wireless-Fidelity.** **Wireless** Internet built into all laptops and other handheld devices. Earlier laptops can be Wi-Fi enabled by plugging in a Wi-Fi adapter via the USB port or PC Card (Freedman & Morrison, 2006).

LAN: Local Area Network. A **communications network** that serves users within a confined geographical area. The servers hold programs and data that are **shared** by the clients. **Printers** can also be connected to the network and shared (Freedman & Morrison, 2006).

WiMax: Worldwide Interoperability for Microwave Access. A wireless industry using **broadband wireless** access (BWA) networks. WiMax is expected to provide about 10 megabits per second of **upload and download**, at a **distance of 10 kilometres** from a base station (Rouse & Thing, 2007).

Bluetooth: A short – range radio technology which allows electronic devices to **exchange information** directly (Rouse & Thing, 2007).

SIM: Subscriber Identification Module. A smart card **containing telephone account information** inserted into cell phones. It lets you use a borrowed or rented cell phone as if it were your own. For educational purposes the reverse could also be applied, i.e. supplying the teenage learner with a programmed SIM card to be used in their own cell phones. SIM cards can also be programmed to **display custom menus** on the cell phone (Freedman & Morrison, 2006).

MMS: Multimedia Messaging Service. **Text, sound and image is combined** into one message that can be **sent or received** by cell phone with MMS capabilities (Rouse & Thing, 2007).

SMS: Short Message Service. The **transmission of short text- messages** to and from a cell phone (Tsai, 2008).

MXit: MXit is a **free instant messaging** program available for use on cell phones. It enables users to send and receive text messages via the Internet using GPRS or 3G to other MXit subscribers all over the world (Heunis, 2008).

IM: Instant messaging. Exchanging text messages in **real time** between **two or more people** logged into a particular instant messaging (IM) service. Instant messaging is more interactive than e-mail because messages are sent **immediately**. IM is designed for **fast text interaction** (Freedman & Morrison, 2006).

Bit and Byte: A bit is a digit of data, either a **0** or a **1**. A string of eight bits equals one byte. The letter A is one byte, comprised of 8 bits, i.e. 01000001 and the figure 0 is a one bit (Christensson, 2006).

KBps: Kilobyte per second. A byte is a unit of measurement of information storage. A kilobyte per second is a unit of data transfer rate equal to 1 000 bytes per second ("Kilobytes per second," 2008).

MBps: Megabytes per second describes a unit of data transfer to and from a computer storage device. A megabyte per second is a unit of data transfer rate equal to 1 000 000 bytes per second ("Kilobytes per second," 2008).

Kbps: Kilobit per second. A megabit per second is a unit of data transfer rate equal to 1 000 bits.

Mbps: Megabit per second. A megabit per second is a unit of data transfer rate equal to 1 000 000 bits.

Analogue: As humans, we observe our environment in analogue. Everything we see and hear is a continuous transmission of information to our senses. This **continuous stream** is what defines analogue data (Christensson, 2006). The turntable or record player [Figure 3] for example is an analogue device. A turntable 'plays' the music by reading the bumps and grooves from a record as a continuous signal.

Figure 3: Analogue turntable



Figure retrieved from: http://www.soundstagedirect.com/media/tt_lp_2_dig.jpg

Another example is a VCR, which is an analogue device as it reads audio and video from a tape as a continuous stream of information (Christensson, 2006). An interesting fact is that, since digital devices can only read ones and zeros, they can only roughly reproduce an audio or video signal. **Although analogue** data might seem outdated, it is actually **more accurate** than digital data (Christensson, 2006).

Digital: Digital information is stored using a **series of ones and zeros**. Computers, which can only read information as 1 or 0 are digital machines (Christensson, 2006). A compact disc [Figure 4] is a further example of a digital device.

Figure 4: Digital Compact disc (CD)



Figure retrieved from:

<http://www.microsoft.com/library/media/1033/windowsxp/images/using/setup/maintain/67417-label-cd.jpg>

Cell phones provide transfer of text, graphics, video, sound and animation which is all requirements for teaching and learning. Refer to Paragraph 3.1.

4.2 Handset Preference

In South Africa there is a multitude of mobile devices available. Mobile communication technology can be classed into the following devices that are handheld and generally referred to as handsets i.e. cell phones, Smart phones and Personal Digital Assistants (PDA's). As cell phones are by far the most available, popular and most affordable devices used by teenagers, this study will focus mainly on cell phones.

4.2.1 Personal Digital Assistant

A Personal Digital Assistant (PDA) is a handheld computer that can work with or without a SIM card. It can be defined as a small mobile hand-held device that provides computing and information storage and retrieval capabilities for personal or business use, often for keeping schedules, calendars and address book information handy. Most PDA's have small keyboard and some have electronically sensitive pads that recognise handwriting. Increasingly, PDA's are combined with smart phones and paging systems (Rouse & Thing, 2007)

4.2.2 Cell phone

'Cell phone' is short for cellular telephone [paragraph 1] and this is the term that will be used further on. Cell phones are a type of short-wave analogue or digital telecommunication unit providing a subscriber with wireless connection to a transmitter. The area of coverage of the transmitter is referred to as a cell (Rouse & Thing, 2007).

Cell phones provide wireless internet access allowing messages (text, voice and multi-media) to be sent to and received from another cell phone or cell phones (Layton et al., 2000). A cell phone should not to be confused with a cordless telephone, which is a telephone with a short distance radio connection to a local phone outlet (Rouse & Thing, 2007).

4.2.3 Smart Phone

Smart phones are essentially cell phones with special computer-enabled multi-propose features not previously associated with cell phones. This includes software applications such as word processors, spreadsheets and presentations (Rouse & Thing, 2007). It is likely that ordinary cell phones will be 'phased out' and that all handheld phones will eventually be smart phones.

4.2.4 History of cell phone development

Cell phones became available in South Africa in 1990. In the 18 years until 2008 they have developed from clumsy, low functionality and expensive devices to small, user friendly and relatively cheap technologically advanced multi-functional devices. Table 4 gives an overview of the development of the cell phones.

Table 4: Development of cell phones








	1G: Analogue	2G: Digital	3G: Digital	4G: Digital
Example of phone:	Motorola DynaTAC 8000X	Motorola C117	Nokia N81	Samsung
				
Year available	1983	1990	2001	±2010
Year available in South Africa	1990	1992	2004	Information not available
Radio signal	Analogue	Digital	Digital	Digital
Systems:	AMPS	AMPS, TDMA, GSM	GPRS, EDGE, CDMA HSDPA,	WiMax
Data rates:	less than 15 Kbps	64 to 200 Kbps	400 Kbps up to 1 Mbps	20 Mbps (standards still evolving)
Size:	250 mm high	107x45x19.5 mm	102 x 50 x 17.9 mm	
Display:	No Display	Black and White	Colour	Colour, Hi Definition
Talk time:	1 h	8 h	4 h	4G phones not yet available in the market.
Weight:	793 grams	80 grams	140 grams	
Cost:	\$3,500	± R300	± R4500	
Phone Memory:			card slot; 12 MB user memory; 96 MB SDRAM memory	

Table 4: Development of cell phones (Continue)

	1G: Analogue	2G: Digital	3G: Digital	4G: Digital
Example of phone:	Motorola DynaTAC 8000X	Motorola C117	Nokia N81	Samsung
				
Games:	No	Yes	Yes + Downloadable	Interactive gaming
Ring tones:	Single	monophonic	Polyphonic, Monophonic, True Tones	Polyphonic, Monophonic, True Tones
MP3 Player:	No	No	Yes	4G phones not yet available in the market, but early indications are that all these functionalities and more will be available in 4G phones.
FM Radio:	No	No	No	
Media Player:	No	No	Yes	
Camera:	No	No	Yes	
Video Camera:	No	No	Yes	
Voice Dialling:	Yes	Yes	Yes	
Calendar:	No	No	Yes	
SMS:	No	Yes	Yes	
MMS:	No	No	Yes	
Internet browser:	No	No	Yes	
E-Mail:	No	No	Yes	
Caller ID:	No	No	Yes	
EDGE:	No	No	Yes	
WAP:	No	No	Yes	
GPRS:	No	No	Yes	
USB:	No	No	Yes	
Bluetooth:	No	No	Yes	
3G	No	No	Yes	
Picture retrieved from	http://www.pcworld.com/article/id,137988-page,3-c,electronics/article.html	http://elitemobile.co.za/vodacom_deals/index.php?ref-phones&product_id-14	http://elitemobile.co.za/vodacom_deals/index.php?ref-phones	

The above detail was retrieved from: http://elitemobile.co.za/vodacom_deals/index.php?ref-home

Although we lack concrete information on the functionalities of the 4G cell phone, one can assume that the technological jump from 3G to 4G will be exponentially greater than the differences between 2G to 3G.

The modern cell phone market caters for a wide variety of consumers – all having different tastes and lifestyles. Some cell phones are tiny and discreet, whilst others are chosen because of their appearance – like a fashion accessory, whilst still others are sold for their sound quality or ease of operation [Table 5: Different types of cell phones]. Freestanding speakers as in Figure 5 are available for many brands of cell phones, enabling better sound quality.

Figure 5: Cell phone with detachable speakers



Figure retrieved from: http://reviews.cnet.com/4321-6454_7-6592025.html

Table 5 displays the different types of cell phones as categorised into tiny and discreet phones, cell phones with extra music features, cell phones as fashion accessory and business cell phones.

Table 5: Different types of cell phones

Tiny and discreet phones		
	<p>Motorola V500 Picture retrieved from: blogs.techrepublic.com.com/security/?p=40</p>	<p>Nokia 8810 Picture retrieved from: www.esato.com/archive/t.php/t-69806,1.html</p>
Cell phones with extra Music features		
<p>Sony Ericsson W810i</p>	<p>LG M4410</p>	<p>Nokia 5610</p>
Cell phones choose as fashion accessory		
<p>Nokia 7900 Prism</p>	<p>Sony Ericsson Z555i</p>	<p>Nokia 7373</p>
Business cell phones		
<p>Nokia N95 8GB</p>	<p>Motorola Q9</p>	<p>Samsung SGH-i780</p>

The pictures of cell phones with extra music features, fashion accessory and business cell phones were retrieved from <http://www.vodacom.co.za/pcr.do>

From Table 5 it is obvious that a variety of cell phones are available. This is an indication of the multiple choices a teenage learner has.

As the cell phone market is very competitive, manufactures have to cater for a diverse market and therefore a large variety of different brands and models of cell phones are manufactured to cater for individual personalities and personal needs. According to a recent market survey by Markinor (2007), Nokia is the most popular brand of cell phone amongst consumers in South Africa.

Table 6 provides a functional comparison between five brands of cell phones in the same price range ("Vodacom Phone Search," 2007).

Table 6: Comparative chart of some cell phone brands available in South Africa

	Motorola RAZR V3xx	Samsung D500	Nokia 6111	Sony Ericson W550i	LG KG200
					
Pictures retrieved from: http://www.vodacom.co.za/pcr.do					
Battery					
Type	Li-on	Li-on	Li-on	Li-on	Li-on
Standby time	400 h	380 h	192 h	400 h	--
Talk time	5h	6 h	3 h	8.5 h	3 h
Camera					
Camera	Yes	Yes	Yes	Yes	Yes
Video support	Yes	Yes	Yes	Yes	Yes
Digital Zoom	3x	4x	2x	4x	4x
Flash	No	Yes	No	Yes	No
Mega pixels	1.3	1.3	1	1.3	1.3
Connectivity					
Type	USB 2.0	Serial RS-232 USB 2.0	Serial RS-232	USB 2.0	USB 2.0
Bluetooth	Yes	Yes	Yes	Yes	Yes
Data and Telephony					
VoIP	Yes	No	No	No	No
GPRS	Yes	Yes	Yes	Yes	Yes
3G	Yes	No	No	No	No
HSDPA	Yes	No	No	No	No
Push-to-talk	Yes	No	Yes	No	No

Table 6: Comparative chart of some cell phone brands available in South Africa (Continue)

	Motorola RAZR V3xx	Samsung D500	Nokia 6111	Sony Ericson W550i	LG KG200
					
Entertainment					
Video	Yes	Yes	Yes	Yes	Yes
Java	Yes	Yes	Yes	Yes	No
Music player	Yes	Yes	Yes	Yes	No
Messaging					
SMS	Yes	Yes	Yes	Yes	Yes
MMS	Yes	Yes	Yes	Yes	Yes
E-mail	Yes	Yes	Yes	Yes	No
IM	Yes	No	Yes	Yes	No
Phone Personalisation					
Themes	Yes	No	Yes	Yes	Yes
Wallpaper	Yes	Yes	Yes	Yes	Yes
Animated graphics	Yes	Yes	Yes	Yes	Yes
Profiles	Yes	Yes	Yes	Yes	Yes
Ring tones	Yes	Yes	Yes	Yes	Yes
Specifications					
Vibrating	Yes	Yes	Yes	Yes	Yes
Built in hands-free	Yes	Yes	Yes	Yes	Yes
Internal memory	50 MB	96 MB	23 MB	256 MB	60 MB
Removable memory	Yes	No	No	No	Yes

Source: Vodacom. Available at: <http://www.vodacom.co.za/pcr.do>

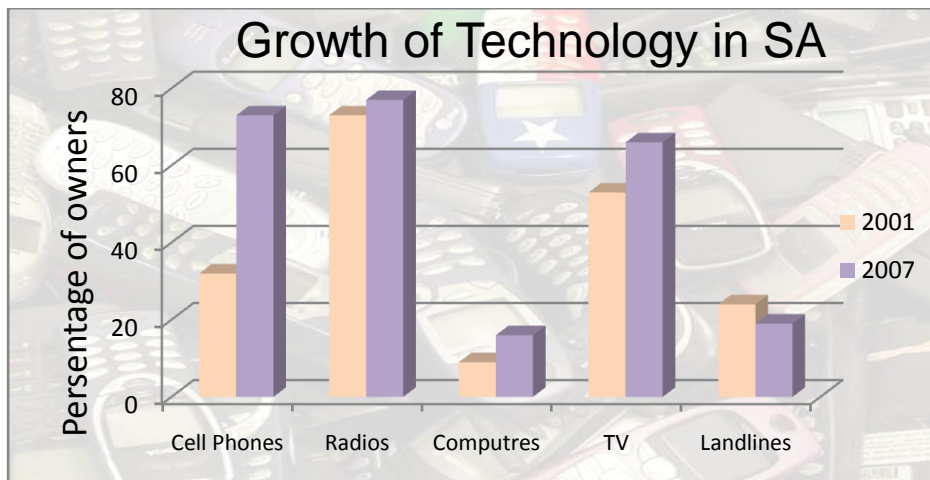
In Table 6 above a number of cell phone models are equated according to different features and functionalities. All the above cell phones provide the ability to transfer text, graphics, video, sound and animation which could all be used for teaching and learning.

4.2.5 Growth in ownership of cell phones oppose to other technology

Figure 6 show that the percentage of cell phone ownership in South Africa increased from 32,3% in 2001 to 76,6% in 2007. Owning a radio increased from 73% in 2001 to 76,6% in 2007. Owning a computer, increased from 8,6% in 2001 to 15,7% in 2007, whilst owning a TV increased from 53% in 2001 to 65,6% in 2007. Land line use decreased from 24,4% to 18,6% as a result of the popularity of cell phones ("Percentage of households with household goods in working order," 2007).

Figure 6 below illustrates the growth of technology, according to statistics by STATS SA

Figure 6: Growth of cell phones oppose to other technology



Source: STATS SA. Available at: http://www.statssa.gov.za/community_new/basicresults.asp

In comparison with other technologies, the growth in cell phone usage is phenomenal.

Furthermore Figure 7 is an indicator of the trend of the growth rate of cell phone users in South Africa that is substantially higher than in the rest of the world. Cell phone technology together with radio technology is the only area of technology in which South Africa showed a higher growth rate than the rest of the world. It is also interesting to note the large number of internet users in South Africa, which is a likely indicator that South Africans will readily embrace new technology as it becomes available.

Figure 7: Access to Information and Technology, 1999-2002

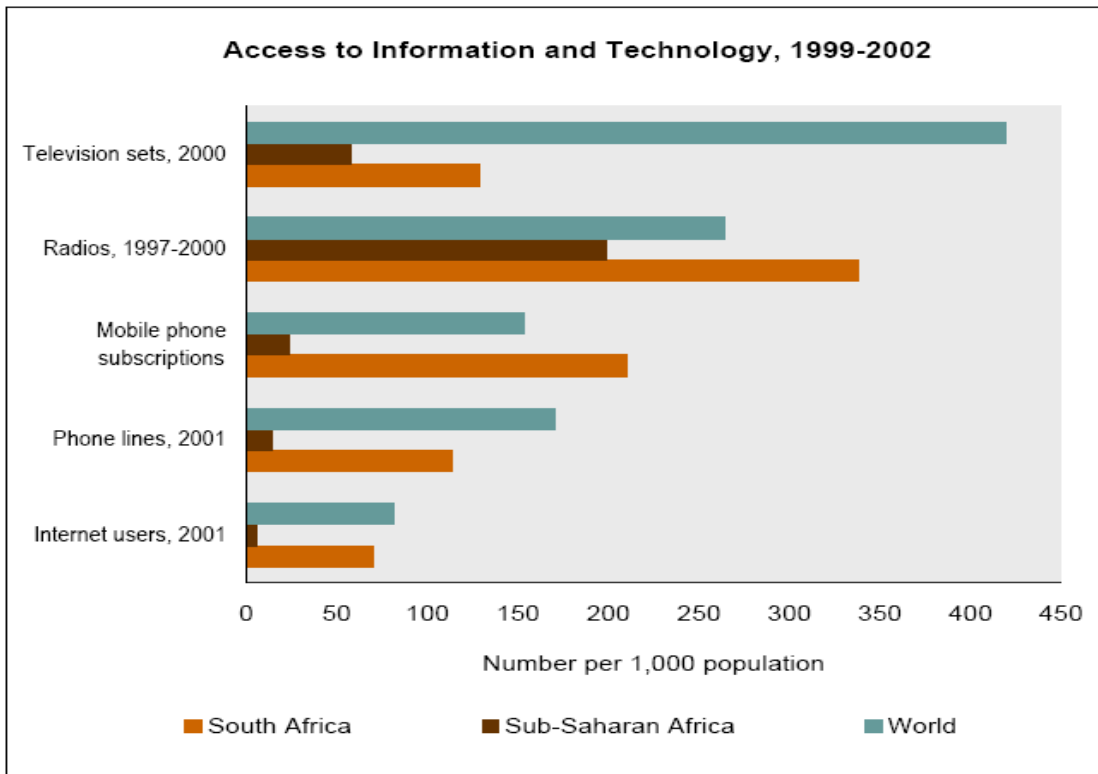


Figure retrieved from: "Environment Institutions and Governance South Africa". Available from: http://earthtrends.wri.org/pdf_library/country_profiles/env_cou_710.pdf

If one accepts that the trends as set above have continued to the present one comes to the inevitable conclusion that cell phones will become more and more prominent in all areas of society, including education.

4.3 Functionalities of cell phones

The basic functions of cell phones have already been highlighted in Table 4 and Table 6. The following is a summary of the functionalities of cell phones that could be applied when using the cell phone as educational tools:

Communication tool:

- Phone calls
- Video calls
- Conference calls
- Text messages
- Online messaging e.g. Mxit or IM
- E-mail

Information tool:

- Internet
- Word processing
- Fax
- Bluetooth
- GPS receivers

As graphics tool:

- Camera
- Video
- Animated graphics

As Multi-media tool:

- Multi-media messages
- Video
- Presentations
- Media player

As organisation/administration tool:

- Contact information
- To-do lists
- Diary
- Integration of other devices such as PDA
- Calendar
- Calculator

As sound tool:

- MP3 players
- Voice recording
Radio
- Voice to text/text to voice
- Ring tones
- Voice dialling

As animation tool:

- Games
- Internet access
- Television

As these functionalities could all be used in teaching and learning, has the time not come to start using the single piece of equipment that provides it all, in the learning and teaching environment?

4.4 Network Preference

Table 7 is an indication of the comparative market share of mobile operators in South Africa

Table 7: Mobile operators in South Africa

Operator	Number of subscribers	Percentage of market
Vodacom	23 million	56%
MTN	13.4 million	33%
Cell C	3.3 million	8%
Virgin Mobile South Africa	1.1 million	4%

Source: Markinor 2007. Available from: http://ipsos-markinor.co.za/file_download/15

As a result of a new operators entering the market cell phone services, in general, are becoming cheaper. This will be an important consideration when cell phones are used as educational tools.

From the available literature it is clear that cell phone technology as mobile tools is rapidly advancing and that South Africa is one of the fastest growing markets for cell phone technology in the world. It appears that cell phone, smart phone and PDA functions will shortly be available in one mobile handset. Cell phones will provide teenagers with almost all the benefits of a personal computer, in addition to the inherent communication facilities of cell phones.

Vodacom remains the biggest mobile operator in South Africa but as new operators enter the market one can assume that the price of network services will reduce as a result of the increased competition. Mobile services will therefore become more and more affordable to a greater number of South Africans making it also more affordable for a learning environment.

5 The integration of the learner profile, the learner and the cell phone

Table 8 was compiled by combining the teenager with the pedagogy and the technology and finding communalities between them. This was done to accumulate a profile of a teenage learner utilising cell phone technology.

In Table 8 the first column is a construction of the literature with a summary of the physical, social, cultural, moral and psychological behaviours of the teenage learner. The second column constructs the pedagogical skills and the third column the applicable cell phone features.

In column two, 'Pedagogic skills', in Table 8 below, the following has been used for easy reference:

- 'C' refers to Cognitive skills [Chapter 2:3.1]
- 'A' refers to Affective skills [Chapter 2:3.2]
- 'P' refers to Psychomotor skills [Chapter 2:3.3]

In column three, 'Technological capabilities', in Table 8 below, the following has been used for easy reference:

- 'H' refers to Handset preferences [Chapter 2:4.2]
- 'F' refers to Functionalities of cell phones [Chapter 2:4.3]
- 'N' refers to Network preferences [Chapter 2:4.4]
- 'T' refers to Technological capabilities [Chapter 2:4.2 – 2:4.4]

Table 8: The behaviour patterns, pedagogical skills and technological capabilities of the teenage learner

Teenage learner Physical behaviour	Pedagogical skills	Technological capabilities
Continued physical and cognitive brain development	<p>A: Sensitive about themselves/understand oneself</p> <p>C: Cognitive development same time physical development</p> <p>C: Frontal cortex not yet developed</p> <p>C: Self questioning: "Who am I?"</p>	<p>T: Improve quality of live, make life easier</p> <p>F: Personalisation</p> <p>T: Satisfy human needs</p> <p>T: Simplify individual needs</p>
Physical inactivity, free time - digital equipment, active engagement/fine psychomotor skills	<p>A: Socialising with peers</p> <p>C: Active process/involvement</p> <p>C: Bodily - touches everything/active education/involvement</p> <p>C: Designing /creating things significant to them</p> <p>C: New ideas/build relationships</p> <p>P: Complex sequences of actions require perceptual/hand-eye coordination/fine psychomotor skills Improved through using technology/Well defined fine psychomotor skill</p> <p>P: Free time-opportunity to develop social and physical skills</p> <p>P: Physical inactivity because of modern technology</p>	<p>F: Entertaining - Bluetooth, games, multi-media, sound, video</p> <p>F: Games, SMS, MXit , multi-media</p> <p>H: Handheld/Integration with other tools</p> <p>H: Internet connectivity through cell phones increased number of internet users</p> <p>T: Cell phones small, portable and wireless/satisfy all communication requirements</p> <p>T: Makes life easier/challenging/ exciting</p>
Multi-tasking	<p>C: Active process/involvement/awareness/patterns/recall/confidence</p> <p>C: Bodily - Can do more than one thing at a time</p> <p>C: Perfected multi-tasking/ Highly scheduled lives</p> <p>C: Thought processes "lightning speed"</p> <p>P: Naturalisation: automate, become expert</p> <p>P: Articulation: combine and integrate related skills; fine tuning</p> <p>P: Develop precision: same action over and over/ automation</p> <p>P: Developing precision/manipulation of actions/well developed fine psychomotor skills</p> <p>P: While completing assignment, listen to music/ maintain a SMS/MXit conversation</p>	<p>T: Handheld</p> <p>H: Smart phone – computer enable features</p> <p>T: Applying technique, method or approach to solve a problem</p> <p>F: Bluetooth, data transfer, integration with other tools, camera</p>

Table 8: The behaviour patterns, pedagogical skills and technological capabilities of the teenage learner (Continue)

Teenage learner Social Behaviour	Pedagogical skills	Technological capabilities
Emotional Sharing: Develop/share/evaluate identities Mutual emotional support Concept of themselves Confidence/self-awareness	A: Speaking and listening skills/communication/emotion feelings/socialising A: Respect/self understanding/sensitive/accepting humanness A: Control anger/ internal worth/personal identity/personal integrity/personal value system/positive C: Analysis - Discern patterns, comprehend meaning, identify different components C: Application - use information in existing and new situations C: Awareness/build relationships/sensitive to public criticism/community service C: Creating things/Critically assess values and ideas/debating/meta-cognition C: Interpersonal: understanding, empathetic/Intrapersonal: deep understanding of themselves C: Experienced intense emotions: "You'll never understand," or "My life is ruined!" P: Well focused/recognise own worth/associate wellbeing helping others	T: Tools which allow to share knowledge H: Diverse market/large variety of different brands and models of cell phones for individual personalities and personal needs. F: Preferences F: Basic function of cell phones is communication: Phone calls/Video calls/Conference calls/Text messages/Multi-media messages /Online messaging e.g. Mxit or IM/E-mail T: Tools/instruments allow sharing knowledge T: Applying a systematic technique, method or approach to solve a problem T: Challenging and exciting, choices, preferences, satisfy human needs
Relationships: Establishing intimacy	A: Control anger/internal worth/personal identity and integrity/ positive outlook/ respect/ responsibility A: Use communication to share feelings and/or emotion/socialising C: Build relationships/who am I!/Synthesis	T: tools/instruments to share their knowledge SMS, mxit, mms, Bluetooth, calendar, camera, e-mail, video
Independence: Self-governed and self-sufficient Determine what they are good at/achieving success	A: Accepting responsibility how they affect others A: Developing talents/confidence/self-centred, expect recognition C: Active involvement/analysing/compare/contemplate/assess/debate/ discussions/evaluate C: Evaluation/internal worth/self understanding/Synthesis P: Operating technological devices driven by psychomotor skills P: Naturalisation: automate, become expert/precision P: Well focused/recall/understand/comprehend	T: Applying a systematic technique, method or approach to solve a problem." T: Appointments, calendar, internet(information at hand) H: Address individual needs, choices, improve quality of life, make life easier, preferences, to simplify tasks
Communication: Enhances social experiences Change the attitude towards others	A: Accepting responsibility /how they affect others/ socialising very important A: Respect for themselves and others/positive outlook/speaking and listening abilities C: Analysing/build relationships/discussions/evaluate C: Cognitive development - emotional intelligence, need positive input C: Comprehension understand meaning, interpret, compare and group concepts C: Interpersonal: patient/understanding/empathetic/community service/ P: Multi-tasking P: Re-evaluate and re-negotiate terms of relationships/ cope with and recover from norm violation	T: Wireless internet/ information at hand T: Cell phones computer technology combined with communication technology H: Choices, personalisation, challenging and exiting H: Messages (text, voice and multi-media) to sent/received F: Basic function of cell phones is communication

Table 8: The behaviour patterns, pedagogical skills and technological capabilities of the teenage learner (Continue)

Teenage Learner Cultural Behaviour	Pedagogical skills	Technological capabilities
<p>Multi-cultural/well informed: South Africa multi-cultural society Bigger variety of choice Well informed and influential within cultural environment</p>	<p>A: Communication/confidence/expectations/ integrate skills C: Active involvement/new situation/contemplating/ creative/discussions/evaluate/critically assess C: Community service/awareness/group comparison C: Misunderstood/meta-cognition C: Interpersonal - Adapts easily/Social butterflies P: Automatization/precision and limitation of actions/manipulation of actions/operating technological devices - psychomotor skills P: Wide variety/well informed and influential/confident</p>	<p>F: Integration with other tools, internet - more choices, rapid growth personalisation, preferences, variety of styles H: Cell phone manufactures cater for diverse market/large variety for individual personalities and personal needs. H: Internet through cell phones increased number of internet users H: Nokia most popular brand in South Africa. sharing information, integration, multi-media T: Addresses/satisfy individual needs, choices, entertaining, integration, personalisation, preferences.</p>
<p>Critical Comparison: External references/critically compare and define themselves by group associations/brand and images Accept or reject images by observing others/group comparison</p>	<p>A: Expectations/personal value system A: Grow in confidence, self-reliance, and self-understanding A: Input through awareness, attach a value react according C: Active learning creates awareness through actively analysing, researching, debating and contemplating/group comparison/ community service C: Logical - Categorising/classifying/patterns and relationships C: Think everyone is concerned with their thoughts and behaviours, think they are always been watched P: Imitation of actions: monkey see, monkey do</p>	<p>H: Fashion accessory (fashionable) H: Personalisation, preferences H: Variety of styles H: Nokia most popular brand in South Africa H: Cell phone manufactures large variety of different brands and models cater for individual personalities and personal needs</p>
<p>Adherence to popular cultures for social acceptance and personal maturity</p>	<p>A: Opportunity to grow in confidence/controlling anger/internal worth/personal identity/personal value system/self understanding C: Think they are always been watched P: Parents and educators do not understand teenagers can perform other tasks while using a technological device S: Sensitive about themselves</p>	<p>F: Information at hand-know what popular cultures are H: Fashion accessory/Variety of styles H: Personalisation, preferences H: Data transfer, mms, camera, video, sound</p>

Table 8: The behaviour patterns, pedagogical skills and technological capabilities of the teenage learner (Continue)

Teenage Learner Moral behaviour	Pedagogical skills	Technological capabilities
Decision makers: Need defined goals and objectives Debating: Make choices between 'right and wrong' and 'good and bad' Reason more abstractly Confidence in own judgment	A: Responsibility/personal value system/Understand, control anger C: Abstract thinking skills/critically assess values and ideas C: Concrete-operational: think logically/patterns C: Logical - solving problems/Spatial - Working with their senses C: Discuss behavioural rules and consequences C: Formal operational, imagine other worlds C: Meta-cognition abstract thoughts C: Point out inconsistencies between adults' words and actions	H: Choices, communication, improve quality of life T: Makes life easier, challenging and exciting
Grow up in a period of rapid change: Experiment to create comfort zones	A: Changing life expectations A: Personal value system/expectations/positive outlook/system of recognition C: Application new situation/compare C: Different learning styles C: Interpersonal - Adapts easily A: Confidence/expectations/positive outlook A: Self-purpose/personal value system/need recognition C: Abstract thinking skills, include sarcasm and satire C: Meta-cognition/reason theoretically/understand comprehend C: Take risks, "it can't happen to me"/community service P: Free time develop social and physical skills	F: Cell phone - advanced multi-functional device benefits of computer with additional communication facilities H: Cell phones developed - clumsy, low functionality, expensive to small, user friendly and cheap technology H: SA fastest growing cell phone market T: Integration with other tools/rapid growth/new vocabulary H: Cell phone users increased more than land line and computer users/SA embrace new technology
Conscience/Consciousness: More aware of the society/Pro-social, sharing, donating to charity Conscience: Telling the truth/show guilt, empathy, compassion/act with honesty, unselfishness and responsibility	A: Developing respect for themselves and others/ A: Input through awareness, attach a value react according A: Raising personal integrity/internal worth/personal identity and integrity/personal value system A: Recognise own worth/associate wellbeing with helping others A: Responsibility/self understanding/recognition/talents C: Cause-oriented, see cruelty to animals become member of "People against cruelty to animals" C: Feel they are misunderstood C: Interpersonal - Compare, share, relate, to others in group /Linguistic - Ability to retell everything C: Teenagers point out inconsistencies between adults' words and their actions	F: Cell phones more and more prominent in all areas of society, including education F: Messages (text, voice and multi-media) sent and received/Camera/video H: Diverse market/large variety/different brands and model/personalities and personal needs H: Fashion accessory H: Personalisation, variety of styles T: Individual needs/Quality of life/Satisfy human needs

Table 8: The behaviour patterns, pedagogical skills and technological capabilities of the teenage learner (Continue)

Teenage Learner Psychological behaviour	Pedagogical skills	Technological abilities
Vulnerable: Need guidance Reassuring communication with friends Shaping personal thoughts and beliefs	A: Constantly in connection with peers A: Self-centred because they expect recognition A: Talk about views/build relationship C: Discussing behavioural rules and consequences C: Participate in controlled risky behaviour/ C: Responsibility/self understanding/system of recognition/community service C: Self questioning/internal worth/personal identity, integrity and value system	T: Life: easier/challenging/exciting T: Use inventions and discoveries to satisfy needs/information at hand T: Sharing knowledge/phone calls/ video and conference calls/ MMS/ SMS/Mxit /IM/E-mail/ internet H: Addresses individual needs/choices/ preferences/ personalisation
Own opinion: Form own opinion of the world Forming identity outside the family Conflicting rebellion period with parents Parent become less important	A: Personal identity/sense of self-purpose A: Changing life expectations A: Personal identity /grow in confidence, self-reliance, and self-understanding A: Socialising through communication very important C: Active learning/create awareness through actively analysing, researching, debating and contemplating C: Think about thinking ("meta-cognition")	H: Diverse market/large variety of different brands and models of cell phones for individual personalities and personal needs H: Information at hand T: Inventions and discoveries to appease needs and wants T: Satisfy human needs
Identity: Test and experience new and dangerous situations to develop own identity Emotional: Acceptance by group important More sensitive about themselves	A: Attention/speaking/listening/socializing C: Advanced reasoning skills C: Developing abstract thinking skills C: Developing meta-cognition/think how they feel/think about how one is perceived by others C: Hypothetically think about multiple options / possibilities, asking "what if...?"/What am I good at? C: Talk to their views and be open C: Think everyone is concerned with their thoughts and behaviours, think they are always been watched	T: Use inventions and discoveries to satisfy needs and wants T: Preferences/personalisation T: Individual needs/choices
Investigate and experience: Process information differently Fluctuating feelings impact self-confidence and behaviour Teenagers vary psychologically	A: Grow in confidence/self-reliance/self-understanding C: Frontal cortex not fully mature/Cognitive limitations C: Think flexibly/ sort out competing information/feel they are misunderstood/meta-cognition C: Very sensitive to public criticism C: Different styles of learning:	H: Communication/Individual needs/Multitude of functions H: SMS - to correct mood swing behaviour without personal contact H: Variety of styles/Personalisation N: Preferences T: Addresses individual need/Satisfy human needs

Summary: From the Table 8 the final learner profile of the teenage cell phone user was constructed. This learner profile is presented in Table 9.

Table 9: The learner profile of a teenage cell phone user

Teenage learner	Pedagogic	Cell phone as technology
2.1 Physical Behaviour 2.1.1 Continued physical and cognitive brain development 2.1.2 Physical inactivity 2.1.3 Multi-tasking	Cell phones addresses cognitive skills Teenagers are physically and cognitively involved when using cell phones responsibly	The use of cell phones does not contribute to physical inactivity. Teenagers are well balanced in their choice of leisure orientated pastimes. Showing a definite ability to multi-task
2.2 Social Behaviour 2.2.1 Emotional sharing 2.2.2 Relationship 2.2.3 Independence 2.2.4 Communication	Effortless communication enables teenagers to build and maintain effective relationships Assists in the development of their emotional intelligence Contributes to the development of an identity outside the family unit	Cell phones assist teenagers to be independent Cell phones can therefore enhance and support teaching and learning
2.3 Cultural Behaviour 2.3.1 Multi-cultural/well informed 2.3.2 Critical comparison 2.3.3 Adhere to popular culture - Maturity	Teenage learners are well informed Ownership of a cell phone is already considered a status symbol. Perceived opinions of friends regarding the teenager's' cell phone does not show great impact in other spheres of popular cultures brand awareness still plays a part in social acceptance	Cell phones are used extensively to access the World Wide Web and teenagers are therefore well informed Teenagers are satisfied with current cell phone as the mere fact of owning a cell phone outweighs the importance of new technology
2.4 Moral Behaviour 2.4.1 Decision 2.4.2 Rapid change 2.4.3 Conscience and consciousness/ awareness	Have the ability to make informed decisions Teenagers show conscience and consciousness regarding the use of cell phones for devious purposes	Teenagers have up to date information regarding cell phone technology Teenagers are comfortable with rapid changing technology
2.5 Psychological Behaviour 2.5.1 Vulnerability 2.5.2 Own opinion 2.5.3 Identity – sensitive about themselves 2.5.4 Investigate and experience	Teenagers require privacy especially regarding parents Teenagers are aware of potential risks and dangers regarding the use and ownership of cell phones Teenagers seek and ask for protection	Friends are allowed access to cell phones contents but not parents Cell phones assist them to form opinions Teenagers are positive about receiving SMS messages from teachers Teenagers feel like outcasts without a cell phone Personalise their cell phones Create own identity

6 Conclusion

When compiling a detailed learner profile of a teenage cell phone user, the following factors should be considered. Teenagers are most likely to use extra cell phone features and they want to acquire whatever interactive media and communications capabilities are available to them (Rainie & Keeter, 2006). SMS will be the only technological option available and known to a family in the rural area (Stead, 2005). A teenager living in a suburban area might most likely be able to gain online access via his phone. Both are valid learning tools, but one can not expect to view and use them in the same way (Stead, 2005). The future and what it holds remain unpredictable. Technology is even more unpredictable. Consumers underestimate the impact technology will have on their lives. In 1865 the following sentence appeared in the Boston Post: “Well informed people know it is impossible to transmit their voices over wires and even it were possible, the thing would not have any practical value” (“Technology and change,” 2006).

“In a mobile society people need to be able to work efficiently while on the road. Notebooks are the smallest and most portable real computers today (1995), but soon there will be pocket-size computers with snapshot-size colour screens.

When you whip one out, no one will say, “Wow! You’ve got a computer!”

Gates called it a “Wallet PC” or the “New Swiss Army knife’ and “... it will outperform the most exotic computer of just a decade ago...” (Gates, 1995, p. 73)

Did Gates ever think that this pocket size computer would be a cell phone?

CHAPTER 3

RESEARCH METHODOLOGY

1 Introduction

In chapter 2 the literature study was discussed that ended in a learner profile of a teenage learner. This chapter will review the different methods applied to obtain and analyse data in order to verify the learner profile of a teenage cell phone user. It will include a discussion of the method to gather data, the type of research and the different instruments used to collect the data namely the questionnaires, focus groups and log books used to collect the information.

2 Research design

The purpose of this study was to compile a learner profile of a teenage cell phone user. As not much previous research on this topic has been done an exploratory study with both qualitative and quantitative approaches was adopted for this study.

2.1 Exploratory research

An exploratory study is undertaken to better understand the nature of the problem, usually when not much information is available or many previous studies have been done in that area (Mouton & Marais, 1992). More thorough research can follow up on preliminary findings of an exploratory study. The end result of an exploratory research is therefore focused on obtaining insight and understanding and not on providing clear cut solutions to an existing problem (Mouton & Marais, 1992). Exploratory research also generates new opportunities for further research as in the case of this study [Chapter 5].

In order to perform high-quality exploratory research, the researcher must be susceptible to new ideas and suggestions. The researcher must under no circumstances be influenced by preconceived ideas or allow such preconceptions to unduly influence her (Mouton & Marais, 1992, p. 45).

In this study, exploratory research is necessary because only limited information is available on the learner profile of a teenage cell phone user.

2.2 Mixed method approach

The mixed method approach of research involve collecting and analysing both quantitative and qualitative data in one study (Creswell, 2003, p. 15). This approach also provides the mechanisms for mutual support between qualitative and quantitative methods of research. In this study the focus group interviews as well as the open-ended questions in the questionnaire were used as qualitative research instruments to underscore/confirm data obtained from the quantitative instruments, namely the questionnaire and log books.

According to Creswell (2003) there are three general strategies in the mixed method approach.

Sequential procedures: Elaboration on or expanding of findings obtained using one method by using the other method.

Concurrent procedures: When the researcher converges qualitative and quantitative data in order to provide a comprehensive analysis of the research problem.

Transformative procedures: The researcher provides a bridging perspective by using theory as a lens within a design that contains both qualitative and quantitative data.

For the purpose of this study the concurrent procedure was followed. Both forms of data were collected at the same time during the study and the information was integrated in the interpretation of the overall results.

3 Measuring instruments and data collection methods

In this study the following work procedure was utilised:

- An overview of available literature
- Design of a questionnaire to obtain both qualitative and quantitative information
- Distribution of the above to selected secondary schools
- Providing a logbook to a selected number of learners to be completed on a daily basis
- Conducting and recording two individual focus group interviews (male and female)
- Organising and analysing of information obtained from the above
- Conclusions

Due to the exploratory nature of this study, questions may be of a more general nature than would be the case in a more structured study where existing information is expanded on.

The measuring instruments and data collection methods set out in Table 10 were used in this exploratory study [Chapter 1: Table 1].

Table 10: Measuring instruments and an explanation of the data collection methods

Instrument	Explanation
3.1 Questionnaire	Set in English, containing both qualitative and quantitative questions and distributed to 4 Secondary schools.
3.2 Focus groups interviews	One male and one female group. Interviews recorded live. Conducted in both English and Afrikaans
3.3 Logbooks	Meticulous records kept by hand picked teenagers over a period of 14 days

From the above Table 10 follows a detailed description of measuring instruments used.

3.1 Questionnaire

The questionnaire is discussed under the following headings.

- Design
- Distribution
- Organisation and analysis
- Participants

3.1.1 Design

The questionnaires were designed to take up as little time as possible as they were to be completed during school hours. As the researcher was not present during completion of the questionnaires, the questions were designed to eliminate uncertainty. Forty-seven questions, comprising of demographical, qualitative and quantitative questions were asked.

Questions were randomly arranged and will therefore not be addressed in chronological order when dealt with in chapter 4 below.

The aim of the questionnaire was to obtain information on:

1. Demographics
2. Behaviour patterns (referring to physical, social cultural, moral and psychological behaviours)
3. Technology preferences
4. Interaction with cell phone technology
5. Cell phone technology as a learning tool (referring to cognitive, affective, and psychomotor skills)

Some of the questions may overlap in different behavioural patterns, but they were used when most applicable. Table 11 show die questions in various categories. The complete original questionnaire is in Addendum A.

Table 11: Categorising of questions from questionnaire

#	Question	Category
1.	Do you own/share a cell phone?	Demographics
2.	What is your age?	Demographics
3.	What is your gender?	Demographics
4.	Which of the following best describes the area you live in?	Demographics
5.	What is your family's financial circumstance?	Demographics
6.	What is your home language?	Demographics
7.	Please check the frequency in which you engaged in the following activities during the <u>past 6 months</u> . Check only one answer for each possible leisure activity.	Behaviour patterns

Table 11: Categorising of questions from questionnaire (Continue)

#	Question	Category
8.	What would you do on your cell phone if you had an hour or two?	Behaviour patterns Preferences
9.	How do you feel when you receive an advertisement on your cell phone?	Behaviour patterns
10.	How frequently do you access the web from the following places? (On a cell phone or computer.)	Behaviour patterns Learning tool
11.	How did you obtain your current cell phone?	Behaviour patterns
12.	How old were you when you got your first cell phone?	Behaviour pattern
13.	Who pays your cell phone's bill?	Behaviour patterns
14.	Your cell phone is on: Contract Pay-as-you-go Family/business Top-up	Behaviour patterns
15.	Which network are you subscribed to?	Preferences
16.	Which network do you prefer?	Preferences
17.	Your monthly cell phone charges are?	Behaviour patterns
18.	Has your cell phone ever been stolen?	Learning tool Behaviour patterns
19.	How many cell phones have you owned to date?	Behaviour patterns Learning tool
20.	How long have you had your current cell phone?	Behaviour patterns Learning tool
21.	How long did you have your previous cell phone?	Behaviour patterns Learning tool
22.	Your cell phone's contact list consists of how many entries?	Behaviour patterns Interaction
23.	Approximate number of SMS messages sent daily?	Behaviour patterns Interaction
24.	Approximate number of SMS messages received daily?	Behaviour patterns Interaction
25.	Have you ever used your cell phone to surf the internet?	Interaction Learning tool
26.	If yes, are your parents aware that your cell phone can be used to surf the net?	Behaviour patterns
27.	If they are aware, do they mind? If they are not aware, would they mind?	Behaviour patterns
28.	Have you ever visited sites that you know your parents would not approve?	Behaviour patterns
29.	Do you think schools and parents should protect kids from offensive sites like porn?	Behaviour patterns Learning tool
30.	Do you prefer contacting someone via Phone call/SMS?	Preferences
31.	If you indicated by phone , why do you prefer this option?	Preferences
32.	If you indicated by SMS , why do you prefer this option?	Preferences
33.	Are you allowed to bring your cell phone to school?	Learning tool

Table 11: Categorising of questions from questionnaire (Continue)

#	Question	Category
34.	If you bring your cell phone to school, how often do you use it during class or assembly?	Behaviour patterns
35.	Have you ever used your cell phone to cheat in a test?	Behaviour patterns
36.	Which brand of cell phone do you own?	Preferences
37.	How satisfied are you with your cell phone?	Preference
38.	Compared to your friend's cell phones, would you say that your cell phone is better or worse?	Behaviour patterns
39.	Which brand of cell phone do you prefer?	Preferences
40.	Indicate the frequency of use of the following features on your cell phone.	Behaviour patterns Interaction
41.	On a scale of 1 to 5, when buying a new cell phone, how important are the following features?	Interaction Learning tool
42.	Please choose only one option per row:	
.	a. I love using my cell phone.	Behaviour patterns Preferences
	b. Without a cell phone I feel disconnected from the world.	Behaviour patterns Interaction
	c. I always carry my cell phone with me.	Behaviour patterns Preferences
.	d. The design of my cell phone is important to me.	Behaviour patterns Preferences
.	e. It is important to me how other people perceive my cell phone.	Behaviour patterns Interaction
	f. I personalise my cell phone by changing its cover or wallpaper.	Behaviour patterns Interaction
	g. When talking in chat rooms I will use my real name.	Behaviour patterns
	h. When talking in chat rooms I will lie about my age.	Behaviour patterns
	i. I do not mind when my parents read my SMS messages.	Behaviour patterns
43	Regarding your cell phone, describe one recent experience that you consider memorable or important in some way. (It could have been a good or bad experience.)	Behaviour patterns
44.	What were your feelings and thoughts after this experience?	Behaviour patterns
45.	Do you think that the use of a cell phone will aid you in completing schoolwork?	Learning tool
46.	Would you like to be able to use your cell phone in the classroom as a tool to help you with your schoolwork?	Learning tool
47.	Do you think that using a cell phone as a tool in the classroom will make any difference to the quality of your schoolwork? Why?	Learning tool
48.	Would you recommend the use of a cell phone in completing schoolwork in the classroom?	Learning tool

From the Table 11 it is evident that all categories were covered in the questionnaire.

3.1.2 Distribution

Permission was obtained from the Gauteng Department of Education (GDE) and the principals of each of the following secondary schools to distribute the questionnaire. The institutions involved require a rigorous consent procedure to be followed for research conducted in the schools, which procedure was adhered to.

- Wagpos Hoërskool: an Afrikaans medium, government school servicing a mainly white, predominantly, rural community.
- Irene Middle School: an English medium government school servicing an urban community with black learners from rural as well as urban communities.
- Pierre van Ryneveld Christian Academy: an English medium private school servicing learners from diverse communities (Afrikaans/English/black/white).
- Cornwall Hill College: an English medium private school servicing learners from diverse but mainly affluent communities (Afrikaans/English/black/white).

All 811 questionnaires that were handed out were received back but only 796 were completed sensibly, although, as completing the questionnaires were completely voluntary, not all questions were necessarily answered on all questionnaires.

Class lists were obtained from each school prior to distribution of the questionnaires and the corresponding number of questionnaires were distributed and completed by learners during the same administrative period. Class teachers were appropriately thanked for their trouble and each was presented with a chocolate as a small token of appreciation.

To ensure confidentiality a letter was attached [Figure 8] to each questionnaire, explaining the purpose of the questionnaire and also informing the learners that they were not obliged to participate. Participants were not required to give their names.

Figure 8: Letter accompanying the questionnaire

off the mark by Mark Parisi
www.offthemark.com

comics.com
©2004 MARK PARISI DIST. BY GIP, INC.
MarkParisi@aol.com 2-21

Dear teenager

You are invited to participate in our survey. In this survey, approximately 1000 learners will be asked to complete a survey that asks questions about you and your cell phone. It will take approximately 10 minutes to complete the questionnaire.

We are doing this survey to compile a profile of a teenager's interaction with his/her cell phone. A profile like this would assist us to incorporate the cell phone as a learning tool into classrooms. Your participation in this study is completely voluntary. If you have questions at any time about the survey or the procedures, you may contact Christa Oelofse at 083 259 4933 or by email: christa.o@absamail.co.za.

Thank you very much for your time and support.

3.1.3 Analysis of the questionnaire

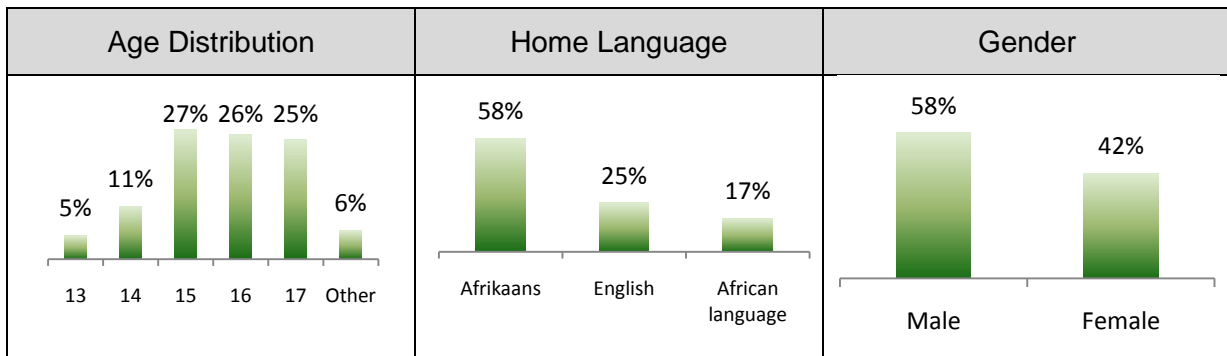
The quantitative analysis was carried out using an online program called 'Question Pro'. This program is free for a trial period of 30 days. It is available at: <http://www.questionpro.com>

3.1.4 Participants

The participants varied widely in socio economic background - drawn from various communities and therefore represents a cross segment of South Africa society [Table 12]. Teenagers were free to decline to take part. They were not required to reveal their identities.

Table 12 categorises the participants of the questionnaire into age distribution, home language and gender.

Table 12: Questionnaire: The age, home language and gender of participants



Male participants were 58% to 42% females. The majority of learners participating were aged 15 years (78% were between 15 and 17 years of age).

The African languages included Sotho, Tswana, Ndebele, Xhosa and Zulu. Most participants' home language is Afrikaans (58%) but the majority attend English medium schools.

3.2 Focus group interviews

Two separate focus group interviews were conducted with one male only and the other female only participants. Participants were gender separated to negate the possibility that the participants might not be honest and therefore be tempted to 'impress' the opposite sex or to hide gender specific sensitivities [Hawthorne effect].

The purpose of the focus group interviews was to obtain information to support the data obtained from the questionnaire.

The focus groups data are discussed under the following headings.

- Design
- Organisation and analysis
- Participants

3.2.1 Design

Nineteen standard questions were asked, leading to a further number of questions spontaneously emanating from the groups.

The aim of the focus group interviews was to obtain information on:

1. Behaviour patterns of teenage learners (Behaviour patterns)
2. Technology teenage learners prefer (Preferences)
3. Teenage learner's interaction with technology (Interaction)
4. Technology as a learning tool (Learning tool)

Table 13 categorises the questions into the above four groups.

Table 13: *Categorising of questions of the focus groups*

#	Question	Category
1.	How do you see yourself in relation to your cell phone?	Behaviour patterns
2.	Why is a cell phone important to you?	Behaviour patterns
3.	What is the easiest way of communication with a cell phone: phoning or sending a SMS?	Preferences
4.	Is it important to you how your friends perceive your cell phone?	Behaviour patterns
5.	Are you satisfied with your current phone?	Behaviour patterns
6.	If you had a choice what would you change on your current cell phone?	Preferences
7.	When communicating with friends on a cell phone what do you talk about? Personal or functional content?	Interaction
8.	Does a cell phone assist you in establishing or keeping good relationships with friends?	Behaviour patterns
9.	What is in and what is out regarding the use of functions on a cell phone?	Behaviour patterns
10.	What is in and what is out regarding technology?	Behaviour patterns
11.	What do you think a cell phone will look like in 10 years time?	Behaviour patterns
12.	How do you feel about teenagers and the porn sites that they visit? Do you think parents and teachers need to protect you against it?	Behaviour patterns
13.	What risk factors can be associated with the use of a cell phone?	Behaviour patterns
14.	How do you perceive privacy regarding your cell phone?	Behaviour patterns
15.	Do you think teachers will invade your privacy if they send you SMS messages regarding school work?	Behaviour patterns Learning tool
16.	Would the use of a cell phone as an aid in the classroom make any difference to your year end mark?	Learning tool
17.	Would you like to use your cell phone in the class as an educational tool?	Learning tool
18.	Will the use of a cell phone motivate you to complete your class work?	Learning tool
19.	What functions of a cell phone can be used to aid you in doing schoolwork?	Learning tool
20.	What would you want to see differently in classrooms of today?	Learning tool
21.	Do your friends show of their cell phones?	Behaviour patterns
22.	Do you mind if your parents read your SMS messages?	Behaviour patterns
23.	Do you use your cell phone in class if you are not allowed?	Behaviour patterns Learning tool
24.	Will learners use their cell phone to cheat in class?	Behaviour patterns Learning tool
25.	Do you constantly want to be in contact with your friends?	Behaviour patterns Interaction
26.	Is a cell phone only important for communication for arrangements or also important to convey feelings?	Behaviour patterns Interaction
27.	Do you like to personalise your cell phone? Why?	Preferences

From the Table 13 it is evident that all categories were covered in the focus group interviews.

3.2.2 Analysis of the focus group interviews

The focus group interviews were recorded live and the results were subsequently transcribed and analysed by the researcher.

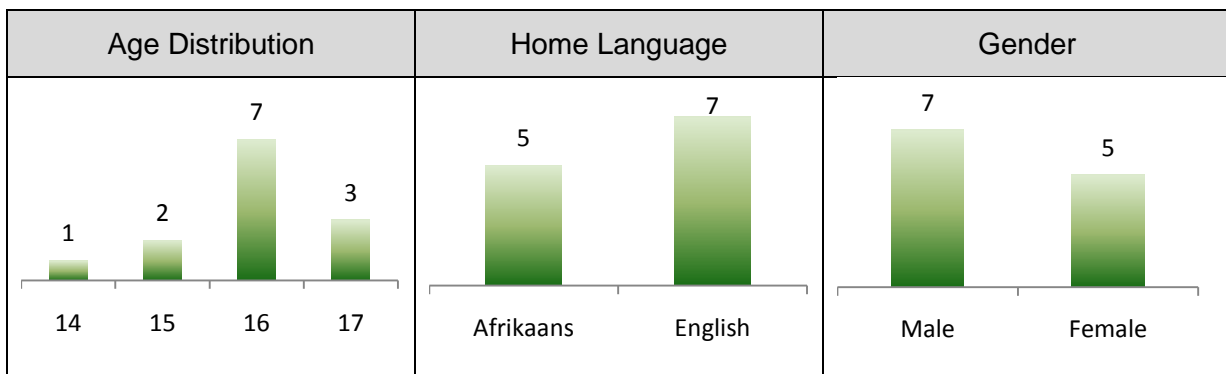
3.2.3 Participants

The participants of the focus group interviews comprised of a group of seven male teenage learners and a second group of five female teenage learners all between the ages of 15 and 17. The female focus group consisted of five teenagers from two different schools. As the researcher required representatives of all age groups, participants were aged between 14 and 17 (Table 13).

The participants were learners of an Afrikaans language, academic, government school - Waterkloof Hoërskool and an English language, art, government school, Pro Arte Alphen Park. The teenagers had to show consent from their parents by presenting a signed letter given to them earlier. An example of the letter is attached as Addendum B. While enjoying beverages, participants were introduced to each other as they were already known to the researcher, but did not know each other. They were told that the conversation would be videotaped and that they did not need to answer any questions they felt uncomfortable with. They were also told that if at any stage they felt threatened by the discussion they were free to excuse themselves. Questions were asked in English and Afrikaans and the participants were told that they could answer in the language they felt most comfortable with.

Table 14 categorises the participants of the focus group interviews into age distribution, home language and gender.

Table 14: Focus group: The age, home language and gender of participants



The mean age of the participants of the focus group was 16.

Note: A random group of teenagers were offered a financial reward for going without their cell phones for four consecutive days and making notes of their experiences over the said period.

Not one in the group was prepared to oblige. The remark was made that anybody who was prepared to be without a cell phone for four days “did not have a life”.

In some of the results it is evident that the younger female interviewees were dominated by some of the older members.

3.3 Logbooks

The logbooks are discussed under the following headings.

- Design
- Distribution
- Analysis
- Participants

3.3.1 Design

The purpose of the logbooks was to support the data obtain from the questionnaire and focus group interview concerning the following categories:

1. Behaviour patterns of teenage learners (Behaviour patterns)
2. Technology teenage learners prefer (Preferences)
3. Teenage learner’s interaction with technology (Interaction)

Table 15: Categorising the logbook entries

#	Question	Category
1.	Which cell phone functions do teenage learners use to communicate with their friends as opposed to their parents?	Preference
2.	Frequency of communicating during school days and weekends.	Behaviour patterns
3.	Reason for contact - logistic or social	Interaction

Logbook entries made by teenagers each time they used a cell phone were analysed to show how, for what reason and where teenagers typically use their cell phones.

Table 16 represents an example of how the logbook should have been completed, as was handed to the selected participants at Cornwall Hill College.

Table 16: The logbook

My Cell Phone and I							
Age: _____		Gender: _____					
Date	Time	Send	Received	To/From	Location	Regarding	Function used
12-Mar	15:00	√		Mom	Classroom	Pick up time	Please Call Me
12-Mar	15:02		√	Mom	School gate	Pick up time	Phone call
13-Mar	22:00	√	√	Friend	In bed	Events of the day	Chat Room
14-Mar	10:00	√		Friend	Swimming pool	Photo	Camera/MMS

3.3.2 Distribution

Mrs Maryke Mihai, an Afrikaans teacher at Cornwall Hill College selected 18 conscientious grade 11 learners who she was familiar with. She explained to them how to complete the logbooks and also explained that their participation was voluntary. The importance of the consequent keeping up to date of the logbooks was emphasised and the learners were given the opportunity not to participate should they not feel up to maintaining the logbooks for the required 14 day period.

3.3.3 Analysis of the logbook entries

Daily logbooks [Chapter 1:5.4] on all cell phone related activities were maintained over a period of 14 days. Each entry made in the logbooks was grouped in one of the following categories.

- Was the message send or received
- To or from whom (friends or parents)
- Content (functional or social)
- What function was used

The following analysis was done.

- Which cell phone functions do teenage learners use to communicate with their friends as opposed to their parents?
- Frequency of communicating during school days and weekends.
- Reason for contact - logistic or social

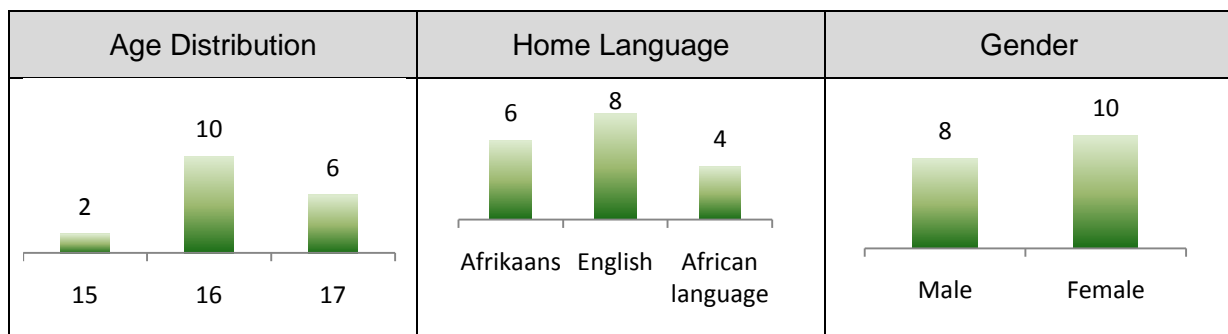
When conducting analyses of the results, group means were compared to investigate the effects of social and functional communication to parents and peers to establish if there existed any differences between these groups.

The Statistics Department of the University of Pretoria used program SAS version 8.2 to analyse the data.

3.3.4 Participants

The demographics of the selected eighteen teenage learners are illustrated in Table 17.

Table 17: Logbook: The age, home language and gender of participants



Male participants were 8 to 10 females.

The majority of learners participating were aged 17 years all were between 16 and 17 years of age.

3.4 Integration of research instruments

Table 18 show the integration of the research instruments.

In column two, 'Pedagogic skills', in Table 18 below, the following has been used for easy reference:

- 'C' refers to Cognitive skills [Chapter 2:3.1]
- 'A' refers to Affective skills [Chapter 2:3.2]
- 'P' refers to Psychomotor skills [Chapter 2:3.3]

In column three, 'Technological capabilities', in Table 18 below, the following has been used for easy reference:

- 'H' refers to Handset preferences [Chapter 2:4.2]
- 'F' refers to Functionalities of cell phones [Chapter 2:4.3]
- 'N' refers to Network preferences [Chapter 2:4.4]
- 'T' refers to Technological capabilities [Chapter 2:4.2 – 2:4.4]

In column two, 'Research instruments', in Tables 18 below, the following has been used for easy reference.

- 'Q' refers to Questionnaire and the numerical figure, e.g. 25 refers to the specific question in the questionnaire.
- 'FG' refers to Focus groups and the numerical figure, e.g. 25 refers to the specific question asked during the Focus group sessions.
- 'LB' refers to Logbook and the numerical figure, e.g. 5 refers to the specific field of analysis from the Logbooks.

Table 18: Integration of the research instruments

Teenage learner Physical behaviour	Pedagogical skills	Technological capabilities	Research instruments
Continued physical and cognitive brain development	<p>A: Sensitive about themselves/understand oneself</p> <p>C: Cognitive development same time physical development</p> <p>C: Frontal cortex not yet developed</p> <p>C: Self questioning: "Who am I?"</p>	<p>T: Improve quality of live, make life easier</p> <p>F: Personalisation</p> <p>T: Satisfy human needs</p> <p>T: Simplify individual needs</p>	<p>Q12: How old where you when you got your first cell phone?</p> <p>Q25: Have you ever used your cell phone to surf the internet? (H: Moral-decision makers)</p> <p>FG1: How do you see yourself and your cell phone?</p> <p>FG6: If you had a choice what would you change on your current cell phone?</p>
Physical inactivity, free time - digital equipment, active engagement/fine psychomotor skills	<p>A: Socialising with peers</p> <p>C: Active process/involvement</p> <p>C: Bodily - touches everything/active education/involvement</p> <p>C: Designing /creating things significant to them</p> <p>C: New ideas/build relationships</p> <p>P: Complex sequences of actions require perceptual/hand-eye coordination/fine psychomotor skills improved through using technology/Well defined fine psychomotor skills</p> <p>P: Free time-opportunity to develop social and physical skills</p> <p>P: Physical inactivity because of modern technology</p>	<p>F: Entertaining - Bluetooth, games, multi-media, sound, video</p> <p>F: Games, SMS, MXit , multi-media</p> <p>H: Handheld/Integration with other tools</p> <p>H: Internet connectivity through cell phones increased number of internet users</p> <p>T: Cell phones small, portable and wireless/satisfy all communication requirements</p> <p>T: Makes life easier/challenging/ exciting</p>	<p>Q7: Please check the frequency in which you engaged in the following activities the past 6 months.</p>
Multi-tasking	<p>C: Active process/involvement/awareness/patterns/recall/confidence</p> <p>C: Bodily - Can do more than one thing at a time</p> <p>C: Perfected multi-tasking/ Highly scheduled lives</p> <p>C: Thought processes "lightning speed"</p> <p>P: Naturalisation: automate, become expert</p> <p>P: Articulation: combine and integrate related skills; fine tuning</p> <p>P: Develop precision: same action over and over/ automation</p> <p>P: Developing precision/manipulation of actions/well developed fine psychomotor skills</p> <p>P: While completing assignment on computer, listen to music and maintain a SMS/MXit conversation</p>	<p>T: Handheld</p> <p>H: Smart phone – computer enable features</p> <p>T: Applying technique, method or approach to solve a problem</p> <p>F: Bluetooth, data transfer, integration with other tools, camera</p>	<p>Q42c: I always carry my cell phone with me.</p> <p>Q34: If you bring your cell phone to school, how often do you use it in class or assembly?</p> <p>FG23: Do you use your cell phone in class if you are not allowed?"</p>

Table 18: Integration of the research instruments (Continue)

Teenage learner Social Behaviour	Pedagogical skills	Technological capabilities	Research Instruments
Emotional Sharing: Develop/share/evaluate identities Mutual emotional support Concept of themselves Confidence/self-awareness	A: Speaking and listening skills/communication/emotion feelings/socialising A: Respect/self understanding/sensitive/accepting humanness A: Control anger/ internal worth/personal identity/personal integrity/personal value system/positive outlook/changing life expectations/find balance in life, act accordingly C: Analysis- Discern patterns, comprehend meaning, identify different components C: Application - use information in existing and new situations C: Awareness/build relationships/sensitive to public criticism/community service C: Creating things, significant to them or others C: Critically assess values and ideas/debating/meta-cognition C: Interpersonal: understanding, empathetic/compare, share, relate C: Experienced intense emotions: "You'll never understand," or "My life is ruined!" C: Intrapersonal: deep understanding of themselves P: Well focused/recognise own worth/associate wellbeing helping others	T: Tools which allow to share knowledge H: Diverse market/large variety of different brands and models of cell phones for individual personalities and personal needs. F: Preferences F: Basic function of cell phones is communication: Phone calls/Video calls/Conference calls/Text messages/Multi-media messages /Online messaging e.g. Mxit or IM/E-mail T: Tools/instruments allow sharing knowledge T: Applying a systematic technique, method or approach to solve a problem T: Challenging and exciting, choices, preferences, things to satisfy human needs	Q43: Regarding your cell phone, describe one recent experience that you consider memorable or important in some way. (It could have been a good or bad experience) Q44: What were your feelings and thoughts after this experience? FG26: Is a cell phone only important for communication for arrangements or also important to convey feelings?
Relationships: Establishing intimacy	A: Control anger/internal worth/personal identity and integrity/positive outlook/respect/ responsibility/self understanding A: Use communication to share feelings and/or emotion/socialising C: Build relationships/who am I?/Synthesis	T: tools/instruments to share their knowledge SMS, mxit, mms, Bluetooth, calendar, camera, e-mail, video	FG8: Does a cell phone assist you in establishing or keeping good relationships with friends? FG25: Do you want to be in constant connection with your friends?

Table 18: Integration of the research instruments (Continue)

Teenage learner Social Behaviour	Pedagogical skills	Technological capabilities	Research Instruments
<p>Independence: Self-governed and self-sufficient Determine what they are good at/achieving success</p>	<p>A: Accepting responsibility how they affect others A: Developing talents/confidence/self-centred, expect recognition C: Active involvement/analysing/compare/contemplate/assess/debate/discussions/evaluate C: Evaluation/internal worth/self understanding/Synthesis P: Operating technological devices driven by psychomotor skills P: Naturalisation: automate, become expert/precision P: Well focused/recall/understand/comprehend</p>	<p>T: Applying a systematic technique, method or approach to solve a problem T: Appointments, calendar, internet(information at hand) H: Address individual needs, choices, improve quality of life, make life easier, preferences, to simplify tasks</p>	<p>Q14: Your cell phone is on: Contract Pay-as-you-go Family/business Top-up. Q17: Your monthly cell phone charges are? Q13: Who pays your cell phone's account? FG2: Why is your cell phone important to you?</p>
<p>Communication: Enhances social experiences Change the attitude towards others</p>	<p>A: Accepting responsibility /how they affect others/ socialising very important A: Respect for themselves and others/positive outlook/speaking and listening abilities C: Analysing/build relationships/discussions/evaluate C: Cognitive development - emotional intelligence, need positive input C: Comprehension understand meaning, interpret, compare and group concepts/restate in alternative ways/mediate conflict/compare, share, relate C: Interpersonal: patient/understanding/empathetic/community service/ P: Multi-tasking P: Re-evaluate and re-negotiate terms of relationships/ cope with and recover from norm violation, personal betrayal or rejection</p>	<p>T: Wireless internet/ information at hand T: Cell phones computer technology combined with communication technology H: Choices, personalisation, challenging and exiting H: Messages (text, voice and multi-media) to sent/received F: Basic function of cell phones is communication</p>	<p>Q22: Your cell phone's contact list consists of how many entries? Q23: Approximate number of SMS messages sent daily? Q24: Approximate number of SMS messages received daily? Q30/31: Do you prefer contacting someone via SMS/phone call? Why? Q32: Why do you prefer this option? FG3: What is the easiest way of communication with a cell phone: making a phone call or sending a SMS? FG7: When communicating with friends on a cell phone what do you talk about, personal or functional content? LB1: Which cell phone functions do teenage learners use to communicate with their friends as opposed to their parents? LB3: Reason for contact - logistic or social?</p>

Table 18: Integration of the research instruments (Continue)

Teenage Learner Cultural Behaviour	Pedagogical skills	Technological capabilities	Research Instruments
<p>Multi-cultural/well informed: South Africa multi-cultural society Bigger variety of choice Well informed and influential within cultural environment</p>	<p>A: Communication/confidence/expectations/ integrate skills C: Active involvement/new situation/contemplating/creative/ discussions /evaluate/critically assess C: Community service/awareness/group comparison C: Interpersonal - Adapts easily/Social butterflies P: Automatization/precision and limitation of actions/manipulation of actions/operating technological devices - psychomotor skills P: Wide variety/well informed and influential/confident</p>	<p>F: Integration with other tools, internet - more choices, rapid growth personalisation, preferences, variety of styles F: Sharing information, integration, multi-media H: Cell phone manufactures cater for diverse market/large variety for individual personalities and personal needs H: Internet through cell phones increased number of internet users H: Nokia most popular brand in South Africa T: Addresses/satisfy individual needs, choices, entertaining</p>	<p>Q9: How do you feel when you receive an advertisement on your cell phone? Q10: How frequently do you access the web from the following places? Q25: Have you ever used your cell phone to surf the net?</p>
<p>Critical Comparison: External references/critically compare and define themselves by group associations/brand and images Accept or reject images by observing others/group comparison</p>	<p>A: Expectations/personal value system A: Grow in confidence, self-reliance, and self-understanding A: Input through awareness, attach a value react according C: Active learning creates awareness through actively analysing, researching, debating and contemplating/group comparison C: Logical - Categorising/classifying/patterns and relationships C: Think everyone is concerned with their thoughts and behaviours, think they are always been watched P: Imitation of actions: monkey see, monkey do</p>	<p>H: Fashion accessory (fashionable) H: Personalisation, preferences H: Variety of styles H: Nokia most popular brand in South Africa H: Cell phone manufactures large variety of different brands and models cater for individual personalities and personal needs</p>	<p>Q15: Which network are you subscribed to? Q16: Which network do you prefer? Q11: How did you obtain your current cell phone? Q38: Compared to other cell phones, would you say that your cell phone is better, the same, worse or do not know? Q42e: It is important to me how other people perceive my cell phone. FG4: Is it important to you how your friends perceive your cell phone? FG21: Do your friends show of their cell phones?</p>
<p>Adherence to popular cultures for social acceptance and personal maturity</p>	<p>A: Opportunity to grow in confidence/controlling anger/internal worth/personal identity/personal value system/self understanding C: Think they are always been watched P: Parents and educators do not understand teenagers can perform other tasks while using a technological device S: Sensitive about themselves</p>	<p>F: Information at hand-know what popular cultures are H: Fashion accessory/Variety of styles H: Personalisation, preferences H: Data transfer, mms, camera, video, sound</p>	<p>Q36: Which cell phone brand do you own? Q39: Which cell phone brand do you prefer? Q40: Indicate the frequency of the use of the following features on your cell phone. Q41: On a scale of 1 to 5, when buying a new cell phone, how important are the following features? Q37: How satisfied are you with your cell phone? FG5: Are you satisfied with your current cell phone?</p>

Table 18: Integration of the research instruments (Continue)

Teenage Learner Moral behaviour	Pedagogical skills	Technological capabilities	Questions
Decision makers: Need defined goals and objectives Debating: Make choices between 'right and wrong' and 'good and bad' Reason more abstractly Confidence in own judgment	A: Responsibility/personal value system/Understand, control anger C: Abstract thinking skills/critically assess values and ideas C: Concrete-operational: think logically/patterns C: Logical - solving problems/Spatial - Working with their senses C: Discuss behavioural rules and consequences C: Formal operational, imagine other worlds C: Point out inconsistencies between adults' words and actions	H: Choices, communication, improve quality of life T: Makes life easier, challenging and exciting	Q25: Have you ever used your cell phone to surf the net? Q26: If yes, are your parents aware that your cell phone can be used to surf the internet? Q27: If they are aware, do they mind? If they are not aware, would they mind? Q28: Have you ever visited sites that you know your parents would not approve?
Grow up in a period of rapid change: Experiment to create comfort zones	A: Changing life expectations A: Personal value system/expectations/positive outlook/system of recognition C: Application new situation/compare/Interpersonal - Adapts easily A: Confidence/expectations/positive outlook A: Self-purpose/personal value system/need recognition C: Abstract thinking skills, include sarcasm and satire C: Meta-cognition/reason theoretically/understand comprehend C: Take risks, "it can't happen to me"/community service P: Free time develop social and physical skills	F: Cell phone - advanced multi-functional device benefits of computer with additional communication facilities H: Cell phones developed - clumsy, low functionality, expensive to small, user friendly and cheap technology H: SA fastest growing cell phone market T: Integration with other tools/rapid growth/new vocabulary H: Cell phone users increased more than land line and computer users/SA embrace new technology	Q20: How long have you had your current cell phone? Q21: How long did you have your previous cell phone? Q19: How many cell phones have you owned to date? FG9: What is in and what is out regarding the use of functions on a cell phone? FG10: What is in and what is out regarding technology? FG11: What do you think a cell phone will look like in 10 years time?
Conscience/Consciousness: More aware of the society/Pro-social, sharing, donating to charity Conscience: Telling the truth/show guilt, empathy, compassion/act with honesty, unselfishness and responsibility	A: Developing respect for themselves and others/ A: Input through awareness, attach a value react according A: Raising personal integrity/internal worth/personal identity and integrity/personal value system A: Recognise own worth/associate wellbeing with helping others A: Responsibility/self understanding/recognition/talents C: Cause-oriented, see cruelty - member of "People for Treatment of Animals" C: Interpersonal - Compare, share, relate, to others in group C: Linguistic - Ability to retell everything C: Teenagers point out inconsistencies between adults' words and their actions.	F: Cell phones more and more prominent in all areas of society, including education F: Messages (text, voice and multi-media) sent and received/Camera/video H: Diverse market/large variety/different brands and model/personalities and personal needs H: Fashion accessory H: Personalisation, variety of styles T: Individual needs/Quality of life/Satisfy human needs	Q42g. When talking in chat rooms I will use my real name. Q42h: When talking in chat rooms I will lie about my age. Q35: Have you ever used your cell phone to cheat in a test? FG24: Will learners use their cell phone to cheat in class?

Table 18: Integration of the research instruments (Continue)

Teenage Learner Psychological behaviour	Pedagogical skills	Technological abilities	Questions
Vulnerable: Need guidance Reassuring communication with friends Shaping personal thoughts and beliefs	A: Constantly in connection with peers A: Self-centred because they expect recognition A: Talk about views/build relationship C: Discussing behavioural rules and consequences C: Participate in controlled risky behaviour/ C: Responsibility/self understanding/system of recognition/community service C: Self questioning/internal worth/personal identity, integrity and value system	T: Life: easier/challenging/exciting T: Use inventions and discoveries to satisfy needs/information at hand T: Sharing knowledge/phone calls/ video and conference calls/ MMS/ SMS/Mxit /IM/E-mail/ internet H: Addresses individual needs/choices/ preferences/ personalisation	Q18: Has your cell phone ever been stolen? Q29: Do you think schools and parents should protect kids from offensive sites like porn? FG12: How do you feel about teenagers and the porn sites that they visit? Do you think parents and teachers need to protect you against it? Are you big enough to protect yourself? FG13: What risk factors can be associated with the use of a cell phone?
Own opinion: Form own opinion of the world Forming identity outside the family Conflicting rebellion period with parents Parent become less important	A: Personal identity/sense of self-purpose A: Changing life expectations A: Personal identity /grow in confidence, self-reliance, and self-understanding A: Socialising through communication very important C: Active learning/create awareness through actively analysing, researching, debating and contemplating C: Think about thinking ('meta-cognition.')	H: Diverse market/large variety of different brands and models of cell phones for individual personalities and personal needs H: Information at hand T: Inventions and discoveries to appease needs and wants T: Satisfy human needs	Q 9: How do you feel when you receive an advertisement on your cell phone?(H) Q42i: I do not mind my parents read my SMS messages. FG22: Do you mind if your parents read your SMS messages? FG14: How do you perceive your privacy regarding a cell phone? FG15: Do you think teachers will invade your privacy if they send you SMS messages regarding school work?
Identity: Test and experience new and dangerous situations to develop own identity Emotional: Acceptance by group important More sensitive about themselves	A: Attention/speaking/listening/socializing C: Advanced reasoning skills C: Developing abstract thinking skills C: Developing meta-cognition/think how they feel/think about how one is perceived by others C: Hypothetically think about multiple options and possibilities, asking "what if...?"/What am I good at? C: Talk to their views and be open C: Think everyone is concerned with their thoughts and behaviours, think they are always been watched	T: Use inventions and discoveries to satisfy needs and wants T: Preferences/personalisation T: Individual needs/choices	Q8: What would you do on your cell phone if you had an hour or two? Q42: Please choose only one option per row: a. I love using my cell phone. b. Without a cell phone I feel disconnected from the world. c. I always carry my cell phone with me. d. The design of my cell phone is important to me. e. It is important for me how other people perceive my cell phone. f. I personalise my cell phone by changing its cover or wallpaper. FG21: Do your friends show off their cell phone? FG27: Do you like to personalise your cell phone? Why?

Table 18: Integration of the research instruments (Continue)

Teenage Learner Psychological behaviour	Pedagogical skills	Technological abilities	Questions
<p>Investigate and experience: Process information differently Fluctuating feelings impact self-confidence and behaviour Teenagers vary psychologically</p>	<p>A: Grow in confidence/self-reliance/self-understanding C: Frontal cortex not fully mature/Cognitive limitations C: Think flexibly/ sort out competing information/feel they are misunderstood/meta-cognition C: Very sensitive to public criticism C: Different styles of learning: Linguistic - Tells tales, retell everything Logical - solving problems Spatial - Visualisers Day dreamers Watches movies Staying away from reality Drawing pictures Musical - Can turn abstract into concrete objects Bodily - Can do more than one thing at a time Interpersonal - Adapts easily Intrapersonal - Independent and original</p>	<p>H: Communication H: Individual needs H: Multitude of functions H: SMS gives means to correct mood swing behaviour without personal contact H: Variety of styles H: Personalisation N: Preferences T: Addresses individual needs T: Satisfy human needs</p>	<p>Q33: Are you allowed to bring your cell phone to school? Q45: Do you think that the use of a cell phone will aid you in schoolwork? Q46: Would you like to be able to use your cell phone to help you with schoolwork? Q47: Do you think that using a cell phone as a tool in the classroom will make any difference to the quality of your schoolwork? Why: Q48: Would you recommend the use of a cell phone in school work? FG16: Would the use of a cell phone as an aid in the classroom make any difference in you year end mark? FG17: Would you like to use your cell phone in the class as an educational tool? FG18: Will the use of a cell phone motivate you to complete your class work? FG19: What functions on a cell phone can be used to aid you in doing schoolwork? FG20: What would you want to see differently in classrooms of today?</p>

4 Summary

Questionnaires were given to learners of 4 schools in different socio economic environments in South Africa. This was done to obtain information regarding the digital profile of a teenage cell phone user. The data collection methods, method of distribution and participants were discussed. As support to the questionnaire, two focus groups were interviewed and the entries in 18 logbooks were used.

5 Conclusions

The findings discussed in Chapter 4 were obtained by the data gathered described in this chapter.

CHAPTER 4

RESULTS AND FINDINGS

Findings from the three research instruments (questionnaire, focus groups and logbook) will be discussed according to the sub-headings of the learner section of Figure 1 [Chapter 2].

- Physical behaviour
- Social behaviour
- Cultural behaviour
- Moral behaviour
- Psychological behaviour

1 Research question

The following research question will be discussed in terms of the above teenage learner behaviours:

WHAT IS THE LEARNER PROFILE OF A TEENAGE CELL PHONE USER?

This question can best be answered by breaking it down as follows:

1. What are the behaviour patterns and pedagogic skills of teenage learners with reference to the use of cell phone technology?

The interaction between the major areas in the above question i.e. behaviour patterns, pedagogical skills and technology will be discussed in accordance with results provided by the above; applying the framework provided by the next three research questions, namely:

2. What type of technology do teenage learners prefer?
3. How do teenage learners interact with technology?
4. Could cell phone technology be employed as a learning tool?

THIS WILL LEAD US TO A CONFIRMATION OF THE LEARNER PROFILE OF A TEENAGE CELL PHONE USER

Note 1: In column two, 'Pedagogic skills', in Tables 19 below, the following has been used for easy reference.

- 'C' refers to Cognitive skills [Chapter 2:4.1]
- 'A' refers to Affective skills [Chapter 2:4.2]
- 'P' refers to Psychomotor skills [Chapter 2:4.3]

Note 2: In column three, 'Technological capabilities', in Tables 19 below, the following has been used for easy reference.

- 'T' refers to Terminology [Chapter 2:5.1]
- 'H' refers to Handset preferences [Chapter 2:5.2]
- 'F' refers to Functionalities of cell phones [Chapter 2:5.3]
- 'N' refers to Network preferences [Chapter 2:5.4]

Note 3: In column two, 'Research instruments', in Tables 19 below, the following has been used for easy reference.

- 'Q' refers to Questionnaire and the numerical figure, e.g. 25 refers to the specific question in the questionnaire. [Chapter 3:2.1.2]
- 'FG' refers to Focus groups and the numerical figure, e.g. 25 refers to the specific question asked during the Focus group sessions. [Chapter 3:2.1.3]
- 'LB' refers to Logbook and the numerical figure, e.g. 5 refers to the specific field of analysis from the Logbooks. [Chapter 3:2.1.4]

Data obtained will be discussed as follows. (As mentioned in Chapter 3:2.1.2.1 questions were randomly asked and questions are not in a chronological order.)

- Section 1: Individual question as per questionnaire [Chapter 3:2.1.2] and/or
- Section 2: Specific question as per focus group [Chapter 3:2.1.3] and/or
- Section 3: Defined field of analysis as per Log books [Chapter 3:2.1.4]
- Section 4: Analysis of results at the end of each sub-question
- Section 5: Interpretation at the end of each behaviour

Although the aim of this study was not to differentiate between behaviour patterns of males and females, some interesting differences were noted. These differences are mentioned in passing in this study, as more focused research would be required to analyse such differences.

Note: The responses of the open-ended questions quoted, have not been edited.

2 Behaviour patterns

The various behaviour patterns, Physical, Social, Cultural, Moral and Psychological, will be discussed individually under separate headings.

2.1 Physical behaviour

The teenage learner will be analysed according to physical behaviour patterns, pedagogic skills and technological capabilities, seen in the context of **physical and cognitive development, inactivity and multi-tasking.**

Table 19 summarises the relevant questions from the questionnaire and the focus groups to determine the physical behaviour, pedagogical skills and the technological capabilities of teenage learners.

Table 19: The physical behaviour, pedagogical skills and technological capabilities of the teenage learner

Teenage learner Physical behaviour	Pedagogical skills	Technological capabilities	Research instruments
Continued physical and cognitive brain development	A: Sensitive about themselves/understand oneself C: Cognitive development same time physical development C: Frontal cortex not yet developed C: Self questioning: "Who am I?"	T: Improve quality of live, make life easier F: Personalisation T: Satisfy human needs T: Simplify individual needs	Q12: How old where you when you got your first cell phone? Q25: Have you ever used your cell phone to surf the internet? (H: Moral-decision makers) FG1: How do you see yourself and your cell phone? FG6: If you had a choice what would you change on your current cell phone?
Physical inactivity, free time - digital equipment, active engagement/fine psychomotor skills	A: Socialising with peers C: Active process/involvement C: Bodily - touches everything/active education/involvement C: Designing /creating things significant to them C: New ideas/build relationships P: Complex sequences of actions require perceptual/hand-eye coordination/fine psychomotor skills improved through using technology/Well defined fine psychomotor skills P: Free time-opportunity to develop social and physical skills P: Physical inactivity because of modern technology	F: Entertaining - Bluetooth, games, multi-media, sound, video F: Games, SMS, MXit , multi-media H: Handheld/Integration with other tools H: Internet connectivity through cell phones increased number of internet users T: Cell phones small, portable and wireless/satisfy all communication requirements T: Makes life easier/challenging/ exciting	Q7: Please check the frequency in which you engaged in the following activities the past 6 months.
Multi-tasking	C: Active process/involvement/awareness/patterns/recall/confidence C: Bodily - Can do more than one thing at a time C: Perfected multi-tasking/ Highly scheduled lives C: Thought processes "lightning speed" P: Naturalisation: automate, become expert P: Articulation: combine and integrate related skills; fine tuning P: Develop precision: same action over and over/ automation P: Developing precision/manipulation of actions/well developed fine psychomotor skills P: While completing assignment on computer, listen to music and maintain a SMS/MXit conversation	T: Handheld H: Smart phone – computer enable features T: Applying technique, method or approach to solve a problem F: Bluetooth, data transfer, integration with other tools, camera	Q42c: I always carry my cell phone with me. Q34: If you bring your cell phone to school, how often do you use it in class or assembly? FG23: Do you use your cell phone in class if you are not allowed?"

From the table follows the discussion of different aspects of the physical behaviour of the teenage learner.

2.1.1 Continued physical and cognitive brain development

This section will discuss the results of the physical and cognitive brain development of the teenage cell phone user. Results of only the questionnaire are included.

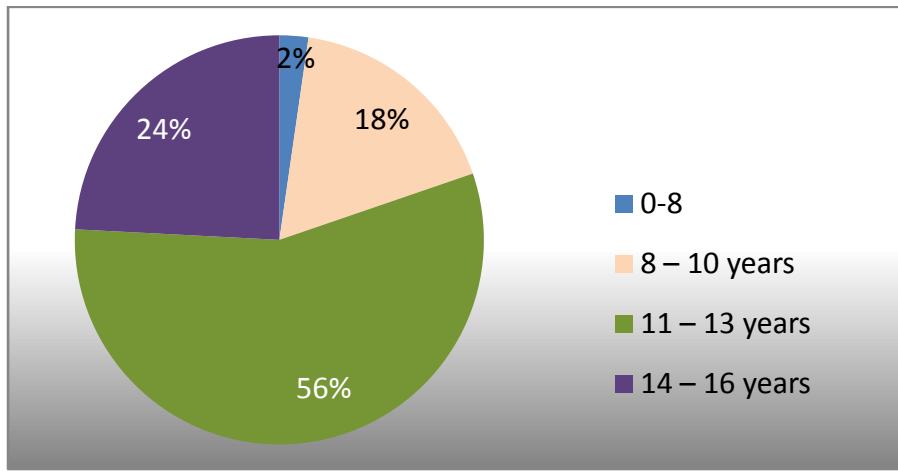
SECTION 1: INDIVIDUAL QUESTION AS PER QUESTIONNAIRE

Question 12:

“How old were you when you got your first cell phone?”

Figure 9 reports the age at which the learner first received a cell phone

Figure 9: Age at which first cell phone was received



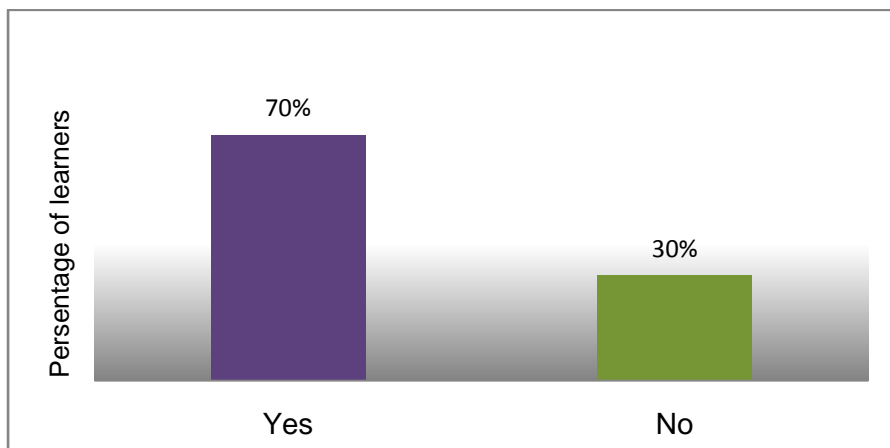
The figure indicates that the average age when learners first receive a cell phone is 11-13 years. At age 13, 76% teenage learners own a cell phone.

Question 25:

“Have you ever used your cell phone to surf the internet?”

Figure 10 indicates the use of a cell phone by to surf on the internet.

Figure 10: Surfing the internet



Seventy percent of the respondents indicated that they know how to use the internet on a cell phone. It is not clear why the remaining thirty percent has not done so. This needs further investigation.

SECTION 2: SPECIFIC QUESTION AS PER FOCUS GROUP

Question 1:

“How do you see yourself in relation to your cell phone?”

Participants reported that cell phones **make life easier** as it facilitates **effortless communication** with parents and friends and make **listening to music** and surfing of the internet easier. Teenage learners become cognitively involved as they realise that the use of cell phones make life easier.

Question 6:

“If you had a choice what would you change on your current cell phone?”

The male respondents said that they would like additional gadgets e.g. cigarette lighter on their cell phone. A bigger screen and 3D option would be a bonus. The females indicated that user friendliness on a cell phone is important to them. They do not want to read the manual to be able to use a new phone. A bigger keypad, quality of camera and a bigger screen - without compromising on quality, would be nice.

“User friendliness.....I got a new phone recently and it was just not nice to read the manual to be able to do something on it.”

“I don’t know, but maybe I would make the screen bigger but with the same quality as those with the small screen.”

[THERE IS NO RESULTS ON SECTION 3]

SECTION 4: ANALYSIS OF RESULTS

Most teenage learners obtain cell phones at the onset of the teenage phase. They are comfortable with using technological devices and have definite ideas on how improvement in technology can make their lives easier. It can therefore be expected that they will be physically and cognitively involved in the responsibility if/of using cell phones.

2.1.2 Physical inactivity

This section will discuss the results of the physical inactivity of the teenage cell phone user. Results of the questionnaire are included.

SECTION 1: INDIVIDUAL QUESTION AS PER QUESTIONNAIRE

Question 7:

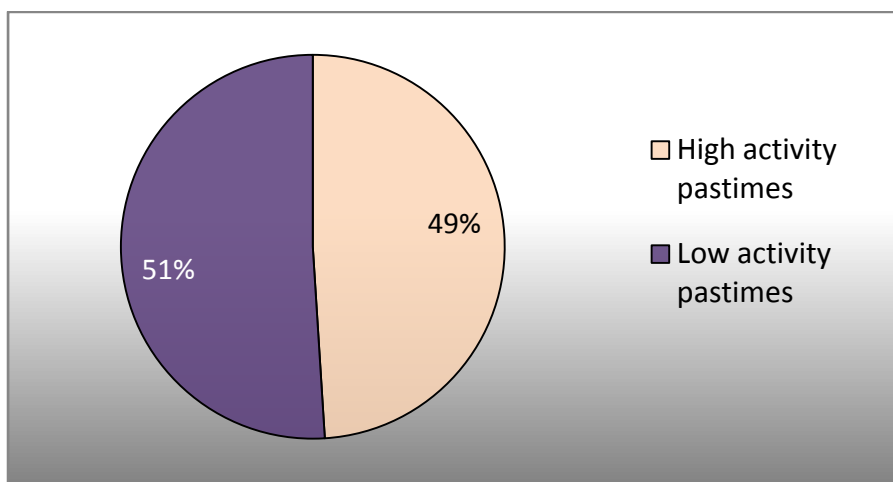
“Please check the frequency in which you engaged in the following activities during the past 6 months”.

Figure 11 displays the pastimes that learners are engaged in. It is divided into high activity pastimes and low activity pastimes.

High activity pastimes: Walking for pleasure, competing in team sports (for example, soccer/rugby, baseball, hockey, etc.), competing in individual sports (for example, tennis, swimming, etc.), bicycling, swimming for pleasure, attending sports events, going on a family outing, going out for the evening for entertainment, visiting art galleries and museums, collecting or making something (for example, hobbies),

Low activity pastimes: Watching television, playing computer games, surfing the World Wide Web, working on the computer, visiting chat rooms on the internet, playing with a play station, reading books for pleasure, using a DVD player, listening to music, attending opera ballet or dance performances, using a MP3 player and going to the movies.

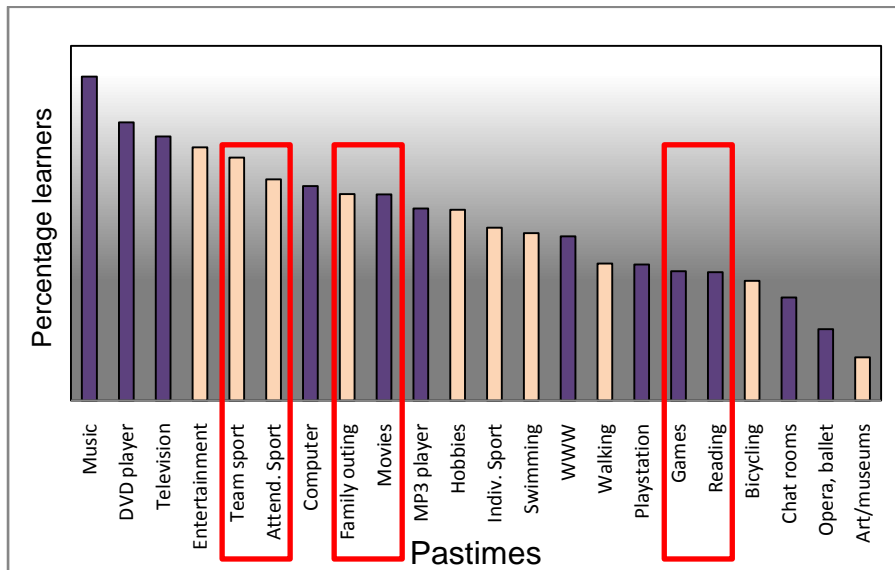
Figure 11: Comparison of high and low physical pastime activities



Although the three pastimes engaged in most frequently, listening to music, playing a DVD player and watching television, are pastimes that were, classified as 'low activity' pastimes, there is virtually no difference between the percentage of engagement in 'high activity' pastimes and 'low activity' pastimes. A further breakdown of past time activities is presented in Figure 12.

Figure 12 show participation in twenty two different leisure oriented pastimes ('high activity' and 'low activity') in declining order of popularity.

Figure 12: Participation in pastimes



It is interesting to note that 68% of respondents participate in team sports while 62% regularly attend sporting events. Going out on an evening of entertainment is engaged in as regularly as watching television. The same amount of time is spent on playing computer games and on reading books for pleasure (36%). Likewise the same amount of time is spent on going on a family outing and going to the movies (58%).

[THERE IS NO RESULTS ON SECTION 2 AND 3]

SECTION 4: ANALYSIS OF RESULTS

It seems that, despite popular belief [Chapter 2:3.1], teenage learners appear to be well balanced in their choice of leisure oriented pastimes. It is important to note that team sport and attending sport are rated sixth and seventh out of twenty-two pastime activities. It also appears that, although teenage learners seem to lead highly scheduled lives, sufficient time is allowed for family activities [Chapter2:3.5].

2.1.3 Multi-tasking

This section will discuss the results of the multi-tasking abilities of the teenage cell phone user. Results of the questionnaire and focus groups are included.

SECTION 1: INDIVIDUAL QUESTION AS PER QUESTIONNAIRE

Question 42c:

“I always carry my cell phone with me.”

Seventy four percent respondents agreed that they always carry their cell phone with them. This indicates that although they are busy with some or other activity their cell phone is always nearby.

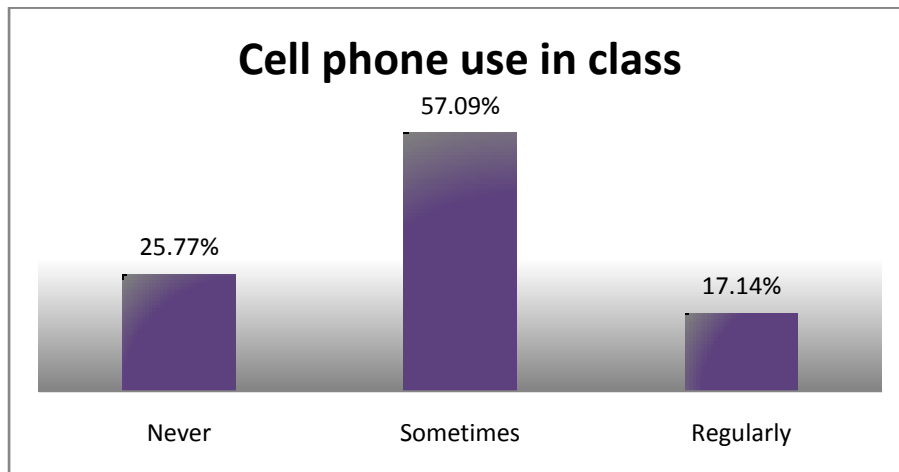
*“My friends and I were on our way home when the car broke down; and I **ALWAYS** have my phone with me; so I phoned my dad.”*

Question 34:

“If you bring your cell phone to school, how often do you use it during class or assembly?”

Figure 13 indicates the use of a cell phone by teenage learners during class time.

Figure 13: Cell phone use during class time



More than seventy four percent (59.07% + 17.14%) of respondents use their cell phones during class time.

Note: All the schools that participated in the study had a cell phone policy that does not allow cell phones to be used during class. Cell phones have to be switched off during class.

“Going wade boarding with me cell phone in my packet, I didn't notice until I stopped.”

“I allowed my friend to look at my pictures and videos on a Friday in the last lesson of class and she took it home with her without my knowledge.”

SECTION 2: SPECIFIC QUESTION AS PER FOCUS GROUP

Question 23:

“Do you use your cell phone in class if you are not allowed?”

All participants indicated that they use cell phones frequently during class, even though this is not allowed.

[THERE WERE NO RESULTS ON SECTION 3]

SECTION 4: ANALYSIS OF RESULTS

Teenage learners are seldom without their cell phones and will frequently use cell phones when they are otherwise occupied in a classroom scenario, indicating a definite ability to multi-task. [Chapter 2:3.1]

SECTION 5: INTERPRETATION

The physical and cognitive development stage of the teenage learner could be supported by the application of cell phones as technological equipment for educational purposes. They use the cell phone to make life easier and to satisfy their human needs that involve cognitive involvement, but they also do physical exercises such as competing in team sports. Time spent on leisure activities by teenage learners is well proportioned. There is no indication that physical activities will be more detrimentally affected by allowing the use of cell phones in a class room scenario, provided, of course, that such use is positively channelled and well controlled. Teenage learners have the ability to multi-task and they are not afraid to use technology. Cell phones are being used in class room situations (despite this being forbidden).

2.2 Social behaviour

The teenage learner will be analysed according to social behaviour patterns, pedagogic skills and technological capabilities, with reference to **self-confidence, emotional sharing, relationships, independence and communication.**

Table 20 summarises the relevant questions from the questionnaire and the focus groups to determine the social behaviour, pedagogical skills and the technological capabilities of teenage learners.

Table 20: The social behaviour, pedagogical skills and technological capabilities of the teenage learner

Teenage learner Social Behaviour	Pedagogical skills	Technological capabilities	Research Instruments
<p>Emotional Sharing: Develop/share/evaluate identities Mutual emotional support Concept of themselves Confidence/self-awareness</p>	<p>A: Speaking and listening skills/communication/emotion feelings/socialising A: Respect/self understanding/sensitive/accepting humanness A: Control anger/ internal worth/personal identity/personal integrity/personal value system/positive outlook/changing life expectations/find balance in life, act accordingly C: Analysis- Discern patterns, comprehend meaning, identify different components C: Application - use information in existing and new situations C: Awareness/build relationships/sensitive to public criticism/community service C: Creating things, significant to them or others C: Critically assess values and ideas/debating/meta-cognition C: Interpersonal: understanding, empathetic/compare, share, relate C: Experienced intense emotions: "You'll never understand," or "My life is ruined!" C: Intrapersonal: deep understanding of themselves P: Well focused/recognise own worth/associate wellbeing helping others</p>	<p>T: Tools which allow to share knowledge H: Diverse market/large variety of different brands and models of cell phones for individual personalities and personal needs. F: Preferences F: Basic function of cell phones is communication: Phone calls/Video calls/Conference calls/Text messages/Multi-media messages /Online messaging e.g. Mxit or IM/E-mail T: Tools/instruments allow sharing knowledge T: Applying a systematic technique, method or approach to solve a problem T: Challenging and exciting, choices, preferences, things to satisfy human needs</p>	<p>Q43: Regarding your cell phone, describe one recent experience that you consider memorable or important in some way. (It could have been a good or bad experience) Q44: What were your feelings and thoughts after this experience? FG26: Is a cell phone only important for communication for arrangements or also important to convey feelings?</p>
<p>Relationships: Establishing intimacy</p>	<p>A: Control anger/internal worth/personal identity and integrity/positive outlook/respect/responsibility/self understanding A: Use communication to share feelings and/or emotion/socialising C: Build relationships/who am I?/Synthesis</p>	<p>T: tools/instruments to share their knowledge SMS, mxit, mms, Bluetooth, calendar, camera, e-mail, video</p>	<p>FG8: Does a cell phone assist you in establishing or keeping good relationships with friends? FG25: Do you want to be in constant connection with your friends?</p>
<p>Independence: Self-governed and self-sufficient Determine what they are good at/achieving success</p>	<p>A: Accepting responsibility how they affect others A: Developing talents/confidence/self-centred, expect recognition C: Active involvement/analysing/compare/contemplate/assess/debate/discussions/evaluate C: Evaluation/internal worth/self understanding/Synthesis P: Operating technological devices driven by psychomotor skills P: Naturalisation: automate, become expert/precision P: Well focused/recall/understand/comprehend</p>	<p>T: Applying a systematic technique, method or approach to solve a problem T: Appointments, calendar, internet(information at hand) H: Address individual needs, choices, improve quality of life, make life easier, preferences, to simplify tasks</p>	<p>Q14: Your cell phone is on: Contract Pay-as-you-go Family/business Top-up. Q17: Your monthly cell phone charges are? Q13: Who pays your cell phone's account? FG2: Why is your cell phone important to you?</p>

Table 20: The social behaviour, pedagogical skills and technological capabilities of the teenage learner (Continue)

Teenage learner Social Behaviour	Pedagogical skills	Technological capabilities	Research Instruments
<p>Communication: Enhances social experiences Change the attitude towards others</p>	<p>A: Accepting responsibility /how they affect others/ socialising very important A: Respect for themselves and others/positive outlook/speaking and listening abilities C: Analysing/build relationships/discussions/evaluate C: Cognitive development - emotional intelligence, need positive input C: Comprehension understand meaning, interpret, compare and group concepts/restate in alternative ways/mediate conflict/compare, share, relate C: Interpersonal: patient/understanding/empathetic/community service/ P: Multi-tasking P: Re-evaluate and re-negotiate terms of relationships/ cope with and recover from norm violation, personal betrayal or rejection</p>	<p>T: Wireless internet/ information at hand T: Cell phones computer technology combined with communication technology H: Choices, personalisation, challenging and exiting H: Messages (text, voice and multi-media) to sent/received F: Basic function of cell phones is communication</p>	<p>Q22: Your cell phone's contact list consists of how many entries? Q23: Approximate number of SMS messages sent daily? Q24: Approximate number of SMS messages received daily? Q30/31: Do you prefer contacting someone via SMS/phone call? Why? Q32: Why do you prefer this option? FG3: What is the easiest way of communication with a cell phone: making a phone call or sending a SMS? FG7: When communicating with friends on a cell phone what do you talk about, personal or functional content? LB1: Which cell phone functions do teenage learners use to communicate with their friends as opposed to their parents? LB3: Reason for contact - logistic or social?</p>

From the Table 20 follows the discussion of different aspects of the social behaviour of the teenage learner.

2.2.1 Emotional sharing

This section will discuss the results of the emotional sharing of the teenage cell phone user. Results of the questionnaire and focus groups are included.

SECTION 1: INDIVIDUAL QUESTION AS PER QUESTIONNAIRE

Question 43:

“Regarding your cell phone, describe one recent experience that you consider memorable or important in some way. (It could have been a good or bad experience.)”

In this question learners could only **choose one option**. For purposes of this question results were grouped into answers that produced ‘good experiences’ which included:

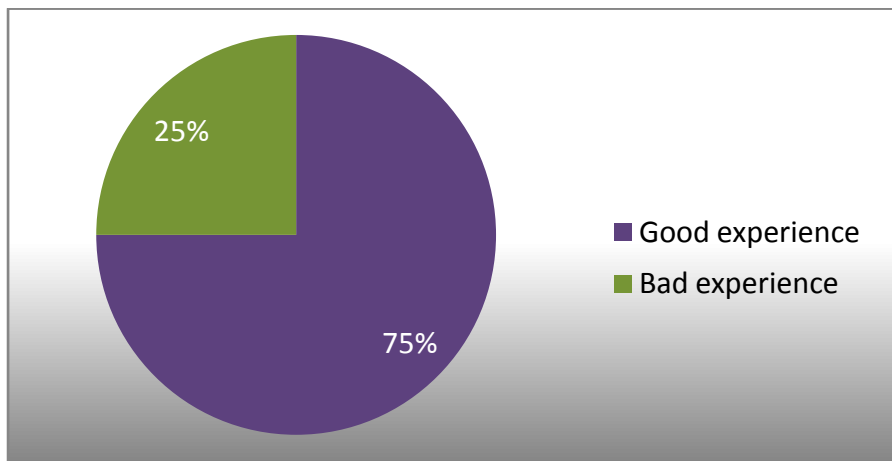
- It was exciting
- It made me feel good about myself
- It was funny

Answers that produced ‘bad experiences’ which included:

- I had to deal with offensive content, e.g. racist, sexist
- It was very difficult or complicated
- It was risky
- I felt scared, threatened, or upset

Figure 14 summarises the good and bad experiences of teenage learners regarding the use their cell phones.

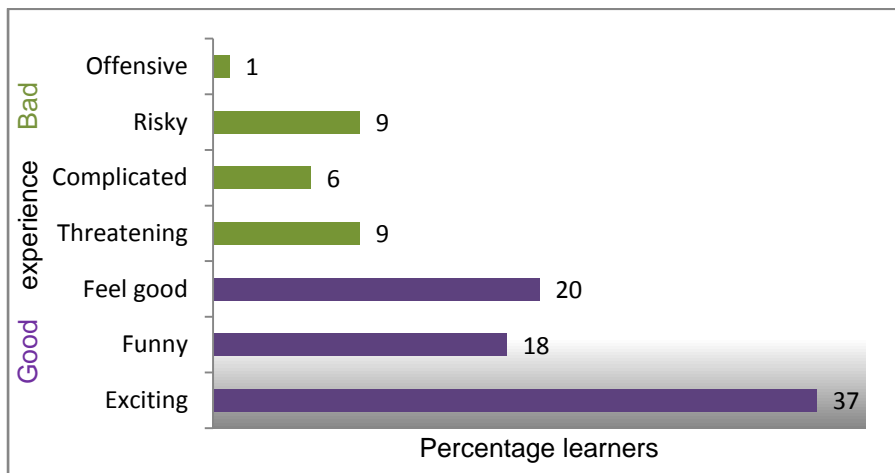
Figure 14: Summary of good/bad experiences



Good experiences outnumber bad experiences by three to one.

Figure 15 reflects the breakdown of the ‘good’ and ‘bad’ experiences that respondents have experienced with their cell phones.

Figure 15: Good/Bad experience with cell phone



It is evident that ‘good’ experiences outnumber ‘bad’ experiences.

Open-ended question 44:

“What were your feelings and thoughts after this experience?”

Although numerous individual responses were received the following were prevalent.

The majority **positive experiences** made relate to cell phones are as follows.

Teenage learners appear to be **eager to share** ‘exciting’ and ‘feel good’ experiences with friends.

“One day I got a picture from my friend in Jefferies! She knows I love the sea. So she sent me a beautiful picture of the sea.”

A ‘complicated’ **experience was resolved** and eventually resulted in a ‘feel good’ emotion.

“While being in a chat room I made a new friend who had lost her baby, she could speak to me during that time of need. She had no one else to talk to and wanted to commit suicide and I helped her through it.”

Cell phones play a part in fulfilling **personal needs** in relationships.

“Both of my brothers have moved out of the house (21) & (23). My mom doesn't talk to my oldest brother and we don't have a house phone so without my cell phone I would have never been able to communicate with him at all until I'm old enough to move out of the house. So my cell phone allows me to keep in touch with both of my brothers.”

Cell phones broaden and **improve friendships**.

“If you just met someone you never knew before you can ask their number to meet again.”

“I met new friends and my boyfriend by using my cell phone (SMS). Someone send me a SMS but it was the wrong number, so we began to chat and met one day”.

Receiving **good news** via SMS.

“Confirmation via SMS that I was going to ride SA's in Port Elizabeth I am very excited because I am only 15 and this is very good for experience and opportunity to make a name for myself and hopefully will I ride for SA professionally.”

Being able to **sort out problems** experienced with peers.

“I was able to sort out a major problem with my girl. She could not talk so we SMS'd. It made it a lot easier for her.”

Getting hold of someone in a time of emergency.

“My cell phone saved my life.”

The majority **negative experiences** made relate to cell phones.

Cell phones got **stolen, lost or damaged**:

“I almost lost it at a game and I almost had a heart attach because I can't picture myself without it.”

“My cell phone got stolen from me, it was a bad experience and my parents were cross about it.”

Receiving **huge** cell phone **accounts**.

“I had a big account at the end of the month.”

Losing important **information**.

“When my phone got stolen & I lost 300 numbers.”

Maltreatment through cell phone use.

*A bad thing though is when you get prank called, or people sort of stalk you.
Call you & keep quiet, bug by not saying anything & listening to your voice.
Calling from a “private number.”*

“The other night someone called me and said “I am in your tree”

SECTION 2: SPECIFIC QUESTION AS PER FOCUS GROUP

Question 26:

“Is a cell phone only important for communication for arrangements or also important to convey feelings?”

The males reported very little emotional sharing.

“No that is more for girls.” “That is the girls.”

While all the female participants agreed and indicated that they frequently share emotions via cell phone and that this normally produces positive feelings.

“... phone your first friend, bring you closer to them, the little things, the little details that happened in your life.”

[THERE WERE NO RESULTS ON SECTION 3]

SECTION 4: ANALYSIS OF RESULTS

Teenage learners have more good than bad experiences with their cell phones and they seem to be able to derive positive emotions, even from bad experiences. Females are much more likely to share emotions through the use of cell phones, whereas males tend to use cell phones more for ‘logistical’ purposes.

This ‘easy’ form of communication and the high percentage of communication can assist teenage learners in building and maintaining effective personal relations develop intimate relationships and practise social skills. This will assist them in growing emotional intelligence and becoming well-adjusted adults. [Chapter 2:3.2].

This result emphasises the fact that cell phones could be used to enhance and support teaching and learning due to the overwhelming ‘good’ experiences. This needs further research in an educational learning environment.

2.2.2 Relationships

This section will discuss the results of the relationships of the teenage cell phone user. Results of the questionnaire and focus groups are included.

SECTION 1: SPECIFIC QUESTION A PER QUESTIONNAIRE

Results from open-ended questions indicated the following regarding relationships.

A cell phone is the tool that teenagers use to **start** (*"I meet great people on MXit"*), **maintain** (*"Receiving a SMS from a friend whom I have not seen in over a year, who lives overseas"*) and **terminate** relationships (*"I dumped my boyfriend when my friend SMS'd me that he cheated on me!"*), **practise** social skills (*"SMS'ing someone made me know him better and then he asked me out"*), and **become intimate** (*"When a girl I knew started sending me SMS'e and later became my girlfriend"*).

SECTION 2: SPECIFIC QUESTION AS PER FOCUS GROUP

Question 8:

"Does a cell phone assist you in establishing or keeping good relationships with friends?"

Both female and male participants remarked that one would be 'left in the cold' without a cell phone, as social groups would not readily use alternative methods to contact somebody who does not have a cell phone. The female participants added that cell phones assisted them with making new friends and in strengthening existing relationships.

"If you meet someone for the first time you can exchange numbers and you can get to know them better, from there you can become best friends."

However female participants also pointed out that in some cases cell phones can spoil relationships, for instance when a SMS is sent to the wrong recipient.

Question 25:

"Do you constantly want to be in contact with your friends?"

Both groups were ad idem that they wanted to be constantly in contact with friends.

[THERE WERE NO RESULTS ON SECTION 3]

SECTION 4: ANALYSIS OF RESULTS

Teenage learners want to be constantly in contact with their friends and cell phones have become an indispensable aid in achieving this objective. Cell phones are also considered to be important tools in establishing and maintaining relationships.

2.2.3 Independence

This section will discuss the results of the relationships of the teenage cell phone user. Results of the questionnaire and focus groups are included.

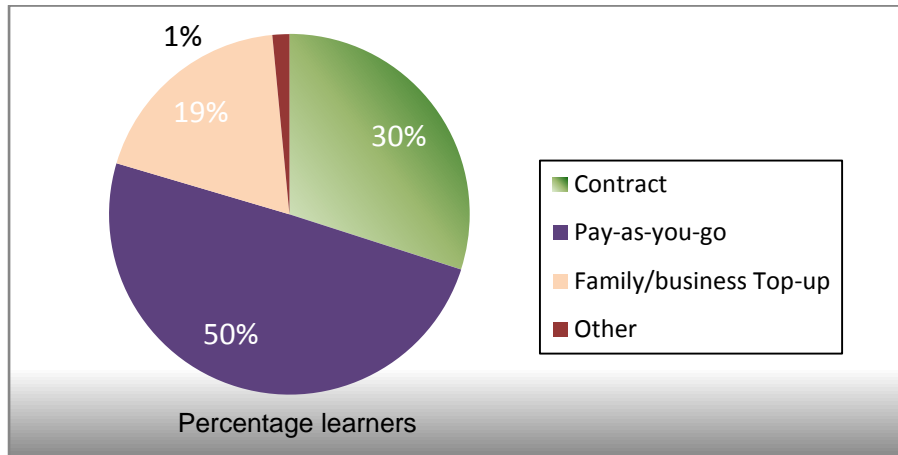
SECTION 1: INDIVIDUAL QUESTION AS PER QUESTIONNAIRE

Question 14:

“Your cell phone is on: Contract/ Pay-as-you-go Family/business Top-up?”

Figure 16 gives the percentage sign up to the different subscription options available in South Africa.

Figure 16: Subscription options



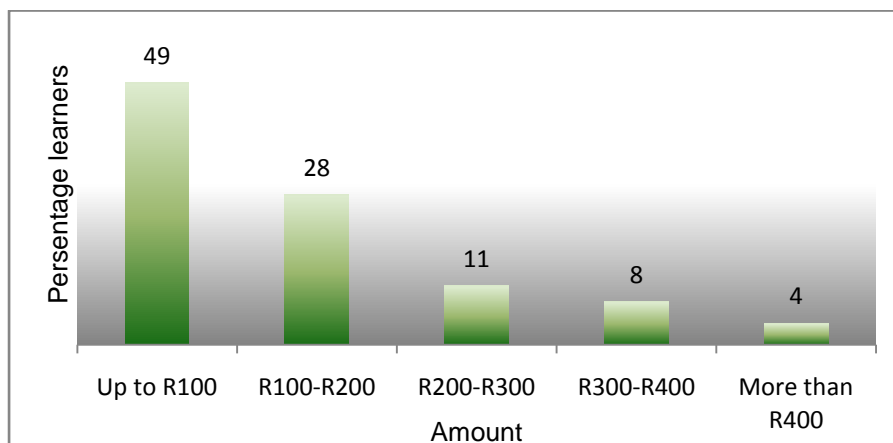
Almost 70% (50% + 19%) of the respondents are subscribed to an option that gives them a limited amount of call time namely ‘Pay as you go’ and the ‘Top-up’ option.

Question 17:

“Your monthly cell phone charges are:”

Figure 17 gives a breakdown of average monthly cell phone charges.

Figure 17: Monthly cell phone charges



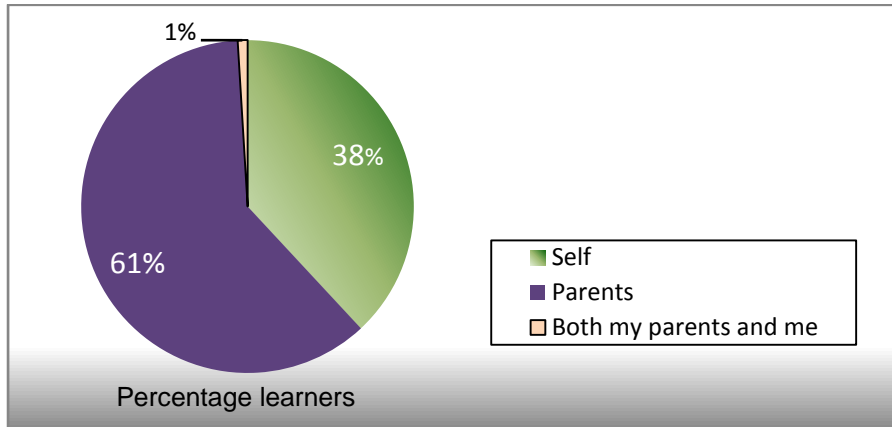
It is interesting to note that almost 50% of respondents reported cell phone costs of below R100 per month.

Question13:

“Who pays your cell phone account?”

Figure 18 indicates who pays the respondents’ cell phone accounts.

Figure 18: Person responsible for cell phone account



Although 61% of the respondent’s cell phone accounts are paid by their parents, it is interesting to note the high percentage of teenagers (38%) who is self responsible for the payment of their account.

SECTION 2: SPECIFIC QUESTION AS PER FOCUS GROUP

Question 2

“Why is a cell phone important to you?”

The male participants indicated that their cell phones are used mainly to contact parents and friends. They emphasise that cell phones make life easier, especially as far as logistical arrangements are concerned and that cell phones give them a sense of independence. For the female participants cell phones are tools that connect them, not only to friends and family but also to the world at large. Cell phones are also used to communicate for more than just logistical reasons, e.g. to sort out folders or to take pictures that can be forwarded to friends and family.

“My grandmother was very ill and no one told me anything. I called her to say hi and found out she was ill, if I didn’t have a phone I wouldn’t have known.”

[THERE WERE NO RESULTS ON SECTION 3]

SECTION 4: ANALYSIS OF RESULTS

Fifty percent of teenage learners use cell phones on a ‘Pay as you go’ basis that requires a substantial measure of self-control. Irrespective of the type of subscription, 38% of teenage learners are responsible for their own cell phone costs. Teenage learners feel that a cell phone assists them in being independent. Becoming independent and self-governed allow the teenager to become self-sufficient and responsible. In the context of how important respondents consider their cell phones to be, the figure of R100 per month for cell phone charges, reported by almost 50% respondents, seems to be exceptionally low.

2.2.4 Communication

This section will discuss the results regarding communication of teenage learners. Results of the questionnaire focus groups and logbook are included.

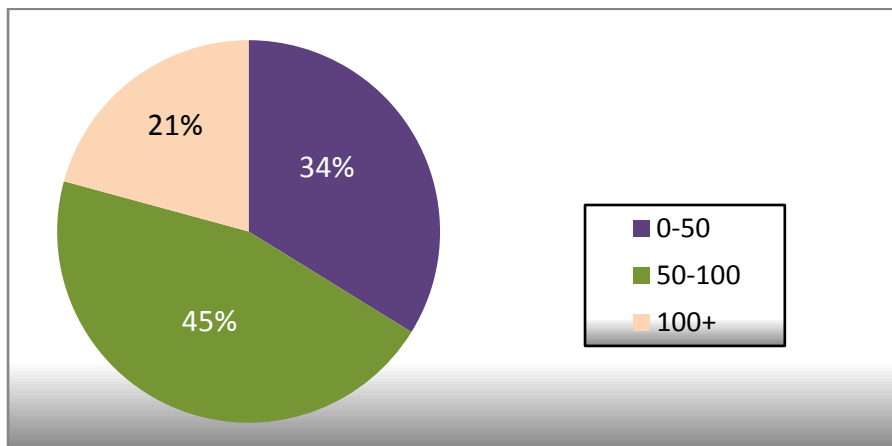
SECTION 1: INDIVIDUAL QUESTION AS PER QUESTIONNAIRE

Question 22:

“Your cell phone’s contact list consists of how many entries?”

The number of entries in their contact lists are summarised in Figure 19

Figure 19: Number of entries in contact list



Sixty six percent of teenage learners have more than 50 entries in the contact list of their cell phones.

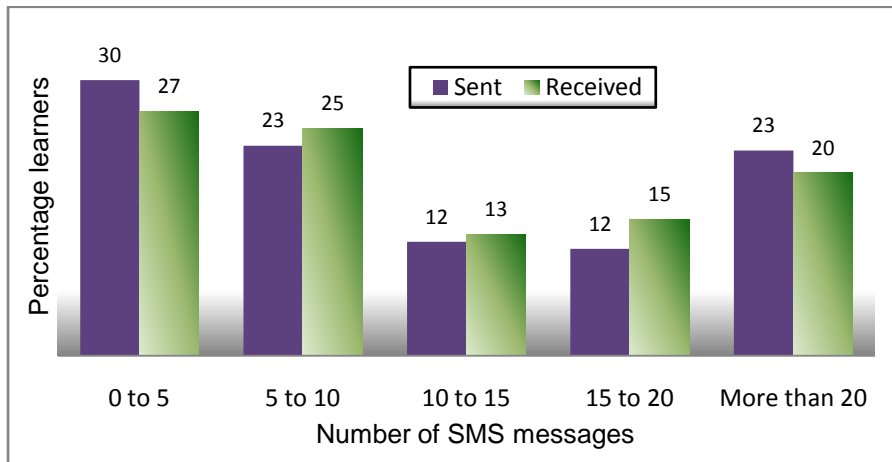
Note: Twenty respondents mentioned a number of 300 and more contacts listed on their cell phone.

Question 23 and 24:

“Approximate number of SMS messages sent /received daily.”

Figure 20 reports the number of SMS messages sent and received by teenage learners on a daily basis.

Figure 20: Approximate number of SMS messages sent/received daily



It is interesting to observe that in the measured parameters the number of SMS messages sent and received is relatively close. The unexpectedly high percentage (30%) of respondents that only sent/receive 0-5 SMS messages per day suggest the need for further research.

Question 30 and 31:

“Do you prefer contacting someone via SMS/phone call?”

Preferences were as follows:

SMS messages - 57%

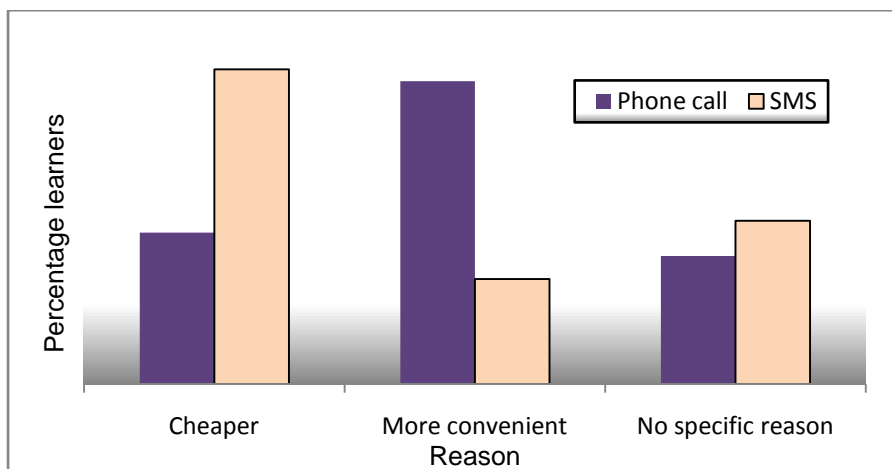
Phone calls - 43%

Open-ended question 32:

“Why do you prefer this option?”

Figure 21 reflects the reasons why either SMS messages or phone calls were preferred.

Figure 21: Reason for preference



SMS messages were preferred for economical reasons and making phone calls for reasons of convenience.

SECTION 2: SPECIFIC QUESTION AS PER FOCUS GROUP

Question 3:

“What is the easiest way of communication with a cell phone: making a phone call or sending a SMS?”

Results from the male participants can best be illustrated by the following remark:

“It depends on what you have to say or on the amount money you have left on your phone. It is easier to make a phone call but cheaper to SMS.”

Female participants remarked that having one telephonic conversation can actually be cheaper than sending a series of SMS messages backwards and forwards in order to resolve one issue, except when using the ‘MXit’ facility.

Female participants also prefer using SMS messages because this gives them time to reflect upon the accuracy of the content of the message before actually conveying it to the recipient.

“...a lot of time communication doesn’t come out the way you want it to be especially if you communicate with someone face-to-face or even over a phone, sometimes you say things but mean it in a different way, as if you write a SMS for example you can think about what it is that you want to say so your message will come through a lot more clear if you think about it because it wouldn’t have two meanings or it wouldn’t be confusing.”

Question 7:

“When communicating with friends on a cell phone what do you talk about (personal or functional content)?”

The female participants communicate for logistical and personal purposes and tend to also use their cell phones for communication on an intimate level.

“If the smallest silliest thing happened you phone your first friend and you say this happened and then I am so sorry or I am so happy for you so it kind of brings you closer to the.”

The male participants use their cell phones mainly to communicate facts:

“I use my phone mainly to make arrangements; I won’t discuss any personal details or feelings that are girls stuff. If I talk to a girlfriend I will tell her about a new CD I saw, I can’t remember the name but it is pretty cool and that we can discuss it over the weekend.”

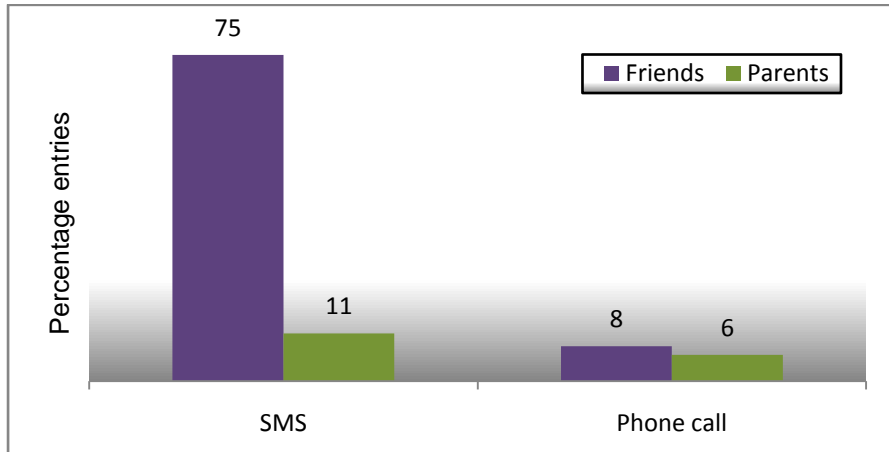
SECTION 3: DEFINED FIELD OF ANALYSIS AS PER LOG BOOKS

Field of analysis 1:

“Which cell phone functions do teenage learners use to communicate with their friends as opposed to their parents?”

Figure 22 shows the logbook entries of cell phone functions used by respondents when communicating with friends and parents, respectively.

Figure 22: Number of SMS/Phone call entries



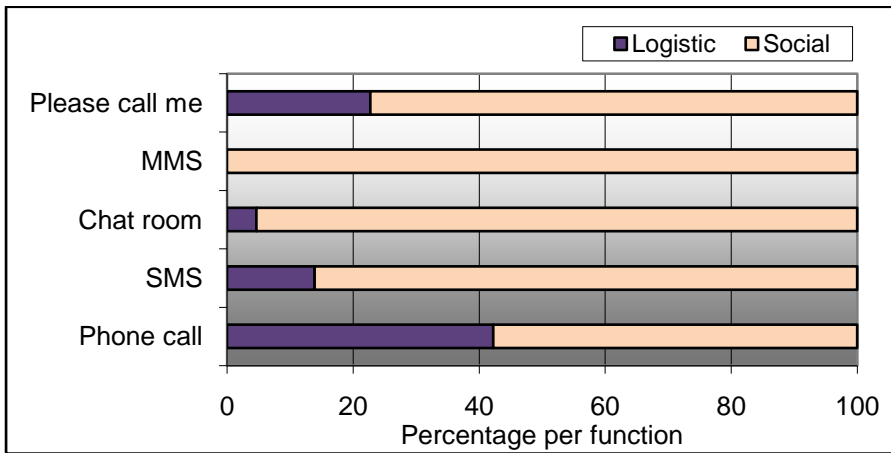
According to the logbook entries 86% of communication comprises of SMS messages, with the majority (75%) of these to friends.

Note: For purposes of this study *'logistic application'* refers to making appointments/arrangements, for instance time and place of a meeting or arranging pick up times and places with a parent.

'Social application' refers to conversations of a social nature.

Figure 23 breaks down the percentage of usage of the various communication functions between logistic and social purposes, when communicating with friends.

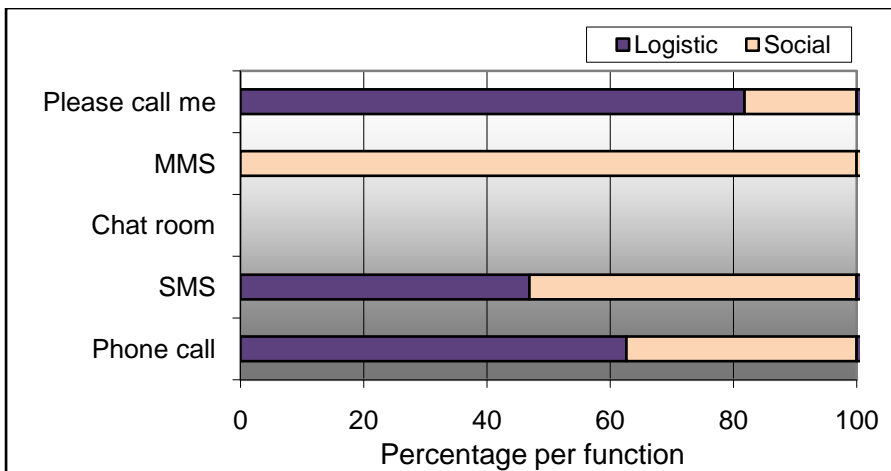
Figure 23: Communication with friends



Logistic communication with friends is mainly via phone call, while social communication is primarily via SMS.

Figure 24 breaks down the percentage of usage of the various communication functions between logistic and social purposes, when communicating with parents.

Figure 24: Communication with parents



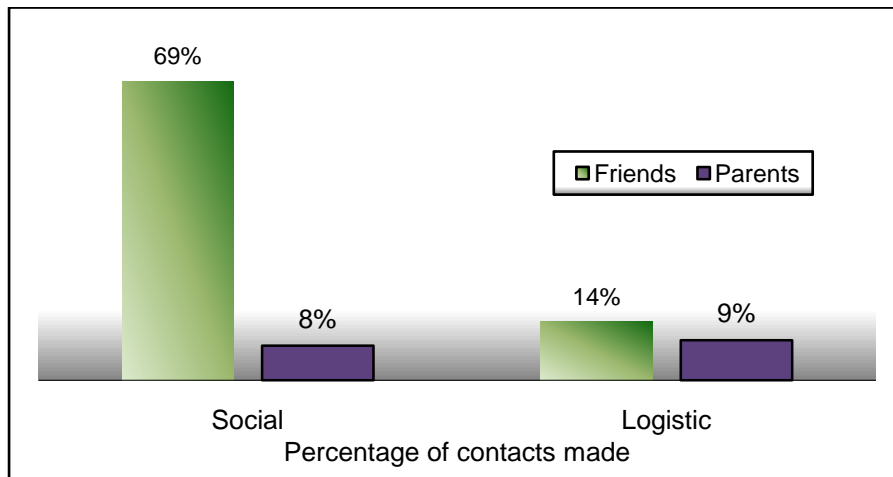
Logistic communication with parents is mainly via the 'please call me' function and, as is the case in Figure 24 above, social communication is primarily via SMS.

Field of analysis 3:

'Reason for contact – logistic or social'

The incidence of logistic communication and social communication with parents and friends are illustrated in Figure 25 below.

Figure 25: Social and logistic communication - Parents/Friends



It is interesting to note the high predominance of social communication (77%) and also the vast difference in contact with friends (83%) as opposed to contact with parents (17%).

SECTION 4: ANALYSIS OF RESULTS

The results reflect a definite preference for a specific contact function (phone call or SMS), depending on the purpose of the contact, i.e. social or logistic. Communication with parents is mainly for logistical reasons whilst communication with friends is both for social and logistical reasons and contact with friends comprise 83% of the total, with only 17% contact with parents. SMS messages are the preferred function for social communication.

SECTION 5: INTERPRETATION

The high average number of contacts as per Figure 19 and the high percentage of social communication to friends tend to confirm the findings of Dewey [Chapter 2:3.2] that the ability to communicate with peers is one of the most important issues for teenagers. From the large volume of cell phone communication it is evident that cell phones have become an indispensable medium of communication. From the above can be deduced that cell phones have become an integral part in the social behaviour patterns of teenage learners. The low monthly cell phone charges as per Figure 17 could indicate the ability to manage cell phone costs by using the most economical features to communicate.

As the majority of experiences reported by respondents were described as 'exciting' one might suggest that the sensible use of cell phones could be applied to introduce a measure of 'fun' or

'excitement' in the learning process. This might be an interesting area for future research.

Note: As access to the internet, via cell phone, is free, classroom application for this purpose would not necessarily cause a radical increase in cell phone costs. With proper guidance the responsibility to only download necessary data could be positively developed.

2.3 Cultural behaviour

The teenage learner will be analysed according to cultural behaviour patterns, pedagogic skills and technological capabilities, with reference to levels of being informed, critical comparison and maturity of the teenage learner in a multi-cultural society.

Table 3 summarises the relevant questions from the questionnaire and the focus groups to determine the physical behaviour, pedagogical skills and the technological capabilities of teenage learners.

Table 21: The cultural behaviour, pedagogical skills and technological capabilities of the teenage learner

Cultural Behaviour Teenage Learner	Pedagogical skills	Technological capabilities	Research Instruments
Multi-cultural/well informed: South Africa multi-cultural society Bigger variety of choice Well informed and influential within cultural environment	A: Communication/confidence/expectations/ integrate skills C: Active involvement/new situation/contemplating/creative/discussions/evaluate/critically assess C: Community service/awareness/group comparison C: Interpersonal - Adapts easily/Social butterflies P: Automatization/precision and limitation of actions/manipulation of actions/operating technological devices - psychomotor skills P: Wide variety/well informed and influential/confident	F: Integration with other tools, internet - more choices, rapid growth personalisation, preferences, variety of styles F: Sharing information, integration, multi-media H: Cell phone manufactures cater for diverse market/large variety for individual personalities and personal needs H: Internet through cell phones increased number of internet users H: Nokia most popular brand in South Africa T: Addresses/satisfy individual needs, choices, entertaining	Q9: How do you feel when you receive an advertisement on your cell phone? Q10: How frequently do you access the web from the following places? Q25: Have you ever used your cell phone to surf the net?
Critical Comparison: External references/critically compare and define themselves by group associations/brand and images Accept or reject images by observing others/group comparison	A: Expectations/personal value system A: Grow in confidence, self-reliance, and self-understanding A: Input through awareness, attach a value react according C: Active learning creates awareness through actively analysing, researching, debating and contemplating/group comparison/ community service C: Logical - Categorising/classifying/patterns and relationships C: Think everyone is concerned with their thoughts and behaviours, think they are always been watched P: Imitation of actions: monkey see, monkey do	H: Fashion accessory (fashionable) H: Personalisation, preferences H: Variety of styles H: Nokia most popular brand in South Africa H: Cell phone manufactures large variety of different brands and models cater for individual personalities and personal needs	Q15: Which network are you subscribed to? Q16: Which network do you prefer? Q11: How did you obtain your current cell phone? Q38: Compared to other cell phones, would you say that your cell phone is better, the same, worse or do not know? Q42e: It is important to me how other people perceive my cell phone. FG4: Is it important to you how your friends perceive your cell phone? FG21: Do your friends show of their cell phones?
Adherence to popular cultures for social acceptance and personal maturity	A: Opportunity to grow in confidence/controlling anger/internal worth/personal identity/personal value system/self understanding C: Think they are always been watched P: Parents and educators do not understand teenagers can perform other tasks while using a technological device S: Sensitive about themselves	F: Information at hand-know what popular cultures are H: Fashion accessory/Variety of styles H: Personalisation, preferences H: Data transfer, mms, camera, video, sound	Q36: Which cell phone brand do you own? Q39: Which cell phone brand do you prefer? Q40: Indicate the frequency of the use of the following features on your cell phone. Q41: On a scale of 1 to 5, when buying a new cell phone, how important are the following features? Q37: How satisfied are you with your cell phone? FG5: Are you satisfied with your current cell phone?

From the Table 21 follows the discussion of different aspects of the cultural behaviour of the teenage learner.

2.3.1 Multi-cultural/well informed

This section will discuss how well informed teenage learners in a multi-cultural South Africa are. Results of the questionnaire are included.

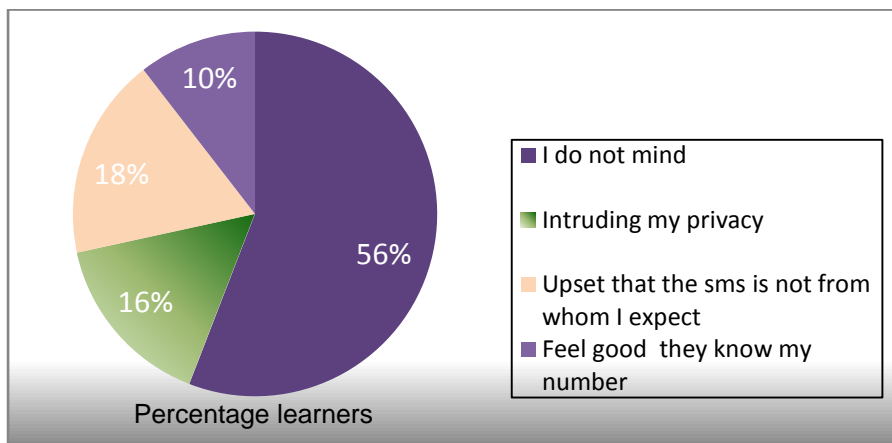
SECTION 1: INDIVIDUAL QUESTION AS PER QUESTIONNAIRE

Question 9:

“How do you feel when you receive an advertisement on your cell phone?”

Figure 26 reflects the reactions of teenage learners to receiving an advertisement on their cell phone.

Figure 26: Receiving an advertisement



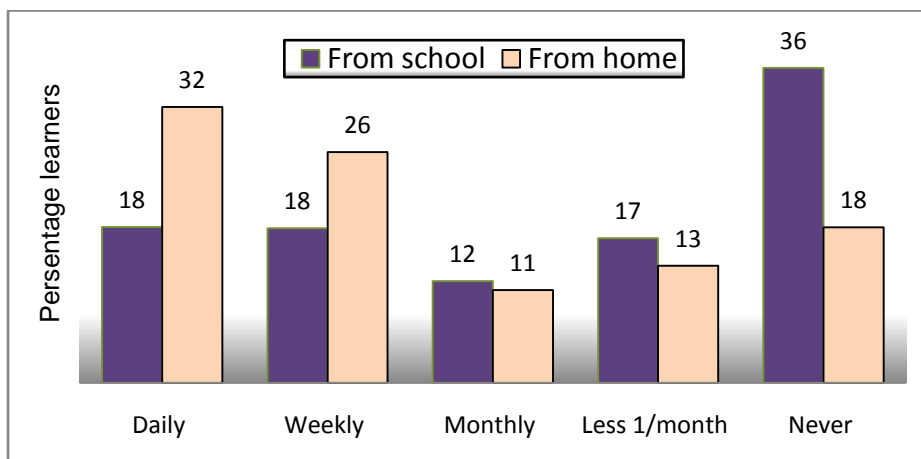
A total of 65% respondents did not mind receiving advertisements on their cell phones.

Question 10:

“How frequently do you access the web (using a cell phone or computer) from the following places?”

Figure 27 indicates the location from which the web is accessed and the frequency thereof.

Figure 27: Surfing the World Wide Web



In cases where the web is accessed on a weekly basis, 58% access is done from home, as opposed to only 35% whilst at school. Only 18% of respondents never visit the web whilst at home, as opposed to 36% never whilst at school.

Question 25:

“Have you ever used your cell phone to surf the internet?”

70% of the respondents indicated that they do use their cell phones to surf the net. Also see 2.1.1 above.

Although no specific question relating to the multi-cultural society of South Africa was asked, it was evident that teenage learners considered themselves part of such a multi-cultural society.

“I can capture an important part of the Soweto tour.”

“I got a SMS from someone, they sent it to the wrong number, the SMS was written in Muslim.”

Likewise, although no specific question was asked, it is clear that, as a result of ready access to the internet, advertisements and easy forms of communication, teenage learners are on the whole well informed regarding everyday matters.

“Surfing the sport news and seeing that Arsenal bought Roxcy.”

“When I upgraded to my new phone and it had all the newest features.”

“I have recently used my cell phone for a science experiment. We get information just from a SMS.”

[THERE IS NO RESULTS ON SECTION 2 AND 3]

SECTION 4: ANALYSIS OF RESULTS

Teenage learners are aware of the fact that they live in a multi-cultural society. They are well informed and prefer to remain so, even if information is obtained from advertisements. Cell phones are used extensively to access the World Wide Web.

2.3.2 Critical comparison

This section will highlight the fact that teenage learners are continuously comparing themselves to their peers and comparing friends to one another, both on a personal and material level. Results of the questionnaire and focus group are included.

SECTION 1: INDIVIDUAL QUESTION AS PER QUESTIONNAIRE

Question 15:

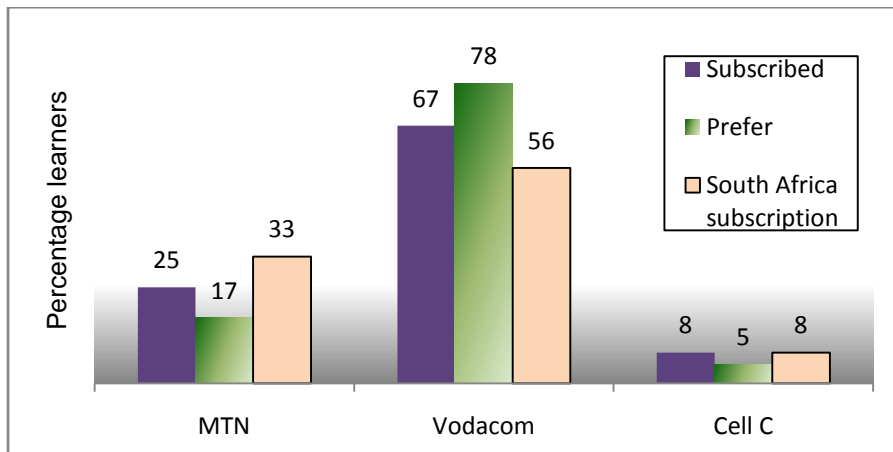
“Which network are you subscribed to?”

Question 16:

“Which network do you prefer? Why?”

Figure 28 reflects subscription levels between the three available cell phone networks in South Africa and compares it to the national levels, also indicating the network preference of teenage learners.

Figure 28: Cell phone networks subscribed to and preferred



Vodacom is the most popular network in South Africa (56%) and it appears to be even more popular with teenage learners, as 67% of respondents are subscribed to Vodacom and 78% indicating a preference for Vodacom.

The responses to the open-ended question ‘Why?’ are summarised as follows.

The following were provided as reasons for preferring a specific network:

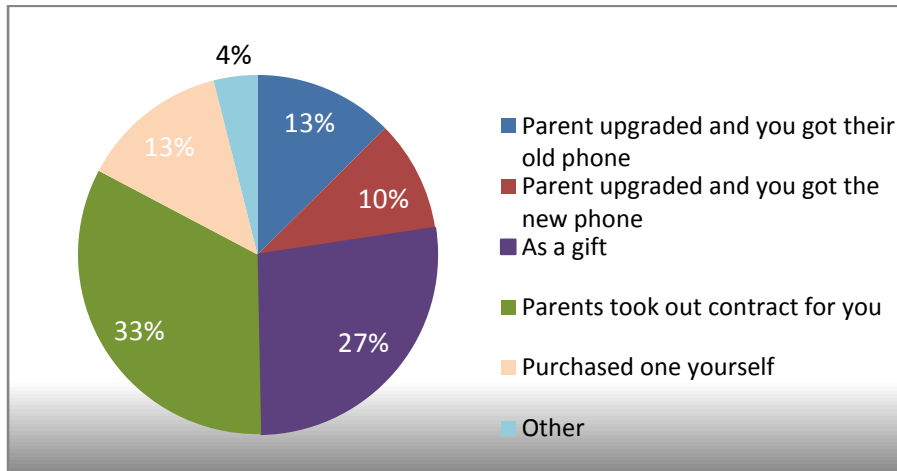
- **Technology** (Faster/better coverage)
- **Economy** (Cheaper SMS’s/cheaper rates/extra benefits)
- **Service** (User friendly/reliable/trouble free operation)
- **Popularity** (All my friends have it; whole family is on it)

Question 11:

“How did you obtain your current cell phone?”

Figure 29 indicates how teenage learners obtained their current cell phones.

Figure 29: Obtaining current cell phone



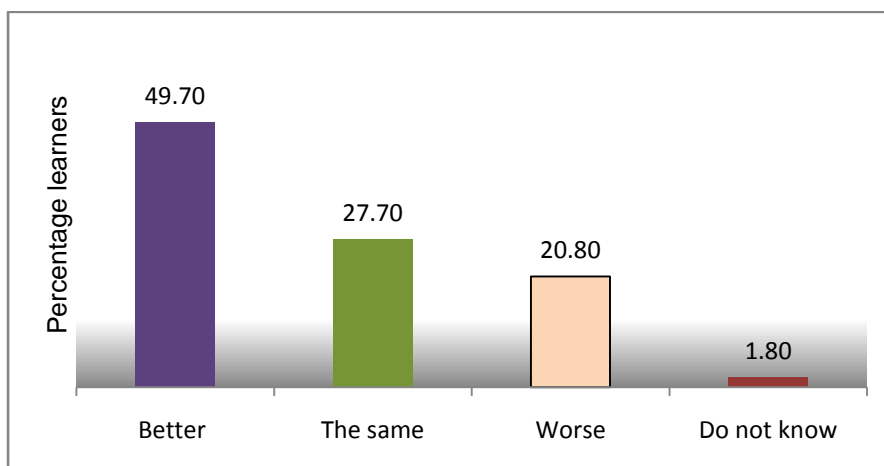
From the above figure one can make the assumption that more than 80% of teenage learners own relatively new cell phones.

Question 38:

“Compared to your friends’ cell phones, would you say that your cell phone is better, the same, worse or do not know?”

Figure 30 provides a perception of quality of cell phone compared to those of friends.

Figure 30: Perception of quality of cell phone



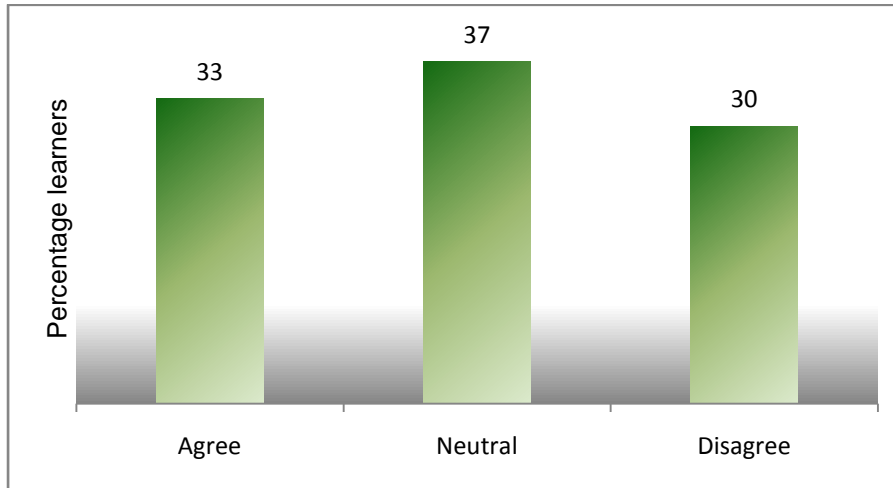
Almost 50% of respondents felt that their cell phones are superior to those of their friends. Only 21% respondents own cell phones that they think is not up to standard with those of their friends.

Question 42e:

“It is important to me how other people perceive my cell phone”

Figure 31 reflects the importance of how the respondents’ cell phones are perceived by others.

Figure 31: Importance of outside perceptions



Surprising neutrality towards the perception of others is indicated.

SECTION 2: SPECIFIC QUESTION AS PER FOCUS GROUP

Question 4:

“Is it important to you how your friends perceive your cell phone?”

Participants indicated that, although some wished that they had a better phone, it was not important how others perceived their cell phones.

“Everyday is special not because of the actual phone but the people I get in touch with”

Question 21:

“Do your friends show off their cell phones?”

Friends do not necessarily show off their cell phones but will point out the latest functionalities of their cell phones.

[THERE IS NO RESULTS ON SECTION 3]

SECTION 4: ANALYSIS OF RESULTS

Both actual subscription to and preference of a cell phone network, correspond to the national tendency. Although respondents were well aware of the latest available technology, most were satisfied with their current cell phone as the mere fact of owning a cell phone outweighed the importance of new technology, although a large percentage of respondents appear to have relatively up to date cell phones. Likewise the perceived opinion of friends regarding the respondents’ cell phone does not show great impact.

2.3.3 Adherence to popular culture – Maturity

This section reflects upon the teenage learner’s adherence to popular culture and their level of maturity. Results of the questionnaire and focus group are included.

SECTION 1: INDIVIDUAL QUESTION AS PER QUESTIONNAIRE

Question 36:

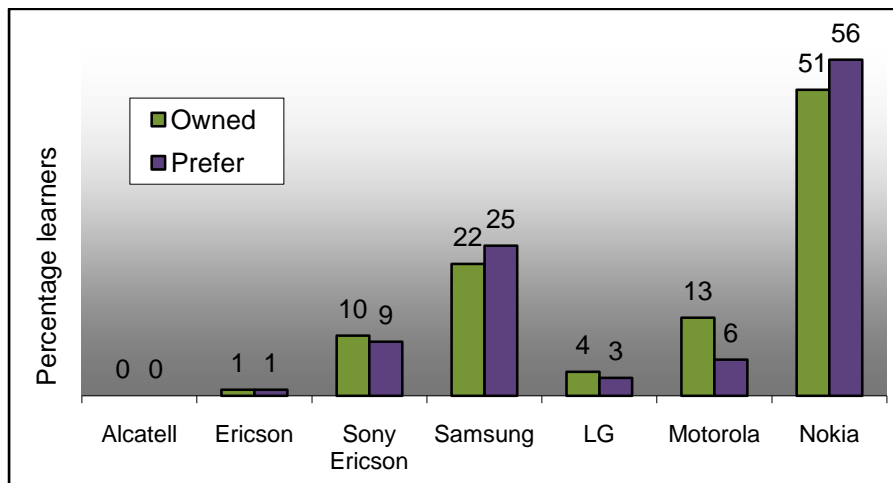
“Which brand of cell phone do you own?”

Question 39:

“Which brand of cell phone do you prefer?”

With reference to Chapter 2:5.2 the popularity of seven well-known brands of cell phones is compared in Figure 32. Both current ownership and preference between the listed brands were compared.

Figure 32: Cell phone brands owned and preferred



At the time of this study it was evident that Nokia was by far the most popular brand of cell phone with Samsung taking second place. Nokia is also the most popular brand nationally [Chapter 2:5.2.4]. Samsung and Nokia are also the only two brands where the percentage of preference is bigger than the percentage of ownership, indicating a preference for popular brands.

Question 40:

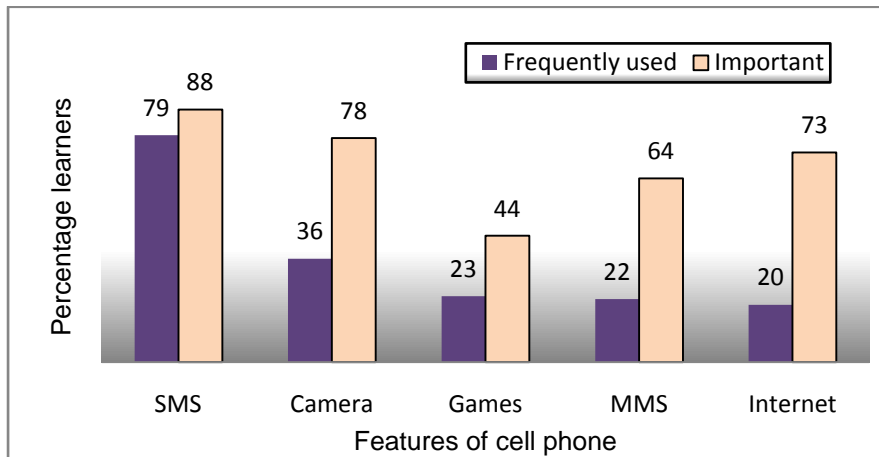
“Indicate the frequency of use of the following features on your cell phone.”

Question 41:

“On a scale of 1 to 5, when buying a new cell phone, how important are the following features?”

Figure 33 compares the importance of certain features with the actual usage of the same features.

Figure 33: Comparison of features - used vs. important



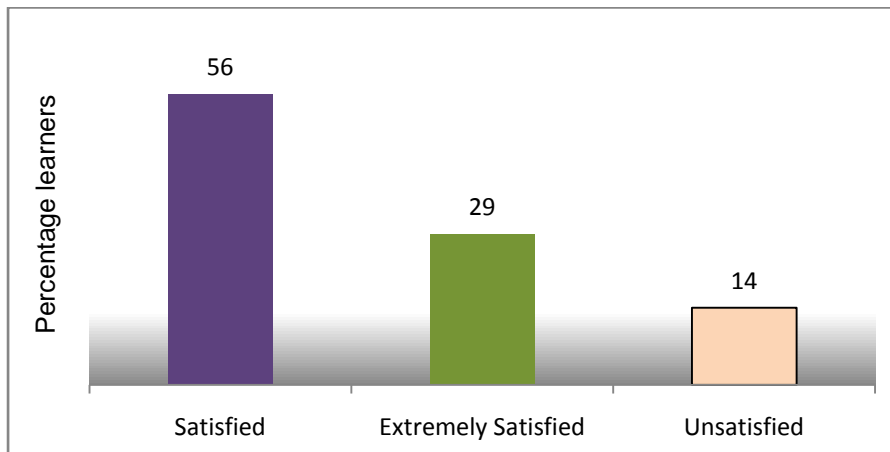
The SMS feature is considered to be the most important and is also the most frequently used. Other features are likewise considered to be important but the reported usage is much lower. This might be because the feature is not available.

Question 37:

“How satisfied are you with your cell phone?”

In Figure 34 the level of satisfaction with current cell phones is reflected.

Figure 34: Satisfaction level with current cell phone



Only 14% of teenage learners indicated that they were not satisfied with their current cell phone, whilst 86% were either satisfied or extremely satisfied.

SECTION 2: SPECIFIC QUESTION AS PER FOCUS GROUP

Question 5:

“Are you satisfied with your current cell phone?”

All participants, despite the fact that they may not own the latest cell phone on the market, indicated that they were satisfied with their current cell phones.

“I am satisfied with my current cell phone; I just wish the buttons worked better.”

[THERE IS NO RESULTS ON SECTION 3]

SECTION 4: ANALYSIS OF RESULTS

As is the case with cell phone networks, both in ownership and preference, respondents were satisfied with their current cell phones, this despite the fact that they may not own the latest model on the market or that their cell phone does not have all the features that they consider important. Teenage learners adhere to popular cultures, as they prefer the most popular brand of cell phone although they may not own it.

SECTION 5: INTERPRETATION

In Chapter 2:3.3 we highlighted that teenagers today, as a result of having a bigger variety of choice than ever before, are well informed and influential in their cultural environment. Furthermore adherence to the values of popular cultures is vital for social acceptance and teenagers may also associate with a particular brand or image and may assume an identity that is defined only by the values of this particular brand or image. Critical analysis is crucial for teenagers to decide which brands should be accepted or rejected.

When Figures 32 to 34, above, are analysed, this appears to be contradicted as far as preference and ownership of cell phones are concerned. It appears that, despite being up to date with the latest available technology, the mere fact of owning a cell phone satisfies the requirement for social acceptance in their respective environments. The reason/s for this may be an interesting topic for further research.

2.4 Moral behaviour

The teenage learner will be analysed according to moral behaviour patterns, pedagogic skills and technological capabilities, in the context of decision-making, rapid change, judgment, consciousness/awareness and conscience.

Table 22 summarises the relevant questions from the questionnaire and the focus groups to determine the moral behaviour, pedagogical skills and the technological capabilities of teenage learners.

Table 22: The moral behaviour, pedagogical skills and technological capabilities of the teenage learner

Teenage Learner Moral behaviour	Pedagogical skills	Technological capabilities	Questions
Decision makers: Need defined goals and objectives Debating: Make choices between 'right and wrong' and 'good and bad' Reason more abstractly Confidence in own judgment	A: Responsibility/personal value system/Understand, control anger C: Abstract thinking skills/critically assess values and ideas C: Concrete-operational: think logically/patterns C: Logical - solving problems/Spatial - Working with their senses C: Discuss behavioural rules and consequences C: Formal operational, imagine other worlds C: Point out inconsistencies between adults' words and actions	H: Choices, communication, improve quality of life T: Makes life easier, challenging and exciting	Q25: Have you ever used your cell phone to surf the net? Q26: If yes, are your parents aware that your cell phone can be used to surf the internet? Q27: If they are aware, do they mind? If they are not aware, would they mind? Q28: Have you ever visited sites that you know your parents would not approve?
Grow up in a period of rapid change: Experiment to create comfort zones	A: Changing life expectations A: Personal value system/expectations/positive outlook/system of recognition C: Application new situation/compare/Interpersonal - Adapts easily A: Confidence/expectations/positive outlook A: Self-purpose/personal value system/need recognition C: Abstract thinking skills, include sarcasm and satire C: Meta-cognition/reason theoretically/understand comprehend C: Take risks, "it can't happen to me"/community service P: Free time develop social and physical skills	F: Cell phone - advanced multi-functional device benefits of computer with additional communication facilities H: Cell phones developed - clumsy, low functionality, expensive to small, user friendly and cheap technology H: SA fastest growing cell phone market T: Integration with other tools/rapid growth/new vocabulary H: Cell phone users increased more than land line and computer users/SA embrace new technology	Q20: How long have you had your current cell phone? Q21: How long did you have your previous cell phone? Q19: How many cell phones have you owned to date? FG9: What is in and what is out regarding the use of functions on a cell phone? FG10: What is in and what is out regarding technology? FG11: What do you think a cell phone will look like in 10 years time?
Conscience/Consciousness: More aware of the society/Pro-social, sharing, donating to charity Conscience: Telling the truth/show guilt, empathy, compassion/act with honesty, unselfishness and responsibility	A: Developing respect for themselves and others/ A: Input through awareness, attach a value react according A: Raising personal integrity/internal worth/personal identity and integrity/personal value system A: Recognise own worth/associate wellbeing with helping others A: Responsibility/self understanding/recognition/talents C: Cause-oriented, see cruelty - member of "People for Treatment of Animals" C: Interpersonal - Compare, share, relate, to others in group C: Linguistic - Ability to retell everything C: Teenagers point out inconsistencies between adults' words and their actions.	F: Cell phones more and more prominent in all areas of society, including education F: Messages (text, voice and multi-media) sent and received/Camera/video H: Diverse market/large variety/different brands and model/personalities and personal needs H: Fashion accessory H: Personalisation, variety of styles T: Individual needs/Quality of life/Satisfy human needs	Q42g. When talking in chat rooms I will use my real name. Q42h: When talking in chat rooms I will lie about my age. Q35: Have you ever used your cell phone to cheat in a test? FG24: Will learners use their cell phone to cheat in class?

From Table 22 follows the discussion of different aspects of the moral behaviour of the teenage learner.

2.4.1 Decision making

The ability of teenage learners to make decisions will be reflected upon in this section. Results of the questionnaire are included.

SECTION 1: INDIVIDUAL QUESTION AS PER QUESTIONNAIRE

Question 25:

“Have you ever used your cell phone to surf the internet?”

Question 26:

“If yes, are your parents aware that your cell phone can be used to surf the internet?”

Question 27:

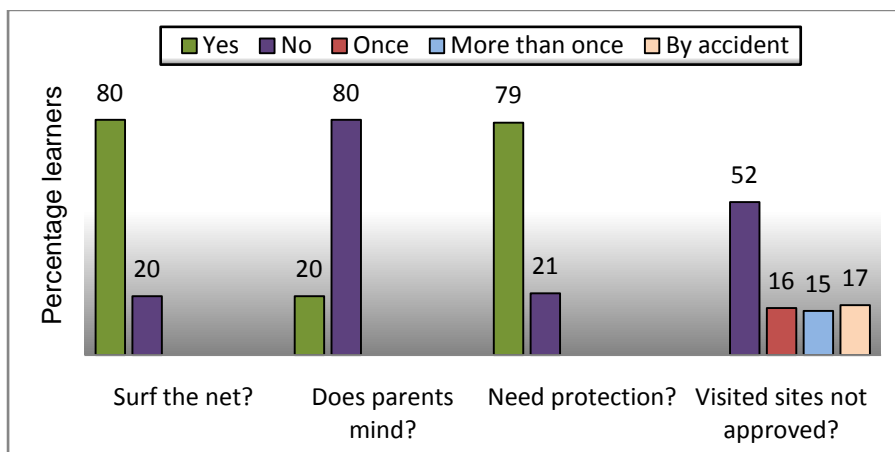
“If they are aware, do they mind? If they are not aware, would they mind?”

Question 28:

“Have you ever visited sites that you know your parents would not approve?”

Figure 35 illustrates the responses to the above four questions.

Figure 35: Internet activities



Note the direct proportion between respondents surfing the net from cell phones to those not surfing the net and the corresponding proportion between parents approving or not. Note the percentage teenagers that surf the internet also ask for protection.

[THERE IS NO RESULTS ON SECTION 2 AND 3]

SECTION 4: ANALYSIS OF RESULTS

Respondents did not only show not only the ability to take informed decisions but also the willingness to take conscious decisions regarding the use of their cell phones. The reported sentiments of parents bear testimony to the above.

2.4.2 Rapid change

This section will discuss some of the rapid changes that affect teenage learners. Results of the questionnaire and focus group are included.

SECTION 1: INDIVIDUAL QUESTION AS PER QUESTIONNAIRE

Question 20:

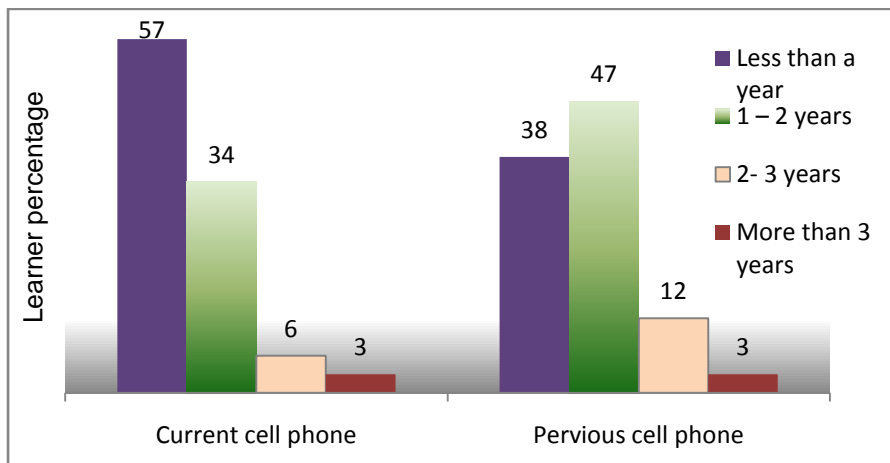
“How long have you had your current cell phone?”

Question 21:

“How long did you have your previous cell phone?”

Figure 36 show the period of ownership of the teenage learner’s current and previous cell phones.

Figure 36: Period of ownership



As 85% plus of respondents indicate having cell phones for periods of less than two years, one can deduce that the cell phones used by respondents, at the time of the study, were relatively modern and respondents appear to keep abreast of changes in technology as cell phones are upgraded, in most cases, at least every two years.

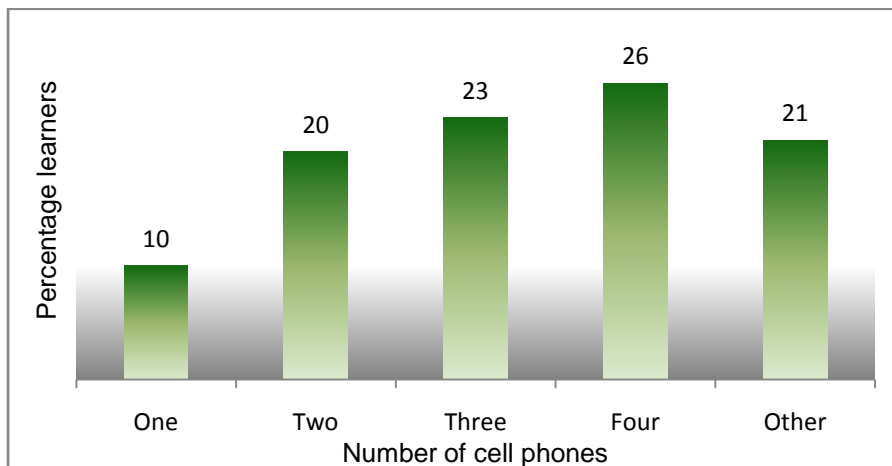
(Also refer to Figure 29 in paragraph 2.5.4 below)

Question 19:

“How many cell phones have you owned to date?”

Figure 37 gives the number of cell phones owned by respondents at the time of the study.

Figure 37: Cell phones owned to date



Of the respondents, 70% has owned three or more cell phones at the time of the study.

SECTION 2: SPECIFIC QUESTION AS PER FOCUS GROUP

Question 9:

*“What is in and what is out regarding the use of functions on a **cell phone**?”*

According to the participants the taking of photos and video clips and forwarding these to your friends and surfing the internet is ‘in’. Playing games is ‘out’.

Question 10:

*“What is in and what is out regarding **technology**?”*

According to the male participants MP4 players are ‘in’ and MP3 players and IPOD’s are outdated and are therefore ‘out’. Females conceded that technology is changing so fast that they do not know what is ‘in’ and what is ‘out’. They broadly consider technology that make their lives easier and more entertaining would be ‘in’.

Question 11:

“What do you think a cell phone will look like in 10 years time?”

Answers focused mainly on the size of future cell phones and respondents were divided, with some saying that cell phones are going to be bigger, whilst others felt that cell phones would become smaller.

[THERE IS NO RESULTS ON SECTION 3]

SECTION 4: ANALYSIS OF RESULTS

Teenage learners are aware that technology changes rapidly. Very few respondents have cell phones older than two years and most respondents have had three or more cell phones in their teenage years. Teenage learners appear to be at ease with rapidly changing technology and expect technology to continue changing, although they are uncertain how these changes will manifest as far as cell phones are concerned.

2.4.3 Conscience and consciousness/awareness

This section reflects upon general awareness and individual conscience of respondents. Results of the questionnaire and focus groups are included.

SECTION 1: INDIVIDUAL QUESTION AS PER QUESTIONNAIRE

Question 42g:

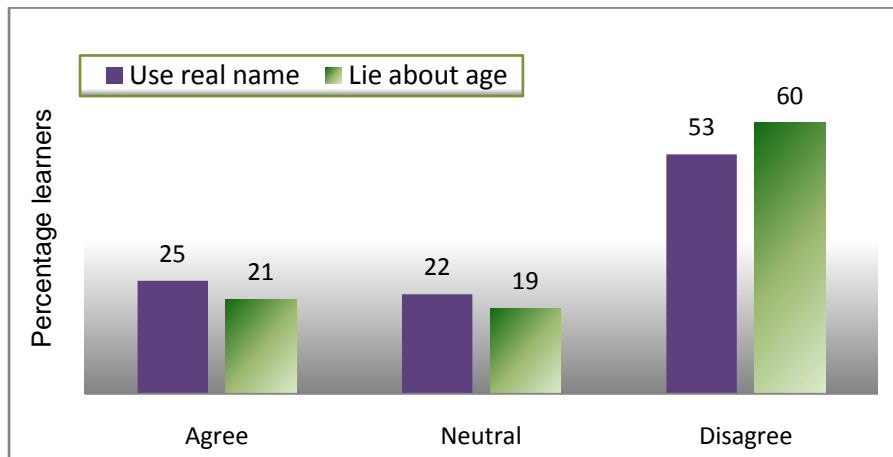
“When talking in chat rooms I will use my real name.”

Question 42 h:

“When talking in chat rooms I will lie about my age.”

Figure 38 indicates the percentage of respondents using pseudonyms and the percentage respondents falsifying their age while talking in chat rooms.

Figure 38: Chat Rooms



Only 21% of respondents falsify their age, while 53% use false names.

The percentage falling in the ‘neutral’ columns represent respondents who do not use chat rooms.

Question 35:

“Have you ever used your cell phone to cheat in a test?”

Only 8% of respondents replied that they have used their cell phones to cheat, whilst 92% indicated the opposite.

SECTION 2: SPECIFIC QUESTION AS PER FOCUS GROUP

Question 24:

“Will learners use their cell phone to cheat in class?”

The participants replied that some will use their cell phones to cheat in tests. This is observed while the use of cell phones in class is prohibited. Should the use of cell phones be allowed, the incidence of cheating would probably increase.

[THERE IS NO RESULTS ON SECTION 3]

SECTION 4: ANALYSIS OF RESULT

Respondents are aware that cell phones could be used to cheat but most reported having the conscience not to use cell phones for this purpose. It appears that using a pseudonym when talking in a chat room is not considered to be dishonest or morally wrong. The pseudonym is an accepted method of protecting one's privacy, and not for misbehaviour purposes.

SECTION 5: INTERPRETATION

Teenage learners display the ability and willingness to take decisions regarding technology and the application thereof, specifically as far as cell phones are concerned. Teenage learners are aware of their rapidly changing environment and accept that technology will continue to improve. Teenage learners have the ability to discern between honesty and dishonesty and those who reported using cell phones to cheat in tests seem to be well aware that they were dishonest. Respondents appeared to draw a distinction between morally wrong (e.g. cheating in a test) and using a pseudonym to protect privacy, which is not considered to be morally wrong, but indicates an awareness of the potential dangers associated with communicating with strangers. The boundaries and rules imposed by their perceived knowledge of human relations and societal order are being influenced by the vastly increased levels of communication made possible by cell phones [Chapter 2.3.4].

2.5 Psychological behaviour

The Psychological behaviour patterns of teenage learners are discussed with reference to pedagogical skills and technological capabilities, in the context of vulnerability, own opinion, own identity and the need to investigate and experience.

Table 23 summarises the relevant questions from the questionnaire and the focus groups to determine the psychological behaviour, pedagogical skills and the technological capabilities of teenage learners.

Table 23: The psychological behaviour, pedagogical skills and technological capabilities of the teenage learner

Teenage Learner Psychological behaviour	Pedagogical skills	Technological abilities	Questions
<p>Vulnerable: Need guidance Reassuring communication with friends Shaping personal thoughts and beliefs</p>	<p>A: Constantly in connection with peers A: Self-centred because they expect recognition A: Talk about views/build relationship C: Discussing behavioural rules and consequences C: Participate in controlled risky behaviour/ C: Responsibility/self understanding/system of recognition/community service C: Self questioning/internal worth/personal identity, integrity and value system</p>	<p>T: Life: easier/challenging/exciting T: Use inventions and discoveries to satisfy needs/information at hand T: Sharing knowledge/phone calls/ video and conference calls/ MMS/ SMS/Mxit /IM/E-mail/ internet H: Addresses individual needs/choices/ preferences/ personalisation</p>	<p>Q18: Has your cell phone ever been stolen? Q29: Do you think schools and parents should protect kids from offensive sites like porn? FG12: How do you feel about teenagers and the porn sites that they visit? Do you think parents and teachers need to protect you against it? Are you big enough to protect yourself? FG13: What risk factors can be associated with the use of a cell phone?</p>
<p>Own opinion: Form own opinion of the world Forming identity outside the family Conflicting rebellion period with parents Parent become less important</p>	<p>A: Personal identity/sense of self-purpose A: Changing life expectations A: Personal identity /grow in confidence, self-reliance, and self-understanding A: Socialising through communication very important C: Active learning/create awareness through actively analysing, researching, debating and contemplating C: Think about thinking ('meta-cognition.')</p>	<p>H: Diverse market/large variety of different brands and models of cell phones for individual personalities and personal needs H: Information at hand T: Inventions and discoveries to appease needs and wants T: Satisfy human needs</p>	<p>Q 9: How do you feel when you receive an advertisement on your cell phone?(H) Q42i: I do not mind my parents read my SMS messages. FG22: Do you mind if your parents read your SMS messages? FG14: How do you perceive your privacy regarding a cell phone? FG15: Do you think teachers will invade your privacy if they send you SMS messages regarding school work?</p>
<p>Identity: Test and experience new and dangerous situations to develop own identity Emotional: Acceptance by group important More sensitive about themselves</p>	<p>A: Attention/speaking/listening/socializing C: Advanced reasoning skills C: Developing abstract thinking skills C: Developing meta-cognition/think how they feel/think about how one is perceived by others C: Hypothetically think about multiple options and possibilities, asking "what if...?"/What am I good at? C: Talk to their views and be open C: Think everyone is concerned with their thoughts and behaviours, think they are always been watched</p>	<p>T: Use inventions and discoveries to satisfy needs and wants T: Preferences/personalisation T: Individual needs/choices</p>	<p>Q8: What would you do on your cell phone if you had an hour or two? Q42: Please choose only one option per row: a. I love using my cell phone. b. Without a cell phone I feel disconnected from the world. c. I always carry my cell phone with me. d. The design of my cell phone is important to me. e. It is important for me how other people perceive my cell phone. f. I personalise my cell phone by changing its cover or wallpaper. FG21: Do your friends show off their cell phone? FG27: Do you like to personalise your cell phone? Why?</p>

Table 23: *The psychological behaviour, pedagogical skills and technological capabilities of the teenage learner (Continue)*

Teenage Learner Psychological behaviour	Pedagogical skills	Technological abilities	Questions
<p>Investigate and experience: Process information differently Fluctuating feelings impact self-confidence and behaviour Teenagers vary psychologically</p>	<p>A: Grow in confidence/self-reliance/self-understanding C: Frontal cortex not fully mature/Cognitive limitations C: Think flexibly/ sort out competing information/feel they are misunderstood/meta-cognition C: Very sensitive to public criticism C: Different styles of learning: Linguistic - Tells tales, retell everything Logical - solving problems Spatial - Visualisers Day dreamers Watches movies Staying away from reality Drawing pictures Musical - Can turn abstract into concrete objects Bodily - Can do more than one thing at a time Interpersonal - Adapts easily Intrapersonal - Independent and original</p>	<p>H: Communication H: Individual needs H: Multitude of functions H: SMS gives means to correct mood swing behaviour without personal contact H: Variety of styles H: Personalisation N: Preferences T: Addresses individual needs T: Satisfy human needs</p>	<p>Q33: Are you allowed to bring your cell phone to school? Q45: Do you think that the use of a cell phone will aid you in schoolwork? Q46: Would you like to be able to use your cell phone to help you with schoolwork? Q47: Do you think that using a cell phone as a tool in the classroom will make any difference to the quality of your schoolwork? Why: Q48: Would you recommend the use of a cell phone in school work? FG16: Would the use of a cell phone as an aid in the classroom make any difference in you year end mark? FG17: Would you like to use your cell phone in the class as an educational tool? FG18: Will the use of a cell phone motivate you to complete your class work? FG19: What functions on a cell phone can be used to aid you in doing schoolwork? FG20: What would you want to see differently in classrooms of today?</p>

From Table 23 follows the discussion of different aspects of the psychological behaviour of the teenage learner

2.5.1 Vulnerability

This section will emphasise the sensitivity and vulnerability of teenage learners during adolescence. This aspect was investigated using the questionnaire and focus groups as research instruments.

SECTION 1: INDIVIDUAL QUESTION AS PER QUESTIONNAIRE

Question 18:

“Has your cell phone ever been stolen?”

A high percentage (40%) of respondents reported having cell phones stolen, of which 16% was stolen at school.

Question 29:

“Do you think schools and parents should protect kids from offensive sites like porn?”

An overwhelming majority (79%) of respondents felt that they require protection.

SECTION 2: SPECIFIC QUESTION AS PER FOCUS GROUP

Question 12:

“How do you feel about teenagers and the porn sites that they visit? Do you think parents and teachers need to protect you against it? Are you big enough to protect yourself?”

The focus group participants commented they do not need protection against obscene sites as they felt that they are old enough to choose between right and wrong. (This contradicts the response in the questionnaire).

Question 13:

“What risk factors can be associated with the use of a cell phone?”

The male participants suggested the following ‘risks’:

- Not answering a call from a parent when they should have been at home and are in fact somewhere else.
- Forgetting to switch your cell phone on to silent mode during an exam.
- Having inappropriate SMS messages read by friends.

The female participants saw the following ‘risks’:

“Well silly little things you get stalkers you get ... people that would delete information from your cell phone via Bluetooth.”

“Yes when going on the internet it is possible to get viruses through e-mail.”

“People get your number and call you all the time. It’s an invasion of privacy because they think you have nothing better to do with your time. It happened a couple of times to me. It is funny though.”

Both male and female respondents were very aware of the risk of radiation emitted by cell phones.

The pamphlet in the cell phone packages also say you mustn't keep your cell phone in your body all the time because it is dangerous. It's like smoking? You know it's bad for you but you still do it?

[THERE IS NO RESULTS ON SECTION 3]

SECTION 4: ANALYSIS OF RESULTS

Respondents have first hand experience of the physical risk of having a cell phone stolen.

Respondents also reported an awareness of the radiation risk inherent in cell phones.

On the whole respondents were in favour of external protection against pornographic or offensive internet sites.

2.5.2 Own opinion

This section will illustrate that teenage learners do form their own opinion of the world around them. Results of the questionnaire and focus groups are included.

SECTION 1: INDIVIDUAL QUESTION AS PER QUESTIONNAIRE

Question 9:

"How do you feel when you receive an advertisement on your cell phone?"

As mentioned in paragraph 2.3.1 teenagers do not mind receiving advertisements because the information they obtain help them to develop an opinion on the subject.

Question 42i:

"I do not mind my parents reading my SMS's"

A large percentage (60%) of respondents said that they do indeed mind parents reading their SMS messages without their permission, whilst 25% did not mind and 15% were neutral.

"When someone read my SMS without my permission it is bad to me."

"When I met someone new I could give them my cell number instead of the home number (where my parents could answer, or they would disrupt my 'me'-time, seeing as I wouldn't know who is calling."

SECTION 2: SPECIFIC QUESTION AS PER FOCUS GROUP

Question 22:

"Do you mind if your parents read your SMS messages?"

Both male and female participants were adamant that they do not want their parents to read their SMS messages.

Question 14:

“How do you perceive privacy regarding your cell phone?”

Both male and female participants would allow friends to look at their messages, with permission but preferred that their parents do not see their messages at all.

Question 15:

“Do you think teachers will invade your privacy if they send you SMS messages regarding school work?”

Male and female participants would not mind teachers communicating with them regarding school work, for instance to catch up with work lost during absence, as long as such communication does not get personal.

[THERE IS NO RESULTS ON SECTION 3]

SECTION 4: ANALYSIS OF RESULTS

Respondents were adamant that they do not want their privacy invaded through having their SMS messages read without their permission. Friends would be granted permission to read SMS messages but parents hardly ever. Respondents were not averse to receiving advertisements on their cell phones as information obtained in this way assisted them in forming opinions. Generally speaking receiving advertisements was not perceived as an invasion of privacy. The potential positive outcome of being contacted by teachers regarding schoolwork was appreciated.

2.5.3 Identity – sensitive about themselves

In this section the role that cell phones can play in the development of an own identity will be discussed. Results of the questionnaire and focus groups are included.

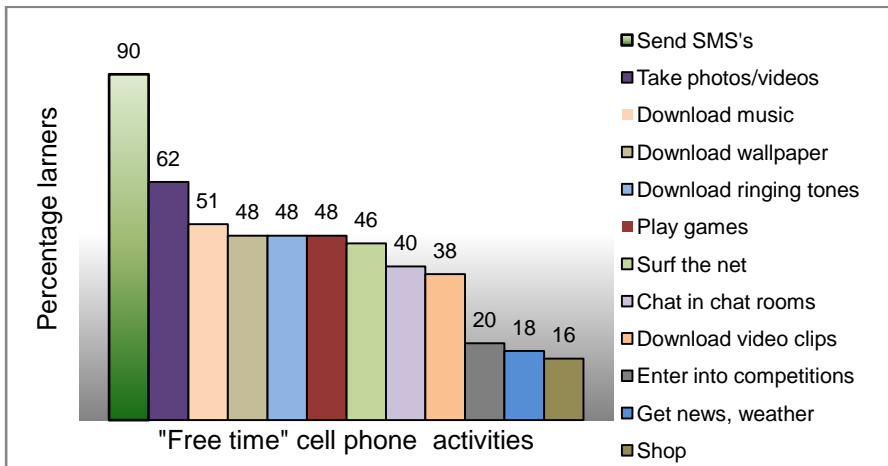
SECTION 1: INDIVIDUAL QUESTION AS PER QUESTIONNAIRE

Question 8:

“What would you do on your cell phone if you had an hour or two?”

Figure 39 lists favourite ‘free time’ cell phone activities.

Figure 39: Favourite 'free time' cell phone activities



Sending SMS messages was reported to be the favourite 'free time' activity by 90% of respondents.

Question 42

Choose only one option per row:

"I love using my cell phone."

"Without a cell phone I feel disconnected from the world."

"I always carry my cell phone with me."

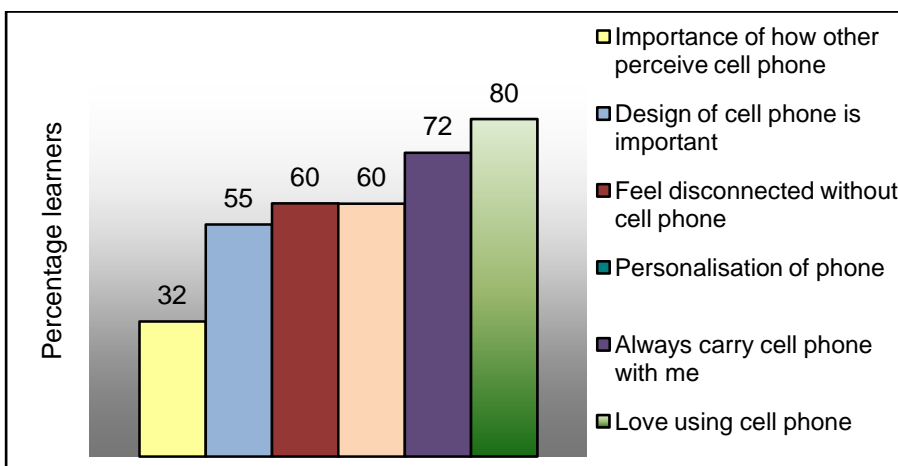
"The design of my cell phone is important to me."

"It is important for me how other people perceive my cell phone."

"I personalise my cell phone by changing its cover or wallpaper."

Figure 40 summarises the relationship of respondents with their cell phones.

Figure 40: Relationship with cell phones



The vast majority of respondents (80%) 'love' their cell phones and 72% always carry their cell phones with them. Sixty percent feel it is important to personalise their cell phone to emphasise their own identity. Only 32% feel it is important how others perceive their cell phones.

The display of care by others, via the medium of cell phones, assists in forming a positive self-image, thereby enhancing the creation of a positive self identity.

“I was feeling down and a good friend sent me a SMS, saying that she is thinking of me! It put a smile on my face.”

“If I had not gotten my phone when I did I don’t know what I would have done. I love my phone and can’t lose it, not now. I make sure I have it with me every moment of my life.”

SECTION 2: SPECIFIC QUESTION AS PER FOCUS GROUP

Question 21:

“Do your friends show off their cell phones?”

It is not the type of cell phone that compliment the self-image of a teenager but rather if he/she owns one or not.

“Everybody likes black or silver it’s just the basic ones ... no one’s going to sulk if it’s going to clash with your outfit.”

The following conversation took place during a focus group session with male teenagers:

Researcher: “Is it important to you that the friends in your group know you have a “cool” cell phone?”

Group: “No”

Researcher: “Not” (astonished)

Group: (adamant) “No”

Researcher: “And your friends? Don’t they show off with their phones that have all these fancy extras for example an Mp3 player?”

Teenager: “Well they will show you how their phone work and “mock” us because we have such old phones”

Researcher: “So they make fun of you for having an old phone?”

Teenager: “Yes...No they only say it is time to get a new phone.”

Researcher: “How do you feel about a remark like that?”

Teenager: “It is fine...I do not have money.”

Researcher: “Are you satisfied with your current phone?”

Teenager: “Yes, although I wish his buttons worked better.”

Question 27:

“Do you like to personalise your cell phone? Why?”

The participants agreed wholeheartedly that it is important for them to personalise their cell phones, in order to differentiate their cell phones from those of others.

“I need it to feel like my own, it should be different from the other.”

[THERE IS NO RESULTS ON SECTION 3]

SECTION 4: ANALYSIS OF RESULTS

Teenage learners experience being ‘different’ or ‘out’ very intensely [Chapter 2:3.5]. If a teenage learner does not have a cell phone today (even an ordinary one), they are simply not ‘with it’ and this can result in feeling left out and could have an impact on their psychological well being. Most teenage learners spend a substantial part of their day communicating with friends via cell phone. Most teenage learners always have their cell phones with them and most personalise their cell phones as part of creating an own identity. It appears that the design or level of sophistication is not critical, although as illustrated above teenage learners are well informed regarding the latest technology.

2.5.4 Investigate and experience

This section will recount the opinion of teenage learners regarding the viability of using cell phones as educational tools in a classroom environment. Results from the questionnaire and focus groups are included.

SECTION 1: INDIVIDUAL QUESTION AS PER QUESTIONNAIRE

Question 33:

“Are you allowed to bring your cell phone to school?”

Of all respondents, 84% were allowed to take their cell phones to school.

Question 45:

“Do you think that the use of a cell phone will aid you in completing schoolwork?”

Question 46:

“Would you like to be able to use your cell phone in the classroom as a tool to help you with your schoolwork?”

Question 47:

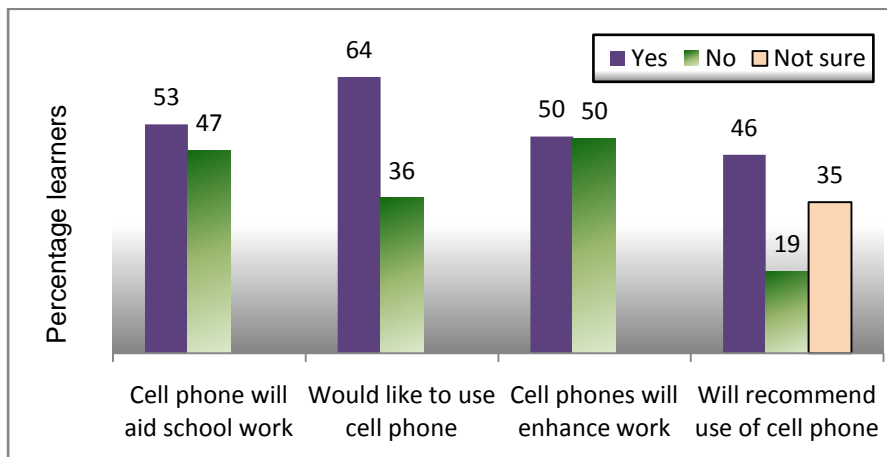
“Do you think that using a cell phone as a tool in the classroom will make any difference to the quality of your schoolwork? Why?”

Question 48:

“Would you recommend the use of a cell phone in completing schoolwork in the classroom?”

Figure 41 summarises the feelings of teenage learners regarding the use of cell phones as an educational tool, as per question 45 to 48.

Figure 41: Cell phone and schoolwork



Although the majority (64%) of respondents indicated that they would like to use cell phones in class, they were divided regarding the potential benefits of doing so. This could be ascribed to lack of experience and, therefore, uncertainty.

SECTION 2: SPECIFIC QUESTION AS PER FOCUS GROUP

Question 16:

“Would the use of a cell phone as an aid in the classroom make any difference to your year end mark?”

Participants were positive but remarked that improved year-end results would still depend on the individual. They did however comment that cell phones would enhance the completion of assignments as questions could be sent to them via cell phone and they would not have to write down questions.

Question 17:

“Would you like to use your cell phone in the class as an educational tool?”

Participants indicated that they would like to use their cell phones as educational tools. They admitted that they already use their cell phones for non-educational purposes and they were therefore able to foresee practical problems like battery lifetime, cheating and losing cell phones. It was suggested that they be provided with cell phones by the school to eliminate the above problems. A possible alternative is to provide learners with a SIM card with restricted access and functionalities. This needs further investigation.

Question 18:

“Will the use of a cell phone motivate you to complete your class work?”

Participant replied that being able to use the internet in class will expand their knowledge and help them to obtain information for assignments

Question 19:

“What functions of a cell phone can be used to aid you in doing schoolwork?”

The following functionalities were put forward:

- Calculator
- Spell check facility/dictionary
- Bluetooth
- Camera
- Internet connectivity

Question 20:

“What would you want to see differently in classrooms of today?”

Laptops – to do away with heavy bookcases and books being forgotten at home.

[THERE IS NO RESULTS ON SECTION 3]

SECTION 4: ANALYSIS OF RESULTS

The majority of respondents were in favour of using cell phones as educational tools. As they already use their cell phones in class, despite this not being allowed, they are aware of potential problems. As this is obviously a new concept, respondents were divided on practical issues, such as actual improvement of academic results.

SECTION 5: INTERPRETATION

Teenage learners are constantly attempting to develop their own identity, with the emphasis on developing an identity outside of the known family unit. Solidarity with friends is an important aspect of this development and therefore communication with friends is of vital importance. Cell phones provide an unlimited and unrestricted medium of communication and not having a cell phone would result in the teenage learner not being accepted by his or her peer group - being ‘out’. Having a cell phone is therefore far more important than the actual brand of cell phone or the level of sophistication of the implement. Teenage learners recognise that they are vulnerable to the physical dangers of using cell phones as well as the psychological dangers of, for instance being exposed to pornographic sites. Teenage learners expressed an aversion to having their privacy invaded by parents reading their SMS messages. At the same time, receiving advertisements on their cell phones is not perceived as an invasion of privacy. Cell phones are personalised as an expression of own identity. Although respondents were divided over some practical issues, most were in favour of using cell phones as educational tools. The practical realisation of this could be an interesting area for future research.

2.6 Summary

In order to answer the research question posed in the beginning of this chapter the researcher attempted to define the learner profile of a teenage cell phone user. Five broad areas of behaviour were investigated, namely: Physical; Social; Cultural; Moral and Psychological. Each area was researched with specific reference to pedagogic skills and technological capabilities of teenage learners.

Questionnaires, Focus group interviews and Logbooks were used as research instruments. Each of the above five areas was further refined into a number of sub headings and the results of the researcher's findings are summarised under the heading 'Analysis of results' at the end of each sub heading. Findings for each of the major areas are discussed under the heading 'Interpretation' at the end of each section.

These findings are very briefly summarised as follows:

- No evidence could be found that the use of cell phones in a classroom environment will detrimentally affect physical activities of teenage learners.
- Cell phones have become an integral part of in the social lives of teenage learners and might in fact introduce an element of 'fun' and 'excitement' into the learning process.
- Although brand associations are extremely important to teenage learners it appears that the mere fact of owning a cell phone already satisfies this requirement for social and cultural acceptance.
- Teenage learners have displayed the ability to distinguish between what is right and wrong with regards to the use of cell phones.
- Teenage learners were largely in favour of using cell phones in a classroom but were somewhat divided on some practicalities.
- Cell phones assist teenage learners to form an own identity outside the family unit. As teenagers are sensitive cell phones provide the means to maintain their privacy.

One can thus confidently suggest that cell phones could be utilised as educational tools.

The conclusions and recommendations will be discussed in chapter 5

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

1 Introduction

This study is an explanatory investigation to determine a learner profile of a teenage cell phone user in South Africa. This research began when, given the fact that cell phones appeared to form an integral part of the lives of teenage learners of today, the following question came to mind: Could cell phones be used as educational tools?

With reference to Ben Shneiderman, as quoted in Holzinger (2005, p. 1) that "...successful technologies are those that are in harmony with end-users' needs" it became necessary to first establish the needs of the teenage learner. The problem developed into the research problem "What is the learner profile of a teenage cell phone user?"

In order to address the problem, the following research questions were identified and examined:

- What are the behaviour patterns and pedagogic skills of teenage learners with reference to the use of cell phone technology?
- What type of technology do teenage learners prefer?
- How do teenage learners interact with technology?
- Could cell phone technology be employed as a learning tool?

In chapter 4 the results of the data collected were analysed and interpreted. In this chapter the conclusions based on the analysis of the results, will be addressed. Recommendations will be made and emerging research issues will be discussed.

The following section presents answers to the identified questions.

2 Answers to research questions

The four research questions will be answered briefly hereunder according to the findings in chapter 4.

2.1 Research question 1

What are the behaviour patterns and pedagogic skills of teenage learners with reference to the use of cell phone technology?

Literature [chapter 2:3] suggested that the behaviour patterns of teenage learners could be broken down into the following:

- Physical behaviour
- Social behaviour
- Cultural behaviour
- Moral behaviour
- Psychological behaviours

Chapter 4 confirms the behaviour patterns of the teenage learner to be the following:

Physical behaviour

Cognitive development is enhanced by the use of cell phones that satisfies the basic human need of interaction. There is no indication that physical activity suffers as a result of this. Teenage learners display the ability to multi-task and to effectively utilise modern technology. No evidence could be found that the use of cell phones in a classroom environment will detrimentally affect physical activities of teenage learners.

Social behaviour

Research done in this study proves that cell phones assist teenage learners with emotional sharing, establishing and maintaining relationships and creating independence through providing a readily available and affordable means of communication.

Cultural behaviour

Owning a cell phone satisfies the perceived requirement for peer acceptance in a multi-cultural and technologically well informed society even though the cell phone might not be the most modern model.

Moral behaviour

Teenage learners are fully aware of both the physical dangers and moral risks associated with the ownership and use of cell phones. Not only do they display the ability to make informed decisions in a rapidly changing technological world but also a marked conscience regarding these issues.

Psychological behaviour

Teenage learners have acknowledged their own vulnerability and need for guidance, whilst at the same time emphasising the need to form their own opinion and identity through continued exploration and investigation of the world around them.

2.2 Research question 2

What type of technology do teenage learners prefer?

Teenage learners expressed the desire for quick, at your fingertips, user-friendly technology. From the research it is evident that, as far as the key requirement of communication is concerned, teenage learners feel that cell phones satisfy these technological requirements on most fronts, e.g. socialising, entertainment, being independent, creating a positive self-image and establishing an own identity.

2.3 Research question 3

How do teenage learners interact with technology?

Teenage learners grow up with and accept technology as a given in their daily lives. As far as communication is concerned, cell phones are not only accepted without question, but have in fact become the preferred medium of communication, because cell phones allow teenage learners to multi-task, displaying the grasp of technology that teenage learners possess.

Over and above standard communication, cell phones are used to share information, resolve problems, fulfil personal needs like sharing emotions and improve friendships. Cell phones are personalised to express individualism. SMS messages are the most widely used feature. The bulk of daily communication is with peers, whilst communication with parents is restricted to 'logistical' purposes.

2.4 Research question 4:

Could cell phone technology be employed as a learning tool?

Cell phones, as technological devices, have the potential to be used for:

- Communication: e-mails, SMS messaging, phone calls, video calls, chat rooms
- Accessing information: world wide web, recording, multi-media, music, graphics
- Processing information: video recordings (animation), manipulating camera work, word and figure processing, creating databases

All of the above could be applied as learning mechanisms. From the research it is clear that by the time young children become teenagers they have long mastered all of the above applications and would not require any training in the use of the technology, per se. Respondents admitted to already using cell phones in classrooms, despite this not being allowed. There can therefore be no question that cell phones can be used in a classroom scenario. The question would merely be how to inspire responsible usage and how to channel and control the application of cell phones to produce positive results. Respondents have positively indicated the desire to use cell phones for learning purposes, while, at the same time, acknowledging the potential for dishonesty and fraud.

3 Recommendations for the introduction of cell phones as educational tools

The following is a very brief suggested process to be followed to initiate the introduction of cell phones as educational tools: It is important to get the support from role players in the government to establish a cell phone learning culture in South African schools. New educational programmes should be developed in line with current curriculums. As teenage learners needs differ from school to school it is important to first establish the teenager's needs of the school were this program will be introduced. This is the most vital step for success.

Funding is needed for the following.

Training teachers, both in cell phone functionalities and suitable cell phone software programs
Evaluation of the effectiveness of current cell phone policies (if any) and programs and to develop new programs and policies that best serve the needs of teenagers. In turn this will serve the academic needs of a teenager.

Teachers need to understand the needs of the teenage learner and acknowledge it because this would have a direct influence on the receptiveness to receive effective services. Therefore schools need to be aware of the needs of teenagers and generate strategies that will facilitate collaboration amongst teachers and teenagers in regarding the successful introduction of the cell phone as educational tool.

A support system should be established for both teenagers and teachers.

And last but not the least schools need to put a policy in place to protect teenage learners from 'bullying' and obscene sites.

4 Recommended further research

As this was an exploratory research project the following presented themselves as potential areas for future research:

- Thirty percent of respondents indicated that they do not access the internet via cell phones. The use of cell phones to access information on the internet needs further research.
- The difference between males and females as cell phone users in an educational environment, including the difference in preference and application.
- The unexpectedly high percentage (30%) of learners that only sent/receive 0-5 SMS messages per day. This may involve further research as to the purpose that the learners use their cell phones for.
- As the majority of cell phone related experiences by respondents were described as 'exciting' one might investigate the possibility of using cell phones to introduce a measure of 'fun' or 'excitement' in the learning process.
- It appears that, despite being up to date with the latest available technology, the mere

fact of owning a cell phone satisfies the requirement for social acceptance in their respective environments. The reason/s for this may be an interesting topic for further research.

- The use of cell phone technology as an educational tool in outcomes-based education in schools needs further research.
- The perceptions of administrators, managers and educators on the use of cell phones as educational tools.
- Although the study was conducted in a South African context it is possible to be repeated in other countries across the world.

5 Conclusion

This study produced the following profile of a teenage cell phone user:

- Teenage learners are capable of using the technology inherent in cell phones
- They understand the social, ethical, cultural and human issues regarding the use of cell phones
- Teenage learners practice responsible use of cell phone technology and information.
- Teenage learners have a positive attitude towards cell phones that could be used to support learning, for mutual support, personal development and efficiency

With this I hope to encourage educational role players to accept that not only can the responsible application of cell phones enhance the learning process but it can also be an aid in the personal development of teenagers.

It certainly seems as if the end user needs the cell phone as an educational tool!



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ADDENDUMS

Addendum A: Questionnaire



Dear teenager,

You are invited to participate in our survey. In this survey, approximately 1000 learners will be asked to complete a survey that asks questions about you and your cell phone. It will take approximately 10 minutes to complete the questionnaire.

We are doing this survey to compile a profile of a teenager's interaction with his/her cell phone. A profile like this would assist us to incorporate the cell phone as a learning tool into classrooms. Your participation in this study is completely voluntary. If you have questions at any time about the survey or the procedures, you may contact Christa Oelofse at 083 259 4933 or by email: christa.o@absamail.co.za

Thank you very much for your time and support.

1. Do you:

- own your own cell phone
- share a cell phone with a family member

2. What is your age?

- 13
- 14
- 15
- 16
- 17
- Other _____

3. What is your gender?

- Female
- Male

4. Which of the following best describes the area you live in?

- Urban
- Suburban
- Rural



5. What is your family's financial circumstance?

- Affluent, plenty for all of us
- Comfortable
- Struggling, money is tight
- Vary from lots to little

6. What is your home language?

- English
- Afrikaans
- Ndebele
- Northern Sotho
- Southern Sotho
- Xhosa
- Venda
- Tswana
- Zulu
- Swazi
- Tsonga
- Other _____



7. Please check the frequency in which you engaged in the following activities in the past 6 months. Check only one answer for each possible leisure activity.

		Frequently	Occasionally	Seldom	Never	Not sure
a	Watching television					
b	Playing computer games					
c	Walking for pleasure					
d	Reading books for pleasure					
e	Competing in team sports (for example, soccer/rugby, baseball, hockey, etc.)					
f	Going on a family outing					
g	Competing in individual sports (for example, tennis, swimming, etc.)					
h	Going out for the evening for entertainment					
i	Bicycling					
j	Going to the movies					
k	Visiting art galleries and museums					
l	Listening to music					
m	Collecting or making something (for example, hobbies)					
n	Swimming for pleasure					
o	Attending sports events					
p	Attending opera, ballet or dance performances					
q	Surfing the World Wide Web					
r	Working on the computer					
s	Using a MP3 player					
t	Visiting chat rooms on the internet					
u	Using a palmtop computer (PDA/Handheld)					
v	Playing with a play station					
w.	Using a DVD player					

8. What would you do on your cell phone if you had an hour or two?

		Frequently	Occasionally	Seldom	Never	Can not do this with my phone
a	Play games					
b	Surf the internet					
c	Chat in chat rooms					
d	Send SMS's to friends					
e	Take photos/videos					
f	Download wallpaper/pictures					
g	Download ringing tones					
h	Download video clips					
i	Download music					
j	Get news, weather, sports					
k	Shop, or get information about things I might buy					
l	Entering competitions					

9. How do you feel when you receive an advertisement on your cell phone?

- I do not mind getting advertisements via my cell phone
- They are intruding my privacy
- I am upset to learn that the SMS is not from whom I expect it to be
- I feel good that they know my number

10. How frequently do you access the web from the following places? (On a cell phone or computer.)

		Daily	Weekly	Monthly	Less than once a month	Never
a	From home					
b	From school					
c	From a public terminal (e.g. library, internet cafe, etc.)					
d	From other places					

11. How did you obtain your current cell phone?

- Parent upgraded and you got their old phone
- Parent upgraded and you got the new phone
- As a gift
- Parents took out contract for you (including top up's)
- Purchased one yourself
- Other _____



12. How old were you when you got your first cell phone?

- Younger than 8
- 8 – 10 years
- 11 – 13 years
- 14 – 16 years
- Other _____

13. Who pays your cell phone account?

- Self
- Parents
- Other (please specify) _____

14. Your cell phone is on:

- Contract
- Pay-as-you-go
- Family/business Top-up
- Other _____

15. Which network are you subscribed to?

- MTN
- Vodacom
- Cell C

16. Which network do you prefer?

- MTN
- Vodacom
- Cell C

Why? _____

17. Your monthly cell phone charges are:

- Less than R50
- Between R50 and R100
- Between R100 and R200
- Between R200 and R300
- Between R300 and R400
- Other _____

18. Has your cell phone ever been stolen?

- Yes, at school
- Yes, not at school
- No



19. How many cell phones have you owned to date?

- One
- Two
- Three
- Four
- Other _____

20. How long have you had your current cell phone?

- Less than a year
- 1 – 2 years
- 2- 3 years
- More than 3 years

21. How long did you have your previous cell phone?

- Less than a year
- 1 – 2 years
- 2- 3 years
- More than 3 years

22. Your cell phone's contact list consists of how many entries?

- | | | |
|----------------------------------|-----------------------------------|--------------------------------------|
| <input type="checkbox"/> 0 – 10 | <input type="checkbox"/> 50 – 60 | <input type="checkbox"/> Other _____ |
| <input type="checkbox"/> 10 – 20 | <input type="checkbox"/> 60 – 70 | |
| <input type="checkbox"/> 20 – 30 | <input type="checkbox"/> 70 – 80 | |
| <input type="checkbox"/> 30 – 40 | <input type="checkbox"/> 80 – 90 | |
| <input type="checkbox"/> 40 – 50 | <input type="checkbox"/> 90 - 100 | |

23. Approximate number of SMS's sent daily.

- 0 – 5
- 5 – 10
- 10 – 15
- 15 – 20
- More than 20

24. Approximate number of SMS's received daily

- 0 – 5
- 5 – 10
- 10 – 15
- 15 – 20
- More than 20

25. Have you ever used your cell phone to surf the internet?

- Yes
- No



26. If yes, are your parents aware that your cell phone can be used to surf the internet?

- Yes
- No

27. If they are aware, do they mind? If they are not aware, would they mind?

- Yes
- No

28. Have you ever visited sites that you know your parents would not approve?

- Never
- Once by accident
- Once out of curiosity
- More than once

29. Do you think schools and parents should protect kids from offensive sites like porn?

- Yes
- No

30. Do you prefer contacting someone via a:

- Phone call
- SMS

31. If you indicated by **phone**, why do you prefer this option?

- Cheaper
- More convenient
- No specific reason

32. If you indicated by SMS, why do you prefer this option?

- Cheaper
- More convenient
- Not allowed to speak/make calls during class
- No specific reason

33. Are you allowed to bring your cell phone to school?

- Yes
- No

34. If you bring your cell phone to school, how often do you use it during class or assembly?

- Never
- Sometimes
- Regularly

35. Have you ever used your cell phone to cheat in a test?

- Yes
- No



36. Which brand of cell phone do you own?

- Alcatell
- Nokia
- Ericson
- Sony Ericson
- Samsung
- LG
- Motorola
- Other _____

37. How satisfied are you with your cell phone?

- Unsatisfied
- Satisfied
- Extremely Satisfied

38. Compared to your friend's cell phones, would you say that your cell phone is...?

- Better than most
- Somewhat better
- About the same
- Somewhat worse
- Much worse
- Do not know or never used another

39. Which brand of cell phone do you prefer?

- Alcatell
- Nokia
- Ericson
- Sony Ericson
- Samsung
- LG
- Motorola
- No preference
- Other



40. Indicate the frequency of use of the following features on your cell phone.

		Frequently	Occasionally	Seldom	Never	Function not on phone
a	Games					
b	Surf the internet					
c	Chat rooms					
d	SMS's					
e	MMS					
f	Phone call					
g	Camera					
h	Voice recorder					
i	Video recorder					
j	Calendar					
k	Reminder					
l	Alarm					
m	Calculator					
n	Stopwatch					



41. On a scale of 1 to 5, when buying a new cell phone, how important are the following features:

		1. Not important	2	3	4	5. Very important
a	SMS facility					
b	MMS facility					
c	Polyphonic ring tone					
d	True tone ring tone					
e	Colour screen					
f	Screen size					
g	Games					
h	Camera					
i	MP3 player					
j	Wap enabled					
k	3G					
l	Bluetooth					
m	Appearance					
n	Brand name					
o	Phone size					

42. Please choose only one option per row.

		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
a	I love using my cell phone.					
b	Without a cell phone I feel disconnected from the world.					
c	I always carry my cell phone with me.					
d	The design of my cell phone is important to me.					
e	It is important for me how other people perceive my cell phone.					
f	I personalise my cell phone by changing its cover or wallpaper.					
g	When talking in chat rooms I will use my real name.					
h	When talking in chat rooms I will lie about my age.					
i	I do not mind my parents read my SMS's					



43. Regarding your cell phone, describe one recent experience that you consider memorable or important in some way. (It could have been a good or bad experience.)

44. What were your feelings and thoughts after this experience?

- It was exciting
- It made me feel good about myself
- My parents would approve of this activity
- My parents would not approve of this activity
- It was funny
- I had to deal with offensive content, e.g. racist, sexist
- It was very difficult or complicated
- It was risky
- I felt scared, threatened, or upset

45. Do you think that the use of a cell phone will aid you in completing schoolwork?

- Yes
- No

46. Would you like to be able to use your cell phone in the classroom as a tool to help you with your schoolwork?

- Yes
- No

47. Do you think that using a cell phone as a tool in the classroom will make any difference to the quality of your schoolwork?

- Yes
- No

Why:

48. Would you recommend the use of a cell phone in completing schoolwork in the classroom?

- Definitely will recommend
- Probably will recommend
- Not sure
- Probably will not recommend
- Definitely will not recommend



Addendum B: Participant and parent consent form for focus group participation

THE DIGITAL PROFILE OF A TEENAGE CELL PHONE USER

Dear Participant

You are invited to participate in a research project aimed at introducing a cell phone as a learning tool into the classroom. In order to do this it is necessary to know how the end-user, which will be you, interact with the cell phone.

Your participation in this research project is voluntary and confidential. You will not be asked to reveal any information that will allow your identity to be established, unless you are willing to be contacted for individual follow up interviews. Should you declare yourself willing to participate in a group discussion, confidentiality will be guaranteed and you may decide to withdraw at any stage should you wish not to continue with the discussion.

The results from this study will be used to compile a profile of a teenager's interaction with his/her cell phone. A profile like this will assist to incorporate the cell phone as a learning tool into the classroom.

If you are willing to participate in this study, please sign this letter as a declaration of your consent, i.e. that you participate in this project willingly and that you understand that you may withdraw from the research project at any time. Participation in this phase of the project does not obligate you to participate in follow up individual interviews, however, should you decide to participate in follow-up interviews your participation is still voluntary and you may withdraw at any time. Under no circumstances will the identity of interview participants be made known to any parties/organisations.

Participants name: _____

Date: _____

Participant's signature: _____

Date: _____

Parent's signature: _____

Date: _____

Researcher's signature: _____

Date: _____

Yours Sincerely

Christa Oelofse

083 259 4933



Addendum C: Focus group interviews

Male Focus group

- | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>1 = Seun links van Christa
2 = Seun met gestreepte T-hemp
3 = Seun met oranje T-hemp
4 = Seun met groen T-hemp
5 = Seun in die middel van die bank
6 = Seun op regterkant van bank
7 = Seun links van Christa</p> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Inleiding

Julle is vry om in Engels of Afrikaans te praat. Dit is gladnie verpligtend nie. As julle op enige stadium voel julle is ongemaklik of julle wil nie die vrae beantwoord wat ek vir julle vra nie dan kan julle opstaan en loop julle hoef nie te antwoord nie of julle kan net sit en luister. Reg so? Ok.

Dit gaan oor selfone en die selfoon gebruik in die klaskamer. Wat ek probeer met my navorsing doen is om 'n profiel van die kinders op te stel sodat ek dit kan gebruik om in die klaskamer te.... dat julle die selfoon as 'n hulpmiddel in die klas kan gebruik.

Goed. Is daar enige vrae sover oor dit? Wil julle meer weet daarvan? Basies wat julle moet doen is net om met my te gesels oor hoe gebruik julle julle selfone.

VRAAG 1:

Wat beteken jou selfoon vir jou?

Johan wat is jou selfoon vir jou? Kan jy jouself insien sonder jou selfoon?

ANTWOORD:

4 - Ja in party gevalle maar hy's vir my hooflik net daar om met my ouers te kan kommunikeer in noodgevalle of so iets.

VRAAG 2:

Met jou ouers?

ANTWOORD:

4 - Ja

VRAAG 3:

En in noodgevalle. En gebruik jy hom vir vriende? Wat sal julle sê? Rohan?

ANTWOORD:

1 - Ek gebruik hom vir vriende. Nie so baie nie. Meestal soos my ouers ook. Ek speel so ... ek luister musiek of gaan partykeer op die Internet of so met hom.

VRAAG 4:

Armand en jy?

ANTWOORD:

2 - Ja meer vriende as ouers seker maar. Ja en ek kan nie regtig op die Internet gaan of fotos neem nie so ...

VRAAG 4:

Goed. Kom ons dink aan selfone self. Wat is deesdae "in" by 'n selfoon en wat is "uit"; so as julle nou dink aan 'n selfoon wat nou onder julle vriende is waaroor praat julle oor selfone. Wat is "in"? Is die "games" speel op die selfoon "in" of wat is "in" met die selfone?

ANTWOORD:

5 - MP3 player .. Ja seker maar....(iets onduideliks)

VRAAG 5:

MP6 player?

ANTWOORD:

5 - ... nee musiek speler

VRAAG 6:

O die musiek speler?

ANTWOORD:

Groep - Ja

VRAAG 7:

En wat is "uit"?

ANTWOORD:

6 - Nie kleur foto's



VRAAG 8:
Wat is 'n "nie kleur foto"?

ANTWOORD:
Net twee kleure soos swart en wit (kan nie hoor kommentaar)

VRAAG 9:
En 'n kleurskerm wat nie kan fotos neem nie en wat nie 'n MP3 player is nie is dit nog geskik?

ANTWOORD:
2 - Nee, dis useless myne is useless

VRAAG 10:
Is dit useless?

ANTWOORD:
2 - Ja dit is rerig ...
6 - Mens kry ook deesdae fone vir om in te wees soos byvoorbeeld MP3 spelers en fotos te hê soos formulas (kon nie woord hoor nie) of clicks (dis nie baie duidelik) soos dit...
7 - en die worst is om swart fotos (nie baie duidelik nie)
3 - ja dis wat die meeste mense het op hulle fone so min of meer...

VRAAG 11:
Is dit belangrik hoe mens 'n mens jou foon, hoe jou vriende en jou foon is? Is dit vir julle belangrik in jou groep om te weet dat jy 'n "cool" foon het?

ANTWOORD:
Groep: Nee

VRAAG 12:
Nie?

ANTWOORD:
Groep: Nee

VRAAG 13:
En vriende julle ander vriende hoe spog hulle nie met hulle fone se MP3 Player en...

ANTWOORD:
Ja hulle wys net gewoonlik maar soos hulle mock my gewoonlik oor myne omdat ons sulke ou vrot fone het

VRAAG 14:
Dan spot hulle julle daarvoor?

ANTWOORD:
Ja- Nee, hulle sê net jy moet 'n nuwe foon kry
Ja hulle maak net 'n joke oor jou foon
Ja hulle ja...

VRAAG 15:
En hoe voel jy dan daarvoor?

ANTWOORD:
Dis fine...ek het nie geld nie

VRAAG 16:
Maar is jy tevrede met jou foon wat jy het?

ANTWOORD:
6 - Ja ek wens net sy knoppies werk beter.

VRAAG 17:
Maar jy sal graag as jy 'n ander foon kan kry?

ANTWOORD:
Ja, ek sal die nuwe chocolate (nie duidelik) of something....

VRAAG 18:
Nuwe Nokia Chocolate?

ANTWOORD:
Ja, dis cool
Ja, jy weet ons kyk vir nuwe fone

VRAAG 19:



Ok, dis dieselfde met tegnologie. Enige tegnologie. Wat is op die oomblik "in" en wat is op die oomblik "uit" by tegnologie? Soos CD spelers, Playstation 2 en enige tegnologie soos televisie kyk tussen julle vriende soos julle met mekaar praat; wat is "in" en wat is "uit"?

ANTWOORD:

4 – IPODs
PSPs
Is "in"

VRAAG 20:

Is dit in?
IPODs is "in"
PSPs is "in"?

ANTWOORD:

IPODs is "uit"

VRAAG 22:

Wat is nou "in"?

ANTWOORD:

1 - O well technology is going so fast that IPODs are just disappearing. The new things are coming out. New Samsung MP4 Players are out; IPODs and MP3 players....
Ja
Ja
IPODs are "out"

VRAAG 23:

But using between your friends what do they still see as "in" and what do they see as "out"?

ANTWOORD:

1 - IPOD

VRAAG 24:

Ok MP3 Players

ANTWOORD:

1 – Ja the MP3 Players are "in"...

VRAAG 25:

...and Playstations?

ANTWOORD:

1 – Playstation yes

VRAAG 26:

Still "in"?

ANTWOORD:

Ja Playstation 2
Computers
Ja computers seker maar
Pentium I is uit
Pentium III is al uit

VRAAG 27:

If you have a cell phone – okay what do want to change about your cell phone that you currently have?

ANTWOORD:

Alles
Ek wil 'n lighter insit....
Niks

VRAAG 28:

(Deurmekaar praat) ... Divan wat wil jy verander hê?

ANTWOORD:

3 - Ok Bluetooth, MP3, Color, en 'n kamera en 'n video recorder ...

VRAAG 29:

Hoekom is 'n video recorder vir jou belangrik?

ANTWOORD:

Kan nie jou vriende se ...afneem nie
3 - Ja, daar's net 'n oomblik wat jy moet kan afneem



(bietjie onduidelik uit groep)

VRAAG 30:

So video recorder speel 'n belangrike rol op die telefoon? Johan nie vir jou nie? Hoekom sal jy nie een wil hê nie?

ANTWOORD:

3 - Ag ek neem liewers foto's ... ek like nie om foto's te neem of so nie ...of videos of so nie...

1 - As jy video na 'n computer toe kan stuur is dit dalk beter want dan kan jy dit soos hou die heelyd in plaas van om dit te delete vir plek op jou foon, so...dan sal ek dit ook verkies het video...

VRAAG 31:

Hoe dink julle gaan 'n selfoon oor tien jaar lyk?

ANTWOORD:

Klein

Jis (kan nie hoor lag...)

1 – Actually they will be bigger instead; they started big and then they went small and now they started to become bigger

No they going smaller again....

VRAAG 32:

Why do you think they are growing bigger?

ANTWOORD:

1 - They are trying to put more stuff in

No...hoe groter die screen hoe beter...

VRAAG 33:

Hoekom wil hulle 'n groter skerm maak?

ANTWOORD:

2 - Hulle wil hê jy moet 'n DVD op die ding kan kyk

4 – Ja jy wil nie 'n movie kyk op so 'n groot skerm nie (wys grootte)...

VRAAG 34:

Sal julle graag wil moviers op julle selfone kyk?

ANTWOORD:

Nee of TV jy sal dit seker op 'n groter skerm kan kyk

VRAAG 35:

Wat sal julle graag eendag wil hê op 'n selfoon? Dis nou nog nie beskikbaar nie maar wat dink julle kan vir julle werk op 'n selfoon? Daar is nou reeds radios en en musiek speel en 'n TV kyk. Wat sal graag op 'n selfoon wil sien? So as jy nou 'n inventor is en jy gaan invent nou iets op 'n selfoon wat sal dit wees?

ANTWOORD:

Transformation

VRAAG 36:

Transformation?

ANTWOORD:

Die deelnemers praat hier baie onduidelik. Dit klink of hulle sê transformation

VRAAG 37:

Be another person?

Ok Changing the phone? Dis baie interessant; so jy sal graag die selfoon wil verander dat dit is soos jou smaak is

ANTWOORD:

Ja a hologram sort of

VRAAG 38:

Ok, 3D?

ANTWOORD:

Ja

VRAAG 39:

En wat nog? Rohan wat wil jy op jou selfoon sien?

ANTWOORD:

Ek weet nie

VRAAG 40:

Johan? Is jy tevrede met die klein selfoontjie wat jy het?



ANTWOORD:

3 - Nee ek het nou vir my 'n ander foon gekry (kan nie mooi hoor)

VRAAG 41:

Goed. Wat beteken kommunikasie vir julle? Ons het al bietjie daaraan geraak Johan toe jy gese het dit is vir julle ouers net in noodgevalle. Maar wat beteken jou selfoon vir jou met vriende? Hoekom is jou selfoon vir jou nog belangrik behalwe dat jy jou ouers in die hande moet kan kry?

ANTWOORD:

7 - Sodat jy nie na jou vriende hoef te ry of te loop nie sodat jy net gou vir hulle iets kan SMS

VRAAG 42:

Maar hoekom wil jy net gou vir hulle iets sê wat so belangrik aan dit?

ANTWOORD:

7 - Sê nou jy beplan ons gaan uit vanaand dan hoef jy na hulle te ry

VRAAG 43:

ANTWOORD:

Of om vir hulle te sê waarnatoe ons gaan

VRAAG 44:

So jy wil die heeltyd in kontak met hulle wees?

ANTWOORD:

Ja

VRAAG 45:

Julle is nou net 'n klomp seuns hier en ek dink dit gaan anders wees met die dogters maar hoe voel julle oor kommunikasie met julle vriende met die selfoon? Praat julle baie oor persoonlike dinge of is dit maar net ontmoet my daar ontmoet my hier of sien jou more of...?

ANTWOORD:

Ja ...ontmoet my hier ontmoet my daar

Ek dink nie jy gaan

VRAAG 46:

So julle gebruik dit nie eintlik vir ek voel nou sleg of my ma het nou op my geskel?

ANTWOORD:

Nee dis meer vir meisies

Dis die meisies

VRAAG 47:

Of jy het nou 'n oulike aster ontmoet die naweek?

ANTWOORD:

Nee...dalk ek het 'n nuwe musiek of ...

Ja ek sal bel en sê ek het 'n nuwe CD gekoop die naweek maar ons sal later daarvoor praat...ek sal net ligweg sê ek het 'n nuwe CD vandag gesien

Ek het nou die naam vergeet maar dis pretty cool...

Gaan na die Gospel shop en vra vir...

VRAAG 48:

Dink julle julle selfone help julle om vriendskappe te behou, of vriendskappe op te bou, om nuwe meer vriendskappe te maak of ...sê maar jy het nie 'n selfoon gehad nie wat sou gebeur het met jou en jou vriendekring?

ANTWOORD:

Ja

Sal dan by die huis gebly het

Is nou nie soos jou goeie vriende nie maar so sê nou maar jy het nie 'n nommer nie en dan kan jou vriende jou nie kontak nie en dan sal hulle jou net los en sal jy nie saam kuier nie

VRAAG 49:

Dan gaan jy uit loose op 'n social aand saam met jou vriende?

ANTWOORD:

Ja

5 - Of as jy iemand nou net ontmoet dan vra jy sy nommer om later weer te kuier

Ja dit werk so

VRAAG 50:

So julle dink dit laat julle nuwe vriendskappe bou met die selfoon?



ANTWOORD:
Groep: Ja

VRAAG 51:
Wat is vir julle die maklikste vir julle om met die selfone te kommunikeer: SMS of bel julle liewers?

ANTWOORD:
SMS
Ek bel eerder
SMS is cheap
Ja

VRAAG 52:
Goedkoper?

ANTWOORD:
Ja, maklikste is bel maar die goedkoopste is SMS

VRAAG:
En as jy regtig iets belangriks wil sê sal jy SMS omdat dit goedkoper is?

ANTWOORD:
Hang af wat jy wil sê - hang af hoeveel geld op jou foon is

VRAAG:
Goed julle weet dat die selfone deesdae op Internet kan gaan en dat daar sekere ongure webbladsy daar buite is.

ANTWOORD:
Iets met P...(Kan nie tussenwerpsel hoor Luister asb self)

VRAAG:
Ons sal nou nie verder daarvoor gesels nie. Hoe voel julle daarvoor? Dink julle daar moet sekuriteit ontwikkel word op selfone? Wil julle graag beskerm word teen sulke webbladsye wat nie goed is vir die jeug nie? Dink julle julle is groot genoeg om dit self te kan hanteer?

ANTWOORD:
Moenie daarop gaan nie
Ek dink dis hoekom hulle security daarop sit as jy daarop wil gaan is dit sy probleem

VRAAG:
Dink julle julle is groot genoeg om self te besluit om daarop te gaan?

ANTWOORD:
Groep: Ja

VRAAG:
Julle het nie beskerming daarteen nodig nie?

ANTWOORD:
Groep: Nee

VRAAG:
Goed wat se goed is selfonewat is risky...wat kan jou in die moeilikheid laat beland met 'n selfoon?

ANTWOORD:
Sê nou my ma bel my as ek iewers is as ek by die huis moet wees en ek antwoord nie

VRAAG:
As jy nie die telefoon antwoord nie kry jy moeilikheid by jou ouers

ANTWOORD:
Ja by my ouers
As jy in eksamentyd in die saal sit en jou foon is op loud en jy daar in die saal sit en begin skryf en hier gaan jou foon af

VRAAG:
Wat nog?

ANTWOORD:
As jy lelike SMS se stuur en jou vriende lees dit of soos skinder
Vloekies as hulle dit daarop kry
Ja dis bad

VRAAG:
Hoe voel julle oor julle privacy op die selfoon? Hoe voel julle daarvoor?



ANTWOORD:
Privaatheid?

VRAAG:
Jou privaatheid. Is dit goed as jou vriende daarna kyk en nie jou ouers nie?

ANTWOORD:
Glad nie jou ouers nie definitief nie

VRAAG:
En julle vriende?

ANTWOORD:
Hulle kan maar ja

VRAAG:
Hoe sal julle voel as onderwysers vir julle SMS se stuur?

ANTWOORD:
Hulle doen ... ek weet juffrou Smit het haar ekstra klasse...
Mnr Smit ook...

VRAAG:
So sy't informasie gestuur om klasse by te woon

ANTWOORD:
Ja sy't ...(kan nie verder hoor)

VRAAG:
Sal julle daarvan hou as julle die selfone in die klaskamer kan gebruik? Nie om met jou maatjie te klets en SMS te stuur nie maar as 'n hulpmiddel

ANTWOORD:
Ja die Internet
Groep: Ja

VRAAG:
Sê noe ek ontwerp 'n lesplan waar julle die selfone in die klaskamer kan gebruik om op die Internet te gaan en informasie af te trek sal julle dit kan gebruik in die klas?

ANTWOORD:
Ja

VRAAG:
Dink julle dit sal julle skoolpunte verbeter?

ANTWOORD:
Dit sal dalk die take laat vinniger gedoen word want jy kan dit in skooltyd of as jy 'n afperiode het in daai tyd of ander moet jy in die admin klas sit en
Dit gaan makliker wees ja
As jy by die huis is is jy te lui om al die inligting af te skryf of dalk kan jy soos in die klas sommer van jou selfoon af skryf as jy langs die rekenaar sit dan kan jy kyk en dan skryf en dan weer kyk en dan skryf ja
Selfoon Internet is ook goedkoper as rekenaar Internet ja

VRAAG:
So julle sal almal daarvan hou om dit in 'n klaskamer te kan gebruik?

ANTWOORD:
Groep: Ja

VRAAG:
En julle dink dat dit julle skoolpunte sal laat verbeter omdat julle dit in die klas kan gebruik?

ANTWOORD:
Groep: Ja
Because it's the new world everyone cheats you know take your cell phone into your exams it won't work...eventually they'll found out that you're doing it then they will cut it off again.

VRAAG:
So you say that some people will use the cell phone to cheat?

ANTWOORD:
Groep: Ja
They doing it now...even on their cell phones, even they're not allowed to use their cell phones in the class
Ja hulle gaan met mekaar praat..



VRAAG:

How do they cheat? What do they do?

ANTWOORD:

They write their answers down on the SMS and they saved it and while the exams are on the (hy wys hoe hulle onder die arm daarna kyk)

They take pictures with the phone ...ja they exhibit...

VRAAG:

But in the class itself if there are no exams they can play it? Why do you say it won't work there?

ANTWOORD:

Ok it might work there but eventually it has to come down because it ... it's runs like in a line: a beginning and an end; like in the beginning is how you learn your stuff and in the end is the exams. Now it will work in the beginning but when you write exams it won't work because people will be cheating they will find out about it and they will just ... it won't work...they will stop it all and then start from the beginning again and there's not going to be any cell phone ...it's just not going to work like that...

VRAAG:

Hoe voel julle daaroor?

ANTWOORD:

Ek dink as hulle eers begin in toetse begin cheat en stuff en hulle sal dit uitfigure dan sal hulle dit stop soos in...

Hulle moet 'n metal detector inbring

Almal hulle fone afsit en op die tafel sit

Nee daar is nie 'n manier nie

Ja laat almal hulle fone inhandig

Ja dis soos as ons toets skryf is daar 20 mense in die saal

VRAAG:

Wat dink julle watter funksies op die selfoon ...what functions on the cell phone could help you to do your homework? Internet?

ANTWOORD:

Calculator

Sekere fone kan jy seker ook 'n spell check of iets doen

Soos vir Engels of iets ... kyk of jy reg spel

VRAAG:

Wat nog?

ANTWOORD:

Dictionary – if you don't spell the word right then....

VRAAG:

Phone a friend?

ANTWOORD:

Jy kan soos in prentjies na jou rekenaar toe vat en Jy kan soos print van jou foon af...

VRAAG:

Hoe kan jy Bluetooth gebruik?

ANTWOORD:

Soos in 'n Biologie opdrag kan jy vir hom 'n skets stuur of so as hy soos afwesig was dan kan hy dit na sy rekenaar toe stuur of sy laptop met Bluetooth en dan print...

VRAAG:

So dit kan dalk help vir kinders wat afwesig was dan kan jy die werk vir hulle stuur? Hoe gaan julle daarvan hou as onderwysers ...ons het nou nou bietjie gepraat daarvan vir julle SMS se stuur om julle te herinner aan ekstra klasse of om julle te laat weet watse huiswerk wat julle het ...om julle te herinner aan skoolwerk?

ANTWOORD:

Ja, as hulle nie persoonlik raak soos in geval kuier of iets gaan ek nie omgee maar as hulle huiswerk of opdragte stuur sal ek nie omgee nie

VRAAG:

Sal dit reg wees? Julle sal nie omgee nie?

ANTWOORD:

Ek sal geirriteerd raak

VRAAG:

Hoekom?

ANTWOORD:



Soos as hulle vir jou Natskei stuur twee drie bladsye van dit dan is nie lus om dit te doen nie en dan is jy nou siek en kry die SMS van jy moet huiswerk doen
Maar jy hoef dit nie neer te skryf nie
Sy kan net die healtyd onthou maar jy hoef dit nie neer te skryf nie
Dis net soveel beter as jy siek is solank as wat jy siek is hoef jy nie huiswerk te doen nie en as terug is by die skool dan gee hulle vir jou die huiswerk sodat jy dit nie hoef te doen terwyl jy siek is nie

VRAAG:

Goed en sal julle met julle onderwysers terug kommunikeer? Of sal jy sê ek kan dit nie nou doen nie want ek voel siek?

ANTWOORD:

Groep: Nee ek sal dit by die skool sê
Dan gaan ons met 'n private conversation weer begin

VRAAG:

En sal jy nie daarvan hou as sy...

ANTWOORD:

Groep: Nee

VRAAG:

Hoekom nie?

ANTWOORD:

Met juffrou Ventel sal ek wil...
Dis 'n dooie juffroue met 'n wat doen jy vanaand dit sal nie lekker wees nie...(moeilik om strekking te volg kinders praat oor onderwysers deurmekaar)

VRAAG:

Watse probleme behalwe dat julle gaan cheat, kan daar wees as julle in die klaskamer die selfoon mag gebruik?

ANTWOORD:

Battery wat gaan pap word
Steel
Games stuff jy gaan net healtyd wil speel ... wel dis wat ek doen
Tussen vriende kommunikeer en nie luister in die klas nie

VRAAG:

Sal dit nie net in die begin so wees as dit net nuut is nie? Later as julle agter kom maar julle mag dit nou gebruik ... wie gebruik hom op die oomblik in die klaskamer terwyl julle dit nie mag doen nie?

ANTWOORD:

Almal steek hande op

VRAAG:

Julle gebruik hom in elk geval in die klas om met julle maats te kommunikeer? Wat sal nou gebeur as julle hom nou mag gebruik in die klas?

ANTWOORD:

Dan sal ons seker nog steeds aangaan soos normaal ons sal nog steeds dan vir hulle SMS
Ek dink ons sal meer aanjaag omdat ons fone is uit en mag uit wees en dan net sal SMS stuur en games speel en nie 'n hel omgee nie

VRAAG:

Goed en as jy 'n opdrag moet klaar maak voor die einde van die dag anders is dit huiswerk?

ANTWOORD:

Dan's dit huiswerk ?

VRAAG:

So dit gaan nog steeds van die kind afhang of hy die selfoon as 'n tool wil gebruik?

ANTWOORD:

Groep: Ja

VRAAG:

Of wil speel daarmee?

ANTWOORD:

Groep: Ja

VRAAG:

Goed. Hoe kan ek dit verander? Hoe sien julle dit as jy nou 'n kind is wat pligsgetrou is en jy wil graag die selfoon in die klaskamer gebruik as 'n tool om jou te help met jou skoolwerk?



ANTWOORD:

Jy kan dan een van daardie ...(?) fone gebruik en dan al jou werk oplaai en alles en dan hoef jy nie 'n skooltas rond te vat of 'n pen of so nie
Dis cool
Ja
Dan moet mens net sulke printers aanhak
Ja jy dra sulke klein printertjies

VRAAG:

Julle het nog nie die vraag beantwoord nie. Hoe gaan julle dit gebruik in die klas? Sal julle julle skoolwerk daarmee wil klaarmaak of gaan julle vir julle vriende wil SMS?

ANTWOORD:

Hang af as dit baie werk is en dis moeilik of so sal ek dit liewers in die klas wil doen
As jy so van gaan druipe
Maar as dit is soos tien vrae of iets dan skryf ons dit af
Ja en dan kan jy dit sommer vir iemand SMS
Ja nou hoef jy dit nie eers meer af te skryf nie
Ja

VRAAG:

Nou wat ek eintlik wil vra is sal die selfoon julle nie motiveer om dit in die klas te wil doen nie? Sal julle nie meer gemotiveerd voel om met die tegnologie in die klas te werk as om net daar te moet sit en luister na die juffrou nie?

ANTWOORD:

Dit sal dit interessanter maak maar dan moet die ouers seker geld hê om sulke tipe selfone te koop
Wat kos hulle en van die ouers het nie sulke geld nie en dan kom jy nog steeds met jou cool black and white selfoon sonder wap sonder kamera

VRAAG:

En as die skool vir julle sulke selfone gee om in die klaskamers te gebruik? Nie om huis toe te vat nie?

ANTWOORD:

Dit sal nice wees
Dit sal cool wees
Dit sal lekker wees

VRAAG:

Julle het nog nie my vraag beantwoord. Sal dit julle motiveer om...meer gemotiveerd wees om daardie werk dan af te handel as julle 'n selfoon gebruik of sal julle dieselfde voel?

ANTWOORD:

Ja
As daai jou skoolwerk is as jy die selfoon het dan sal jy dit graag daar wil doen en klaar maak of so want dan het jy die middag af of so
Ja en dit kan soos fun ja dit kan lekkerder en dan jy soos ander goed sien ook soos die antwoord se antwoord ook weet en jy leer meer dan ook want as jy net 'n antwoord soek uit 'n stuk uit dan kry jy net soos een deel en dan is daar meer sites

VRAAG:

So jy gaan meer inligting verkry en dit gaan jou kennis verbreed?

ANTWOORD:

Groep: Ja

VRAAG:

Goed. Wat sal julle met tegnologie in 'n klaskamer verander wil sien vandag? Kyk op hierdie stadium is daar banke en penne en boeke en nou en dan gaan julle na die rekenaar sentrum toe. Tegnologies gewys wat sou julle graag in die klaskamer verander wil sien?

ANTWOORD:

Laptops
Alles laptops
Rekenaars
As 'n laptop jou tas was ... al jou boeke is jou laptop
Ja

VRAAG:

En dink julle nie selfone gaan daardie rigting gaan dat dit soos 'n klein rekenaartjie in jou hand gaan wees nie? Dat jy nie 'n laptop hoef te wees nie?

ANTWOORD:

Dis soos 'n Palmpilot mens kan dit ook..
Dis oor 'n paar jaar maar nie nou al nie

VRAAG:



Sal julle daarvan hou om eerder so 'n lappie in julle ... as 'n skooltas ...?

ANTWOORD:

Ja dis 'n groot lomp tas so swaar

Kan nie jou boeke by die huis vergeet

En dan skryf jy daarop en dan trap die juffrouens jou daaroor en dan het jy nie 'n verskoning en jy kan nie sê my boek is by die huis nie

VRAAG:

Dink julle daar is nog plek...Dink julle as julle almal so 'n laptop het met al julle goed gaan daar nog plek wees vir penne en papier en skryf en tradisionele klaskamers?

ANTWOORD:

Groep: Nee

VRAAG:

Gaan dit nie meer nodig wees nie?

ANTWOORD:

Groep: Nee

VRAAG:

Gaan kinders dan nie afleer om te skryf nie, gaan hulle net tik?

ANTWOORD:

Nee, maar dis nog so 'n paar generasies agter ons so....dit pla ons nie

VRAAG:

Hoeveel jaar het julle nog oor op skool?

ANTWOORD:

Drie

Vier

VRAAG:

Nou wat sal julle nou in daardie vier jaar wil sien gebeur in julle klaskamers? Onthou nou ons praat oor tegnologie en om jou in die klaskamer te help

ANTWOORD:

Dat elke klas by rekenaars is soos met Internet en alles

Ja ons kan nog steeds skryf soos toetse en

Skryf maar soos wat jy is op alles Internet dan kan jy op elke meer en meer antwoorde gee en kennis kry

VRAAG:

Baie dankie julle. Is daar nog iets wat julle wil vra oor dit?

ANTWOORD:

Wat van aircons en heaters in die klas

Sommer in die foon

VRAAG:

Ja dis tegnologie. Ja wat sien julle as tegnologie? Wat is tegnologie vir julle?

ANTWOORD:

Alles wat elektronies is

Dit maak die lewe makliker

Niemand verstaan dit nie dis net vraagtekens



DOGTERS

Eerstens wil ek net sê baie dankie dat julle gekom het en dit is absoluut voluntary hierdie. If you don't want to answer any questions you don't have to. As julle enige op enige manier vind dat dit ongemaklik is dan kan julle opstaan en loop. Dis absoluut vrywillig. As julle nie hier wil wees nie hoef julle nie hier te wees nie. Waaroor die hele studie gaan ek probeer om selfone in die klaskamers as 'n hulpmiddel in te bring sodat onderwysers dit as 'n hulpmiddel kan gebruik en julle dit kan gebruik in die klaskamers. Dis waaroor my studie gaan, so sodar ek my studie afgehandel het behoort ons dit reg te kry en sal ek na die Departement toe gaan en vir hulle mooi vra of ons dit nie kan gebruik in die klaskamer nie. Dis die doelwit daarmee. En hoekom ons hier vanaand is ek wil net 'n paar vrae vra om te hoor hoe gebruik julle julle selfone want dit hang ook af hoe julle julle selfone gebruik hoe ons dit in die klaskamer kan gebruik. Dit help nie ons sê julle moet leer deur speletjies te speel en julle hou nie van speletjies speel met die selfone nie. So praat maar onder mekaar ook moet nie net my vrae antwoord nie. Gesels maar hoe julle 'n selfoon gebruik en wat 'n selfoon vir julle beteken. Ok.

- 1 = Dogter links van Christa
- 2 = Dogter tweede van links op bank
- 3 = Dogter op drie sitplek bank
- 4 = Dogter middelste sitplek
- 5 = Dogter heel links op bank

VRAAG:

Eerste vraag is wat is "in" en wat is "uit" met selfone? What's "in" and what's "out"? What's "in" for you to have a cell phone, play on a cell phone, do with the cell phone

ANTWOORD:

3 - Take photos

VRAAG:

Taking photos

ANTWOORD:

3 - And Videos and being able to send them

4 - And Internet

VRAAG:

Is that all "in"?

ANTWOORD:

3 - I don't really use the Internet

4 - Ja but most ... (kan nie hoor...)

3 - That type of thing

2 - What about GPRS

VRAAG:

GPRS?

ANTWOORD:

3 - Ja there are not actually that many people playing games on the cell phone anymore because there's a computer and there's playstation and it is so much nicer to play

VRAAG:

Ok, so games playing is out?

ANTWOORD:

Ja I don't think

Groep: Ja

VRAAG:

Ja , Playstations, en enige ander tegnologie ... any other technology what's "in" and what's "out"?

ANTWOORD:

PSP

PSP is "in"

VRAAG:

PSP is "in"?

ANTWOORD:

Groep: Ja

Computer obviously is still "in" it will never really go out it will just become bigger and bigger

VRAAG:

What

ANTWOORD:



3 - Computer will only get bigger and better and faster I don't think that it will really go out

VRAAG:
What is "out"?

ANTWOORD:
Game boys
TV games
No...Ja
TV games because there's a playstation...
2 - What else?
3 - That's not much more that kids did except than watch TV and play games

VRAAG:
What do you see as technology? What is technology?

ANTWOORD:
3 - Things that makes our lives easier and more entertaining ... but some way or another someone is too smart to make it (dis onduidelik) so it is something that can like further someone's knowledge
2 - lets wat baie vinnig groei want dit groei want dit groei baie vinnig want dan's daar computer dan's daar playstation dan's daar IPODs (iets "key" onduidelik)... dan's daar PSP nou's daar MP3 (onduidelik) net meer en meer musiek op een ding sit en net meer en meer games

VRAAG:
So tegnologie is iets wat groei baie vinnig ook?

ANTWOORD:
Groep: Ja

VRAAG:
As julle iets aan julle selfone kan verander ... sê nou maar julle het die beste selfone op die mark wat sal julle graag wou verander op 'n selfoon?

ANTWOORD:
3 - User friendliness because like I got a new phone recently and it was just not lekker to read the manual to be able to do something on it. I mean it's a lot simpler the buttons are easier because these things that (verwys na die keypad) are not easier because people are not going to use it and you have to get a keypad that is big enough and easy enough to use

VRAAG:
Nog iets?

ANTWOORD:
2 - Ek weet nie miskien die quality van die pictures maar daar is vir my goeie quality
4 - Nokia se skerms groter maak en die quality is slegter maar hulle skerms kleiner maak maar hulle quality is groter so die skerm kan miskien bietjie groter en die dieselfde kwaliteit
4 - Groter skerm

VRAAG:
Groter skerm. Ok. Die kleure van die selfoon?

ANTWOORD:
Groep: Nee
3 - Everybody likes black or silver it's just the basic ones ... no one's going to sulk if it's going to clash with your outfit. No black is still (hoes)

VRAAG:
If you have a choice will you like to personalize yoru cell phone?

ANTWOORD:
Groep: Ja
3 - Definitely

VRAAG:
So dis iets wat julle sal wil verander deur eie kleur op te sit of 'n eie foto voorop?

ANTWOORD:
Groep: instemmend

VRAAG:
Hoekom wil julle 'n selfoon personalize? Hoekom wil julle dit julle eie maak?

ANTWOORD:
4 - Sodat dit soos my eie voel dan's dit nie dieselfde as die ander nie

VRAAG:



Goed. Hoe was die lewe sonder 'n selfoon gewees dink julle? Goed julle weet dit nou nie maar dink julle bietjie in hoe ...

ANTWOORD:

4 – mens kon sonder dit klaarkom mense kon nog steeds focus en aangaan...

3 – No I remember a day when cell phones just came out and we want to phone some place and my mom said I wish I could just have a phone and .. ja it makes a very big difference but you know what I think is wrong ... kids that are so young shouldn't ... they must still play outside...you know they will sit inside or test ...you know five year olds walk around with better phones than what I have they or my mother has...and I don't think.. maybe it's good for their minds to be stimulated in a technological way but I don't think that ... it should only come in at a later age ... and become dependent on something like that

VRAAG:

How can a cell phone make you dependent?

ANTWOORD:

2 – You're so used to...

3 - You are...

2 – You're so used to it when you need to phone

3 – You know when you want to make arrangements and stuff then you can decide ... you know your mamma will say where must I pick you up and you'll say ag I'll phone you .. ok you'll pick me up at ten

VRAAG:

Hoe sien julle selfone tussen vriende. Is 'n selfoon nodig vir julle om connected te wees met julle vriende?

ANTWOORD:

Groep: Ja baie

VRAAG:

Nou wat sal gebeur met julle vriendskap as julle nie 'n selfoon gehad het nie? Hoe sou dit ander gewees het sonder 'n selfoon?

ANTWOORD:

Ons sou disconnected wees...

VRAAG:

Hoe is dit om disconnected te wees? Wat is dit?

ANTWOORD:

4 – Dis soos om nie met mekaar te gesels en SMS te stuur en sulke goeters kon gedoen het want dan kan jy net by die huis gebly het en dan....ja

VRAAG:

Dink julle dit sal julle vriendskappe benadeel as julle nie selfone het nie?

ANTWOORD:

3- Ek dink so ... if you think about it ... the smallest ... especially with girls ... it's the smallest silliest thing happened ... phone your first friend and you say this and this and this happened and then a I am so sorry you know and I am so happy for you so it kind of bring you closer to them ... the little things ... the little details that happened in your life...

VRAAG:

So do you say you do not use your cell phone not only to make arrangements but also to chat and tell friends about something that happened?

ANTWOORD:

Groep: Ja

2 – Or when you are bored and there is a lot of things you can do with your cell phone when you are bored ... like you can play games or with my phone I can do a 3D thing I can take an (?) I can phone and SMS but with other phones you can take pictures en jy kan ... ja en jy kan net rond speel jou messages in orde kry ... daar's 'n klomp filters wat jy kan doen ... ja

VRAAG:

Filters?

ANTWOORD:

2 - Folders

VRAAG:

O folders?

ANTWOORD:

2 - So jy kan soos jou eie private messages in 'n folder sit of jy kan jou ...

VRAAG:

Hoe dink julle gaan 'n selfoon oor tien jaar lyk?

ANTWOORD:



4 – Klein

3 – It going either be like “Hallo I can't hear you” .. cause it's either going to be really really small or it's going to be big ... either one of the two because someday they become smaller and then they start becoming bigger again

4 – My dad's business phone

3 - ... ja I saw a phone the other day and it was like that big and it's ridiculous it doesn't feel like you have a phone ... I think it's going to become bigger...

VRAAG:

And functions on the phone that will change? Not just the size, something that will come into a phone or out?

ANTWOORD:

3 – I don't think there is much more that can come in because technology now is most of it that you can get on a phone my phone as well I can just say ... I can even put a voice tags on mails ... I can put it on and say “Ben” and it will say “Did you say Ben?” It frightens...

2 – There's TV on your phone already

3- I don't think is so much more that technology has to offer in general to put unto a phone still because it is already all there

VRAAG:

What is communication? What does communication mean to you? Not just on a cell phone but in general? What is communication what does it do to you? Do you like communication what does it do to you personally to be able to communicate with someone?

ANTWOORD:

1 – It is to get to know people just know who they are and ja ...

VRAAG:

Dink jy jy leer mense ken deur te kommunikeer met jou selfoon? Het julle vriendskappe uitgebrei vandat julle selfone het?

ANTWOORD:

Groep: Ja

2 – Want jy kan soos miskien as jy het nou net iemand ontmoet dan kan jy ... ok jy ken hom nou nie so goed nie dan kan jy die nommer kry en dan kan van daar kan julle beter vriendinne raak of vriende of whatever

VRAAG:

Waar voorheen jy nie 'n nommer kon kry dan sou jy nooit gebel het nie

ANTWOORD:

4 – waar voorheen het jy sê nou maar secret stuff dan is julle in sulke packs en dan kan jy nie vir iemand iets persoonlik sê nie dan stuur jy 'n SMS en dan weet net julle daarvan

3 - a I think that was an effectiveness because a lot of time communication doesn't come out the way you want it to be especially if you communicate with someone face-to-face or even over a phone ... sometimes you say things but mean it in a different way ... as if you write an SMS for example you can think about what it is that you want to say so your message will come through a lot more clear if you think about it because it wouldn't have two meanings or it wouldn't be confusing

2 – Sometimes you can read

3 – No but then the person didn't think about what they are writing because if you look at you SMS and you say I didn't know what this person was saying but I understand this ... it's just effectiveness as well

VRAAG:

Ok this was the bright side. The dull side now. What can happen that is not so good that can spoil your friendships?

ANTWOORD:

3- You can send the wrong message to the wrong person ... you can type mistakes ... you can make ... there's a lot of silly things that sometimes ... silly things when you don't think ... you're busy sending an SMS and you don't think ... and you're thinking about how nasty your mother was last night and silly you are writing you have got a nasty mother...it happens to me a few times...I was thinking about my dog and here I was writing about my dog...instead of what I want to write about ... silly things

VRAAG:

Het dit al met julle gebeur ... julle gebruik mos SMS taal en dit is mos baie korter... dat iemand dit verkeerd verstaan as dit wat jy geskryf het? Dat hulle nie verstaan wat jy gesê het nie?

ANTWOORD:

Groep: Ja

VRAAG:

Het dit negatiewe of positiewe gevolge gehad?

ANTWOORD:

2 – Partykeer is dit net soos ... soos wat probeer ... dit is nie soos ok dis nou 'n slegte of 'n lelike ding of 'n goeie dis net ding hulle weet nie wat jy probeer om vir hulle te sê nie en hulle weet nie miskien net wat een woord sê nie

4 Ja die woorde is meestal 'n woord anders

VRAAG:

Dan vra hulle dan moet jy weer sê?



ANTWOORD:

4 – Ja soos dan stuur jy 'n SMS en dan waar kry ek jou ... die mall watse mall ... die mall ...ok daar is drie of so ietsie dan moet jy heelyd vra watse mall watse mall...en dan verstaan hulle nie

VRAAG:

Dan wat verkies julle om te SMS of te bel?

ANTWOORD:

3 - Bel ek bel

3- Its quicker and it's actually cheaper. Because you know you send an SMS and you send a person and they send back and you send a person and they send back and you send a person ... where you could phone then and you could say listen listen listen and they could say yes no whatever over the phone ... it easier

VRAAG:

How ... because all the teenagers I ask on the lists say they prefer SMS because it's cheaper?

ANTWOORD:

3 – It's not cheaper it's easier....

VRAAG:

So why do you think most teenagers send SMSs and they don't call?

ANTWOORD:

3 - You know it is because you get SMS contracts and SMS bundles which works out cheaper but I mean for everytime you send it is more expensive and well they think about ok it's only 68c ... they don't see the whole picture

2 – Ja hulle dink nie ek gaan nou drie SMSs stuur wat my soveel gaan kos maar as ek bel gaan dit my minder kos ... hulle dink net aan 'n SMS is goedkoper as om te bel want as jy een SMS moet stuur dan gaan dit goedkoper wees as om te bel maar...

VRAAG:

Dit gebeur nie so nie?

ANTWOORD:

2 – Ja gewoonlik is dit nie net 'n SMS

VRAAG:

Watse risk ... risk ...risk factor ...wat is risk in Afrikaans ... ervaar julle ... watse risikos is daar vir julle om selfone te gebruik? Wat kan negatiewe gevolge hê wat ...?

ANTWOORD:

3 – Well silly little things you get stalkers you get ... as jy nou met hierdie nuwe Bluetooth goed kan mense al jou goed van jou selfoon afhaal

4 – en virusses ...ja hierdie Internet

2 – Ja as jy nou Internet op jou foon het en jy gaan op die Internet baie dan as jy kan jy virusses op jou e-mail kry

VRAAG:

En gesondheid?

ANTWOORD:

3 – Radiation it's very bad for you. My mother read a story on the Internet that says put your cell phone to your one arm and then lift it up there is a slight strength in you muscle or whatever as your arm cannot lift up as high with the weight on it when you got your cell phone closer to you something ridiculous ... there's a lot of people and they don't realise it that are on there phones all day and it is so bad for you and also girls who put there cell phones in their pockets they don't realise what they are actually owing to themselves it really really bad for you

4 – The pamphlet in the cell phone packages also say you mustn't keep your cell phone in your body all the time because it is dangerous

VRAAG:

So what do you think other teenagers think about it?

ANTWOORD:

3 - They don't think about it ... they really don't

VRAAG:

It's like smoking? You know it's bad for you but you still do it?

ANTWOORD:

3 - Knik bevestigend