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THE USE OF MOBILE PHONES AS EDUCATIONAL DEVICES:
A CASE STUDY OF GRADES 6 AND 7 LEARNERS AT A
GAUTENG PRIMARY SCHOOL

by

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MA DISSERTATION

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DEDICATION:

To mami Regina Bimbong and her two children, Jacob and Celine

whose memories live on
ABSTRACT

The aim of this study is to find out how mobile phones have been used by Grades 6 and 7 learners to expand their educational experiences. It investigates how they have studied various subjects, and aims to portray the mobile phone as an effective learning tool in South Africa. The use of mobile phones in learning and teaching environments has come with many benefits as well as challenges. What is promising is that, due to increased development and marketing of mobile phone learning programmes, it is easier for more and more schools to welcome mobile phones as learning and teaching devices. The subject of this research is a government primary school in Atteridgeville, Tshwane, in the Gauteng Province of South Africa. This research aims to find out the benefits of using mobile phones as devices that could facilitate learning and to a lesser extent, teaching. A qualitative research method exposes the perceived and actual uses and implementation of mobile phones as both learning and teaching devices at this primary school. To determine how the mobile phone found its way in the learning and teaching environment, how it has survived there and its possible future, this study draws from the theory of the social construction of technology (mobile phones). This study demonstrates that through other ventures like the M-Ubuntu project, schools and learning institutions could effectively use the various opportunities offered by mobile phones as objects for learning.
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CHAPTER 1

INTRODUCTION AND BACKGROUND

1.1 INTRODUCTION

Mobile phones have penetrated every sphere of life, be it private or public. This is evident in the fact that they are found in people’s hands, bags, pockets, desks, and even on bedside tables. Their ability to be accessed everywhere, any time and for any reason has prompted information to be ubiquitous and has increased users’ quests for information and knowledge. Their connectivity has also provoked people, including children, from all walks of life to depend on mobile phones in such a way that they feel as though they cannot do without them for many activities. The subject of this study is one of these activities. The aim of this research is to explore mobile phones as devices for learning and teaching in the primary educational setting. In order for this research to be comprehensive, a background as to why this study is vital in the first place is important.

As the desire to own both the device and its content increases, the number of mobile phones around the globe continues to increase. In February 2013, the Geneva-based United Nations (U.N.) telecommunications agency, International Telecommunication Union (ITU), reported that the number of mobile phone subscriptions worldwide is almost 7 billion. It reported global penetration at almost 100%, and 89.4% in the developing world. It stated that active mobile-broadband subscriptions total above 2 billion. Globally, active mobile-broad subscription stands at over 30% and at almost 20% for developing countries. In South Africa, mobile phone ownership is placed at 134.80% ([www.itu.int](http://www.itu.int)), while the broadband penetration is at 26% ([www.broadbandcommission.org](http://www.broadbandcommission.org)).

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1 Mobile-broadband a term used to describe Internet access or wireless communications obtained through a portable modem or a mobile phone.
Katz and Aarkhus (2002:2) refer to the mobile phone as ‘a mind-and-society-altering technology’. This view is echoed by Goggin (2006: 2) when he states that the mobile phone ‘has become much more than a device for voice calls – it has become a central cultural technology in its own right’. Nurullah (2009:19) refers to the widespread acceptance of ‘the cell phone’ as a tool of communication and entertainment’ that has ‘revolutionised society, redefining patterns of social contact and relationships among individuals. Overall, the cell phone has transformed the daily life of individuals to such an extent that it can be thought of as an agent of social change’. Although this study does not consent their view, technological determinists have taken advantage of this device’s ability. As will be explained in the theory chapter, they have claimed that the mobile phone has changed the way human beings socialise. From these and other studies (see Fortunati, 2001; Ling & Yttri, 2002; Agar, 2003; Ling, 2004; Ling & Pedersen, 2005; Fortunati, 2005; Horst & Miller, 2006; Caron & Caronia, 2007; Chigona & Chigona, 2008; Ling, 2008; Ling & Donner, 2009, Walton, 2009), it would appear that mobile modes of communication, particularly the mobile phone, have contributed centrally to changing learning and cultural patterns in many contemporary societies. It is now providing more mobility and convenience in most activities.

These changing patterns are clearly evident among the younger generation who are otherwise known as the ‘Millennial’. Millennial are considered to be those born between 1981 and 2000 (Strauss & Howe, 2000, cited in Garcia, 2007:7; Taylor & Keeter, 2010). Newton (2000:9) refers to this group as ‘native speakers of the digital language’. Their heavy dependence on technology has affected all aspects of their lives, including their ability to learn and their approach to gaining education and information. Using the theory of social construction of technology (specifically mobile phones), this research seeks to investigate how mobile phones are used as devices for learning – formally through school and/or informally through social networks – by Grades 6 and 7 learners in a Gauteng Primary School. Because the characteristics of the new media, in this case mobile phones, have enabled profound changes in people’s lives and daily uses of the media (Van Dijk, 2006), this research project will further explore the kinds of information the Millennial in Gauteng choose to access.

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2 The use of cell phone is original to the quote. This study uses the term mobile phone.
via mobile phones with a view to understanding how this knowledge/information is consumed and utilised in their learning environment.

In 2001, Lenhart et al., (cited in Garcia, 2007:14) stated that 94% of young Millennial (12-17 year olds) who access the Internet do so for school research. They found that these groups of learners also use electronic mail and Instant Messaging (IM) to communicate with teachers and classmates about school work and practical classes, and they often create or access web pages for school. Yet many schools have banned the use of these mobile devices both in classrooms and on campuses, claiming that they are disruptive. In opposition to this move, Prensky (2006) argues (a perspective that has been challenged by learning projects like Mxit\(^3\) that use the mobile phone), and will be expanded by learners in this research) that even if mobile phones are banned in schools, many learners are using them out of school to learn mathematics, languages, spelling, health skills and more. As such, it should be considered part of the overall strategy to situate the mobile phone as a crucial partner in education for learners across all age groups. In schools that have adopted the mobile phone as a device for learning and teaching, many conventional learning techniques and processes still apply. In such schools, teachers still stand in front of the classrooms, they still use the blackboards and correct homework (Ling & Yttri, 2002) and parents still supervise homework, and according to their abilities, make sure that their children attend classes and that they perform well academically. This research by no means suggests that mobile phones are used as instructional devices that replace the presence of teachers and parents in learners’ lives. It anticipates a learning environment where teachers serve as facilitators, coaches, counsellors and mentors and where learners are active participants in the classrooms (Garcia, 2007). The presence of classrooms and the role of teachers will still be pertinent to the success of learning and teaching. This is why Brown (2005, cited in Garcia, 2007:25) recommends that there is no need to do away with classrooms; rather there is a need to reinvent and integrate them with other forms of learning such as mobile phones. This reinvention and integration could be smoother should teachers’ training programmes include lessons on how to teach on – and with – mobile phones.

\(^3\) Mxit is a free instant messaging application developed by Mxit (Pty) Ltd. South Africa in 2005.
It is evident that using mobile phones as devices for learning is a recent phenomenon in South Africa, and possibly Africa. Literature on the mobile phone as a learning device is limited, and only a few studies stand out. Recent research in the Western Cape of South Africa has explored the use of mobile phones for education (Chigona & Chigona, 2008; Walton, 2009). Chigona & Chigona (2008) examine how Mobile Instant Messages (MIM) has facilitated studies, while Walton (2009) looks at how teenagers read and write on their mobile phones. These papers have shown that mobile phones can play a major role in the creation and distribution of learning material. The research found that although to these teenagers the mobile phone is a leisure device, to educators and learning programme developers, it could also be an educational tool without changing that appeal.

Exposing young children to information is important, as introducing them to information and knowledge regularly before they go to school – through mobile phones, iPads, computers, television, books and magazines – increases their future success in reading and writing in school (Fleisch, 2008; Prinsloo, 2004, cited in Vosloo, Walton & Deumert, 2009:1). These studies confirm that Millennial are highly accomplished mobile phone users when using various types of coordination. For this group, mobile phones have become accepted ‘umbilical cords’ to their parents and the central artefact of their self-image (Fortunati, 2001). As with adults, the mobile phone has created an avenue for communication and social interaction. It is used to acquire and maintain both formal and informal social interaction within groups: family, friends or classmates. Referring to the mobile phone as a significant device for human socialisation, De Bruijn, Nyamjoh and Brinkman (2009) state that African youth are very ‘extravagant and kingly’ in their choice of mobile phones. However, due to economic and historic reasons (Horst & Miller, 2006; Skuse & Cousins, 2008; Buskens & Webb, 2009), not every young teenager has been privileged to use a mobile phone. Ownership could be rare, but at the same time these young teenagers may still have access to a phone through family or friends (Horst & Miller, 2006; Skuse & Cousins, 2008) or through international sponsors, as is the case at the school in this study.

Whether or not they own them, more recently children and teenagers have begun to recognise the benefits of engaging with mobile phones as effective learning devices.
They use them to access information and research for learning (formal and informal), and thereby turn what Kolb (2008) has called ‘annoying digital toys’ into ‘powerful educational tools’. In developing countries, over 30% of those under the age of 25 (the majority of whom are still studying) use the Internet, mostly through mobile phones (www.itu.int). Internet-enabled mobile phones have a huge potential to promote learning (www.itu.int) in instances where developing countries connect schools, learners, parents and guardians to mobile Internet as education is a vital component for the future success of young people; most of these youngsters first experience the Internet via the mobile phone (Horst & Miller, 2006).

The mobile phone, which was initially manufactured to make and receive calls – with any other function regarded as secondary – has today acquired different functions. Internet-enabled mobile phones have turned the device into a vital and most desired educational and entertainment (or edutainment) tool for young learners. Today, particularly amongst Millennial, the possession of a mobile phone seems to be equal to owning a personalised device that can take you to both imagined and unimagined places, depending on how you choose to use it. Free features (like the storage size of the device) that have previously been overlooked are now very valuable to this group. It seems that once they acquire a mobile phone, they feel they do not need a computer. They have appropriated mobile phones as calculators, watches, typewriters, video and audio recorders, alarm clocks, radio and television sets, newspapers and magazines, music players, diaries, photograph albums, calendars, maps, game portals, storage for contacts and other information such as banking details, organisers, status enhancers and, most importantly, social companions.

Appropriate to this study, these young people regard mobile phones as nothing less than books or entire libraries. A mobile phone stores the social memory of its owner and user to the extent that if it is not handy, ‘one is not just naked without a phone, but lost without it’ (Horst & Miller, 2006:65). To highlight this sentiment, De Bruijn et al. (2009) describe that people feel vulnerable, stripped of their identity, networks and their relationships when they lose their mobile phone. They add that after losing a mobile phone, a person becomes immobilised by both time and space. This study aims to find out how this inevitable companion has been positioned to walk with these young learners on every step of their learning milieu.
1.2 RATIONALE

Mobile phones provide access to users at any time, no matter where they are and what they are doing. Generated either for a specific user or for anyone with access, the information that they access can be used for any reason and in different ways. It could be for personal or group consumption. Whether connected to the Internet or not, mobile phones could be consumed either as stand-alone devices or through other devices such as computers and laptops by using USB\(^4\) cables, Bluetooth or memory cards. Of importance is the fact that, for these mobile phones to be able to share content, they have to be equipped with GPRS\(^5\).

The creation and distribution of mobile phone educational material and software is becoming more prolific. The use of Internet, memory cards and USB cables has enabled mobile phone users to create and consume content with and through these devices. It has replaced the traditional learning style, which was typically accompanied by a teacher, talk, chalk and chalkboard with benches and books in relevant positions. It has also prompted learning to be more instantaneous and has repositioned teachers as consumers of content created by learners. These pressures have spread across all parties, including learning material systems and content developers, learners, teachers, institutions, governing and monitoring bodies, parents and guardians and even current and – in the case of this study – future employers. It is also affecting the way children behave in classrooms, as well as their attitudes towards school and learning in general.

The way these devices are now used influences how young learners socialise. It is changing definitions of ownership and access, and is stretching boundaries for safety and security of the device and its content as learners use it to learn and play. New uses of mobile phones are redefining how class work and homework are being done, and this is urging society to reconsider styles of learning. Because of all these changes, the extent of challenges encountered when mobile phones are being used is also being redefined. The onus then lies on implementing and monitoring bodies in

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\(^4\) Universal Serial Bus is now used in the place of Floppy Discs to transfer data between mobile devices.

\(^5\) General Pocket Radio Service is a switch on wireless service that could be used to surf the Internet, check emails, etc. through mobile.
the education sector to ensure that all these new definitions are flexible enough to extend to learning environments.

This study is based on a claim that mobile phones, if used for educational purposes, can improve learning and teaching abilities. But for this claim to be grounded, careful analysis is required. An understanding of the use of mobile phones – as people learn and even play as they learn – is important to map a way for recommendations on proper use and implementation of these devices, irrespective of who uses them, and how, when and where they are being used for edutainment purposes.

The increased use of mobile phones for different reasons, including education, is becoming very prevalent. Chéneau-Loquay (2010:29) mentions that the near-universal use of mobile telephony in Africa, its accessibility, ease of use and above all the fact that it has been ‘appropriated’ by local populations, presents a challenge to the traditional ways of analysing the use of ICTs for development. One way of analysing such need is to start by acknowledging the fact that development is easily brought about by education. For this and other reasons, there is a need for a study of this nature. This urgent need is provoked by the fact that no matter how slowly the process seems, more and more schools are either considering or are already taking the opportunity to include mobile phones as one of the items that boosts the practice of learning. This primary school in Atteridgeville, Tshwane, in the Gauteng Province of South Africa is one of the schools that have included mobile phones as devices with which to study. It is therefore appropriate for this study to examine how the Grades 6 and 7 learners at this school are using, creating, distributing and consuming learning materials on mobile phones.

Given this case study, the primary motive of this study is to find out how mobile phones can be used as devices for learning. This motive will be expanded to how the use of mobile phones as devices for learning can motivate and encourage Grades 6 and 7 learners as they study. Its secondary aim is to understand why some Millennial choose and enjoy reading and writing on their mobile phones, while others still prefer doing so in books and sometimes on computers or laptops. The diverse range of reading materials available for young learners on mobile phones via web pages, emails, blogs, chat rooms and even text messages is of particular interest. This is
because an Internet-enabled mobile phone today is equated to a library, not just a book. Even so, it is regrettable that the mobile phone has been kept out of reach in many schools across South Africa.

1.3 RESEARCH QUESTIONS

This research aims to discuss the way mobile phones are used as devices for learning, either formally through school or informally through social networks by Grades 6 and 7 learners at a government primary school. Against this background, the study aims to investigate whether or not the Grades 6 and 7 learners in Tshwane use mobile phones for educational purposes. This will be done by examining existing and potential learning patterns amongst selected learners. The research questions that will better inform this study include:

- What are the benefits and challenges when implementing mobile phones as devices for learning at primary school level?
- How are Grades 6 and 7 learners using mobile phones to expand their educational experiences?
- Could the mobile phone be used as an effective learning device amongst learners in primary schools?

1.4 STRUCTURE OF THE STUDY

This section outlines the breakdown of this research and locates particular sections by giving a summary of each. Chapter 2 reviews literature on the use of mobile phones by Millennial for educational purposes. It examines how youth culture has influenced the manner in which Grades 6 and 7 learners possibly acquire and use mobile phones for edutainment. As a tool for development, this chapter expands on how the socio-cultural and economic lifestyles of these learners have influenced how they use mobile phones. Drawing from the M-Ubuntu charitable venture in South Africa, this section also discusses how mobile phones can be used as very important tools in the education of Millennial and subsequently an entire community
A majority of mobile phone usage is born from social interactions. As such, Chapter 3 reveals the theory of social construction of technology and mobile phones in aspects that constitute formal and informal learning. This section discusses how mobile phones have been used to consolidate relationships and not just extend, but also facilitate, learning. This chapter explains how these learners, their teachers and even their society have appropriated mobile phones in different ways as influenced by their socio-economic and cultural activities. It further explains that because society adopts and uses mobile phones and their accessories to suit their preferences, so too do mobile phones and learning material designers work on the device to make it user-friendly. As a brief contrast of this theory to an opposing one, the theory of technological determinism is given. To fully understand how mobile phones have been used on a day-to-day basis in learning and teaching, this research will use a qualitative research methodology as discussed in Chapter 4. Research data will be collected through focus group discussions with 17 learners, with two members of staff being interviewed. This chapter also exploits the choice of research method and explains the research procedure. The sampling and data collection method is discussed in details. Lastly, it explains the ethical considerations as well as the type of questions designed for data collection.

Chapters 5 and 6 discuss the findings of this research. Drawing material from collected data, the selected theory and literature, and considering the research questions, these findings focus on the uses, implementation and perceptions of mobile phones as devices for learning and teaching in this primary school. These chapters elaborate on identified themes, such as: the social construction of mobile phones within the context of Ubuntu, participants’ attitudes to ownership and access of mobile phones, the consequence of the Internet, safety and security of participant study, research, homework and play. Chapters 5 and 6 also compare mobile phones with computers and books. These chapters explain the challenges that influence how mobile phones are being perceived and used in this learning environment.

As the final section, Chapter 7 concludes the research with a summary. It recaps on research aims, outlines the limitations, proposes areas for future research and gives recommendations before concluding the study.
CHAPTER 2

THE USE OF MOBILE PHONES BY TEENAGERS FOR EDUCATIONAL PURPOSES

2.1 INTRODUCTION

To better understand how mobile phones have been easily adopted as learning companions which seem to replace physical libraries, computers, laptops and even books, this section explores how youth culture has influenced their acquisition habit and everyday use of the mobile phone, and how young users educate themselves using mobile phones. It will further elaborate the role – or potential role – of mobile phones in developmental and educational formulations, if acquired and used by young people in a positive manner. It explains how challenges have been overcome so that the mobile phone could have a place in the learning environment. In conclusion, a brief description will be given on the M-Ubuntu Project that imported the concept of formally using the mobile phone as a device for learning in underprivileged South African public primary schools.

2.2 YOUTH CULTURE AND MOBILE PHONES

In order to find out the role of mobile phones in transforming knowledge among teenagers, certain aspects have to be investigated; these include how youth culture influences the acquisition and use of mobile phones. Millennial around the world see new technology, and in this case the mobile phone, as an icon which can easily transfer their meanings and bequeath status to users (Duncan, 1972, cited in Ling, 2004:103). The youth have rapidly adopted the mobile phone, primarily to facilitate social interactions and culture. As such, their way of life and use of the mobile phone have expanded the meaning of youth culture. Unless we understand how they use mobile phones, we will never understand how important their role can be in the lives of these young people as they learn and grow. Being at the prime of their social
activities, young people mingle in a way that befits their cultures. Culture is ‘incarnated in objects, distributed between human and non-human actors, and performed through their practices’, discourses, activities and words of human beings (Caron & Caronia, 2007:45-46).

When people or groups of people act imaginatively and innovatively to accomplish their ambitions, and when they do so using symbols, they are creating a culture (Crouch, 2008). In the process of developing a culture, such people may let go of old ways, they may modify existing patterns of behaviour or create new ones. Of the many definitions for culture, the one that ties to this study states that:

Culture is the pattern of meanings embodied in symbolic forms, including actions, utterances, and meaningful objects of various kinds. By virtue of which individuals communicate with one another and share their experiences, conceptions and beliefs (Thompson, 1991:17, cited in Baldwin, 2006:36).

Sometimes, these beliefs, experiences and perceptions could be forced on others, whether deliberately or not. Following this definition, culture is a way of differentiating people by their way of life but without limiting it to their class, age, gender, race, and religion, social, intellectual or economic background. Crouch (2008:25) states that culture is what human beings make of the world using things like paintings, omelettes, chairs and in this case, mobile phones. He continues that culture ‘is in fact part of the world that every new human being has to make something of’.

Mobile phones are central to human socio-cultural relations today, particularly to Millennial'. Mobile phones are used in ‘building fields of action, constructing identities, creating potential paths, setting limits and possibilities, generating the significance of things, places and time amounts to producing culture’ (Caron & Caronia, 2007:42) and social realities. Mobile phones have indisputably changed everyday life, as the culture today means that physical absence is no longer considered ‘out of touch’ or ‘out of mind’ (Ling, 2004; Horst & Miller, 2006; Caron & Caronia, 2007). Through their way of life, teenagers have made it clear that technology can acquire or lose functions as required by its users or users’ culture.
These teenagers, some of whom have not owned a mobile phone, see them as an integral part of their lives. To teenagers in Africa and possibly other parts of the world, the mobile phone is ‘not simply a security device, nor is it used only to coordinate everyday events spontaneously. It is used for a range of interactions’ (Ling & Yttri, 2002:139) that could be either physical or emotional.

Emphasising the omnipresence of mobile phones to both young people and the world at large, Katz and Aarkhus (2002:303) suggest that as we use small screens on our bodies, we may one day be able to retrieve and view the video of our own birth. What they are suggesting is that history shall be recorded in detail and retrieved by all. They affirm their position by stating that the mobile phone has created avenues for people to have ‘perpetual contact, enjoying instant or asynchronous communications from around the world or the heavens above’ (Katz & Aarkhus, 2002:303). However, no matter the design or make of a mobile phone, and no matter what the intended use will be:

Each being a significant status symbol in their respective contexts, mobile phones have become an icon of our age. They have become a basic part of everyday life and they will be one of the symbols for which we are remembered (Ling & Donner, 2009:48).

This statement is a most suitable description of Millenial who in every way only seem to function with and through mobile phones.

As they link mobile phones to their personalities, people are using them as enablers to create their own micro-cultures by changing cultural norms and values and demonstrating the ability of consumers to modify and repurpose technology for their own use (Katz, 2005). Testifying to their learning styles, Baron and Af Segerstad (2010) suggest that culture has shaped the use of technology and that technology (in this case the mobile phone) reshapes cultural practices. Meanwhile, Walton (2009), states that mobile phones have facilitated how teenagers meet and interact with strangers. Mobile phones have also shaped their identities through what they learn and discuss about learning (Caron & Caronia, 2007). As such, Goggin’s (2006) argument that mobile phones serve as technological as well as cultural objects to
particular age cohorts and subcultures have begun to appropriate mobile phones for idiosyncratic uses that help to define their niche or social identity is in order.

As cultures appropriate the uses of the mobile phone, Ling (2004:22) suggests that ‘mobile telephony is moving away from its traditional base into new, uncharted waters’, where users are ‘making up the rules as they go along, and are finding new and unexpected uses for and ways of using mobile telephones’ (Ling, 2004:22). As people customise and use mobile phones according to their situations, rules, structures, customs and ways of life, the mobile phone loses some original values and takes up other unintentional uses. One example is the way in which these devices are now increasingly being used in education. Mobile phones empower people to formulate their own micro-cultures by ‘changing cultural norms and values and demonstrating consumers’ ability to modify and repurpose technology for their own use’ (Katz, 2005). They remain at the core of social interaction within and outside families, schools, offices and social settings. Caron & Caronia (2007) suggest that these mobile phones have almost become members or significant partners of most family interactions and are used by many as extensions of their personalities. In their opinion, the mobile phone comes in handy because, according to Pronovost (1996, cited in Caron & Caronia, 2007:75), adolescents place a lot of value on ‘sociability and leisure activities’, preferring ‘adventure, flexibility, and mobility within a relatively closed circle of social relations for which leisure activities are vital’.

They actually begin to be more adventurous in or around Grades 6 and 7, because in most instances, at ages of between 11 and 13, most children are beginning to develop their identities and self-esteem. As such, it is easier for them to adopt the mobile phone and its usage in such a way that their preferences are aligned with those of the status and culture of their peers (Fine, 1987:133, cited in Ling, 2004:85). One way in which teenagers have ascertained their identities using the mobile phone is via text messaging. To Kasesnieme and Tautiainen (2002:170), ‘a text message is a short message sent from one mobile phone to another or from an operator to a mobile phone subscription via Short Messaging Services (SMS)’. Unlike a voice call it is possible to receive, to respond to or at least read a text message without being noticed in a public forum. In 2005, Ling suggested that among teens, the SMS is the
most preferred form of mediated interaction, surpassing instant messaging, e-mails and phone calls (Ling, 2005). However today, applications such as WhatsApp and Mxit that are almost free and allow for group chat, might have challenged Ling’s 2005 stance. This apart from the ‘call me’ (a form of free text message sent out asking the recipient to call the sender) service. Texting is very much associated with teenagers and school-aged children. Some adults; especially those born before the 1980s and the 1990s cannot handle the time and effort needed for texting. They are impatient when writing and in waiting for responses (Horst & Miller, 2006). When adults communicate, most of them do so expecting instant responses. But it may also be that having developed critical minds, adults are worried that their text messages could be misinterpreted, depending on the value of the message communicated.

Another important issue for them is the cost, and texting is a cheaper way to communicate for these young people who have so much to talk about but so little money to pay for a chat. Creativity among teenagers has wiped out the concept of time consumption in texting and their heavy dependence on their mobile phones has made them very spontaneous and responsive ‘texters’. Texting is similarly an easier way to communicate in times and places where voice calls could be restricted or impossible. Due to their way of life, these teenagers spend a lot of time in such places, which include classrooms, dining rooms, libraries, churches and even their bedrooms. Another advantage is that through texting, the shy, non-vocal and introverts are able to express themselves, whether in class, amongst friends or anywhere else. For Millennial, the function of multiple texting makes it easier to circulate messages among peers when they can send a single message to more than one recipient at a time. In cases related to this study, ‘teens send messages on weekdays to ask their classmates or peers for help with homework’ (Kasesnieme & Tautiainen, 2002:177). They also send texts to their caregivers for both important and trivial reasons; they could either be relating non-urgent information or be asking them to call them back. Explaining how teenagers use text messages in awkward ways and places, Pachler, Bachmair and Cook (2010) ascertain that 12-15 year-old children’s bedrooms are increasingly becoming multimedia centres.

In their work, Kasesnieme and Tautiainen (2002:189) explain that:
Text messaging culture, however, is possible because of mobile technology, and the way teens work the technology into their teenage communication. This is most evident in the shifts in social relationships, language and communication formats. These changes realise further innovative behaviour, which may be contested, within the larger culture. This is evident in the development of SMS, mobile phone accessories and the redesign of mobile telephone keypads (Kasesnieme & Tautiainen (2002:189).

The modification of the mobile phone, brought about by continuous redesign and upgrading of its features, is influenced by communication culture. Termed the ‘midwife to the eventual emancipation process’ of teenagers (Ling, 2004:86), the flexible uses of the mobile phone has changed the way children interact with parents, caregivers and peers, and these uses have changed the dynamics of social networks and the development of social ties (Ling & Donner, 2009). It has also given learners the opportunity to keep track of their social networks while they are in class (Ling & Donner, 2009) or when they are out of reach. In a learning environment, the mobile phone further enables its users with a way to gather information (Ling & Donner, 2009) from many different sources, and it helps them to store this information. This, even though private ownership of mobile phones is not common among the disadvantaged communities in Africa where usage is shared within a household or even across households (Horst & Miller, 2006; Skuse & Cousins, 2008; Ling & Donner, 2009). Where phones are shared, some people need to just own a Subscriber Identity Module (SIM) card and it can be inserted and used in other people’s phones (Horst & Miller, 2006). Some do not even need a SIM, as they circulate the contact number of the mobile phone owners as their numbers of contact. Even though this might expose text messages intended for one of the many users, it is likely that most of this group of users are unable to read and write, and that they have the same person who reads and writes on their behalf.

The mobile phone may have a double status by being both a non-object and a social and cultural object (Berson & Berson, 2007, cited in Pachler et al., 2010:67). Unfortunately, unless it is being put into use (as an object), the mobile phone has no value (Stald, 2008, cited in Pachler et al., 2010:67). The mobile phone like any other
ICT is both an artefact to be consumed as well as a medium used for conducting social relationships (Hirsch & Silverstone, 1992, cited in Skog, 2002:209). In Chapter 3, this study will explore the theory that will better inform these concepts.

2.3 MOBILE PHONE ACQUISITION AND USE BY SOUTH AFRICAN TEENAGERS

Research has shown that ownership of mobile phones sets the trends that define the youth culture of today (Hardy, 2007, cited in Hershey, 2011: xvii). The above section has explored the fact that Millennial and other young people approach mobile phones predominantly by their way of life. Prensky (2006:27-28) mentions that ‘today’s students - kindergarten through to college - are the first generation to grow up with this new, digital technology ... and all the other toys and tools of the digital age’, spending less time reading books than they do on their mobile phones. During this time, they download ring tones, games, pictures, exchange texts, instant messages and emails and even talk. This study suggests that to those learners who in most cases use Smart phones, distance is not a concern if they have no access to books, computers, laptops and libraries. The study further points out that these learners are primarily concerned with using their mobile phones, particularly phones with Internet access, as an alternative source for learning.

In South Africa and Africa, and possibly across the world, mobile phones are probably the most common technological device to acquire and the easiest to use among all the information and communications technologies (ICTs). Chéneau-Loquay (2010), establishes that within low-income populations, the purchase and subsequent maintenance of mobile phones is a priority. It is very common to see even the illiterate using mobile phones; some people have used the mobile phone so many times for many different reasons even though they do not and may never own one (Skuse & Cousins, 2008). One of these reasons is to learn; either formally or informally. According to Van Dijk (2006:224), ‘the interactivity of the new media enables a more active and more independent way of learning than we are used to’. This is why mobile phones play a vital role to ‘facilitate the production, reproduction
and transformation of social networks, social status and hierarchies’ (De Bruijn et al., 2009:15) among teenage learners.

The anticipated benefits have caused the mobile phone to become a typical present for children by both parents and caregivers for occasions such as birthdays and Christmas (Horst & Miller, 2006), and it is a device of great necessity among siblings and peers. Teenagers see it as a ‘cool’ gift (Caron & Caronia, 2007), while it ‘works well for parents who must keep in touch with children’ (Levinson, 2004:90). Offering or receiving a mobile phone as a gift transforms it into an object of value that will improve the owner’s status in every way. During gifting, parents and caregivers see the mobile phone as a device that can secure children’s success (Caron & Caronia, 2007). Nonetheless, mostly it is offered to succumb to peer and social pressures brought about by advertisements, family members, social groups and peers. Caron and Caronia (2007) further state that access to information and communication technology or receiving a mobile phone as a gift emancipates a teenager from childhood to adulthood; a transformation bequeathed on the mobile phone, given its ability to change the status of time and social coordination (Ling, 2004).

At the school of interest to this research, learners in Grade 4 are introduced to the mobile phone as a device for learning. Through its donors, the primary school has enriched its computer lab and library with mobile phones. The gesture at this school brings into perspective the fact that most mobile phones and their accessories owned and used by Millennial were not necessarily bought by them, but are often being offered to them for one reason or the other.

No matter how teenagers acquire these most desired devices, no other communication device has ever come close to attaining the level of up-take attained by the mobile phone so far. Its users seem to be getting younger and younger every day, and while younger children still try to negotiate its various uses, teenagers remain the most enthusiastic users. Looking at demographics, Chabussou Stork, Stork & Zahonogo (2008) state that mobile phone usages are influenced by factors such as income, education, social groups and age. They explain that income increases the probability of mobile phone adoption, in the sense that the more disposable income a family has, the higher its spending potential for mobile phones.
However, no matter what income level is involved, they state that most probably, younger individuals spend more time consuming technology than their older counterparts. They mention Piccoli et al. (2001 cited, in Chabussou et al., 2008:24) who established that the level of education of an individual influences how they adopt and use technology, by influencing their capability to use it. They continue that boys and girls use their mobile phones differently; while men’s decisions to use technology are more strongly influenced by their perception of usefulness, women’s choices are grounded more on perceptions of ease of use of the technology (Venkatesh & Morris, 2000, cited in Chabussou et al., 2008:24).

Irrespective of the differences, teenagers spend most of their time out of school being entertained by various kinds of technological gadgets, including mobile phones. It has been noted that most new telephone owners are mobile owners, with the majority of them living in developing countries (Ling & Donner, 2009; www.itu.int). When going for mobile phones, most young people make sure that these mobile phones are physically appealing, are Internet-capable, have a camera, are equipped with either Bluetooth or Infrared Interface for wireless data exchange, have the ability to be utilised as MP3 players and radios, and also have mobile games (Kittel, Edegger & Petrovic, 2009). Due to the above characteristics, including size and weight, mobile phones have the potential to be ever-present with their owners. They also enable learners to carry out a variety of contextualised learning activities that enable them to work both independently and in groups. The mobile phone also facilitates their interaction with personal computers and laptops via Bluetooth, Internet and Intranet, downloading cables, memory cards and USB devices, and allowing them to audio- or video-record (Hershey, 2011).

The many uses of the mobile phone have enabled it to become the most important thing in the lives of teenagers (Levinson, 2004). Among Millennials, owning a mobile phone that is accessible anywhere and anytime seems to be a prerequisite to belong to and participate adequately within a group (Katz & Aarkhus, 2002; Ling, 2004; Danaher, Gurujan & Hafee-biag, 2009; Nurullah, 2009; Pachler et al., 2010). Probably influenced by group/youth culture, the main focus seems to be on the design and vintage of their mobile phones, preferring phones with visual cues that can easily translate the type of person they are and their status. Status is of influence because with most teenagers, ‘individuality is itself a kind of collectivity,
much more so than in the rather mild way we might talk about the "social construction" of individuality’ (Kasesnieme & Tautiainen 2002:211).

Elaborating on Millennial’ ownership choices, (Ling, 2004; Fortunati, 2005b; Ling & Donner, 2009:99; De Bruijn et al., 2009) state that the mobile phone that people carry around is an element of display of themselves. As such, teenagers easily interpret their friends’ self-images by looking at the type of mobile phone they own or use. The interpretation is based on accessories such as the phone’s cover, its colour and screen saver. They also expect to be described or spoken of by their own mobile phones (Ling and Yttri, 2002; Ling & Donner, 2009). In a research on how teenagers appreciate mobile phones, Horst and Miller (2006) found that status is not associated to the brand of a phone, but rather to it appearance. In this example, most Millennial see a touch-screen mobile phone as ‘cool’, while ignoring the brands.

Contradicting the fact that Millennial pay less attention to brands when making acquisition decisions for mobile phones, Ling and Yttri (2002) explain that this group of people consider the size and model of the phones they use. They maintain that in making acquisition decisions, teenagers are more concerned with identity, self-esteem and accessibility, just like the elderly are with security and safety (Pachler et al., 2010). A possible explanation for this could be that adolescence is a period during which individuals develop their identity and self-esteem. At this stage, the adoption of the mobile phone is not simply the action of an individual (Nafus & Tracey, 2002), but rather of individuals aligning themselves with their peers’ cultures in which they participate (Fine, 1987, cited in Ling, 2004:85) or intend to participate. As they seek to belong and as they continue to thrive on access to and interaction on mobile phones, to receive a message or a phone call confirms their membership to a group (Stuedahl, 1999, cited in Ling & Ytrri, 2002:149). For this and other reasons, mobile phones are seen to give them ‘power’. They provide a way to ‘gather information and to be in contact with the world’ making them directly addressable, irrespective of where they may be (Ling & Donner, 2009:11), what they have to talk about, who they wish to talk to and what time they wish to talk for as long as they want.
When buying mobile phones, parents and caregivers seem to be motivated by special offers and cheap models, and not the features as the teenagers do. But whether they own a ‘cool’ mobile phone or not, Millennial continuously display their fascination for them by acquiring, designing or redesigning them. They do so by continuously downloading popular ringtones, wearing fashionable protective pockets and displaying selected screensavers in ways that will make their mobile phone look unique. Horst & Miller (2006) explain that this is done because the mobile phone is an accessory with both visual and audio elements. Ling and Pedersen (2005) agree by stating that the mobile phone is interpreted to be both a functional and a symbolic item. It is so symbolic that in today’s environment, the possibility of a learner owning or accessing a mobile phone is much higher than owning any other learning technological devices (Pachler et al., 2010) or text books. This quest for belonging and status has left a greater majority of children – as young as 7 years of age – owning or using mobile phones. It is common in South Africa today to see Grades 6 or 7 learners owning a second or third mobile phone. Some have owned phones with all three major networks, while others have gone through more phones than they can remember; even if they do not own them. Giving reasons for already owning more than one phone at such a tender age, Horst & Miller (2006) envisage that mobile phones are often replaced because children have lost their previous phones, broken them, because they are up-dating their phones with fashion or they need new features, or because the phones were stolen.

People believe that belonging to a group averts some form of vulnerability. Both adults and children have always assumed that buying or using a mobile phone will increase their sense of security (Ling & Yttri, 2002; Pelckmans, 2009). They do not take into account risk factors such as; risk to society (misuse of phone cameras, pedophiles and the wrong kind of people contacting young children), affordability (cost of calls and data), risk to health, personal safety (stealing and bullying), risk to privacy (intrusion into others’ space, junk and spam messages) and offensive content (access to adult rated content by minors) (Pachler et al., 2010). Young users are easily exposed to such risks because the mobile phone has been appropriate to be consumed in a variety of ways in different places and times (Dolittle, Lusk, Byrd & Mariano, 2009:89). This wide range of access and their exploratory minds leave them wanting more information. Their inability to filter available information forces
them to be targets. Mobile phones are also devices that are carried around by individuals and which contain much highly-personalised information. The phones carry an inherent ability to compromise users’ privacy if it falls into the hands of others, or if the data on it is used without the owner’s permission (Ofcom, 2008b, cited in Pachler et al., 2010:88). Apart from the risk factors, Chapter 3 will reveal that users also tend to find out that with time, mobile phones have been given other attributes. For this reason, they begin to use the devices in other ways (Ling & Ytrri, 2002; Horst & Miller, 2006); for example, as a planner, torch, alarm clock, radio and television set or a point of reference. Its other uses have transformed the mobile phone into an:

ideal tool to deal with the pace of information exchange, the management of countless loose, close or intimate relations, the co-ordination of ever changing daily activities, and the insecurity of everyday life. In this process, it has become a learning tool for dealing with living conditions in modern society for young people while at the same time it adds to the conditions they are trying to deal with (Stald, 2008:144, cited in Pachler et al., 2010:66).

Accessibility has converted teens to become very affluent mobile phone users. Most of them are at a stage where they have mastery of both the device and mediated social interactions. At this stage, they are also motivated to organise their social lives (Ling, 2004:93) as they thrive for independence. In Grades 6 and 7, most learners are getting ready for secondary or high school and are beginning to develop their identity and self-esteem. Their link with the mobile phone for social status has overtaken that attached to other teenage artifacts such as clothing, shoes, hairstyles (Ling, 2004) and language. As discussed above, to them just owning a mobile phone indicates that the owner is socially connected and that they are in control of their means and mode of communication. This ownership allows them to maintain their status in terms of age, gender and class and to do so privately and in their own way and space. Moreover, ownership of a mobile phone is an important step in the process of becoming independent from their parents, caregivers and even teachers. It is a medium for the assertion of their identity and autonomy as allowed by the youth culture of today.
Even though young people acquire and use mobile phones primarily to sustain and enhance their social networks, they have taken full advantage of the various functions of the mobile phone; for example, various forms of text messaging, video and voice calls. Mobile phones allow users to download, play with and upload materials in forms of text, video, music and images. In the process of creating and uploading information, Millennials also acquire formal and informal skills that are critical to their educational success. As anticipated in the finding of this research, mobile phones could be very handy where there is no – or limited – access to computers and where there are long queues. Learners could use them either to do other work or access the Internet. Their convenient nature is particularly evident with the presence of wireless connections. Another informal way of learning with mobile phones includes using phones instead of school diaries to store and retrieve classroom schedules, just as users do with social schedules (Ng & Anastopoulou, 2011) or communicating with parents and caregivers on school activities. Children’s exposure to voice communication via the mobile phone also exposes them to its structure and flow, a skill vital for human communication (Ling, 2004; Pelckmans, 2009).

For learning purposes, it is easier to store and retrieve material from a mobile phone, provided the learner creates material with immediate access. From the above literature, it can be stated that learners at the primary phase of study find the intimacy of mobile phones very attractive; so attractive that the size of its screen and the short life span of its battery seems less daunting to the majority of them. What matters to them is the fact that they can access their mobile phones instantly while sitting, walking around or standing in queues; situations not supported by traditional entertainment and learning methods that are typically connected to other outlets.

As acquisition and uses expand, contra and exploratory behaviour, such as making calls during class periods, phoning late at night or exchanging sexually-related images and videos are common among teenagers (Ling, 2004; Horst & Miller, 2006, Pachler et al., 2010). Children in early adolescence have many distractions as they learn to make their own choices, independent of adult influence. Privacy is a priority because adolescence is a period in life where one is least focused on relationships with family and more focused on relationship with peers (Ling, 2004) and self. This is
also a time in life when an individual learns the various types of social and technical knowledge needed to survive and which is required to groom them as an adult. Amongst other things, this may include a sense of their integrity and their identity (Ling & Yttri, 2002), which may be brought about by having an ‘understanding of how one interacts and uses information and communication technologies’ (Ling, 2000a:103, cited in Ling & Yttri, 2002:148). No matter how we look at it, mobile phones have been given a ‘symbolic position’ (Ling, 2004:83) in contributing to the making of these teenagers’ lives. But as fluent as teenage mobile phone users may be, Skog (2002) found that ownership and trendiness of mobile phones is more visible among middle or working class than on upper class learners, as well as in urban rather than in rural areas. These and other ownership patterns have exposed an element of digital divide where:

One part of the society, the mobile savvy, could prefer to conduct the majority of their interaction via mobile and social networking, placing limitation on their opportunities to interact with non-mobile users … the fact that some people don’t interact with other people, as a result of their access to technology, may be significant (Ofcom, 2008b, cited in Pachler et al., 2010:87).

The latest ITU report, named ‘The World in 2013’, shapes Slog’s argument in a wider range. It states that the digital divide is still very prominent between developed and developing countries, despite the increased usage of ICTs worldwide. This report places mobile phone ownership at 128% for developed countries and 89% for developing countries, with Internet access per individual at 77% and 31% respectively. In South Africa, mobile phone ownership is placed at 134.80% (www.itu.int). This means that at least a third of the South African population owns more than one mobile phone. This report seems to suggest that every South African owns at least one mobile phone. In the same report, the proportion of people with broadband Internet access in Africa reached 19.8% in 2013 (www.itu.int). Unlike developed countries where ICT infrastructure is almost evenly distributed across regions, in developing countries, the target is often the urban, richer, working class sector, leaving the poor, underemployed and rural areas wanting. Even though Africans are very generous in their ownership of mobile phones (De Bruijn et al., 2009) – they prefer to go for bigger and nicer handsets – these figures show that
about one-third of the population of developing countries have never owned (www.itu.int), used and possibly even seen a mobile phone, and talk less of accessing the Internet either for leisure or for educational purposes.

2.4 MOBILE PHONES AND DEVELOPMENT

No matter how wide the gap between the haves and the have-nots, the use of mobile phones have changed the concept that ICTs can only be accessed by the wealthy (Bahamondez & Schmidt, 2011) and educated members of society. Mobile phones are being used to give access to those who would otherwise never have had access to voice communication, should they have depended on dedicated telephone lines. In developing countries, and particularly Africa, the landline infrastructure is lacking. Landlines are too expensive, very poorly developed and highly exposed to technical faults and cables theft. Because it is possible for learners in Africa, particularly rural Africa, to access the Internet on their mobile phones for learning, it brings them to almost the same level as learners from urban areas and developed countries who use other devices such as computers, iPads and laptops. It is important to note that for many learners in Africa, mobile phones represent the only way of remote communication, the only way of gathering information and the first and sole means of interaction with computer technology and digital information’ (ITU, 2009; Valderrama, Doring & Schmidt, 2008, cited in Bahamondez & Schmidt, 2011:121). To today’s learners, learning on the mobile phone and having access to it all the times is just like having pens, text books, cameras, calculators, voice recorders, clocks and Internet access all in one (Ng & Anastopoulou, 2011:208). The mobile phones have become a portable form of learning that seems to follow learners and teachers everywhere they go.

The percentage of teenagers younger than 16 who own mobile phones still seems to be on a rise (Pachler et al., 2010). This ownership pattern of mobile phones could be a call for concern; like every other form of technology they are yet other objects of consumption. Acquisition is easier, but maintenance of the phone could be worrying in Africa, as Grades 6 and 7 learners are still in primary school. They have neither a job nor a stable income. However, most of these learners receive or earn an
allowance from home and this money is used for personal consumption, including mobile phones, their accessories and related bills. To keep up with the pressures of being teenagers, they depend a lot on their parents and legal guardians for any type of support including emotional, social and financial support. Teenage consumption of the mobile phone is high because during a typical school day, they may commute long distances from home to school, school to home or to an extra-curricular activity. Thereafter, they could possibly visit a friend before going back home again. During such times, they could either be a passenger in a car or using public transport. Because they may have no companions while commuting, playing games, chatting, reading or even researching on their mobile phones is a noticeable and not so cheap pastime (Horst & Miller, 2006). This is particularly common in South Africa – a country where, probably because of its diverse population, it is generally unusual to see people engaged in communications with persons they do not know. In the process of continuous engagement, these teenagers (irrespective of class, gender and age) have quickly learned how to use the mobile phone as fully as possible (Puro, 2002:20). Using mobile phones the way they do in their everyday life, no mobile phone feature seems to be hidden from manipulation. Their way of life has included the mobile phone on top of the list of technological devices that are vital for socio-economic development.

Development is typically carried along by education since learning is an active process of social participation and not just the acquisition of knowledge and information (Hershey, 2011). Exposing children to mobile phones early in their lives may lead to ‘natural’ learning habits where they pick up knowledge as a result of their social interaction with others (Walton, 2009; Rogers, 1997, cited in Hershey, 2011). Even adults learn through communication with each other as they talk about and share information (Hershey, 2011) that could be developmental. Mobile phones have been widely adopted across both urban and rural Africa and where they have been used, they have been found to improve communication, coordination and service delivery (Aker & Mbiti, 2010). Thus, the mobile phone is a device that can easily be used to ‘meet existing development objectives, in particular the international development goals for poverty reduction, education, health and environment’ (OECD, 2003a, cited in Banks & Burge, 2004:18).
To gain a better understanding of how mobile phones can be used to bring about changes that could lead to economic and social development, it is necessary to adopt the perspective that the literacy rate has an influence on how ICTs are used (Chéneau-Loquay, 2010). As learners become more and more literate, it is almost certain that they are more likely to choose to spend a large amount of time out of school with or close to one or more technological devices. In this process, they acquire either learning or informal skills that are critical to their educational success (Gauvain & Borthwick-Duffy, 2007). It is therefore worthy that fun educational programmes, which are recreational and non-evaluative, be supported by mobile phones. This is especially important towards the end of junior school, where most class work or homework is based on organising projects, researching papers, finding and defining words or preparing and delivering papers, where learners depend on technology for answers (Gauvain & Borthwick-Duffy, 2007). In general, books are the most common source of learning and some books today come with compact discs (CDs). But in developing countries, very few children can access the CDs due to lack of computers, CD Players or MP3s. Access to the Internet is increasingly helping these learners, as they can now access contents of both the books and the CDs electronically via mobile phones. They can also access other resources like TV, radio, dictionaries, journals, chats and blogs that can help improve their reading and listening skills (Bahamondez & Schmidt, 2011).

Katz and Aarkhus (2002:303) envisage that ‘more people will soon be accessing the Internet via mobile phones than more conventionally through personal computers’. It is now evident especially amongst teenagers that the mobile is the best of the ICT devices for accessing the Internet. The high cost of acquiring and maintaining the device is compensated by the fact that it is private and less time-consuming to access because it is almost always on, with no queue or travel distance to access (Macueve, Mandlate, Ginger, Gaster & Macomb, 2009). However, phone-sharing remains common in villages where individual ownership is still rare. The device is not just used for receiving and making calls by many, it is also a means for disseminating information on ceremonies. It is used by the unemployed to look for employment and by traders established in a village to get trade information. The concept that the poor cannot access ICTs (Chéneau-Loquay, 2010) has been wiped out by the concept of social relationships and by how the use of mobile phones is
fashioned in such a way that communal forms of use continue, even if individual use now predominates (Tall, 2002, cited in Chéneau-Loquay, 2010:5). Mobile phones have been used to establish links with peer group members outside families. This process of opening up to the world outside the family is also drawing in new values that create the identity of this generation, providing 'generational identity'; young people are making their unique mark on mobile communication.

The first big innovation in mobile communication was the introduction of prepaid telecommunication systems which is now used by over 98% cent of users in Africa (www.itu.int). These users also make use of online electronic systems of credit transfers from phone to phone, whether as gifts or when selling. In actual fact, it is the local context that determines the way in which the mobile phone is used in the best possible manner to minimise the cost of communication. It could be via missed calls, call-back, using SMS in preference to calls, using more than one chip or device (Chéneau-Loquay, 2010). SMSs or texting minimises costs and goes a long way to teaching or reinforcing grammar, typing and writing skills. To users, conversations on mobile phones can convey a certain sense of security when discussing personal or sentimental matters; sometimes even more than face-to-face conversations do (Pelckmans, 2009), creating less room for eaves-dropping. Nkwi (2009) agrees with Pelckmans (2009) that the mobile phone eradicates fear and anxiety by being a lovable companion to users, but it has also created new forms of fear and anxiety. Nkwi (2009) explains that most mobile phone owners live in fear of being robbed of this precious object. This fear could be one of the reasons – more than showing off – why it is common to find people attaching the mobile phone round their necks or waists and in bags, belts and hands.

Just as there now exists a world of ‘haves’ and ‘have-nots’, other factors such as a difference in access to technology, technology fluency and also motivation and opportunities to learn may lead to a world of ‘knowers’ and ‘know-nots’, ‘doers’ and ‘do-nots’ (Tapscott, 2000). No matter how many people own mobile phones and have access to the Internet, it will be difficult to wipe out the digital divide as long as there is still a difference in literacy, income, skills levels, and personal preference (Ling & Donner, 2009), and also as long as there still is urban-rural digital divide (Buskens & Webb, 2009). Like other technological devices, the mobile phone has
introduced a new way of life. Despite the fact that it is not equally owned, it is being used to open up new opportunities and to create new niches in Africa (De Bruijn et al., 2009). In a bid to minimise this gap, Marino urges everyone to participate in either owning or using the mobile phone because the technology of interactive communication will change the current way of doing things with or without everyone’s involvement. To Marino (2000 cited in Tapscott, 2000:127), the question is: ‘How and to what extent will we use it to help people empower themselves and give those at every social and economic level a voice and an option, or to trigger a division among us that may never he healed?’

When giving users of diverse socio-economic backgrounds an opportunity to partake in digital consumption, the many pricing models offer affordability. This is through choices such as cheap handsets, micro prepayments and top-up cards for customers of varying income. Innovative ways of mobile phone access, which allow sharing of phones through SIM cards and payments for air time through micro-prepayment, promote even more rapid adoption by the poor. Flexible uses, ever-present basic features and the emergence of secondary markets for used devices at lower prices make them affordable for even the poorest of the poor (Bhavnani, Chiu, Janakiram & Silarszky, 2008:5). The fact that the type, design or brand can be owned by anyone who chooses to buy it, and because it is no longer a luxury but a necessity, the phone usage gap has lessened between the rich and the poor (Brinkman et al., 2009), the educated and the literate, and between the old and the young. It also remains the best means to create economic opportunities and obtain essential services for millions of poor and dependent people. It is now an open secret that over the next few years, most new users connecting to mobile networks will come from rural areas in developing countries (World Bank, 2009, cited in Chéneau-Loquay, 2010:12).

If they are part of socio-political and cultural changes, then adolescents could also influence economic change. The presence of the mobile phone in schools today is not only beneficial for studying, but it keeps the school in touch with the wider community where landline phones and computers have failed or are non-existent. It links schools to government and other governing bodies, parents and caregivers, hospitals and emergency services, police and security personnel (Horst & Miller,
Before the arrival of mobile phones, contacting parents was often left to chance, and learners were notorious for keeping both verbal and written messages from their parents and caregivers, particularly in cases where they were in trouble. Today, parents can call or text the teachers to seek clarity about homework, to catch-up on class work where their child has been sick and absent, to clarify various claims made by their children about school work or schedule and to get details about school trips and special days. The mobile phone allows teachers to phone either the principal or other colleagues to advise that they might be late or absent. Mobile phones are used by schools to contact parents if their child becomes a problem or to remind them of parents’ and teachers’ meetings. Whatever the mobile phone has been made to do, it has made life easier for many and has made institutions more effective. As such, it has become so vital that it will continue to be a huge part of daily activities for a long time. It has changed – and will continue to change – the dynamics of how users do things. Children, parents, caregivers and even teachers will continue to explore the mobile phone as a learning device in other ways while connecting learning in and out of school (Pachler et al., 2010).

As they use mobile phones to speak of their culture, African youths have taken advantage to widen the physical boundaries of their classrooms to homes, libraries, playgrounds and even street corners. In this case, the mobile phone may create an ever-present and personal learning experience for them; an environment that could easily include their parents and caregivers. As mobile phone uses are modified, the phase of education seems to be changing rapidly for the best with its use as an educational device both in classrooms and out of school environments. Levinson (2004), states that emails and computers have for a long time provided a continuous example of an electronic medium that fosters literacy, as they help children with their homework. The section below investigates how, using the internet as a facilitator, Millennial have successfully replaced books and computers with mobile phones as study aids. It will expand on how they have not only done homework with these devices, but have used it in class, laboratory and libraries to study and to do other projects.
2.5 MOBILE PHONES AS LEARNING TOOLS FOR TEENAGERS

For economies to attain positive levels of development (social, economic or any other forms), education has to be prioritised at every level; most importantly among the younger population. One of the skills children learn during adolescence is independence: how to function out of their family spheres. As they acquire this skill, their ‘education, social and intimate relationships, career and home are all in transition’ (Ling, 2004:94). In the process of continuously modifying the uses of the mobile phone socially and culturally, the patterns of education seem to be changing rapidly for the best. Even though schools around the world have reacted to the mobile phone as a learning device more negatively than positively, the gap between what occurs in and out of classrooms (Danaher et al., 2009) and learning in other environments has been minimised. The most used technological devices for education are mobile phones and Personalised Digital Assistants (PDAs) (Sharples & Beale, 2003, cited in Grabowski, Lepak & Kulick, 2009:302). However, according to proponents, mobile phones have been described as ‘objects for critical media education and literacy’ just like MP3 players and game consoles (Pachler et al., 2010:180). However, like the school under research, it has been recorded that a growing number of teachers and educators have experimented with mobile phones as devices for learning in classrooms, school campuses, and within and around traditional learning environments. Because of the slow pace in embracing this new aid to learning, Hanewald and Ng (2011) have encouraged schools and educators to consider making changes to accommodate mobile phones in their curriculum; mobile phones are capable of being used for different modes of demonstration. These include – but are not limited to – texts, tables and graphs, drawings, writing formulae, concept mapping and animations through Flash or Pocket Slides PowerPoint, activities that include note-taking, video and audio recording, short texts and researching on the Internet (Hershey, 2011). Sometimes computers are aides to mobile phones (in cases where the mobile phones may not be Internet-enabled). In addition, applications such as office, viewing of multimedia and animations are ‘effective in vocabulary learning and listening comprehension’ (Peng, Abas, Goolamally, Yusoff & Singh, 2011:173) for young learners.
Wireless services are becoming increasingly available, and 'once a phone can easily connect to the Internet, the ability to browse web services makes such devices more useful for learning' (Pachler et al., 2010:74), no matter where the learner is situated.

Key characteristics of learning with the mobile phone are;

emerging contexts (including environment, time, spaces, institutional support, infrastructure), curricula, cultures (of use), ethics, tools, and their affordances, learning activities, access to, and relationships with, information and people, communication, communities, learning histories and appropriation (Winters 2007:9-10, cited in Pachler et al., 2010:155).

Besides aiding in writing stories and reading, Marcueve et al. (2009) add that the mobile phone is a tool of empowerment for everyone, irrespective of their background, because the mobile phone starts by teaching basic numeracy. Some features of the mobile phone, such as Bluetooth and the Internet, can easily facilitate and improve learning by creating easy access and easy exchange of information amongst learners. To strengthen these arguments, Pachler et al. (2010) state that learning on the mobile phone may help learners to improve their literacy and numeracy skills and to recognise their existing abilities. This is because the amount of reading that children do from their mobile phones for leisure and for school could be a major contributor to their reading achievements. Likewise, independent reading could be a powerful predictor of differences in children’s vocabulary and general knowledge (OECD, 2002).

Whatever their position in social structures, adolescents have always been part of any genuine process of socio-political and cultural change. This is the reason why, through curriculum design, technology integration and school leadership, educators and learning material designers have worked hard to find ways to include learners’ voices in education (Hobbs, 2011:93-94). Hobbs (2011) writes that today, most curricula include classroom work, homework and projects that include brainstorming, scripting, recording and editing. By learning in this manner (using their mobile phones with Internet access), learners are made to feel that as they study, their viewpoints are being added to the knowledge they consume while creating content
During projects, ‘learners are enabled to construct content and “place” it in context using mobile devices where other learners can access and add on to it’. In addition, learning via projects such as museum visits, using mobile phones gets ‘more engaging and educational’ and at the same time combines ‘a learner’s personal space with virtual space’ (Pachler et al., 2010:41) in instances where project outcomes are shared on the Internet. Current structures, styles and learning preferences create learning environments that are ‘social, active, contextual, engaging and student-owned’ (Carmen & Haefner, 2002, cited in Hobbs, 2011:26) and these are most suited to Millennial. These learning structures are enabling them to be visibly engaged with one another or with the generation of knowledge (Palloff & Pratt, 2003).

Learning is defined as ‘the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience’ (Kolb, 1984:41, cited in Kolb, Boyatzis & Mainemelis, 1999:2). Ryder and Wilson (1997, cited in Hershey, 2011:58) add that ‘learning is not a fixed commodity, but a function of our interactions with external resources including tools, media and other humans’. Asserting that learning is very dynamic, Brunner (1990, cited in Swanson and Hsieh, 2009:17) claims that learning should be an active mental process where the learners are mentally active in discovering their own learning through multifaceted inputs. Swanson and Hsieh (2009) affirm that when reading technological books, the learner’s reading ability improves. Swanson and Hsieh’s argument ties with previous studies as they highlight that learning technology fosters positive learning attitudes, encourages independent and active learners, encourages active participation, provides timely feedback and improves teacher-learner interactions (Swanson & Hsieh, 2009). What is striking is that Millennial tend to learn better by making observations, formulating hypotheses and figuring out the rules (Garcia, 2007) of the learning equipment and/or the learning process. If young learners acquire knowledge when allowed to reformulate, then it is safe to state that to them, learning becomes more interesting and motivating when they are allowed to discover than when they are just lectured (Oblinger & Oblinger, 2005 cited in Garcia, 2007:16).
Before mobile phones became popular, and even with their present popularity, most schools had static computers on their campuses to be used by learners and teachers alike in order to acquire computer literacy. Today’s environment sees a gradual shift from computer to mobile learning even though some schools (like the school used in this research) may have a combination of both. For schools that have adopted the mobile phone as a learning companion to young learners, the device has been embedded into the curriculum, and therefore introducing the concept of ‘mobile learning, e-learning, persuasive learning, and ubiquitous learning’ (Hanewald & Ng, 2011:2). Mobile learning is defined as:

Any sort of learning and knowledge sharing that happens due to social awareness when the learner is not at a fixed, predetermined location but in varied contexts. The learner may or may not take advantage of learning opportunities offered by the mobile technologies (Hershey, 2011:61).

Wali et al. (2008:55, cited in Pachler et al., 2010:164) define mobile learning as ‘learning that occurs as a result of pursuing activities that are directed towards achieving the same objective across multiple contexts (physical and social)’. Clarifying further, O’Malley et al., (2003, cited in Hershey, 2011:61) emphasise that mobile learning occurs when ‘the learner is not at the fixed, predetermined location or learning that happens when the learner takes advantage of learning opportunities offered by mobile technologies’.

This study relates mostly to the second part of Hershey’s definition. It looks at the mobile phone as a learning device by acknowledging its use in structured learning environments, including classrooms, field and/or laboratories, which are modelled according to learners' timetables, or a semi-structured learning environment such as walk-in laboratories, cafeteria and the mingling areas of school restaurants and libraries (Hershey, 2011:62) or in playgrounds. This is because as seen above, research has shown that using the mobile phone under structured settings could add a lot of value in many ways. It could enable knowledge-building by learners in different contexts, construct understanding and change the pattern of learning, work or activity in the context of time and space (Hershey, 2011). It could also create a learning environment supported by ‘web pages, videos, sounds, slides, online
quizzes, presentation slides, and case-based activities with two-way communication from learners to teacher and from teacher to student’ (Danaher et al., 2009). The knowledge young learners acquire and the process of obtaining this knowledge is of extreme importance to their development. Appropriate and motivated learning strategies should be selected to inspire and enhance their ability in thinking and to encourage interaction in class (Peng et al., 2011). They continue that learning should be made meaningful and interactive and learners should have control of their learning process. They state that giving control to learners means that learning has to be done through visual, audio, simulation and interactive thinking (Peng et al., 2011:178).

The February 2013 ITU statistics mentioned above creates the assumption that the mobile phone is visibly present at almost every home in South Africa. But whether or not every South African owns at least one mobile phone by nature of its acquisition and use, the mobile phone is affirming its presence in every home. Should this be the case, it could therefore be a good idea for programme designers, teachers, parents and even learners to take advantage and convert this ever-present object into a learning device for children. If adopted, ownership and use of mobile phones as learning devices will go a long way to broaden learning sources for teenagers. It will also strengthen the argument that acquiring knowledge or learning is continuous and not provided by a single learning provider (Ng & Anastopoulou, 2011). In recent years, mobile phones have been used to facilitate the movement and consumption of knowledge, making it possible for ideas and inventions to begin to rule the world via the use of technology, putting the mobile phone at the centre of learning innovations. Stald (2008:144, cited in Pachler et al., 2010:66) asserts that:

The mobile phone has become the ideal tool to deal with the pace of information exchange, the management of countless loose, close or intimate relations, the co-ordination of ever changing daily activities, and the insecurity of everyday life. Hence the mobile phone becomes a learning tool for dealing with living conditions in modern society for young people while at the same time it adds to the conditions they are trying to deal with.
Most schools have banned mobile phones altogether from their premises. The ban ignores the fact that mobile phones can have a positive effect in education when used purposefully. However, there is a tendency outside school for young people to use mobile phones as part of their daily lives. At the same time, mobile phones have had a discernible presence in schools; so much so that school teachers and administrators are concerned about their impact on discipline in the classroom. Just as notes were circulated in learning environments via papers, there are reports that learners have been observed in classrooms texting under their desks during lectures (www.itu.int). The ITU reports that in countries such as Australia and Malta, school examination results are being delivered to learners, parents and caregivers via SMSs, while Professor Neil Bothma of the University of South Africa is using SMSs to administer pop quizzes (www.itu.int). Schools could use it to discourage behaviour such as truancy. This report continues to cite instances where schools have used SMSs to report learners’ absence from school to their parents and caregivers.

In every way, the mobile phone and its ‘widespread availability and use affects cultural practices and enables new contexts of learning’ (Pachler et al., 2010:76). In Grades 6 and 7, these devices have also changed the way of learning and teaching in these last two Grades of primary school, where many class events are based on organising long-term projects, researching topics, finding and defining words, writing essays or preparing and delivering papers. Learning on mobile phones can be worthy where fun educational programmes are recreational and non-evaluative (Gauvain & Borthwick-Duffy, 2007). Gauvain and Borthwick-Duffy (2007) state that today’s learners depend increasingly on technologies like mobile phones for answers to their school work. An anticipated motivation to Gauvain and Borthwick-Duffy’s statement could be that learning on the mobile phone puts the concept of ‘anytime, anywhere’ into perspective (Weiser, 1998, cited in Danaher et al., 2009:24). Whatever the reasons for its importance, learning on a mobile phone should still accord the teachers, parents and caregivers the ability to be involved in learners’ lives in both the learning and teaching phases. This learning style, provoked by mobile phones, should be aligned to award teachers the status of ‘innovators where the co-construction of learning between teachers and students is regarded as a powerful vehicle for innovation’ (Visions, 2007:19, cited in Pachler et al., 2010:74).
Good access to mobile phones allows issues that are being explored in class to be ‘immediately and flexibly pursued’ (Nicolas, 2011:41). Where learning is pursued on mobile phones, scenarios are envisaged where learners will be using this digital portfolio in school, working from home, working in public spaces (for example, libraries, restaurants, airports and other public areas) that provide access to wireless networks (Crystal, 2008:82). Using the mobile phone as an aid to learning may as well make it easier for young learners to work in groups, to exchange views and to openly but unknowingly criticise each other as they create and consume their own knowledge. Mobile phones should be able to foster active, creative and interactive learning; ‘by employing the new technology in education, the learning system is not only adapted to the individual’s needs but is also actively involved in his or her learning activity’ (Hwang et al., 2008:82, cited in Pachler et al., 2010:31). The above findings state that the mobile phone has the potential to support learning environments for both individuals and groups. As such, it should be safe to state that learning on mobile phones helps improve both collaborative and independent learning experiences. It could combat resistance to the use of ICTs for learning, lessen formalities in the traditional learning process like sitting still, help learners remain more focused for longer, help boost self-confidence and help identify areas where they need support and assistance in the learning process (Pachler et al., 2010:88). In an immediate way, they could contact their teachers or peers for support via text messaging.

Referring to technology in general and computers in particular, research has found that achievement of both learners and schools can be improved. But if technologies are used for the wrong purposes and in the wrong manner, the effects will be negative or even more harmful (Archer, 2000). Where technology is used for learning, there is motivation from learners to attend lectures (as is shown from higher attendance by learners and teachers), less tiredness and higher morale (Archer, 2000; Horst & Miller, 2006). Because technologies provide instant and non-judgmental responses, working on them helps to boost the morale of learners with low self-esteem and those who do not find other media as appealing (Archer, 2000). Putting motivation aside, learning on mobile phones creates unique benefits for schools, teachers, learners and even parents as it expands curriculum offerings, improves technology-rich instruction, brings unprecedented resources to schools and
significantly enhances teachers’ skills in technology, which can be used regularly in their classrooms (Berman & Tinker, 2000:193-119). However, learners can easily learn using technology only in a situation where their teachers are confident in their technological know-how. In this instance, Pea (2000) advises that before technology can significantly improve learning, teachers must be competent within the technological application they need to facilitate this learning. Irrespective of their level of knowledge on technological skills, teachers also have to appreciate the fact that learners construct ideas and approaches of learning given their prior knowledge and experiences (Ryu & Parsons, 2009). If teachers understand this, teaching and learning will be more effective since they can stay connected with their learners.

2.6 CHALLENGES OF USING MOBILE PHONES AS DEVICES FOR LEARNING

No matter how connected the experience is, educators and teachers have been worried about the negative effects that the ‘free-form’ and often quickly-written text messages may have on teenagers’ capacity for written expressions (Kasesnieme & Tautiainen, 2002:183). This is because when teenagers write on their mobile phones for leisure, a lot of words are shortened. Texting, particularly SMS-ing, does not rely on traditional grammar or punctuation which is required in text written for schools. The following saying goes a long way to explain how destructive the mobile phone has been in educating young learners: ‘Mary had a mobile. She texted day and night, but when it came to her exams, she’d forgotten how to write’ (Humphrey, 2007, cited in Pachler et al., 2010:90). The possible negative impact of technology on learning has made it common to hear even adults complain that they can no longer spell or write. They often refer to the auto-correct function of the computers and mobile phones as their ‘spelling tutors’. With this and other concerns coming to the fore, suspicions are that for most institutions, learning with mobile phones is not necessarily implemented because of love for the device. It is implemented as an educational response to complex cultural changes in socialisation among today’s learners (Giddens, 1999; Beck, 1992, cited in Pachler et al., 2010:155).

Whether or not the mobile phone has an impact on the thinking and interpretative ability of young learners is far from the sphere of this research. To Dede (2000:186),
technology should empower ‘teaching by telling’ and ‘learning by listening’. Dede states that learning can carry on without technological devices because there is already ample information, knowledge and data for learning. Dede cautions that the scenario of a future classroom where kids are working on machines, with teachers wandering around coaching the learners who need assistance, is the wrong model. However, he agrees that learning is a part of all aspects of life (Dede, 2000:187). To contradict his point, one can articulate that technology has been accorded a very important status. As discussed in the next chapter, whenever technology facilitates an experience, it is easily adopted and applied irrespective of whether or not the technology is good or bad. What seems to be clear at this point is that even though technology facilitates learning, it will never cut off the concept of social human interaction (Norman, 1992, cited in Kent & McNergney, 1999:55). Whether they are eliminated or not, it is often assumed that teachers and administrators who use technology while teaching – particularly new technology like the mobile phones – are automatically more effective than those who do not. They are seen as effective because the Internet, if combined with the mobile phone, could positively change the way we educate and learn. It could bring the world together by eliminating the boundaries of time and space. However, as the Internet becomes more ubiquitous and more commercial, it could make the world worse instead of making it better (Holsendolph, 1998, cited in Kent & McNergney, 1999:55); worse in the sense that learners who are not focused on classroom goals could end up gaining little or nothing without supervision, while learners who think creatively out of classroom scenarios could end up creating content that is inappropriate. Asserting their stance against content creation by young learners, Kent and McNergney (1999) go on to state that they believe learners can shape their own learning productivity simply because having access to digital networks is equivalent to turning learners loose in a library and expecting them to benefit spontaneously from the vast resources contained on the shelves. This research attempts to discover how these assertions play out for these Grades 6 and 7 learners as they use these devices.

It could be argued that it might not be worth investing in technology, as schools (particularly in developing countries) need money for other things, for example, new buildings, replacing dilapidated furnishings and reconstructing playgrounds in disrepair. In addition, ICTs have a very short life-span and become obsolete every 5
to 7 years, with acquisition and subsequent maintenance of both hard and software being too expensive (Dede, 2000:186). If priority is given to technology, we may have a situation where a school has the necessary technology to support its curriculum, but this technology will have no ‘home’. These problems are very common in Africa where development is limited to urban areas and where funding of a project relies on overseas donors. A point of enquiry for this research is to find out how its school of enquiry sustains – and plans to sustain – mobile phones and human and other resources used for learning, especially if they are funded.

### 2.7 THE M-UBUNTU PROJECT

Unlike other technologies, mobile phones stand to have an incredible importance in the near future (Peia, 2010:30). They already have significant impact on youth culture today, and both acquisition and use by teenagers are affecting development and learning activities by teenagers and adults alike across the globe. These devices have enabled underprivileged children not only to communicate and play with mobile phones, but to use them to access educational material. In South Africa, the M-Ubuntu project, initiated through a staff member of Duke University, is focused ‘on the viability of using mobile phones as a pedagogical tool alongside the existing teacher development programme’ ([www.m-ubuntu.org](http://www.m-ubuntu.org)). This project, based in Cape Town in South Africa, is a mobile learning initiative hosted by the Learning Academy Worldwide. Introduced in 2009, M-Ubuntu’s partners include the German Development Volunteer Service (Weltwarts), the United States of America’s mobile giant SPRINT, the Digital Media and Learning (DML) competition and the United Kingdom M-Learning giant, TRIBAL. Its success depends on a host of volunteers, each of whom is in a transitional stage and engaged in an initiative known as Volunteers in Technology and Literacy (VITAL). VITAL volunteers aim at ‘supporting teachers as assistants with oversized classes in loading curriculum-related content on the mobile phones, planning projects with teachers and developing their own life skills in preparation for future studies and work’ ([www.m-ubuntu.org](http://www.m-ubuntu.org)). One of the

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6 They are either in the course of preparing for higher education, completing high school or at a final year of studies in a higher education programme.
schools being assisted by VITAL is the primary school on which data for this research will be collected.

Applying the Zulu concept of uBuntu – best translated as ‘I am because we are’ – to this challenge, the project uses inexpensive, low-threshold mobile phone technologies to empower teachers to address Africa’s literacy crisis. The letter ‘M’ from mobile is affixed to the word ‘uBuntu’, a popular South African word. uBuntu is coined from the Zulu and Sotho versions of a traditional African adage often translated as ‘a person is a person through other persons’: Umuntu ngumuntu ngabantu. Motho ke motho ka batho (Van Binsbergen, 2003:428, cited in Cilliers, 2008:1). It expresses the fact that ‘one’s identity as a human’ being causally and even metaphysically depends on a community. Widely known across the African continent, this concept translates the fact that actions taken by people ‘morally should support the community in certain ways’ (Metz, 2007:323). If the aim of the sponsors of this project is powered by the fact that educating a child is not just the responsibility of the parents and the school, and if empowering these children means building a better future for the children and subsequently their communities, then they are well in line with the concept of uBuntu. In an uBuntu spirit, people are expected to share what they have because their ‘humanity is caught up, is
inextricably bound up in’ (Desmond Tutu, Random House, 1999:31, cited in Metz, 2007:323) others. As such, the project has been designed so that learners do not only receive donated mobile phones, but are also meant to work with and share with each other as they study in groups.

In many ways, the uBuntu concept has been described as a way of life, a universal truth, an expression of human dignity, an underpinning of the concept of an open society, African humanism, trust, helpfulness, respect, sharing, caring, community and unselfishness (Metz, 2007; Cilliers, 2008). To these local communities who are benefitting from the generosity of this project, the M-Ubuntu sponsors have ‘uBuntu’ (Metz, 2007:323). Describing them as such illustrates the idiomatic relationship that believes that by enriching an individual, their community is in turn enriched. This concept therefore furthers the concept of sharing and caring; a concept that will later be articulated by the respondents of this project. As summarised below, educating children on mobile phone usage goes beyond just empowering the children, to empowering their communities through the people they interact with out of school.

uBuntu is the principle of caring for each other’s well-being…and a spirit of mutual support … Each individual’s humanity is ideally expressed through his or her relationship with others and theirs in turn through recognition of the individual’s humanity. … It also acknowledged both the rights and responsibilities of every citizen in promoting individual and social well-being (Republic of South Africa Government Gazette, 1996, February 2, cited in Cilliers, 2008:2).

Developed with and for learners and fellow teachers, M-Ubuntu is connecting South African teachers with M-literacy coaches in and from the United States of America, England, Sweden and Italy to help them open new avenues of enquiry (www.m-ubuntu.org). Because of its reception by schools, local communities and pupils, the M-Ubuntu project, initially introduced in two public primary schools, now involves six primary and four secondary schools around the country. If their application made to the United States Agency for International Development (USAID) succeeds, this project will be rolling out mobile learning in 60 schools in the KwaZulu Natal Province alone in 2013 (van Rensburg Lindzter, 3rd September 2012). Much growth is anticipated because at the heart of the project are several teams of reform-minded
principals, teachers, volunteers and their enthusiastic learners. This project, which initially paid more attention to teachers’ development, assumes that where teachers are empowered, they are more effective and will therefore produce better learners. Based on a needs assessment, the project leaders were quick to establish that literacy (reading and writing), motivation, social behaviour and mathematics were primary areas that needed focus in teaching by using the mobile phones (Haagan & van Rensburg Lindzter, 2010). As data for this research will be interpreted and analysed, it will be interesting to find out if this assessment was correct.

For now, it is important to note that the big roll-out scheduled for this year is proof that the government of South Africa is slowly warming up to this project which aims to bring mobile phones to rural classrooms. In September 2010, the Gauteng Department of Education asked the M-Ubuntu project to introduce mobile learning to its staff as they made preparations for their 2011 teacher training programme. The Department now understands the project’s purpose: ‘to find a viable technology solution for teachers and learners where western-style technology was not available’ (Haagan & van Rensburg Lindzter, 2010:12). According to the project organisers, apart from the fact that the M-Ubuntu project is aimed at typically disadvantaged schools, it also considers schools that depend on teacher, chalk, board and talk as a means of instruction, schools that have dysfunctional computer labs and those with more than 30 learners in a class. According to Haagan and van Rensburg Lindzter (2010), a donation of 100 recycled Samsung I 325 smart phones by the SPRINT Corporation was very crucial to the take-off of this project. They also state that these mobile phones all had features such as still and video cameras, audio and video recorders and players, Microsoft Words, Bluetooth connectivity, memory card slots, 2.5 x 3 inch screens and QWERTY keyboards (Haagan & van Rensburg Lindzter, 2010:15).

Mobile phone learning is making a difference. Through M-Ubuntu, teachers are using recycled Smartphone’s to bring the power of handheld computing to their classrooms via project-based learning. Learners and teachers gain access to the best in South African and global literature, and help in the development of critical reading, writing and thinking skills. Empowering teachers to teach with mobile phones is essential. For this reason, at the introduction of this project 20 teachers were recruited from
two primary schools; each participating teacher was given a mobile phone and money to buy a prepaid SIM card with about 200 minutes of airtime. Training included project-based learning, group learning and learning how to rearrange classrooms to facilitate group interaction. In participating schools, learners are introduced to the mobile phones in Grade 4. Through to Grades 5, 6 and 7, M-Ubuntu lessons are taking advantage of the multimedia capacity of smart mobile phones, including photographs, videos, written text and audio files (www.m-ubuntu.org). Schools therefore have the opportunity to build their own libraries with shelves for thousands of books, audiotapes and short videos using 2Generation memory cards that are inserted into their mobile phones (Haagan & van Rensburg Lindzter, 2010:15). Thus far, the project has been a success in participating schools, including the school under research. It has been proved that using the mobile phone in the classroom eliminates the concept of time, space, and connectivity that are characteristics of today’s learning environment.

**Conclusion**

This chapter has examined the difficulties Millennial face as they attempt to fit into the youth culture of today. The Grades 6 and 7 learners in this study acquire and use their mobile phones as per the socio-cultural and economic factors that influence their lifestyles. The study discusses the fact that the use of mobile phones for many reasons, including education, could easily bring about development in areas that technology has been slow to penetrate. Despite numerous challenges, mobiles phones are capable of serving as great companions for learners. Drawing from the M-Ubuntu project in South Africa, the mobile phone can be used as a very important tool in the education of Millennial and subsequently an entire community, even if they could never afford to buy and maintain the handsets.
CHAPTER 3

THEORETICAL FRAMEWORK

3.1 INTRODUCTION

This research study aims to explore the perception of learners as they use mobile phones as devices for learning. It sets out to understand how Grades 6 and 7 learners in a Gauteng primary school use mobile phones as educational devices. As such, and because society drives interactions on mobile phones, this section explores the theory that informs the day-to-day lifestyles of teenagers as they use mobile phones to play and study, both in and out of the school environment (the theory of social construction of technology). In order for the mobile phone to be adopted as an effective learning aid, current learning situations will have to undergo some changes in delivery. These changes will be unavoidable considering that role players and users come from different cultural and socio-economic backgrounds.

The previous chapter looked at how Millennials have been influenced by youth culture as they acquire and use mobile phones. After illustrating how mobile phones can help bring about social and economic development, it also examines the use of mobile phones by teenagers. The study explains that despite some challenges, mobile phones are slowly finding a place in the learning environment. An understanding of this has been illustrated by narrowing explanations in the South African context and by explaining the concept of M-Ubuntu. To better expand on how social ties have become relevant to the adoption and use of mobile phones, this chapter examines factors that influence the ever-changing needs of its users. It looks at how these changes have in some ways compelled designers and producers to come up with software and models that will satisfy these needs. In order to gain this knowledge, this chapter starts by exploring the theory of social construction of technology. This chapter also discusses the relationship between the theory and the mobile phone, and it looks at how this theory has helped to construct the mobile phone as a learning device. To better understand the choice of theory, it is fair to
also take a brief view of its biggest detractor: the theory of technological determinism.

3.2 DEFINITION AND OVERVIEW OF THE SOCIAL CONSTRUCTION OF TECHNOLOGY THEORY

As mobile phones become ubiquitous companions of our daily activities, they increasingly play a role in how people conduct themselves. As users creatively or innovatively talk and use mobile phones in different ways, they grant mobile phones ‘life, language and performative power’ (Caron & Caro nia, 2007:40). To appreciate how this occurs, it is important to start with an understanding of the theory of social construction of technology. This theory looks at how ‘technological systems bear the imprint of the social context in which they arise’ (Pfaffenberger, 1990:15, cited in Hughes, 1991:19). It explains how social forces have worked themselves into, and influenced technical uses and designs of these devices. This theory explains that because many design alternatives exist, social interests as well as other non-technical factors (Hughes, 1991) like politics and economics (Stump, 2006) play vital roles in how technology is perceived, constructed and used. It is therefore acceptable to state that according to the meaning granted to technological objects, for example mobile phones, they are empowered to create social and cultural realities (Caron & Caronia, 2007:40) or to make changes to existing realities. As discussed in Chapter Two, and still to be covered in the rest of this research, some of these realities are so eminent that they have changed the way people talk and act.

The theory of social construction (of technology) has three important aspects which if briefly covered, will give a better understanding to this research. These aspects are known as ‘interpretive flexibility, relevant social groups, and closure’ (Parayil, 1999:51-52).

Interpretive flexibility signifies that a technology can have different meanings, interpretations and purposes depending on the socio-cultural groups that use it. This means that although the mobile phone was created for one-on-one contact as mentioned above, it has been redefined to be used by many users for different
reasons. This definition is extended to schools where it has become a learning device. To Grades 6 and 7 learners for instance, the mobile phone could mean access to an open library, while to a medical doctor, it could be an alarm clock used to remind him of certain duties.

**Relevant social groups** capture how particular groups influence the integration of technology through distinct interpretations. For easier understanding, this transpires when users and producers have different influences on technology due to their group’s distinct interaction with the particular technology. As mentioned, if learners have transformed the mobile phone into a learning device, then they see and use it like they would a book.

**Closure**: Parayil (1999) states that closure means that the object is now being accepted and used with ease. Through closure, problems produced by technology can usually find solutions or less detrimental problems by varying the technology’s social use. For example, to make the mobile phone more desirable, its designers and producers had constantly introduced new software to facilitate better, more efficient uses. As is the focus of this research, it is worth mentioning that these uses have worked well for most literate users of the mobile phone. This group of users has been able to connect to and be contacted by people of their choice (although at times not of their choice) through social media applications like Facebook, WhatsApp, Twitter and Viber.

Together, these components can describe how technology has also connected family members (Caron & Caronia, 2007), friends, and classmates. In this case, it explains how the mobile phone came to be successfully adopted as a learning device. They can also work to provide a social element to technology’s integration into society (Peia, 2010:16). To explain this better, it seems impossible to avoid the fact that technologies are persistently ‘reinterpreted by users and given new, often unexpected, trajectories … depending on the inventiveness of the users’ (Bijker & Law, 1992; Law *et al.*, 1987, cited in Ling, 2004:23-24). This impossibility is clearer when one looks at how Millennial have adopted the mobile phone. To recap, the section that deals with acquisition and the uses of mobile phones reveals that the social construction of mobile phones begins at take-up stage where social
interactions sway decisions on how mobile phones are acquired and used. It also explains the type of mobile phones teenagers prefer to acquire and use; namely, those that identify them as being young, outgoing and even belonging.

Caron and Caronia (2007) disclose that young people’s creative and innovative uses are clear examples of how technology can acquire and lose functions as deemed necessary by both the users and the culture in which they are being used. To them, people – especially teenagers – have formulated and reformulated the mobile phone to mean different things in different situations. Caron and Caronia (2007) illustrate how this group of users has expanded the use of text messaging via the mobile phone. They note that teenagers have not only used mobile phones to send information as a housewife would do, but they have used it to greet as well as to flirt via text, audios, videos and pictures. Crystal (2008) adds that as they text, this group of people have replaced words with letters, numbers and signs. The Grades 6 and 7 learners of this study could be playing, reading and writing creatively as do people of their age, but what is critical at the moment is that as they do so, they are using these mobile phones to gain knowledge and to acquire literacy and life skills. The next section explains how the uses and the social construction of the mobile phone have influenced learning.

3.3 LEARNING, SOCIAL CONSTRUCTION OF TECHNOLOGY AND MOBILE PHONES

Millennial remain the one group whose way of life has been greatly influenced by the use of mobile phones. The subjects of this research – Grades 6 and 7 learners – happen to belong to this group. In South Africa, Grades 6 and 7 learners are mostly between the ages of 11 and 13 years and are in the last two years of primary school. At this stage and age, children spend a lot of time with their peers. While amongst a circle of friends, these young learners are actively molding their identities, and in the process, many of them gain the knowledge of difference. The knowledge of difference exposes them to social realities that come with exercising power. For example, in social set-ups some children by virtue of their personalities may enjoy inclusion, while others suffer from exclusion. Teasing and rejection are also very
common at this stage when adolescents are developing self-esteem. Making them work in groups with mobile phones, which is encouraged by the M-Ubuntu project (www.m-ubuntu.org), may help to teach learners that they might be different in character but they deserve some cooperation and trust from each other to perfect their learning and life skills. Similarly, the social practice of working in groups may help neutralise abnormal feelings such as that of fear or hate, and in so doing, boost learners’ confidence and trust.

Learning on the mobile phone is not just about being able to read and write on it, but involves support from other sectors of the economy. This support is both in infrastructure and human resources. To align with this approach of social learning, developing countries need to devise effective strategies to incorporate new ICT-based learning tools into their learning curricula (Crede & Mansell, 1998). They have to have the necessary infrastructure, powered by technical know-how, and both teachers and caregivers need to have some knowledge on how the mobile phone works as a learning companion. That notwithstanding, if isolated as a device, the mobile phone still has unlimited influence in and out of school. Most users and caregivers do not need to go through intensive training on how to use it. This is because during communication, individuals learn and teach each other as they talk and share information on many different aspects, including how to use and manipulate the device. As people acquaint themselves with the mobile phone through social processes, they tend to have a better grasp of it and come up with innovative or explorative uses that fit their socio-economic backgrounds. These uses are generously shared with others, either knowingly or not. Sharing social attributes are not difficult tasks since people generally take their own behaviour and social norms as universal (Walton, 2009). As they share and learn, they also construct the device socially.

Apart from people consciously or unconsciously sharing their culture, adapting to and using the mobile phone has been quick. This is because, like any other technological artifact, it is socially constructed. Through social groups, people easily commit to the use of a technology (for example, the mobile phone) in a particular manner and this commitment helps to stimulate its development (Walton, 2009). Technological development spreads in the sense that more and more people adopt
its specific way of usage and this may increase demand for the object. Increased demand for different uses of mobile phones could lead to its redesign to fulfill the intended new uses, or adoption of software that will help facilitate its consumption. While determining such uses has been in the hands of the producers and users mentioned above, each group has sub-sets that utilise the mobile phone in different ways. Specific ways in which sub-groups use mobile phones could be illustrated as follows: Although Grades 6 and 7 learners may use the mobile phone as a learning device, an adult with whom they share the same socio-cultural values may use it strictly to make and receive calls. One of the social needs of Grades 6 and 7 learners is learning, while the interest of adults has nothing to do with reading and/or writing on mobile phones. This difference in uses shows that people could all live within the same space and share the same socio-cultural backgrounds, yet have different social ambitions that are specific to circumstances.

No matter what the origin, cultures may be shared by people or groups with completely different backgrounds. A person’s 'identity as a human being causally and even metaphysically depends on a community' (Van Binsbergen, 2003:428, cited in Cilliers, 2008:1) and so too is their culture. Looking at how Grades 6 and 7 learners are using the mobile phone to expand their educational careers, one of the questions this study seeks to answer is how these learners acquired the skills that have enabled them to read and write on mobile phones. Before the study’s findings are analysed in Chapters 5 and 6, this research assumes that as with many others social skills, learning on the mobile phone was ‘picked-up’ along learners’ social paths. It presupposes that learners and their caregivers had little or no formal education on how to use the mobile phone as a successful learning device. This means that these learners have just emulated a culture that started somewhere else. Reading stories and other learning material on mobile phones is a culture that is reported as already popular in Japan (the Associated Press, March 18 2005, cited in Peia, 2010:41). According to this report, the mobile phone in Japan has been transformed to a tool for reading books. It was easy for children of both school-going and working ages in Japan to spend a lot of time reading on their mobile phones. As explained in this report, this is typical because on average the Japanese commute long distances during the day, mostly on public transport. During commuting periods, the phone is a favourite pastime since commuters do nothing or have little face-to-
face communication with fellow commuters. Since they always carry their mobile phones, and possibly because books are not only expensive but cumbersome to carry, educators and educational material developers have seized this opportunity and loaded mobile handsets with mobile screen-friendly versions of books and learning material. Therefore, this joint act by users and learning material designers is now almost permanently transforming the mobile phone into a library, not only in Japan, but in other parts of the world, including South Africa. Coupled with other social factors like access and affordability, and given that in South Africa most learners travel to school either being driven or using public transport, this mode of learning might just be one that will soon gain respect amongst South African youth; learners in particular.

Social practices have affected how the mobile phone is being used. Schools in Africa and other developing countries now seem to be trying to make learning on mobile phones a norm at all levels. It is imperative for institutions and governing bodies alike to admit that the ultimate use of a technology is always established with help from the social characteristics that surround it. However, they also have to agree that these uses are guided and influenced by the technical properties of that technology. Equally, people are the creators of technology, and as such, only they have the ultimate power to change technical aspects to affect how the technology is socially used. Presently, the mobile phone does not only expand the sources of learning for learners, but further increases their ability to acquire in-depth knowledge of topics, as they tend to easily and quickly access learning materials from other parts of the world (Walton, 2009). Similarly, because of its ubiquitous characteristics (constructed by society), the mobile phone affords learners the opportunity to continuously refer to texts of all nature at any given point in time. They do not, for example, have to wait for library hours to do so.

If the mobile phone successfully expands the scope of learning, then the above paragraph has answered one of the research questions: Can the mobile phone become an effective learning device in schools? By asking this question, this research strives to prove that because it is socially constructed, the mobile phone has taken the learning environment out of its traditional zone into one where learning seems to be instantaneous and non-judgmental. It aims to prove that today’s
learners learn in a socially constructed environment, where at any time of day or night they are able to access learning materials using mobile phones. Whether or not this question has been answered, this research endeavours to find out how the mobile phone became an all-in-one knowledge portal. To reveal this, it is necessary to look at Peia’s (2010) research which begins by explaining that, similar to the telegraph; the telephone was designed for use as a business technology. However, alongside other authors (Goggin, 2006; Horst & Miller, 2006; Caron & Caronia, 2007; Marcueve et al., 2009; Pelckmans, 2009), Peia notes that its purpose was quickly modified by different users to become a technology used by all for personal and business purposes. Peia continues that given its ability to yield nearly instantaneous voice-to-voice communication, the fixed line telephone did remove geographic location from the list of challenges faced by disenfranchised communities. It established the ability of people to communicate or socialise in a virtual set-up that lacked the face-to-face contact of regular dialogue. Peia (2010:33) continues that as a result, a member of ‘the upper class could be contacted directly by a member of the lower class without change in social patterns’. It can be argued that these changes in voice communication structures across social groups prompted the need for other forms of communications. This need is what gave birth to texts, audios and videos.

The continuous evolution of the communication system is an insight to Feenberg’s (2006) pronouncement that ‘consumers, students, and workers have already had important impacts on the development of technology, shaping it through social negotiations or by finding unintended uses for technology’; in this case, the mobile phone. However, the telephone was not necessarily appropriated to change social patterns as the mobile phone has done. The mobile phone is mobile in a revolutionary sense, because its properties have been redefined to afford possibility of usage (Ling, 2004). It has been personalised and offers its owners and users liberty to access any required information at any time, at any given place and in any chosen format. Because knowledge is power, the mobile phone is portrayed as a symbol of ‘power’ to these young people who are on a quest for identity.

The available features in the mobile phone have evolved a lot over time, starting with the first mobile phones that were typically equipped only with an address book
According to Goggin, changing cultures and social interactions have socially constructed the mobile phone and thus brought about different generations of mobile phones. Even the space now available to store contacts has been increased drastically, with most mobile phones now equipped with external memory cards. These memory cards work well especially for Millennial who need this space to store their most desired contacts, pictures, videos, music and even learning material. Mobile phones have evolved from having no camera, Bluetooth, 3G or 4G to having all these facilities. In addition, 3G, 4G and GPRS now offer Internet services to mobile phone users. Mobile phones have likewise been upgraded to smaller and faster models, with bigger and better screens and stronger and longer-lasting batteries. Its built-in memory is able to store various sizes of data, and its users are able to see who is calling and choose whether or not to answer. Just as they can choose to take their time to respond to text messages, users can also choose to take calls or listen to voice messages at a later stage. Ultimately, this creates a slight change in the way users socialise. The phone’s screen also enables users to view graphical data in a new manner. This makes it easier to adopt mobile phones as comfortable replacements for laptops and computers in a learning environment. Mobile phone cameras could record a variety of activities and the mobile phone is now programmable. They are smaller, slimmer and more powerful than ever before. Storage capacity has significantly increased and some mobile phones can even store and play back multiple feature-length films. Better display and new interfaces make it easier to interact with users’ growing social networks and their ever-expanding variety of content necessary both for learning and for pleasure.

These and other features have not only made it possible for people to envisage a scenario where students will be using this digital portfolio inside school, when working from home, or when working in public spaces such as libraries and other public areas such as cafés that provide access to wireless networks’ (Crystal, 2008:82), but it has actually constructed a reality where learners can now work in all these places, irrespective of whether or not they have Internet access and/or Bluetooth.

3G and 4G stand for Third and Fourth Generation respectively.
Apart from texts, the mobile phone has also been constructed so that learners can access learning material related to learning subjects. They can now access graphs, converters and calculators for mathematics and physics, maps and navigators for geography and dictionaries and translations for literacy and languages. Talking on the mobile phone also teaches life skills when children learn to talk on cues. At the same time, chatting or texting gives them a sense of urgency and responsibility as they tend to listen keenly and respond timeously to others. Learning to talk in cues and having a sense of urgency might not add value to the formal learning process, but, it could work as a bonus to learners during out-of-school or formal learning interactions.

This could be the reason why the statistics below make sense after all. In 2009, a study conducted in South Africa indicated that in lower income areas, mobile phone usage amongst school children was 97% (Kreutzer, 2009, cited in Kritzinger & Padayachee, 2010:1). Even though Kreutzer’s research does not focus on Grades 6 and 7 learners, this figure explains a high mobile phone penetration amongst learners in South Africa. It is not only ownership that is evident, but the manner in which these phones are used. Writers have articulated that the mobile phone has, for instance, changed the way teenagers and even adults send and receive or write and read messages. They state that because of its limited space, users have learnt to either shorten words or use numbers, letters and symbols to replace multiple letters (Crystal, 2008; Ling, 2004). Even though some young people may enjoy the fun of being creative with letters, words, numbers and symbols, they are communicating in this manner in an attempt to talk more but pay less. Likewise, some may prefer to communicate in this format because they want to spend very little time typing. It could also be an attempt to catch up with life’s other activities or in the case of chatting, to catch up with the pace of the other person or group with whom they are communicating.

Various aspects of human creativity have prompted Ling (2004:22) to note that ‘mobile telephony is moving away from its traditional base into new, uncharted waters. We are making up the rules as we go along. We are finding new and unexpected uses for and ways of using mobile telephones’. Agreeing with Ling, this section looks at the fact that human action (social construction) affects the use of
technology; particularly the mobile phone. It does so by explaining how teachers, learners, and their caregivers in their immediate communities have successfully and collectively adopted the mobile phone as a device suitable for accessing and reorganising learning materials. As prompted by their social and cultural standings, they have done so in their need to extend learning to a more convenient and less expensive level. Of course books are not cheap and libraries are not at every corner, and even if they were abundant, books and libraries are not as easily accessible by all individuals at any time of the day as are mobile phones. Chapter 2 discusses youth culture and how the prolific use of the mobile phone by Millennial has turned it into a most favoured companion. If the mobile phone has been part of the artifacts young learners carry around, then it is very important to further explore and understand how it has sneaked into their school bags, school premises, classrooms and other learning environments – even their desks. This explanation can only be given by relating the theory of social construction to mobile phones, the learning habits and the lives of users themselves.

3.4 CONSTRUCTING THE MOBILE PHONE AS A LEARNING DEVICE

To link this theory to mobile phones and their users, it would be fair to concede the fact that using the mobile phone as a learning device prompts learning to be manifested through social processes. Recent research (see for instance Braun, 2007; Horsts & Miller, 2006; De Bruijn et al., 2009; Murray, 2011; Vooslo et al., 2009; Haagan & van Rensburg Lindzter, 2010; Ling, 2004; Kreutzer, 2009; Pelckmans, 2009; Crystal, 2008; Walton, 2009), states that users gain literacy skills by increasingly using functions of the mobile phone such as texting and the Internet. With the mobile phone as a learning device, learning becomes learner-centered. It transforms the learner to ‘an active participant in the construction of his or her own knowledge’ (Piaget, 1972; Bruner, 1990, cited in Nicolas, 2011:33). This is probably why social constructivists believe that when using the mobile phone as a learning device, knowledge is produced by the learning contexts and by the learners themselves (Von Glasersfeld, 1989). However, to learn by themselves, learners have to be given the opportunity to create content for projects. In learning how to execute a project for instance, they should be put in groups and assigned to write and record
videos ([www.m-ubuntu.org](http://www.m-ubuntu.org)) for a website, a newspaper, a blog or just for class consumption. In this situation, the learners are not just taught how to write, record and edit but are given the opportunity to do so. Learning by doing is arguably a more empowering method of learning because it gives learners the opportunity to sit back after the project and review what they have created. This form of learning does not only expose learners to how to use the mobile phone or how to make videos, but teaches role-playing, independence and how to work in teams. Best of all, it exposes them to the fact that learning is a social process and that even though learning cannot take place without involving books, individuals also learn and teach one another without necessarily using books.

The dynamism of the mobile phone has led to a variety of social, economic and cultural ways of using it. With the ability to provide access to a full range of networked information and communication services (Feather, 2004; Ling, 2004; Peia, 2010), this device now plays a major role in the distribution of learning materials (Walton, 2009) via Bluetooth, memory cards, special cables and the Internet. Horizon (2008:17, cited in Pachler et al., 2010:78) declared that mobile phones are ‘smaller and less expensive than laptops, yet increasingly useful; the mobile phone is fast becoming the ultimate computer for all’. Using mobile phone software, mobile learning material can be organised into small ‘information nuggets’ which can generally fit into one or two views on its small screens (Danaher et al., 2009:11). No matter how well content is arranged, successful learning programmes must be reliable and relevant and must engage users through more diverse personalised mobile learning experiences (Danaher et al., 2009). By this, these authors are suggesting that developers of mobile phone software must tailor them to be user-friendly for educators. Equally, education material developers must have their material developed in such a way that classroom teachers have the liberty to customise them according to the learning needs of specific groups of learners. Where learning materials are not tailored, the mobile phone will be far from realising its needs in the educational sphere.

The models of mobile phones may not matter much to this research because the learners are using donated recycled handsets (see Chapter 2). What is mostly important to them may be their ability to create and access learning materials from
mobile phones when and as need arises. The impact this learning material may have on these learners could be influenced by the role of the device in boosting their understanding of the contents. Ease of understanding is recognised when learners appreciate content without many questions. Because learning is a conversational process, it is often aligned to a conversation between different knowledge systems. In this system, technology – particularly the mobile phone – provides support for modeling as well as an environment that enables conversations (Pachler et al., 2010). Furthermore, whether users are learning with the mobile phones, computers or books, learning remains:

... a constructive process, involving the active construction of knowledge. It is both social and cognitive activity, occurring within a rich milieu of physical and cultural tools, settings and social interactions. And it comprises not only a process of continual personal development and enrichment, but also the possibility of rapid and radical conceptual change (Taylor et al., 2006:6, cited in Pachler et al., 2010:162).

In exposing users to opportunities presented by its recent developments, Feather (2004) recommends that linking the mobile phone to a laptop or computer gives complete portability. Where there is no Internet access, the mobile phone connects to these other devices via Bluetooth or memory cards. This research will add value to Feather’s 2004 recommendation should it turn out that the M-Ubuntu handsets do not have Internet access, even though they are used alongside computers and other devices. However, by means of its openness, it was suggested that the Internet will resolve several problems, including illiteracy (Ling, 2004). Ling is of the opinion that if used on mobile phones, the Internet could allow mediated communities of interest to replace local communities. Bluetooth does come in handy even in places where for many reasons landline telephones would not have been able to connect mobile phones to the Internet.

The Grades 6 and 7 learners in this research are in rural South Africa where it is can be assumed that they do not have landline telephones and Internet services in their homes or public facilities. The perception is that they only access the Internet in or out of school on mobile phones. As this study develops, it is a point of interest to find
out how these learners have used mobile phones or if they have done so out of school. This study will be informed on whether or not the mobile phones used in school are being taken home. If they are, another point of interest will be to enquire how these learners have succeeded without or with Internet connection as they study in and out of school.

The role of users and social forces in shaping the mobile phone can easily be explained as seen above. However, no matter how significant the uses are, unfortunately in social set-ups, people go through a series of negotiations before deciding to adopt (Huddon, 2001, cited in Ling, 2004:72) or not to adopt a particular technology. Just as in learning, ‘users construct new knowledge based on already learnt concepts or previous experiences’ (Colella, 2000; Roschelle, 2003; Facer et al., 2004, cited in Peng et al., 2011:172) before they warm to new or modified technology. It is rather unfortunate that many institutions and individuals did not take cognisance of the mobile phone’s worth when learning at its inception. Consequently, Crystal (2008:180) laments that schools around the world reacted more negatively than positively to mobile phones as a learning device. As seen in the above chapter, Crystal explains that like other devices, (referring to MP3 players and game consoles), individuals and institutions have described mobile phones as ‘objects for critical media education and literacy’. Because they initially refused to see how this device could add value to the educational system, it has taken many institutions – especially schools – a long time to begin to identify the place of the mobile phone in the learning hierarchy. That is, if they have done so. Even though there is increased evidence that teachers and educators have begun using these devices for learning (Crystal, 2008; Walton, 2009; Haagan & van Rensburg Lindzter, 2010; Isaac, 2012; www.itu.int), the majority of schools still refuse to allow mobile phones onto their premises, citing increased distraction. In many schools around the world, there are claims that learners spend a lot of time talking to boyfriends or girlfriends, viewing pornography, circulating dodgy information and cheating during tests and exams. In other words, they get distracted with functions not related to studies (Horst & Miller, 2006; www.itu.int). In the analysis chapters, this research will interpret how the M-Ubuntu project and school policy have managed this and other distracting aspects, if in fact they have.
Scrutinising the theory of social construction of technology proves the glaring effect of mobile phones on Millenials the world over. They form a great chunk of the market and a good target for designers and producers in the production of both the handsets and software. The reaction of the mobile phone market in favour of this group is not a coincidence. It proves that ‘technical design can only be defined contextually and locally by the particular technology-society relationship’ (Katz & Aarkhus, 2002: xiii). Katz and Aarkhus clarify that no matter how it is customised, technology will also be influenced by its relationship with its users. As such, technology can never be neutral because it can never be removed from its original context (for mobile phones, it is that of facilitating information flow). Also, the level of transformation brought about by mobile phones does not matter. This is because as social objects, they remain ‘cultural objects. As such, mobile phones are taken up or not, and inserted or not by social agents according to felt social requirements, and in that they follow and foster contemporary social transformations and are shaped by them’ (Pachler et al., 2010:202).

As will be demonstrated in Chapters 5 and 6, the theory of social construction easily informs this study because, as a socio-cultural object, the mobile phone will be one of the most efficient devices used for achieving social (Ling, 2008; Caron & Caronia, 2007) and learning integrations for a long time. This is irrespective of Tapscott’s (2000) pronouncement that the difference in access to technology, technology fluency, motivation and opportunities to learn may all lead to a world of ‘knowers’ and ‘know-nots’, ‘doers’ and ‘do-nots’. Of course, the increased use of the mobile phone as an instrument to socialise, used by the literate segment of the society as mentioned above, may continue to widen the gap between those who can and those who cannot use the devices in this manner.

3.5 POSITIONING MOBILE PHONES IN LEARNING ENVIRONMENTS

Those who have been privileged to use it in different circumstances will agree that the mobile phone informs the theory of social construction in that it has been formulated to ‘liberate the user from the constraints of physical proximity and spatial immobility. … Being socially available and accessible with ‘no free moment’ … and
being ‘simultaneously present’ in ‘shared space’ … as well as in ‘several places’ (Stald, 2008:174, 152, 154, 156, cited in Pachler et al., 2010:211) possibly at the same time. It has been repurposed by every cohort, regardless of age, economic and social class, gender, race, religion, belief or literacy level. In their social lives, young people have created urgency in how the mobile phone has been used. They have responded to messages and are beginning to respond to learning almost instantly and at a very fast pace. Sympathetically, because of peer pressure, affordance (Livingstone, 2008) reliability and accessibility (Banks & Burger, 2004), mobile phones have become a norm that young people now take for granted. Because they do not envisage a life without mobile phones, it seems obvious that they have already ‘voted’ it into their learning careers. They always embrace the use of this device in this very important and unavoidable activity in their lives. As a matter of fact, they presently only await role-players, such as policy makers, educators, parents and communities, to approve their ‘vote’. Decision-makers may not have a lot of time left to implement this. In fact, it seems obvious that mobile phones have irresistibly penetrated every person’s life – including that of the youth – every day and everywhere. As such, it would be very considerate of the educational fraternity if they could make this a matter of urgency and respond to the needs of young learners.

As a cultural object, the mobile phone is not only used differently by different groups and sub-groups but it is adopted or rejected by social groups as per their social requirements. Be they adults, children or teenagers, all users belong to social groups and have social needs. In academia, just like in many other fields (including businesses), mobile phones have been used to provide both a ‘catalyst for change and a means for changing’ (Heppell et al., 2004:3, cited in Hershey, 2011:10). In the business scenario, employees have used it to randomly call or text their bosses. In the same way, it has been used to break long-standing hierarchical social relationships in schools, as learners and teachers use it to connect (Katz, 2003; Horst & Miller, 2006) on and out of school premises. It has been adopted to create a scenario where they can now call or text each other to seek clarity on homework or educational assignments. Similarly, Horst & Miller (2006) write that mobile phones have been positioned in such a way that they have empowered parents to call their children’s teachers or members of their school authority to establish the validity of
messages conveyed to them from school for anything related to their children. No technological device seems to have been appropriated in so many different ways by different segments of users, and none has been used to make so much change to social lives. This research aspires to find out if such set-ups have motivated the learners to learn more or not.

Powered by software, the continuous remodeling of the mobile phone due to social needs has no doubt prompted it to redefine how learning and teaching was traditionally conducted. It is now positioned as a device that is making it possible for learners to learn independently of teachers. For example, in the absence of teachers, learners can be instructed on what work to do and how to do it. All these instructions could be given by text, instant messaging or even emails. This research is in no means suggesting that the mobile phone will be redefined to the extent that it will replace the physical presence of a teacher in a class. However, it speculates that with the mobile phone given a place in classrooms, the teacher is gradually being transformed into a mentor (Prensky, 2006). Already, as an interactive learning device, the mobile phone is being adopted and it is also proving suitable for coordinating learning and teaching activities during after school programmes like excursions, camping, (Hanewald & Ng, 2011:5) and sports in general. In summary, the mobile phone has been redefined and remodeled. It has been accorded the capability of keeping the learners informed, and at the same time engaged and busy learning as they take on other activities. This is appropriate, as it has been shown at varying levels of education that the most effective designs for learning are those that include a variety of media (CISCO, 2008 cited, in Hershey, 2011:9).

The theory of social construction sees learning as a conversational process that occurs across many different networks where people and technology are changing continuously (Hershey, 2011:33). In this theory, the learner is seen as a shaper of the use of this technology for learning, and not just a user or consumer (Nicolas, 2011; Hershey, 2011). The manner in which the mobile phone has been used, locates this theory into context. It has been discussed earlier in this chapter that by using mobile phones, learners learn as they create content for projects. For instance, in learning how to handle a project, they could form teams and be asked to write and record videos (www.m-ubuntu.org). Although the outcome of this research will be
necessary to prove this, it is recorded that to embrace this innovative approach to learning, developing countries need to devise effective strategies to incorporate new ICT-based learning tools into their learning curricula (Crede & Mansell, 1998). There needs to be the necessary infrastructure, powered by technical know-how, and both teachers and caregivers should have some knowledge on how mobile phones work as learning companions.

Apart from Africa’s level of technological development, this theory’s virtue confirms that technologies arise out of social contexts. It emphasises that the technologies that are introduced are adopted, modified and used according to the needs of their users (Biker, Hughes & Pinch, 1987, cited in Ling & Donner, 2009:17). Technology also creates intimate network chains for learners as it enforces ties amongst them and their schools, and also between their schools and their parents and caregivers; including other sectors of their communities like the police and religious institutions. Even where most schools do not adopt the use of mobile phones as learning devices, there is research proving that learners have done a lot of work on their phones out of the classroom (Horst & Miller, 2006; Prensky, 2006). Prensky’s (2006:139) comment that at least for the moment, ‘the real opportunities for our kids to advance their digital skills, their knowledge, and their understanding of the world are not found — and will possibly never be found — in school’ may sound unfounded. However, as discussed already, these mobile phones are readily available to learners almost as soon as they close their books at the end of every school day. Their actions may not be very obvious because ‘these opportunities occur mainly when school is over: in after-school programmes, community centres, at their friends’ houses, in the malls, and particularly at home’ (Prensky, 2006:139).

It is very likely that the mobile phone could be used by groups of people for particular purposes. Clearly, thanks to the ability of people to repurpose it, ‘actual online education is emerging as a new kind of communicative practice’ (Feenberg, 2002, cited in Feenberg, 2006:59) on the go. When communicating online or by using mobile phones for Instant Messaging, emailing and chats, children are learning to teach themselves and are teaching each other new information and skills (Prensky, 2001). They are also teaching these skills to older people, younger children and even peers who had never had the opportunity to manipulate the mobile phone for
purposes other than communication. Referring to these older people as ‘digital immigrants’ – those who are not quick to adapt to the fast pace of changing technology – Prensky (2001) reaffirms that the home presents the biggest opportunity for these people to learn from Millennial. Learnt from schools, learners could, for example, easily educate underprivileged users on how to download, record and transfer music and pictures through mobile phones using functions like Bluetooth. While they practise the principle of uBuntu, they are in fact constructing reality here.

Meanwhile, researchers have noted that where course material reflects socio-cultural backgrounds, learners will ‘construct new knowledge based on already learnt concepts or previous experiences’ (Colella, 2000; Roschelle, 2003; Facer et al., 2004, cited in Peng et al., 2011:172). In this case, with mobile phones in mediation, learners will learn as much from the phones, with and from each other as they would learn from their teachers and course materials. Even though already mentioned above, it is worth remembering that for mobile phones to add value to the learning procedure, ‘learning processes must be structured according to the experiences and actual contexts that the students are able and comfortable to learn in’ (Bruner, 1986; 1990; 1996, cited in Peng et al., 2011:172). At the same time, the fundamentals in the teaching process should be designed and structured in such a way that they can be easily absorbed by learners. Simply put, learning materials should be easy to interpret by every learner and should be accompanied by instructions that lead learners to go further and collect additional information (Peng et al., 2011) without necessarily seeking assistance. Where possible, learning should be a conversational activity conducted via online or even offline collaborative tools such as videos, photos, weblogs, wikis, social bookmarking and syndication of site contents (Danaher et al., 2009:5).

Mobile phones may have been used to provide new opportunities to define, situate and contextualise learning, but learning continues to be a situation where learners wander ‘through the spatial world in self-determined way … picking up knowledge’ (Pachler et al., 2010:225). The previous chapter argues that exposing young children to mobile phones may lead to ‘natural’ learning habits where they pick up knowledge as a result of their social interactions with other (Rogers, 1997, cited in Hershey,
children or even adults. In their discourse, Pachler et al. (2010) reiterate that mobility in learning widens accessibility to learning, both in and out of school. Probably because of its characteristics that mostly contrast those of books, mobile phones or new media have ‘been demonstrated to influence comprehension and thought processes of young learners’ (Kritt & Winegar, 2007:7) positively. They also provide learners with interactive and less intensive modes of learning. In addition, mobile phones and books demand different levels of urgency; the mobile phone is perceived as immediate, accessible and nonjudgmental. As has also been mentioned, where computers and other devices are used to help learners study, mobile phones can easily communicate with these devices and share data, files and messages between groups (Danaher et al., 2009; Dede, 2000) using Bluetooth, memory cards, special cables or Internet access.

It is a fact that if mobile phones are entrenched into the educational system, educators will be faced with the challenge of combating deviated uses of the mobile phone. From a different point of view, mobile phones have embedded new uses for literacy, brought about by the reading and writing skills associated with texting (Thurlow & Pof, 2009, cited in Vooslo et al., 2009:2). While a greater number of Millennial have mobile phones, their educational uses in classrooms are currently non-existent or highly limited. The limitation is not affected by the fact that, according to social constructionists, these devices provide opportunities for continuous learning in ways that are independent, self-paced (Ng & Anastopoulou, 2011) and indulgent for the learners. It should be clarified that, although teachers are involved in teaching on mobile phones, they should also be involved in delivering lessons to their learners. In other words, mobile phones should in no way replace human teachers. A collaborative environment should rather be prepared for teachers and learners, as well as between learners. Ng and Anastopoulou (2011) explain further that mobile phone learning programmes should be designed in such a way that the teachers can edit them to suit what and whom they are teaching at any given time. Otherwise, the programmes might not always be of value for teaching and formal learning.

The gap between technological devices used in everyday life and those used in schools may continue to widen and the increased pace of innovation within
technological production could seem intimidating (Prensky, 2006; Ng & Anastopoulou, 2011). At the same time, some people may think that society did not create uses for the mobile phone, but motivated learners have to continue to use and to explore ways of using mobile phones for learning. Innovative teachers also have to continue to explore opportunities that will enable mobile phones to make a difference in teaching methods. Parents and caregivers also need to keep creating a home learning environment, leaving them with fewer books and papers to pick up. While involved groups and institutions (like the M-Ubuntu Project) have to make learning on mobile phones possible without fears of access to, or abuse of rated content, these groups should do so in a creative, innovative, economical, comfortable and manageable manner. These users’ and role-players’ socio-cultural inclinations have played and will continue to play a great role in undermining the views below which were advanced by the biggest detractor of the theory of social construction of technology; the theory of technological determinism.

### 3.6 THE THEORY OF TECHNOLOGICAL DETERMINISM

As appealing as the above theory could be in explaining the phenomenon under investigation, it also has its critics. Opposing the standpoint of the theory of social construction of technology, technological determinism suggests that technology determines technology, and that technical advances are at the root of social formations (Ling, 2004). Technological determinism is ‘an approach that identifies technology or technological advances as the central causal element in processes of social change’ (Croteau & Hoynes, 2003). To them, technology defines how it should be used and it is in no way being influenced by social forces as explained above. Technological determinism argues that the continuous evolution of the mobile phone has unceasingly created social needs in its users. Even though this is contradictory to the above discussion, Mackay and Reynolds (2001:29) insist that ‘technology shapes society. That technical change causes and is responsible for social change’. To strengthen their point, Mackay and Reynolds further cite Webster (1995:215), who states that ‘technological innovation results in social change’. According to their perspective, technology presents a need which it intends to fill. They disregard any influence that social values may have on technology. Therefore, it is not surprising
that having such a perspective can infer that people use mobile phones according to
the needs they create in them, and not according to how they satisfy their needs.
Technological determinism could in this case be better explained by looking at the
fact that Grades 6 and 7 learners are using the mobile phone as a learning device,
because the advent of the mobile phone bequeathed it a status in the educational
system. As an opposing theory, technological determinism construes that learners
and educators are in no way being innovative and creative in the way they are using
mobile phones as learning devices as the various functions in a mobile phone are
what allow it to be used to gain and share knowledge.

This claim that societal forces are governed by technology contravenes the social
constructionists’ standpoint. To technological determinists, the nature of a particular
technology determines the nature of the society (Jordan, 2008) that will adopt and
use it. To them, ‘as a new technology is introduced, it reformulates society in its
image’ (Cottrell, 1945; Mumford, 1963; Sharp, 1952, cited in Ling & Donner,
2009:16). If applied to this study, technological determinism will regard the mobile
phone as an active partner in how it is being consumed and the Grades 6 and 7
learners will be portrayed as passive in their consumption of the mobile phone. The
learners have nothing to do with the design and redesign of this technology, and are
in no way using the mobile phone to fulfill a need created by themselves or the
society in which they live. Rather, they are using it to study because the creators
designed and redesigned these mobile phones and their software in a manner that
enables such usage.

The technological deterministic perspective is probably right in stating that mobile
phones or technology in general has an influence in how users live and act.
Nevertheless, it is not properly situated for this study. Here, the mobile phone
interacts with social forces and learners also use the mobile phone to learn on social
set-ups. The mobile phone had been continuously appropriated by users long before
it was introduced as a learning device. Like other technological devices, after design,
mobile phones were integrated into users’, and not designers’ or service providers’
evisaged uses for them (Pachler et al., 2010). It cannot be denied that ‘people have
played significant roles in the way technology had developed or failed depending on
whether or not they chose to adopt or reject it’ (Stump, 2006:5). After a certain group
adopts technology, both unintended and intended uses have either been rejected or mimicked by fellow users. However, where the adoption or rejection of a device is rapidly visible, it is easy to identify the power of society to construct the device.

**Conclusion**

This chapter puts the theory of social construction of technology and the mobile phone into various aspects of formal and social learning. As explained in the theory, mobile phones have been used to consolidate relationships and not just extend, but also facilitate learning. It creates understanding on how social groups have appropriated mobile phones in different ways, depending on how they were influenced by their social affiliations and/or cultures. It further explains that as society adopts the mobile phone to suit socio-cultural preferences, mobile phone designers work on the device to make it user-friendly; this is irrespective of the fact that some challenges are encountered when mobile phones are used for learning. The argument here is that the theory of social construction has considerable and undoubted potential for critical enquiry into mobile learning in general and the use of mobile phones as learning devices in particular. To appreciate the worth of this theory, schools and educators have to recognise mobile phones as socio-cultural resources. Chapter 4 gives insight into the research method that will inform this study. It will explore the sampling and give a detailed account of the data collection methods. Discussions on ethical considerations when researching children will also form part of this section.
CHAPTER 4

METHODOLOGY AND DESIGN OF THE STUDY

4.1 INTRODUCTION

Prior to outlining the structure of this chapter, it is important to reiterate the research questions under scrutiny here, which are;

- What are the benefits and challenges when implementing mobile phones as devices for learning at the primary school level?
- How are Grades 6 and 7 learners using mobile phones to expand their educational experiences?
- Could the mobile phone be used as an effective learning device amongst learners in primary schools?

In order to answer these questions and to expand understanding on how society has shaped mobile phones, particularly in the context of this research, this chapter begins by examining the qualitative research method adopted for this study. It looks at the choice of sampling before explaining the two different research methods used; focus group discussions and interviews. The ethical considerations for both research methods are also included.

4.2 QUALITATIVE RESEARCH

In order to meet the research objectives of understanding the meanings people have given to mobile phones as devices for learning and to sympathise with learners’ experiences in learning with mobile phones, this research uses a qualitative research method. To recap, the aim of this research is to understand Grades 6 and 7 learners’ attitudes and perceptions as they use mobile phones as devices for learning. This qualitative research method will be based on analysis of data collected from focus
group discussions for learners and interviews with two members of staff. This research approach was chosen because qualitative analysis does not reduce people’s words and because it provides statistical data (Winberg, 1997). It is responsive to what research participants say and do. It is worth noting that in using a qualitative approach, this research will attempt to place the behaviour and learning experiences of the learners under study. Placing behaviours and experiences will be facilitated by the fact that qualitative research does well in ‘exploring people’s experiences, opinions, wishes and concerns’ (Barbour & Kitzinger, 1999:5). Barbour and Kitzinger explain that qualitative research allows participants to pursue their own priorities in their own ways as they generate questions, comments, concepts and thoughts. At the same time, this research method empowers the researcher to scrutinise how points of views are constructed and expressed.

This research aims to explore experiences and a qualitative research method will facilitate the researcher’s ability to pay attention to individual comments and their delivery (non-verbal communication). This is why Merriam (2009:3) states that ‘qualitative research is a situated activity that locates the observer in the world of the participant’. It is important for this research to fully understand how the learners at this primary school construct their world, and what meaning they attribute to their experiences of using the mobile phone as a device for learning. It could be argued that an appreciation of learners’ involvement with the mobile phone as a learning tool – and how it is being used – adds more value to the knowledge that mobile phones are valuable learning assistants. For such knowledge to be acquired, qualitative researchers have to identify with the people they study. Bell (1987:93) alludes to this by stating that qualitative researchers have to try to see with the lenses of the researched and ‘walk in their shoes’. Given that the subjects of this research are young teenagers, who have short attention span and are easily distracted, non-verbal communication comes in handy. During data collection, this mode of communication was used to determine learners’ levels of involvement, their attention, and their rejection or acceptance of others’ comments. Attention was paid to how they looked, listened, moved and whether they reacted or not.

Merriam (2009:3) states that qualitative researchers study things in their natural settings in attempts to make sense of, or interpret, phenomena in terms of the
meaning people bring to them. These authors are emphasising the fact that data should be collected in an environment that is conducive for data collection, yet similar to that in which participants have lived the experiences. In this instance, both the questions and the topics designed for this study are aimed at determining the learners’, and to a lesser extent teachers’, attitudes towards the use of mobile phones as learning tools. Within a qualitative research method, data collection through focus group discussions understands the learners’ positions better, while interviews will explain those of the staff members. Even though all participants are expected to reflect on their attitudes and observations, a group discussion is more suitable to prompt the learners to talk. However, their teacher and the principal are interviewed. Interviews for the members of staff were chosen, not only because there are just two of them, but also because they are mature enough to handle lengthy conversations.

4.3 RESEARCH SAMPLE AND ETHICAL CONSIDERATIONS

This study explores the use of mobile phones as devices for education in primary schools. To meet the demand of the research questions and the theoretical framework, the data collection technique includes focus group discussions with learners and interviews with two members of staff; namely, the mobile phone learning coordinator and the school principal. Appropriate to this study is this primary school which is a public-owned primary school located in Saulsville-Atteridgeville, south of Tshwane in the Gauteng Province of South Africa. This school was chosen, as it is co-educational and public-owned, and also because in 2009 this primary school introduced mobile phones as devices to formally teach selected groups of learners in Grades 4, 5, 6 and 7.

This primary school belongs to a project network known as M-Ubuntu. As discussed in Chapter 2, M-Ubuntu is the Global Learning Academy’s initiative aimed at bringing mobile phones to the classrooms of previously disadvantaged learners in South Africa. This school was handpicked by the leaders of the M-Ubuntu project on the recommendation of a German volunteer who had served in the school. This primary school was initiated into the M-Ubuntu network during a national mobile learning
workshop held in the North West Province of the country in 2009. As it happened, most of the learners in this primary school are previously disadvantaged. By virtue of their backgrounds, the school’s Grades 6 and 7 learners represent a group of learners on the African continent who otherwise might never have had the opportunity to own and use, let alone study with the mobile phone. To their advantage, the M-Ubuntu project ‘uses inexpensive, low-threshold mobile phone technologies’ to empower both learners and their teachers with the aim to address Africa’s literacy crisis (www.m-ubuntu.org).

Grades 6 and 7 learners (mostly 11 to 13-year-olds) are at the exit level of primary school and are heavily dependent on their parents and caregivers emotionally, socially and economically. As such, the learners recruited to participate in this research, the school and their caregivers were given written explanations of the project together with consent forms. This was possible with the help of the school’s mobile phone learning coordinator. After receiving written explanations, the teacher and the principal of the school gave written permission for research to be conducted with Grades 6 and 7 learners of the 2013 academic year. The principal also verbally confirmed that with the mobile learning coordinator, she too would be available for an interview. An appointment for data collection was scheduled for the first quarter of 2013.

This section of Chapter 4 examines the foundation of ethical principles that govern research on both children and adults. When researching children, it is important to bear in mind that all children are vulnerable. It is also important to remember that children are often ‘seen as an outward celebration of life, as the next generation and as the future of mankind’ (Greig & Taylor, 1999:3). Experts who have conducted research on human beings and animals alike have warned that ‘ethics is a very serious business, and ignoring ethics can harm your subjects, your colleagues and ultimately your own reputation as a professional researcher’ (Greig & Taylor, 1999:155). To Greig and Taylor, morality is very important when conducting research on human beings. In the case of this research, it is much more important because the subjects are children. In every sense, these children are at the researcher’s mercy at the time of data collection. They are tender with little sense of how to do certain things. These young people are adults in the making who are still dependent
on the current generation of adults as they learn ways of life. For these and other reasons, critical attention was paid to ethical considerations at both the implementation and presentation stages of this study.

Before the Ethics Committee of the University of Johannesburg could give the go-ahead for the proposal for this research in October 2012, it took necessary measures to see that its interest, the interest of the researcher and that of the research subjects was protected. The researcher is also committed to protecting the interests of all parties involved at every stage of this project. Barbour and Kitzinger (1999) and Harcourt and Conroy (2011) advise that some of the measures taken should include informed consent from all persons and institutions involved and ensuring that confidentiality is being maintained. From its conception, this research understood that gaining access to the Grades 6 and 7 learners required approaching those in charge to protect their interests. The principal of this primary school, the mobile learning coordinator and librarian were instrumental in the success of this stage. Because these learners are minors and most importantly because data was to be collected during learning hours on the school premises, there was a need to obtain permission from the Regional Department of Education. With the help of the school principal, contacts were made with the Knowledge Management and Research Unit of the Tshwane South office of the Gauteng Department of Education. Their permission was obtained in March 2013.

With the Department’s approval, this primary school was sent copies of consent forms to hand out to both learners and their caregivers. Care was taken to ensure that participants were made adequately aware of the type of information needed from them, ‘why the information is being sought, what purpose it will be put to, how they are expected to participate in the study, and how it will directly or indirectly affect them’ (Greig & Taylor, 1999:212). Informing both learners and caregivers was imperative to this research, and was recommended by Diamond (1996a, cited in Greig and Taylor, 1999:150) and Harcourt and Conroy (2011). According to these authors, it is advisable to obtain a guardian’s permission in addition to the consent of the child who has been shown to be legally competent to participate. Because it is important for the consent to be voluntary and obtained under no pressure, the school was advised not to force anyone to sign and return copies. The school therefore
handed out and collected the forms only from those learners who, together with their legal guardians, had signed them.

The consent forms stated the fact that this research will benefit the academic field and society in general. Emphasis was placed on the fact that amongst the many rights that children have, one is encouragement to ‘go to school and receive an education’ (Greig & Taylor, 1999:3). However, receiving education expands their right to share with others the knowledge they have gained. It is important to note that all Grades 6 and 7 participants were competent to partake on the grounds that they all use the mobile phone as a device for learning. Nevertheless, some had refused to be a part of the group discussions. Despite the fact that the above details accompanied the consent forms, during the data collection process, there were no assumptions of prior knowledge. Before embarking on the focus group discussions, the researcher explained the nature and importance of this research to every group. Participants were again advised that they did not have to take part if they were unwilling to do so. Another important fact highlighted to learners was that the researcher was not collecting data in an individual capacity. They were assured that the information obtained would be safeguarded by the University of Johannesburg. Participants were told that their identities would be protected, in the sense that their names would not be used at any point in the research. Participants were also advised that they could choose to remain unidentified. Even if their names were mentioned during recording for identification purposes, they were told that special codes were to be allocated during the analysis and interpretation stage to conceal their identities.

During the data collection process, each group was told that they had a maximum of an hour to have a discussion with the researcher. Everyone sat in a relaxed and comfortable manner, positioned so that everyone could hear and see everyone else. After the purpose of the research had been clearly communicated, every participant was given the opportunity to ask questions and make comments. Once the reason for using a tape recorder was explained, the participants did not mind it being used. The format and nature of the discussions was also spelt out.
Participants were made aware that there were no right or wrong answers. In an attempt to avert the possibility of strong feelings being exchanged, participants were advised to respect each other and that only one person should speak at a time. Hennessy and Heary (2005) warned that where emotional feelings occurred, they might become so strong that the researcher might not have control over the participants offending others by their actions and what they said. The topic under research does not seem to be such that it will provoke such strong feelings. However, the researcher advised the group that it was alright to say general things and remain respectful to each other. In each group, the discussion started after the researcher and all participants had introduced themselves by stating their names, ages, favourite modes of reading; namely, choosing from books, computers and/or laptops. The essence of such an ice-breaker was to subtly link participants to the subject under discussion.

After creating a comfortable setting for data collection, establishing trust with learners did not prove to be a problem as they seemed ready to discuss issues that were either asked or arose during discussions. Participants of every group talked, asked questions, exchanged antidotes and commented on each other's points. This experience speaks to Levine and Zimmerman’s (1996, cited in Hennessy & Heary, 2005:237-238) point that focus groups ‘acknowledge the participants as experts’ and enable them to talk to one another. At the end of the focus group discussions, the researcher was empowered to make explicit use of what groups said to interpret or generate data.

4.4 DATA COLLECTION METHODS.

4.4.1 Focus groups discussions

When researching children, it is very important to collect data in a manner that is less intimidating and friendlier for them. The reasons for focus group discussions as a data collection method from the Grades 6 and 7 learners are wide and varied. If one looks at its definition, a focus group is said to involve ‘a small number of participants, led by a moderator, which seeks to gain an insight into the participants’ experiences, attitudes and perceptions’ (Hennessy & Heary, 2005:236). It may not be easy to
understand what a focus group is unless one pauses to look at what the word ‘group’ means. A group is defined as ‘three or more people, who interact over time, depend on one another and follow shared roles of conduct to reach a certain goal’ (Wood, 2011:230). For a group to be formed, people must ‘interact, must be interdependent, must have a common goal and must share some rules and conduct’ (Wood, 2011:230). To Wood, participants of a group must be able to position themselves to give and take. In other words, they must need one another to achieve something or to get somewhere. Wood’s definition of a group suits the pool of learners at this primary school, who since Grades 4, have been lucky to use mobile phones as companions to their curriculum. With details to be discussed at the analysis stage, it is important to note that the learners in this primary school have common goals. Worth noting here is the fact that at this stage, they are taught to use the mobile phone as a literacy tool. They learn to write and read as well as to work in teams either as members or leaders. Usually a learner from a lower grade is paired with one from a higher grade. Motivated by a shared vision, the older learners are assumed to empower their younger companions with previously learnt skills. In the case of this research, the subjects have all been exposed to the mobile phone as a learning device in Grade 4, and they have all worked in pairs either as senior or would-be senior members.

To further elaborate, a focus group discussion is ‘a research technique that collects data through group interaction on a topic determined by the researcher’ (Morgan, 1997:6, cited in Freeman & Mathison, 2009:102) yet of common interest to participants. To understand the research questions, especially looking at how Grades 6 and 7 learners have used mobile phones to expand their educational careers, it is also important to explore their sentiments on the uses of these devices. A focus group discussion is an appropriate research method in which to explore these sentiments, as it allows participants to express themselves in their own way. To support this point, Stewart, Shamdasani and Rock (2007:39) state that focus group discussions have the ability to produce a ‘very rich body of data expressed in the respondents’ own words and context’. The point here is that as a group and in the presence of others, these learners will actively construct the knowledge they share during these discussions. Discussing in a group could be empowering to the learners, since it will not only allow but also encourage them to set part of the
agenda (Hennessy & Heary, 2005) under research. They could either set or influence the agenda by commenting, responding or even asking questions of the researcher and each other.

Researchers (for example, Barbour & Kitzinger, 1999; Hennessey & Heary, 2005; Stewart et al., 2007; Freeman & Mathison, 2009) have not been shy to acknowledge that, when dealing with children, focus group discussions are an easier tool for collecting data, especially given that it is regarded as a good way to stimulate children who are easily prompted to talk on cue. When there is support given to individuals from other participants, Vaughn et al. (1996, cited in Hennessy & Heary, 2005:237) think that focus group discussion allows for greater openness in responses. It makes sense to note here that whether they are children or adults, by its nature, focus group discussions encourage a great variety of communication from participants. To the researcher, it helps them to be able to identify group norms or group dynamics, as group participants could easily be prompted to consciously or subconsciously react to others’ words or actions. In strengthening this argument, Stewart et al. (2007) further state that where the researcher is vigilant, focus group discussions could provide them with insight into the operation of groups. They state that focus group discussions could also expose them to social processes in the articulation of the researched knowledge or experience.

Usually focus group discussions are exploring a specific set of issues (Barbour & Kitzinger, 1999). To successfully explore the world of children as young as the participants of this research, working in groups could easily encourage creativity and imagination; two or more people together provide more resources. It also means creating an opportunity for group members to think carefully while others talk. Because every participant has the opportunity to talk before, during and after every thought, question and/or comment, the focus group discussions create room for ‘thorough thought, heightened creativity, and enhanced commitment to decisions’ (Wood, 2011:236). In addition, the fact that a variety of thoughts could be provoked in group discussions makes it easy to have diversified ideas, perspectives, experiences and expertise in the quality of data collected. The Grades 6 and 7 learners of this study are considered to be at a stage in their lives where, amongst other things, they are still trying to identify and assert their personalities. For this
reason, consideration is given to the fact that some participants might have found out that they are public speakers, while others may think that they speak better where there is no peer audience. Any outstanding group characteristics shall no doubt contribute to the next chapters where group dynamics are being discussed.

Amongst other factors, the sample size for this study was influenced by the research questions, the total number of 20 learners in Grades 6 and 7 who use the mobile phones as learning devices and the time and resources available to make this study effective. To Mauthner (1997, cited in Hennessy & Heary, 2005:237), ‘focus groups create a safer peer environment to replicate the type of small group settings that children are familiar with from the classroom work’. Mauthner’s suggestion is much in line with this study because although this will be detailed in Chapter 5, it is worth mentioning here that while working on learning projects, most Grades 6 and 7 learners are likely to be paired or in groups. In Chapter 2, Hwang et al. (2008) and Pachler et al. (2010:31) state that learners study better when they learn from and teach each other. However, whether or not their assertions have worked well for this primary school is left to form a portion of the analysis chapter. So too will be the point advanced by Hennessy and Heary (2005:237) that focus groups could also help to redress the power imbalance that could exist during interviews. What can safely be stated here is that ‘children may be encouraged to give their opinions when they hear others do so and their memory may be jogged by the contributions of other participants’ (Hill, Laybourn & Boland, 1996, cited in Hennessy & Heary, 2005:237-238).

An important fact to note when studying perceptions and experiences is the ability to detect patterns and trends in collected data. In order for such trends and patterns to be realised, data has to be collected from more than one group (Krueger & Casey, 2009). In this respect, holding up to three group discussions with 17 learners will lead to a great degree of reliability in this study. Even though reliability does not suggest accuracy, it will help to minimise the amount of random error (Rubin & Babbie, 2007) in a situation where a similar research might be conducted across other groups of learners with the same or similar characteristics.
During data collection at this primary school, 17 learners were present for the focus group discussions; all of them have used mobile phones to study since they were in Grade 4. As discussed above, most focus group discussions are facilitated in smaller groups for logistical purposes. For this study, these learners were divided into three groups. The first two groups consisted of six participants and the third group had five learners. The anticipated size of 18 participants (six for each group) was so that groups should be big enough to create diversity, yet small enough for every participant to be able to contribute within the scheduled 45 to 60 minutes per group. Eight of the learners were from Grades 7 and 9 from Grades 6. Of all 17 participants, 7 were girls and 10 were boys. Six of the learners were 11 years of age, 10 were 12 year-olds and one was 13 years old.

Because data was to be collected during school hours, the mobile learning coordinator had identified the library (her office) as a suitable venue for the discussions. She called participants into the library in order in which the signed consent forms were received. All three focus group discussions were conducted in her presence. As mentioned in the proposal document for this research, consideration was given to the presence of a staff member, because whatever makes learners comfortable is vital to the success of this research. This research preempted that this comfort could be facilitated by a face familiar to the learners; a decision inspired by Stewart et al. (2007:19), who advise that ‘the usefulness and validity of focus group data are affected by the extent to which participants feel comfortable about openly communicating their ideas, views or opinions’. All focus group discussions were successfully conducted in one day with group sessions lasting for 51, 32 and 40 minutes respectively.

The choice of questions for both the focus group discussions and the interviews could have a very influential role as far as the success or failure of the quality of data collected is concerned. If posed correctly, questions for focus group discussions and interviews could leave room for more opinions to be expressed, and this could result in participants giving out a greater variety of answers without feeling as though they are being interrogated. The questions for focus group discussions and the interviews contained both open-ended and closed-ended enquiries. However, the majority were open-ended questions, while the closed-ended questions had follow-up questions
that created room for explanations, discussions and comments. The questions were straightforward. As discussions unfolded, the role of the researcher, as advised by Greig and Taylor (1999), was to facilitate discussions amongst learners. The strategy used was to give the participants the opportunity to freely explore their experiences. It also allowed the researcher to expand the enquiry, thereby satisfying the aims and objectives of this research.

Both open-ended and closed-ended questions were framed around how the mobile phone can be used as an effective learning and teaching device by Grades 6 and 7 learners. The questions were designed so that they would be engaging, and would also be comprehensive for Grades 6 and 7 learners without too much interpretation. To simplify, it is worth mentioning that the questions were designed to cover the research questions as well as the theoretical framework. These questions will be included in the appendix of the final work. The learners were asked a total of 12 questions; the mobile learning coordinator was asked 14 questions and the principal 16 questions. All the focus group discussions and interviews were conducted by the researcher personally. It is distinctly advantageous to the research that in some cases the participants were asked to interpret on the spot what they had said. Also, the researcher was able to watch and record non-verbal communication. This information is likely to be helpful in the next two chapters during the interpretation and analysis of data.

4.4.2 Challenges/limitations of focus groups

The benefits of conducting focus group discussions on a topic of this nature could be limitless. However, like most data collection methods, focus group discussions do have limitations. Arguments have surfaced from authors like Hennessy and Heary (2005:239), who state that personal interaction during focus groups is an advantage, but at the same time such interaction may not necessarily be positive. What they may be insinuating is that although participants might be forced to interact – or they might be interested in interacting – what they say might not necessarily be constructive in relation to what the other members have said. At the same time, the researcher should not expect all participants to only respond or react in a manner suitable to their research. Some responses could be completely contrary of the researcher’s expectations, while others could be contradictory. For various reasons,
participants could also say things that do not reflect reality. An example of a contradictory situation occurs where a participant disagrees through body language, but may verbally agree with a popular opinion, or vice versa, in an attempt to be part of the group momentum. Although this may not necessarily be the case, Lewis (1992, cited in Hennessy & Heary, 2005:239) gives evidence of instances where contributors are provoked to make contributions because they want to fit in with the group or the group’s opinion.

Group discussions involve a few people who in many ways think and behave differently. Therefore, for other reasons a group could be made up of the vocal and non-vocal characters as well as flexible and firm participants. In this case, it could also be possible to find a group with members who come across as intimidated. Speaking for shy members, Lewis (1992, cited in Hennessy & Heary, 2005) cautions that because not everyone is born to speak in a group setting, group interactions could be intimidating to some, thus inhibiting them from making contributions. Likewise, some participants may not initially feel comfortable and restrained by interviews or group discussions, yet may be urged to talk as discussions progress or as they make sense of the discussions. Even though the focus group discussions held at this primary school gave a lot of insight to learners’ diverse thoughts on mobile phone usage, this is one drawback that was noticeable during sessions. However, the group discussions were worthwhile. Expressing the worth of focus group discussions, Barbour and Kitzinger (1999:19) write that when participants talk in groups, there are a lot of dynamics as they explore issues, identify common problems and share and compare experiences. There are even more dynamics when the shy ones begin ‘warming-up’ to the conversations.

One of the biggest preconceived challenges for the researcher was that, because all learners are from the same grades, they could all have responded more from past experiences, past events or past discussions than the topic under discussion. More concern was instilled when Wood (2011:161) mentioned that in circumstances where participants know each other very well, they may hold back some information in speculation of what group members may think of them. Even though the subject under research has no particular attachment to sentimental issues, self-esteem issues are feared. As mentioned above, it was also a worrisome thought that others
might say certain things or agree with others’ comments just because they feel that doing this could create a better (or even bad) rapport between them and other group members. Despite these challenges, all three focus group discussions were conducted smoothly as will be portrayed through the data interpretation and analyses in Chapters 5 and 6.

4.4.3 Recording
Recording was done for all the proceedings, bearing in mind that not all participants are adoptive to the use of the recording equipment. Experts (Barbour & Kitzinger, 1999; Greig & Taylor 1999; Hennessy & Heary, 2005; Wood, 2011) emphasise that tape recording provides far richer research access to the discussions, by creating the actual voices of participants which could repeatedly be visited during transcription and analysis of the findings. During data collection in the library of this primary school, recording was done using an audio tape recorder. This device was chosen because of its convenience and also because the presence of a video camera could have been cumbersome, intrusive and possibly affect spontaneous responses from participants. With an audio recorder, notes were only taken to record non-verbal behaviour that expressed the emotional climate within participants. Tape recording was a preferable way to store data. Videotaping was ruled out, and writing in note form was not possible with 17 learners speaking randomly.

4.5 INTERVIEWS
To fortify the data collection method and hopefully enrich data collected from the learners, two members of staff were interviewed. Interviews were justified because they were defined as ‘a conversation with a deliberate purpose that the participants accept’. Interviews were conducted where the interviewer and the interviewee sat face-to-face and expressed both verbal and non-verbal communication as they exchanged ideas, feelings and attitudes (Kadushin, 2013:4). One of the major advantages of interviews, similar to focus group discussions, is that they are conversational and they both prompt reactions and responses. The line of enquiry for the research at this point is to understand how those members of staff have used the mobile phones to teach, and in the process have helped their learners to utilise the
mobile phone as a device for learning. In line with this, interviewing is ‘a more appropriate technique for revealing information about … subjects or for probing the sentiments that may underlie an expressed opinion’ (Bell, 1987:99). Also, by their nature, interviews are important in researching social change (McLeod & Thomson, 2008).

The school librarian – who happens to also be the mobile phone learning coordinator and an M-Ubuntu project representative – and the school principal were interviewed about their views on the use of mobile phones for educational purposes. Interviews were chosen over focus group discussions as a model for data collection because they both come from different units and were subject to different points of enquiry. In addition, there were only two of them and therefore too few to form a group for a focus group discussion. As they are adults, consideration was given to the fact that interviews can be lengthy and as such provide room for further enquiry. At the same time, interviews came in handy here because the rate of return was instant; during interviews, a researcher can expand questions beyond what was prepared for the session simply to prompt more informal discussions (Bell, 1987). During the interviews, discussions were prompted through follow-up questions and even comments. Inspired by McLeod & Thomson’s (2008) work, it is hoped that during the analysis of this research, it will be possible to uncover dreams, imaginations and fantasies regarding the expectations which these educators of young users have for both the mobile phones and their learners. The expectation here is that these interviews may have glowingly inspired and provoked them to express themselves openly.

Interviewing the educators was relevant to this study, since these staff members are the main instructors who teach learners to use the mobile phones as learning devices. Consideration was given to these interviews, as – in cases where the learners are told by their instructor to conduct homework, group works and other assignments using the mobile phones – findings on how this has strengthened the learning system will be of importance to this research. Likewise, in areas where the teachers and the principal still hope to use mobile phones for education, much can be learned about their aspirations and challenges. Keeping them in their comfort zones, the mobile phone learning coordinator was interviewed in the school library.
The interview was expected to run for 30 minutes, but took 35 minutes. The school principal's 43-minute interview was conducted in her office. All venues in which the data was collected were as important to this study as the quality of the collected data. The offices were both quiet and suitable for audio recording.

4.6 DATA INTERPRETATION AND ANALYSES

After data was collected, the starting point was the transcription. The researcher transcribed and organised the data within the first week after collection. This was done timeously due to fear of forgetting certain details of the non-verbal cues. Thereafter, the researcher had to group and code similar responses into categories, guided by the intended themes of the research. New themes were introduced and existing themes were enhanced depending on their relevance to the collected data in relation to the purpose of this research. However, in order to transform the data collected into credible evidence (especially because this research is a case study), the collected data had to be used to interpret the above literature on the use of mobile phones in the learning environment. Data is defined as 'a group of facts' (Lewis-Bleck, 1995: vii) and data analysis is 'the systematic application of statistical tools' (Lewis-Bleck, 1995: vii). For these facts to be analysed successfully, interpretation will be informed by the research questions listed above. The analysis entails using the research questions, literature from Chapter 2, and the theory of social construction of technology detailed in Chapter 3.

Conclusion

To evaluate the use of mobile phones as devices for learning and teaching by the learners and staff of this primary school, focus group discussions and interviews were the most appropriate data collection methods. This chapter discusses the choice of research method and its procedure, sampling and methods of data collection, ethical considerations, as well as the type of questions designed for data collection. The research method, sampling and data collection techniques were carefully selected due not only to the subjects under research, but also to the topic. This section found that most of the learners seemed to have been stimulated by fellow members of the focus group discussions in the way they talked and the things
they said. Despite the few challenges faced, there is reason to continue to believe that focus groups ‘produce a very rich body of data expressed in the respondents’ own words and context’ (Stewart, et al., 2007:39). Interviewing staff members means this research considers the fact that the learners are not the only role players in deciding how they learn. The next two chapters will see the analysis and interpretation of the data collected. Treated as two-in-one, Chapter 5 will expand on the implementation of mobile phones in the learning environment, and Chapter 6 will deal with the uses and perceptions of these devices by those who use them to learn and teach. However, before this commences, it is important to note that even though there are other role-players involved in this mobile phone learning project (see the concept of M-Ubuntu and the theory of social construction of technology), researching them is left for further study.
CHAPTER 5

FINDINGS ON THE IMPLEMENTATION AND USAGE OF MOBILE PHONES IN THE LEARNING PROCESS IN A GAUTENG PRIMARY SCHOOL

5.1 INTRODUCTION

The previous chapter looked at the research method and its procedure, sampling, methods of data collection, ethical consideration and also the type of questions used during data collection. It outlined how a meticulous execution of the research method led to a successful collection of the data that will be analysed and interpreted in the current chapters. To be interesting and comprehensive, the findings are divided into two segments; (1) the implementation and (2) the uses and perceptions of mobile phones in the learning environment. The analysis and interpretation are guided by the data collected from focus groups and interviews, as well as the researcher’s observations during data collection. Krueger’s (1994:142) opinion that ‘the depth or intensity of analysis is determined by the purpose of the study’ will highly guide the interpretation and analysis process. The core objective of this research is to explore the use of mobile phones as formal and social devices for learning among Grades 6 and 7 learners in a public primary school in the Gauteng Province of South Africa. In order for this objective to be met, it is important to remember that data analysis could consist of examining, categorising, tabulating, or in other words, recombining evidence to address the initial propositions of a study (Yin, 1984:99, cited in Krueger, 1994:140). Answers to how mobile phones have played out in participants’ learning and, to a lesser extent, teaching environments will be given by sequentially analysing identified themes. These themes, some of which are sub-titled, include: social construction and uBuntu; safety, security; edutainment and mobile phones in study, research and homework, and mobile phones vs. computers and books. It is important to note that all quotations used in these chapters are in the participants’ original words.
Anticipated versus actual themes

The most anticipated themes when this research was at its preliminary stages were:

- Youth culture and mobile phones (social construction);
- Acquisition and use of mobile phones;
- Mobile phones in development;
- Mobile phones and edutainment.

However, as the study progressed, and particularly as collected data was being transcribed, the role of the Internet, mobile phones vs. computers/laptops/books, as well as concerns about safety and security stood out. As the participants placed so much emphasis on these topics during discussions, they have been included in the findings. It is also worth noting that Group One features dominantly in the discussions below. This has a lot to do with the participants in the group, who were more vocal and active than members of other groups. Their comments may appear more than average. This is not unusual to the focus group method, as Hennessy and Heary (2005) warn that where people participate in groups, some may become more influential than others.

5.2 IMPLEMENTATION OF MOBILE PHONES IN THE LEARNING PROCESS AT THIS PRIMARY SCHOOL

In order for mobile phones to be effective learning devices, it is important to obtain commitment from the policy makers, teachers, parents and caregivers while at the same time limiting disruptions to learning and teaching. It is also critical to acknowledge the fact that learning occurs as a result of pursuing different activities that are directed towards achieving the same objective. This is done by various approaches that could be 'physical and social' (Wali et al., 2008:55). This research takes place against the background of the theory of social construction of mobile phones by users and their ways of life. Communicating implementation and usage, the section below looks at how the physical (mobile phones) and social (human behaviour) have worked their ways into the learning and teaching environment at this primary school.
5.3 SOCIAL CONSTRUCTION OF MOBILE PHONES IN THIS PRIMARY SCHOOL AND THE PRINCIPLES OF UBUNTU

This research seeks to acknowledge the fact that learning occurs as a result of pursuing different activities, all directed towards achieving the same objective. With knowledge from the theory of social construction of technology, it strives to prove that for this to be possible, various circumstances have to be in position. This chapter starts by explaining the forces that worked together to give this school the opportunity of the choice to have mobile phones as devices to teach and learn. It will expand on the ideology that by nature, the mobile phone is consumed in a participatory manner, just as learning is a social activity by default. As seen in Chapter 3, the mobile phone has been socially constructed in ways that every group of people – and even sub-groups – use it to suit their way of life. Long before mobile phones were appropriated according to groups and cultural needs – even in current times – policy-makers around the world, as was the case in South Africa, never included these devices in their educational systems.

This study projects the fact that, forced by Africa’s problems, mobile phones were quick to be positioned in the classrooms as items from which children could access and even create learning material. But as will be seen, this study highlights the fact that the number of donated handsets is not sufficient to address the problem of overcrowding classrooms facing African schools. This is irrespective of the fact that Haagan and van Rensburg Lindzter (2010) used this overcrowded nature of classrooms as a motivation to introduce mobile phones as learning companions. What is daunting here is that like other African countries, and by virtue of existing policies (as will be explained by the principal of the school), South Africa not only lacks the infrastructure in its educational sector, but also the technical and pedagogical capabilities that could be convenient to accomplish mobile learning; a problem overlooked by the hypothesis of this study.

It is becoming important for this device to be included in mainstream educational processes, because for young people and even many adults, the mobile phone is becoming the most important, dependable and influential companion. The M-Ubuntu project leaders must have considered this when they state in their 2010 paper that
this learning project is developed with and for learners and fellow teachers, with the aim of involving caregivers (Haagan & van Rensburg Lindzter, 2010) and parents. Because of its nature, teachers in this programme operate in such a manner that even though they are in South Africa, the mobile learning programme connects them with German volunteers and M-literacy coaches in the United States, England, Sweden and Italy. These coaches often readily give them support as they explore fresh avenues of reaching learners in ways typical of developed communities. According to this study, these ways include but are not limited to overcrowded classrooms, limited learning and teaching equipment like textbooks and pens, and the lack of constant supply of basic needs such as, water and electricity. Even though the M-Ubuntu project is ideally intended for disadvantaged schools, it also reaches out to any school with overcrowded classrooms that instruct via teachers, chalk, chalkboards and talk or voice (Haagan & van Rensburg Lindzter, 2010).

The mobile phone has the tendency to attract and maintain attention even when children learn with it and teachers use it to teach. Unlike books and computers, it allows both parties to be creative in how, when and where they read, write, record and edit on their phones. Its omnipresence has broadened the learning environment to include street corners, homes and even public and other unimaginable arenas. Role-players in education have inevitably included parents, caregivers and whole communities, giving learners the freedom to help and be helped. This tradition obviously ties in with the South African practice of uBuntu. Even though this study aims to understand learners’ explanations on how one or more persons have helped to foster their skills in the use of mobile phones as devices for learning, one cannot help but recall the phrase mentioned in Chapter 3: ‘a person is a person through other persons’ (Van Binsbergen, 2003:428, cited in Cilliers, 2008:1). The German volunteers, their teacher, parents and siblings have played a combined (social) role in enhancing learners’ mobile learning skills. This understanding is expanded when F2P1 happily stated: ‘I have change because [names of German volunteers for the 2012/2013 academic years withheld] have taught me so much ... to do researches’. In other words, he is capable of exploiting the potential of mobile phones in education because the German volunteers have already done so and imparted that knowledge or information to him.
Agreeing that the mobile phone has been socially constructed in the Atteridgeville area where most learners, caregivers, parents and workers at this primary school live, this study anticipates a situation where these parents and caregivers are involved in the implementation and perhaps monitoring of the M-Ubuntu project. This is why the principal was asked about how the relationship of various parties (learners, teachers, principal, parents, the community and other institutions) has changed since the introduction of mobile phones to her school. According to the principal, parents, caregivers and other role-players are passive observers who do not practically take part in doing work with learners on these devices. However, she made it clear that they will only become involved when the school advises them on how the children are to use the mobile phones. The parents, caregivers and other role-players are urged, by letter to educate their children on the safe and secure usage of mobile phones during lessons. The principal stated that although the school administration is confident of its ability to make sure that learners treat the mobile handsets with respect and decency, experience shows that effectiveness is attained when caregivers are involved at some stage of learning projects. As such, the school has a duty to send out strong messages. The principal continued that before any mobile learning project begins, the parents were told that their children would be involved in a certain project within a couple of weeks, and were asked to make sure that the children did not tamper with the phones.

As the principal’s comments suggested, the onus thereafter lies on parents and caregivers to educate learners on the consequence of damage or loss of these devices. Unavoidably, this degree of involvement is linked to uBuntu. The principles of uBuntu, which have a lot to do with how social realities are constructed, could easily agree that since it takes a community to groom a child, it may as well take a community to safeguard that which the child needs to grow intellectually.

To the principal, however, parents and caregivers are also notified because: ‘we don’t want them to see an article written by a child or pictures we did not communicate’. She emphasised the fact that when learners do their work they might also need to have their photographs taken amongst other activities. The parents are therefore informed of these pictures. These pictures could be used in an article or
affixed to the author’s credentials when their work is published in the newspaper; copies of these are sold to parents and any other readers at R5.00 each.

Written, edited and published by the learners, this newspaper reflects learners’ pictures taken by mobile phones.

One factor that was unforeseen, and which limits the involvement of parents and caregivers in helping learners as they work on mobile phones, is that learners are not allowed to take these handsets home unless they have a take-home project. The principal explained their policy:

... Teachers also to say do not take it home. Even if we have to do some stuff, you cannot just go to the library. So I have to go to [the mobile phone learning coordinator] for requisition then I take it home, then I bring it back. Just like how we use the books in the library. You cannot just go in and take and I think for the learners they never went home. They were treated as reference. You know the encyclopaedia is another reference book. Children did not leave the library. Not with the phones, no, no, no, no. They never went home. We are very strict also with other teachers. I never took one home.
When learners take the phones home to work on specific projects, they need to complete the proper paperwork and accept responsibility for the safekeeping of the devices.

The donated mobile phones are not SIM Card enabled and cannot be used for any other purpose but to learn. However, this primary school ensures that the phones are kept safe by the design and implementation of a usage policy pictured below. As advised by the principal, learners and their teachers are given the following guidelines of usage, which include: ‘Do not steal it, do not hide it, do not open it and do not take it home. Know the decent rules along the phones’. To make it even safer, the well-being of these phones does not depend on the letters sent out to parents. The principal said that they are stored at ‘the Gauteng Learning Centre that is monitored by the Gauteng Online that is secured’. So, they enjoy a security system that monitors the school’s library and computer centre; these same computers link the mobile phones via special cables and/or memory cards.

Rules for ease of mobile phone use displayed on the box in which the handsets are kept

The theory of social construction explains how communities, groups and sub-groups have adopted and used technology in ways that befit their lifestyles. In this research,
the school principal explained how, as an individual, she identified the need for the mobile phones in education. Her ability to follow the necessary steps and, most importantly, the consequence of her choice, has seen a handful of learners studying with mobile phones. At an official level, she mentioned the relationship between her school and the regional Department of Education. She noted that after receiving her letter seeking authority to use mobile phones as devices for learning, the regional Department decided to investigate the supposed use and conduct within her school.

What we did is that when I read about M-Ubuntu, I realized that they are using mobile phones in schools in relation with curriculum. So what we did was, we normally do an MOU, a memorandum of understanding, so we printed it out and communicated it with our e-learning unit in the district and policy and planning. What they normally do is that before we can engage in anything, we send them correspondence and they check and they give us a go-ahead.

In this way, the Department of Education, although not a direct contributor to the programme, did play a role in the implementation, monitoring and perhaps the continuous running of the mobile learning project at this school. It is also important to note that the Department provides all other resources such as books, computers and electricity; electricity is needed to charge the mobile phones so that they are able to operate. The Department also provides papers, printers and ink needed to produce hard copies of their newspapers as pictured above. Like parents and caregivers, the Department of Education is also a passive yet crucial partner in the mobile phone learning process at this primary school.

The mobile phone learning coordinator is recorded as asking the Department of Education and the community at large to step in and help learners in their quest for literacy. She states that because the mobile phone has worked very well to add value to learning at their primary school, and because the Department of Education is unable to furnish libraries in many other schools, implementing mobile learning could be a short-cut to attaining higher literacy levels. The principal stated that using mobile phones as devices for learning is handy and also very cost-effective. With the initial acquisition of handsets being the main financial burden, she advised school governing bodies to advocate mobile phones in classrooms. Inspired by the
participants of this research, this study appeals to educators to move with the times and make learning an enjoyable process. It recommends that for effective results, learners should be given valuable and enjoyable resources like mobile phones. This is irrespective of whether or not the schools are equipped with library books.

The M-Ubuntu project seems to have invested a lot of effort to ensure that with or without Internet access, the mobile learning environment is not only safe and friendly but has few distractions. However, no matter how much attention teachers give the children when they learn and no matter how mature learners are in handling mobile phones as educational devices, these phones are mostly entertainment devices. Because mobile phones have been used more to socialise than for anything else, it has caused the majority of institutions around the world to react to their presence in schools more negatively than positively (Ling, 2004; Crystal, 2008). Even so, a growing number of mobile phones is now recorded in schools and learning institutions. However, few teachers and educators have experimented with mobile phones when they teach (Crystal, 2008).

Because this study acknowledges mobile phones as social devices which have now been introduced into the educational scenario, a question was designed to find out how teachers intervene in times of deviations or misunderstandings during class work. In response, the mobile phone learning coordinator stated that the school decided to share the responsibility of remaining focused with the learners. She said ‘the challenge is with learners. They will get very excited about using the mobile phone…’ She advised schools that are using – or intend to use – mobile phones that ‘before they pick whatever kids that they are picking, they must have gone through it first’. She would prefer the staff and learners to master mobile phones, their uses and policies or terms and conditions of use, because: ‘with ours, we store our phones in the boxes and we number them. So each phone has instructions on the side of each boxes’. To her, proper instructions or policies, as pictured below, keep learners focused. Also letting them master the equipment prior to lessons lessens their excitement and desire to play with it and builds in them an entitlement to education.
This section alludes to an argument which mentions mobile phones as entertainment devices. It echoes F1P5’s position (as will be seen in Chapter 6) that the device’s animated nature and ability to offer ready-made answers to all questions could affect children’s attention spans, their critical-thinking skills and their respect for learning and teaching. His statement is made irrespective of the fact that the mobile phones at this primary school are loaded with nothing but study material created by learners themselves. This is an advantage that cannot be overemphasised. Even so, some authors (for example, Sherman, 2002, cited in Katz, 2003:3; May & Hearn, 2005; Horst & Miller, 2006; Kolb, 2008), and unquestionably many other people, groups and institutions, have added weight to the claims that mobile phones do not really contribute to learning without distraction. They claim that children should neither own nor use mobile phones and such claims have prompted arguments that mobile phones should not be used in schools for whatever reasons.

This part of the research agrees with the above claims that mobile phones could distract learners. However, this is only in a situation where learning is not implemented according to the M-Ubuntu style. Where the M-Ubuntu style is mimicked, mobile phones have no games nor do they allow access to other none-educational applications like music or diverse Internet search options. Furthermore,
apart from distracting learners, this study acknowledges that learning on mobile phones could no doubt lead to a situation that fosters learners’ autonomy and encourages clique involvement. This could create a situation that potentially helps parents to appreciate how classes are run and what their children are learning. As described here, learning on mobile phones creates an environment that enables greater monitoring and accountability for both learners and teachers with the potential of caregivers being more involved. As much as this could be true, Shih, Chuang and Hwang (2010) disagree; they assume that learners, and possibly teachers, could feel lonely or rejected if children tend to use mobile phones a lot for learning; there is a possibility of decreased human interaction. This assertion is conceivable since learners have reportedly spent most of their time out of school with one or more technologies (Pachler et al., 2010).

The findings of this research enforce the view of Pachler et al. In a continuous attempt to detail what part social ties have played in their learning activities, the learners and their mobile phone learning coordinator explained how learners have taken the mobile phones home a few times to interview persons for various projects based on, for example, history, sports, shopping and fashion. To the best of this researcher’s knowledge, such interviewees could easily have included their parents or caregivers, siblings, community members, church members, law enforcement officers, teachers, members of the school’s governing body, sportspeople and policymakers. This would have expanded the circle of people involved in socially constructing mobile phones. With the opportunity to spend time out of school with mobile phones as a design of social construction, these learners have shared both the skills and the knowledge acquired as a result of mobile phone usage and implementation in the learning process. They have done so on few occasions using the M-Ubuntu mobile phones. But on a daily basis, they do so using their own or borrowed phones. The researcher raised the following questions:

1. Amongst these learners, who owns a mobile phone and how did they acquire them?
2. Do they continue to use these devices for learning activities out of school hours?
5.4 PRIVATE OWNERSHIP AND SCHOOL ACCESS TO MOBILE PHONES BY LEARNERS

In Chapters 2 and 3, this study argues that youth around the world have a high percentage of mobile phone ownership and access. The study concludes that just like the use of mobile phones, youth culture evolves at a quicker pace than ever. The above section pointed out that no matter how they have acquired and accessed the phones; an increasing number of younger people are formulating the mobile phone to suit their lifestyles. In order to understand how ownership and ultimately access to mobile phones has influenced them, a question was asked as to whether or not the Grades 6 and 7 learners of this study own the mobile phones that they use to do both educational and/or non-educational activities on a daily basis. Fifteen learners said they do own a mobile phone, with two indicating that they do not. Nine learners stipulated that their mobile phones were bought for them, because they had become prolific users who every now and then asked for or stole other family members’ (mostly mothers’) devices. These young people felt they ought to own mobile phones, as the devices have become more than accessories, but sources of independence. F1P3 stated that; ‘I use my own cell phone because it helps me to do a lot because I don’t need to ask my mom or my sister about their cell phone because I don’t bother them’. Like most of the participants, F1P3 acknowledged that ‘I got it in 2011 from my father as a present. … A present for birthday’. The 12-year-old F1P3 was given his phone when he was 10. In Chapter 2, this essay notes that at ages younger than 18, most children receive these devices and their accessories as gifts for different occasions. Of significance is the fact that this is not limited to individuals; even this primary school received the mobile phones as gifts from the M-Ubuntu project.

Apart from F1P6, all participants acknowledged that, now and then they do share their mobile phones with any member of their family, particularly with their mothers and siblings. Apart from F1P6, they agreed that they exchanged both their phones and the content with friends during social activities (the spirit of uBuntu). F1P6 refuses to share his phone with his family members because:
I have my own phone. I got it 2011. And the reason why I got it is because every time when I look at somebody’s phone, I just do lots of things and then every time the phone is broken or something. So they just said they were going to buy my own phone. My dad bought it for me as an unexpected present. I just saw it in a box and they say it’s mine.

FIP6 who has rated himself as an excellent user of the mobile phone for learning purposes has portrayed himself as one of those children who would manipulate the device for any reason. He indicated that when he used other family members’ mobile phones prior to owning one, he would download whatever music and videos he wished. He was given his own phone as he was always using and breaking others’ phones, and he has resolved that no one will touch his device, lest they break it or exhaust his airtime.

The manner in which these learners use their private mobile phones indicates that the handsets are GPRS-enabled. This means that the mobile phones have the capability of connecting to the Internet and Bluetooth and taking and also sharing pictures and videos. All learners mentioned that they use their own devices out of school premises either as an educational or an entertainment tool, or both (edutainment). Learners commented that they have also shared phones during leisure as they ‘listen to music without ear phones … and take videos’ (F1P3) and ‘play songs or record videos like when we are dancing, we start to record each other’ (F1P4). One of the intriguing facts found by this research is that 11 learners were quick to confirm that they have used their own mobile phones at home to do school work, or search things related to what they learnt or will learn in class. The rest have used other media such as computers and books. F3P2 explained that mobile phones have come in handy where: ‘if they give us social science homework. Maybe they tell us what Gauteng is. I tell my aunty to help me with his phone’. On his part, F3P3 says: ‘yes, I use my brother’s phone at home to do homework with maybe for mathematics, I go to calculator’. These participants do not have their own mobile phones for whatever reason, but this has not limited their school work to school-owned books, computers and the M-Ubuntu donated mobile phones. It is a reality across Africa for social relationships to be fashioned such that access and use is
communal, even if individual use for mobile phones has begun to dominate (Tall, 2002, cited in Chéneau-Loquay, 2010:5).

The ownership statistics and access level of the Grades 6 and 7 learners is encouraging. It allows learners to practice and build on the skills they gain using the schools' mobile phones. It is somehow promising to the principal who does not see the mobile phone as a device that will only teach the skills of reading and writing for her learners. She sees it as a device that introduces them to a very important step in their lives; the liberation and empowerment to consume technology. She feels that access at a very young stage does not only mould these learners to be fervent users of the mobile phone for learning purposes; it also prepares them to use them and other technologies with confidence. She explains the difference mobile phones have made in the teaching and learning experiences at this primary school:

... A phone is a gadget that you use every day. It gave them empowerment in going to the desktop. Because a phone is a gadget that they use ... you know if they say it works like a computer, but a lot of people have got fear for the computer. So it was easy to move from the phone to the computer. And for the children themselves they never! They didn’t realize that whatever you do, you can do them with the mobile phone. They just thought it is an ordinary phone.

This comment adds to the mobile phone learning coordinator’s statement above which explained how the phobia of learning with computers is removed from the children as soon as they master mobile phones. These comments describe how children move from mobile phones to computers, but emphasises that they tend to learn a lot more when on mobile phones than on any other technological devices or when reading books. In Chapter 2, on the section on mobile phones and development, this research found that for many underprivileged children, the device is presented as the sole means of interaction with other ICTs. Considering this and taking Kolb’s (2008) stance, the principal reiterated that without being fully conscious … the gadget, that they use them every day’ is what gives them ‘acceleration to realise that computers are just like phones’, or are mediocre. The difference, she stated, is that with mobile phones, ‘you do anything you want with them’. During lessons, we just let them, we don’t have a problem’. She correlated her statements in
stating that ‘our children know how to work with those phones, and they know how to work with computers.

Perpetuating the potential of the mobile phones to teach out of school, the principal firmly stated that it is convenient not to ask learners to bring and use private phones for learning; even if all learners owned mobile phones. Her reason is that teaching and learning M-Ubuntu-style does not need much finance from the school and nothing at all from parents and caregivers. In the case of her school, because they bought the phones and trained the teachers, the cost was fully covered by the M-Ubuntu project. The principal continued that since the initial take-off, whenever her school faces any difficulty or challenge that needs external assistance, the representative from the Global Learning Academy is contacted via email. Referring to cost-saving on her part regarding telephone conversations, she confirmed that: ‘he [the M-Ubuntu project leader] does the calling. When I send him an email, I say [name omitted], we need support on this and this and this and this. If he needs to speak to me, he speaks to me’. The principal expanded on the level of assistance they receive by stating that because the project leader is based overseas, ‘... there are these volunteers in the Western Cape and in Mafikeng. Those are the people that he can send on site if we need anything. And we are not carrying much cost you know’. In an open-minded manner, the principal expressed her gratitude, not only to the M-Ubuntu project, but also to the German volunteers. The principal clarified that the costs are so minimal that the school does not even pay the mobile learning coordinator’s salary. She confirmed that:

For this year\(^8\), she is paid by UNISA and the sponsor. But back then she was paid by the School Governing Body. I think we are fortunate that our SGB\(^9\) realized that we needed our media centre. … Our computers centre plus the library.

The principles of uBuntu may be practised everywhere in South Africa, but not all schools are fortunate enough to receive mobile phones donated by German volunteers and other sponsors. However, because all schools have governing bodies, the principal explained that where possible it could be cost-effective to run

\(^8\) 2013  
\(^9\) School Governing Body
and maintain donated mobile phones for educational use. She added that where there are volunteers, the school does not incur costs. Most of learners’ information is used electronically, reducing the need to incur printing costs. This explanation was given in reply to the question: How could this primary school sustain the M-Ubuntu project should funders withdraw? The following remarks were made:

We are not. Because I will be very unfair to say. I mean paper we are having paper ... from GDE\textsuperscript{10} for learning and support material; if they have to print what they have written. ... they put it on the Internet. ... If you have to use it on their desktop, that is all we need, it is not like we are feeling the pinch. It is manageable resources and it is what we have. No, no, no. I am not carrying any major cost ... eh eh.

Explaining that with or without these costs, mobile phones are here to stay; F1P6 added humourously when he asked his colleagues: Why, if books are so important, do people use computers in the workplace and not books? Without responding to this question, this study observes that should mobile phones fulfil the functions articulated by participants, it could easily be dubbed the motivational device for learning that many take for granted. Whether or not these learners own the mobile phones they access, or whether or not the school incurs costs in the mobile phone learning process, the fact is that learners have used the devices in their own ways to educate themselves.

In 2005, Katz noted that public-school authorities – of which this primary school is one – do not have the political power to overcome parental and student resistance to ban mobile phones on school premises and in classrooms. Katz (2005) explains that we live in an era of both local and global violence; this has prompted parents to view this device as a lifeline to their children. He adds that more and more people now view the ability to take these devices to classrooms as an obligation, and this has made its banning from school and classrooms unrealistic. In this light, Katz calls on control of mobile phones instead of a ban from classrooms. Nevertheless, what Katz did not take into consideration is the fact that banning personal mobile phones from classrooms continues to be possible while there is an alternative provided by the M-

\textsuperscript{10} Gauteng Department of Education
Ubuntu project. Both the mobile phone learning coordinator and the principal of this primary school were stunned at the question that seeks to find out how they manage learners that come to school with their mobile phones. According to them, learners know and respect the fact that they do not have to bring personal mobile phones to school. In very rare cases where learners have forgotten and have brought personal devices to school, they have been quick to take them to the office for safe-keeping. According to these members of staff, they have not had issues of personal phones finding their way into the classrooms, just as they have not had incidents of the M-Ubuntu phones being taken home without permission. Even when they use school mobile phones, there are basic rules. The principal said learners showed awareness of these rules by saying:

We are not allowed to come into the centre with their wet hands, or eating and then you must always respect yourselves and respect the thing that you use so that when another person comes to use it, they must see it in a good order. So they must have an arrangement in place so that this is how we are going to use this and then if they don’t obey those, … for the whole term, … you can leave the mobile learning, and then when you see that you are ready to use it, and then you can come back so that it will be easy for us.

Allowing mobile phone usage in school is not the same as using personal ones; which is not only costly to parents and caregivers from underprivileged communities, but will most likely take away a portion of the spirit of uBuntu that is portrayed in this research. When children share and care, instilling discipline and respect is as important as – if not more important than – teaching them to read and write. The next section explores how learners have shared, read and written on mobile phones.

5.5 INTRODUCTION OF MOBILE PHONES IN THE LEARNING PROCESS AT THIS PRIMARY SCHOOL

Without necessarily referring to privately-owned mobile phones, Nicolas (2011) and other authors (Ling, 2004; Horst & Miller, 2006; Prensky, 2006; Kolb, 2008; Walton, 2009) have noted that mobile phones are becoming like pens, text books, cameras,
calculators, recorders, clocks and more. As with pens, children have to be given the
opportunity to practice using devices on their own. Most importantly, the devices are
also becoming access points that support self-directed and personalised learning,
where learners interact and exchange data, both online and offline. The principal of
this primary school adds her voice to this group by saying that due to his/her place in
the learning environment, ‘each child should have a phone like their pens’. Ling
(2004) has mentioned in this study that the uses of mobile phones are no longer as
traditionally intended, but are continuously changing. If, as per the theory of social
construction, Ling’s statement suggests that users are coming up with new rules as
they go along and are finding new and unexpected uses for this device, then learning
is just one such new and maybe unexpected use. A few years back – in this primary
school and everywhere else – there might have been doubts about how mobile
phones could simplify learning. The mobile phone learning coordinator explained
that, after attending the M-Ubuntu training session in Mafikeng in 2009, the
seemingly complicated process became clear to her and her colleagues. She added
that in an M-Ubuntu culture, when launching the mobile phone as a device from
which learners will study, these young people are not just given the device and
expected to manoeuvre it, but they are slowly introduced to it. In her opinion, it is a
mistake to assume that every Grades 4 learner has had exposure to mobile phones
at a point in their lives. As such;

The procedure is; at first because we are doing a lot of literacy, I was doing it with
the English teacher. Uhh. In the class we'll recongnise one or two stories which
the kids need to learn, and then we take the kids. They come to the computer
centre. They Google a story. Like a short summary of a story, not a full book.
They go on the mobile phone, they type the story into the phones, and then they
also type stories as well. And sometimes they only type stories, and then we type
questions for them. Then we give them the hand-outs of the questions. They will
use the mobile phones, and then they give all the answers to the questions on
the phone.

The mobile phone learning coordinator felt that introducing the mobile phone to
learners alongside the computer teaches them a lot of literacy at the beginning, but
most importantly, it helps to put them at ease with the concept of using mobile
phones as a device for learning. Although already mentioned, this point seems to be
inspired by Crystal’s (2008) opinion that the use of mobile phones helps curb resistance to ICTs. Preparing them to use computers seems to be a move that will be useful in the future. Although the M-Ubuntu programme may not always be there; there could always be computers. Importantly, the project’s storytelling method that enables learners to use mobile phones to re-write stories read online on computers is a way of teaching that also keeps learners eager, as they are always prepared for and looking forward to pop quizzes.

This learner is writing a pop quiz

This form of introduction makes these young learners comfortable users and breaks all the mysteries and misconceptions they may have regarding how to manipulate the device and also the fact that it is only a device for those who can afford it. The teacher’s view that mobile phones empower young learners by improving their literacy skills reiterates that of many, except for Woods et al. (2008, cited in Vosloo et al., 2009:3) who decided to remain neutral on this subject. In their research on children in the United Kingdom aged 10 to 12 years, they state that the ‘impact of children’s use of “textisms” on their reading and writing development is not well-understood’ (Woods et al., 2008, cited in Vosloo et al., 2009:3). One of the questions provoked by their opinion is that if it is not well understood, then how does one
situate the power of texting in a learning environment which demonstrates high illiteracy rates, such as South Africa? However, other authors (Crystal, 2008; Kolb, 2008; Prensky, 2006; Vosloo et al., 2009; Walton, 2009; Haagan & van Rensburg Lindzter, 2010) have contradicted their stand; these authors argue that exposing young children to any form of text could empower them in the way they read and write. Confidence is restored in this research when, for instance, a learner said with assurance: ‘Since I started using the mobile phone I started, it is different. Since I started using the mobile phones, and I started reading good and I am fast in writing reading and writing. It has helped me’ (F2P5). This stance is even fortified further when F2P4 stated: ‘I know how to write in the mobile phone and I can do research in the computer and in the mobile phone’.

The mobile phone learning coordinator is very influential in the implementation of the M-Ubuntu project in this school. It is important to mention that like most users, she claimed no formal training on mobile phones usage for learning. She explained that when they went to Mafikeng before the project was introduced in their school, the idea was that they were going to be taught how to teach on mobile phones. However, she states the following:

Nobody taught me how to teach with the phone. ... We didn’t have like formal training on how to use the phone. It was just like the basics. To say you can do one, two, three with the phone.

It could be argued that they were trained to some extent, but her statement makes it clear that because social practices are involved, mobile phones are the easiest to use of all the ICTs. Agreeing with the aforementioned authors and the learners, she described the role of the mobile phone in the educational system as a positive one. Responding to the question that seeks to find out if the mobile phone has improved both the teaching and learning experiences, she enthusiastically stated: ‘Yeah. It has improved a lot’. Explaining her point further, she could not hold her excitement as she brightened up to detail that;
Because, eh in 2009 and 2010, we had a literacy coach at the school. Because a lot of children did not know how to read and write, she had the alphabet put on the board. So each and every child that came, say today we are teaching the letter S. Say you have to find each and every word that starts with the letter S. Then ... you have to make five sentences. Let’s say now you have an apple. You have to find 5 sentences about an apple. An ambulance you have to find 5 sentences about an ambulance and you need to know what that word means. If you say an apple, is it a vegetable or a fruit and why does it mean that? So they did that on the mobile phones.

Without being challenged on her know-how, the confident teacher explained how well the learners have improved since they started learning in this manner. According to her statement, learners have not just learnt new letters and words, but have expanded their knowledge about them. Her explanation is that, coming from a background where nothing is taught in English before Grades 4, the group of learners under research were quick to master most English language words which they freely articulate now, thanks to mobile phone lessons. She believes that when learners are allowed to interact in the classroom active learning is prompted. This greater interactivity provides greater feedback for both learner and teacher, and it increases learners’ motivation while enabling a learning community (Huff & Marshall, 2009). Such a learning community could be free from criticism and competitiveness. One of the responsibilities of learners on earth is to teach. That is well adhered to in this practice, because when learning on their mobile phones, learners at the same time ‘communicate and share knowledge and information with each other’ (Shih et al., 2010), and create a knowledgeable community with increased social ties. Using few words, the mobile learning coordinator rated the success level of the project by stating that ‘at the end of the day seeing victory of the kids on their faces. Being able to help them on how to use them, and how you can learn further with the phones. Not only with books’ is the best.’

In response to the question that asks what subjects are learnt on the mobile phone, the mobile phone learning coordinator again seized the opportunity to credit the mobile phone as an effective aide to the teaching and learning process. She

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11 The literacy coach
12 Mobile phones
narrated how it has facilitated the transformation from learning in local languages\textsuperscript{13} only in Grades 1, 2 and 3, to learning in English only from Grades 4 onwards. She added the following:

It has. Like I said, I will repeat because we are doing a lot of literacy. When I started at the school, the literacy was very poor, so we started this uh literacy projects to help the kids how to read. So we started with a simple ABC, how you must pronounce them, and how you must put words together. So with mobile phones, we didn’t have a lot of books. So with mobile phones we put them together, then they go read the stories and come tell us. They come and retell the stories to us but not looking on the phone so it was easier for the teachers not to have work in the class, not to teach each and every child that need special attention. So the mobile phone helped with those that had extra attention, just to help them read.

This insert cannot over-emphasise the studies previously mentioned, stating that in the absence of books – or in cases where reading books seems tedious, as will be revealed by the participants of this research – mobile phones can help to promote literacy. Explaining how mobile phone usage makes it easier for the teachers, the above comment also emphasises the fact that in a situation where teachers have overcrowded classrooms (there are 62 learners in the current Grade 6, and 40 in Grade 7), these devices help to reduce the bulk of teaching (Haagan & van Rensburg Lindzter, 2010). It also explains the reasoning behind the M-Ubuntu project, which comes in handy because, in the absence of books and where classes are overcrowded, the mobile phone comfortably steps in as a tool for both writing and reading. This practice gives attention to slow learners in the manner in which repeat activities are conducted.

The mobile learning coordinator is satisfied with the way in which mobile phone access and usage are being implemented in the learning structure at this primary school. When asked, she said with confidence that there is no need for improvement. In her words:

\textsuperscript{13} Isizulu and Sipedi
It is exciting enough for me. I would say if the M-Ubuntu. If not only the M-Ubuntu, if we can have more sponsors like M-Ubuntu to sponsor schools could come on board and sponsor us. Not just us, other schools. We are very disadvantaged. Some of the schools. We are very lucky because we have a library. Some of the schools don’t have books they don’t have libraries. So if maybe organisations could come together maybe for this mobile phone things and then they help by providing someone who is always there in school to teach the kids how to use phones and some of the things that we do. Maybe that will help.

Thinking of fellow disadvantaged communities and how they could reconstruct the uses of mobile phones, this member of staff stated that she would cherish universal access to mobile phone learning. In an uBuntu way of thinking, she explained that the only way to improve the situation is by granting access to those who are studying without this complement to books and computers. She added that it will do a lot of good for schools with mobile phones should they have the manpower with the know-how in teaching on them. Although her comment makes sense, it raises doubts as to whether she is expressing the fact that her school does not have enough staff members to teach on mobile phones; a challenge earlier acknowledged by the principal.

As quoted above, the mobile phone learning coordinator responded to the need to improve the learning style of the M-Ubuntu using a slightly different approach to the principal’s approach. The principal is of the opinion that increasing the number of handsets would make a bigger difference. They are looking at the issue from different perspectives, and it follows they have quite different and seemingly contradictory viewpoints. The principal speaks as an administrator who, even though she may have contact with the learners and teachers, has little knowledge of their exact problems; the principal may not necessarily interact with learners, teachers and devices on a daily basis. Because the mobile phone learning coordinator is the person at the implementation phase of the M-Ubuntu project, she is in a position to know exactly what their challenges are and how they could be resolved. Apart from having no problem with the number of mobile phones currently used at the school,
another stance she takes is that, to her, mobile phones are just fine without Internet, whereas the principal believes that Internet access will ‘do miracles’.

**Internet-enabled mobile phones: the next step?**

Considering the security benefits, the mobile phone learning coordinator is satisfied that these phones are not connected to the Internet, but it is relevant that a section of this study is dedicated to how this aspect informs this research. This is important as one of the assumptions made by this study was that the privately-owned mobile phones used by the Grades 6 and 7 learners of this primary school were equipped with Internet access. However, as already shown above, collected data reflects that contrary to preconception, the M-Ubuntu mobile phones do not have Internet access. This does not mean that learners do not access the Internet when they learn with these devices. They report accessing the Internet in school on computers or at home on computers, laptops and private mobile phones. At their age, it is very important that they are not left to make the decision on the level of safety and security while they use these devices. This research cannot ascertain how Internet access at home is monitored, although comments point to the fact that the school computers are highly scrutinised.

Whether they play with mobile phones or they read and write with them just for the sake of doing so, their principal thinks that there is value to mobile phone learning in the educational milieu. She is not alone, as some authors (Horst & Miller, 2006; Ling, 2008; Walton, 2009; Rogers, 1997, cited in Hershey, 2011) think that exposing children to mobile phones early in their lives may lead to ‘natural’ learning habits where they pick up knowledge as a result of their (mediated) social interaction with others. Like these authors, the principal acknowledged that Internet-enabled mobile phones have turned the device into a vital and most desired edutainment tool for learners in this age group and older. There may not be proof from this primary school, but in the section that discusses mobile phone access, the principal mentions that without Internet access, mobile phones are not complete. Her statement is in line with the view of Katz and Aarkhus (2002:303), that ‘more people will soon be accessing the Internet via mobile phones than more conventionally through personal computers’.
Be it for educational or leisure purposes, increased Internet access via mobile phones is becoming a norm amongst teenagers in developing countries. Businesses – and also governments – are watching these young people. The Gauteng Online Schools Programme, which started in 2002, aims to computerise schools. Partnering with the M-Ubuntu project, the South African government is introducing mobile phone teaching skills to teachers’ education and training. An email communication with Mr. van Rensburg Lindzter of the M-Ubuntu project reveals that, backed by the South African Government, the Global Learning Academy is rolling out mobile learning in 60 schools in the province of KwaZulu-Natal alone in 2013. He states that this will be possible if their application to The United States Agency for International Development (USAID) to sponsor the project is successful. At this primary school, just like with every M-Ubuntu project, mobile phones are not connected to the Internet. In a situation where learners need to execute tasks using the Internet, they are sent to the computer lab which is equipped with enough computers to accommodate a few learners at a time. Whatever information they seek is then accessed through the computer Internet and transferred to the mobile phones via USB Cables or Memory Cards.

However, during the focus group discussion, some Group One members mentioned that they have accessed the Internet on these mobile phones. Even though the truth could not be established, the conversation below by Group One participants showed how group members can easily influence others and sway communications.

**Researcher:** How often do you go on the internet?

(Long pause)

**F1P1:** ‘May be 3 times a week’

**F1P2:** ‘We didn’t go to Internet that much but it was fun working with the mobile phones’

**F1P3:** ‘Eh-h-h. We went to Internet 3 times a week and it was it was also fun learning on the mobile phone’

**F1P4:** ‘E-e-h me I don’t remember going to Internet but I remember communicating with it but …’ [shakes his head negatively].

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14 Make computers accessible to schools.
F1P5: ‘We went to the Internet 3 times a week. I loved the Internet on the phones’
Researcher: ‘But at the beginning, you all agreed that the phones do not have Internet connection isn’t it?’
F1P5: ‘It has a Internet’
F1P6: ‘Every day when we were working on the newspaper project’

Only F1P4 was aware enough not to contradict her stand. The researcher assumed that this question was completely misunderstood and that instead of talking about the mobile phones used in class, the learners are either talking about those they use out of school or the Internet access that they have at school via computers. This is confirmed when one looks at the next discussion;

Researcher: ‘What do you regularly do online?’
F1P1: ‘We-e-e we do we play games and share pictures’
F1P2: ‘We did our projects’.
Researcher: ‘What projects’?
F1P2: ‘The newspaper projects and the other projects that we were researching all about the school’.
F1P3: ‘We did, did the newspaper project and other projects we do the newspaper project and other projects because games we are wasting our time and we wouldn’t finish on time if we are playing games’.
F1P4: ‘Yes it was 3 days a week. We did the research of the books and the research of the newspaper projects’
F1P5: ‘As they say we were doing our projects and I was sharing with [name omitted]. Like projects we were doing. We were doing many thing maybe things like sports. Maybe interviewing teachers or other people on sports or other things … yeah things like that. What I like most is when I go to the Internet to do my projects’.
F1P6: ‘The mobile phone? E-e-eh-h we go to internet 3 times a week and what we did most is doing the newspaper’

These comments by the same group of learners as those above do not reflect the planned uses for the mobile phones. All learners and staff members mentioned that these mobile phones are used strictly for writing, reading, and video and audio
recordings. They have expressed a wish to do more with the mobile phones and their principal has informed them that unless they are Internet-enabled, the mobile phones’ uses remain limited.

Agreeing with four of Group One members, the mobile phone learning coordinator and the principal insisted that these phones do not have Internet access or the ability to connect to the Internet. For this reason, the other groups did not have the opportunity to report what they regularly do online on their (donated) mobile phones. Even without being asked, during her interview the mobile learning coordinator took the opportunity to prove that these mobile phones can never be connected to the Internet. She demonstrated this by accessing the browser of the mobile phone, ‘See’; she said, ‘this is the page they found. They think it is Internet. These phones were disabled by [the M-Ubuntu project leader] himself, not us’. She further highlighted the fact that these learners do not and have never had access to the Internet through these devices. She said that they do access whatever information they want on Internet-enabled computers, and if needed, such information is transferred to their mobile phones via memory cards or USB cables. However, F1P1’s reason for enjoying the mobile phone is: ‘emm the difference that gave me the mobile phone is to find, go to Internet, find anything that I want, show me pictures or anything that I like’. Even though these learners later lamented their inability to be connected to the Internet, at this stage of this research, the above utterances make one to wonder why they made such statements if in fact the devices are not Internet-enabled.

As an educational device, these learners are enjoying the company of the mobile phone as they do when it is used for entertainment purposes. Closing her interview, the principal said:

I am happy that you have seen them. They are improving language-wise. And again when we use mobile phones, we don’t do African languages much. We are doing English you know. For me, the other thing I must tell you is that it gives … confidence. Every second person in South Africa have got a cell phone, if not everyone. You see. So it gives people the understanding to expand the use of mobile. You know e-learning. Above all it goes to e-learning to say you don’t have
to learn on paper and, and one thing that I must tell you is that when children do activities they don't tend to forget, unlike when they are told. They learn more when they do these things. And it exposes their minds. What else do they do when they are on their own? Like when you give them about 5 minutes to touch the phones, they will go about doing things and things and things and things and it shows that learners are engaging.

Although she made mention of e-learning, the Internet has no major role to play here. What matters most is that her learners possibly write and speak better English thanks to their exposure to mobile phones. According to her, the confidence level of the learners in manipulating ICTs is ideal. Regarding learning styles, the principal mentioned that where learners learn by ‘doing’, as is the norm when they do out-of-class projects, their ability to retain knowledge and skills learnt is expanded. Without attaching adjectives and nouns to what learners do on mobile phones for leisure, she emphasised how exploratory they can be when left on their own. For this reason, it is important to look at how safety and security are observed when learning the M-Ubuntu style.

5.6 SAFETY AND SECURITY, EDUTAINMENT AND THE USE OF MOBILE PHONES IN LEARNING BY THE LEARNERS

Whether or not these learners access the Internet on the M-Ubuntu project mobile phones as they play and learn, it is critical for them to understand that using the mobile phone is also an important safety and security issue. For this reason, this research reveals how safety and security of both the device and its content play out. It is important to be conscious of the fact that when discussing the uses and implementation of mobile phones for learning or entertaining, online and off-line variances are the issue. When learning with mobile phones, the type of content created and/or accessed by learners is as important as their ability to access content in prescribed text books. One of the questions this research seeks to answer is what the school policy states about learners’ use of mobile phones and their content. The principal responded that apart from the policy that deals with safe and considerate use of the devices, there is no unique policy on how these mobile phones are used
and implemented in her school. This is simply because the mobile phones are supervised in the same manner as books and other learning materials.

Without unique rules, parents and the community may have many fears about imminent dangers to young children when using mobile phones for learning. Nonetheless, the fear of content security needs to be put to rest. According to the mobile phone learning coordinator, this is ‘because the content on the phone is what we want the learners to put in the mobile phones. When the phones came, they come with a memory card itself. Whatever that is on the phone is what we put in the phone’. Asked whether or not the learners can upload indecent or unacceptable content on the devices, she said in a firm but jovial tone: ‘No! The advantage is that the phone doesn’t have Internet and another thing is that our school lab is restricted to learners. They cannot search for things that are not in the curriculum or they will not appear. This means that not even can they transfer unacceptable content from the school computers via memory cards and cables’.

Adding value to her colleague’s comments, the principal stated:

… Then we won’t be having problem with bullying on the phone, the cyber abuse and going to other things. Children will know; I am using this for development and for learning. … Our children have to compete globally. If they know that this is a research tool, they can find anything there why not.

This study has not been oblivious to the issues of bullying and cyber-abuse mentioned in the principal’s comment. In agreement with some authors (for example, May & Hearn, 2005; Horst & Miller, 2006) this research fears for the safety of learners. However, this is a topic recommended for further studies because at this point in time, it expands beyond the scope of this study, as by their design, the M-Ubuntu handsets do not have such exposure. This concern is important to the school, but the principal has talked about it reservedly. The principal is of the opinion that bullying and cyber-crimes have no chance in this learning environment, because learning the M-Ubuntu way is structured so that no other person but the intended users can send or receive information to the device. The manner in which mobile phones are structured in the curriculum by the M-Ubuntu project may have
weaknesses in the sense that they are not allowed to be taken home. This may annul the concept of ‘everywhere, every time’ access, but ensuring safety of the device and security of content in this manner is one approach that needs to be commended.

According to this research, and if implemented like the M-Ubuntu project, learners, parents and caregivers should know that without Internet access, there is an increased level of safety and security in mobile phones used for education. Emphasising content security, the principal added:

... And fortunately those mobile phones, I don't know if you have tested them. They do not give you access to others ... like you know a blackberry you would go everywhere, and they do not have access to the Internet. So when we have to use the Internet they go and do them online on the Gauteng Shared Service Centre that is highly monitored and controlled.

There is a lot of reassurance from both members of staff when discussing the device and the content used in this method of teaching. It is evident that when taken home for homework purposes, content cannot be transferred from private mobile phones and computers to the M-Ubuntu mobile phones, since they are not 3G or Bluetooth-enabled. Even with such limited risk, learners and teachers alike are not allowed to either randomly access these mobile phones or use them without proper authority. As the principal mentioned above, treating these mobile phones in the same manner as books is important because at this point in their lives, these learners are taught to regard mobile phones as devices for learning that compliment books, yet have the power to stand alone.

When it comes to created content, the school does not take things for granted. Even before publishing their projects in the school newspapers, the teachers take time to ensure that the contents are accurate and not offensive. The principal explained that ‘teachers what they do is that they have the people\textsuperscript{15} who are using the phones. They check what the children are publishing. That is how we control ... whatever the contents’. But in the section that discusses mobile phones versus books and computers, the principal clarified what the school’s unwritten policy states about the

\textsuperscript{15} Team editors, German volunteers and the mobile phone learning coordinator.
use of these mobile phones, as well as how they are kept and used in her school. These silent policies indicate that these devices are capable of distracting these little people should they forget they have the phones.

From the above discussions, it is safe to say that according to the participants of this research, and other authors including Kumar and Wilson (2000), mobile phones are excellent motivational devices that can hold the attention of learners. It gives them the ability to create content and provides them with immediate and unbiased feedback. Manipulated with ease, the M-Ubuntu mobile phones create a troposphere of safety and security when in use. Given this background, the South African Government and other influential bodies still have to create room for learning using mobile phones. They have to bear in mind that if learning on these devices was not adding value, there would not be so many advocates as well as continuous free creation of mobile phone-enhanced learning resources. However, these devices are used more for personal reasons than this study can explain. Without being judgemental, it highlights Ling and Helmersen’s (2000) assertion that while parents can provide security and encouragement in forms of direction and financial support for Millennial, the family is often not an institution in which they would share the exploration of new characters. They assert that family and education are not directly providing children with a forum wherein they can participate in decision making on a similar basis with others of similar age. The one and only way they can acquire this could be through mediated communication; a system made readily available using mobile technology. As with every generation, these Grades 6 and 7 learners agreed that they would turn to each other as they prepare their transition to adulthood. That said, parties who advocate mobile phones use by young people have to acknowledge that just like with everything in life, mobile phones have some challenges too; challenges as seen below can either be controlled or accepted as they present themselves.

5.7 CHALLENGES OF MOBILE PHONES AS OBJECTS FOR LEARNING AT THIS PRIMARY SCHOOL

In most parts of this research, mobile phones are hailed as great learning and playing tools. This does not mean that gaps have not been identified. According to
the principal at this primary school, the first drawback comes from the fact that a mobile phone is only ‘complete’ if it enables access to the Internet. As the perception holds, she explained that:

... the mobile phones should be doing everything. They should be supporting them with everything. Unlike them stopping, going back to their computer and then to the mobile phone. So if they have to do everything there. It will be fine, and it will also be teaching them responsibility. I mean if you know you don’t have to open things in the mobile phone. I mean we need to trust them too. We must trust them with everything they have. Like if they connect to the Internet and they get information it will complete their research to say I opened this site and I got such and such and such. It is taking their learning further. You know. Unlike if they have to do just the typing and the cross-checking ... basically they are using them for the typing and the cross-checking and the activities and more. They could do more, and it could be a plus.

According to all the learners, the principal and the mobile phone learning coordinator, Internet access could make a difference. Even with the above benefits, it is easy to agree with the principal on the need for mobile Internet access; when studying, moving from computers to mobile phones and vice versa, could be distracting, time consuming and tiring to both learners and teachers. Giving them complete access to the Internet on this device could be more empowering and thus build learners’ confidence in the learning and sharing process. But the M-Ubuntu project leaders have their reasons for disconnecting these mobile phones from the Internet.

Because these handsets are not Internet-enabled, numerous problems of network coverage specific to Africa will not be discussed here. An interesting finding to this study that contradicts expectations of mobile phones used for learning is that the school has not experienced this continent’s problem of access to electricity supply since the introduction of the M-Ubuntu project in 2009. This is not just because the mobile phone is a device that is easily accessible and ubiquitous with basic features, but simply because every learner of the school is obliged to learn with the M-Ubuntu handsets at particular times. Before lessons times, the mobile phone learning coordinator prepares the devices, making sure that the batteries are fully charged.
and all accessories and connections are checked. This makes mobile phone learning appear convenient, so that there is no need to implement this practice any other way. One unnecessary problem is allowing learners to bring their personal mobile phones to school. Even though the majority of learners say they own mobile phones, the principal reiterated that asking parents to buy mobile phones for their children for educational use is an unacceptable request:

No. no. The situation where parents buy? No. if the department could buy, I will love it. The situation where parents buy … you see on my table. I have collected rulers. When I was just taking my normal rounds, some children were waiting and I said why are you not working? ‘Mam I don’t have a ruler’. It is as difficult as that. Some do not have pens. It is as difficult as that. We will come to parental involvement at a different time. But my dear. Phones are a luxury in our community. Let alone losing, I wouldn’t even dare to start a cell phone is a luxury. For them to say buy it and bring it to school.

She repeated Africa’s number one barrier to ICT access and usage, which is poverty; a problem that this study highlighted in Chapter 3.

Even though proponents have hailed the power of learning on mobile phones, Katz (2005) thinks that this habit might not only limit physical interactions but compel learners to be mentally absent while being physically present. His point could be concrete. Finding it difficult to plan, work and concentrate on complex ideas without needing this device is probably not possible in a situation where learners regard these devices as toys. Addressing the researcher, F1P2 explains this so nicely by saying: ‘Mam … books are more important than the mobile phones because the phones are too, are too simple and many people want to play games; So many games’. F1P4 added: ‘In this our generation mam we got so many technology. You can use maybe cell phone to Google something. But the thing that is more important is books’. Both participants acknowledged Katz’s point. However, young children today seem to be born with, and have grown in the midst of many distractions (Pachler et al., 2010). This has arguably helped them to learn to make their own

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16 Shaking her head negatively, with her lips tight.
choices; an ability that has empowered them to be able to work with and away from these distractions.

Their capability to study amidst all these distractions has created some concerns that contradict the findings at this primary school. Educators have been concerned about the undesirable effects that the ‘free-form’ often hastily written texts (Crystal, 2008) may have on a learner’s capacity for writing. As demonstrated in Chapter 2, this is because when they text, young people do not rely on the traditional ways of writing for many reasons. The spell-check ability of mobile phones celebrated in Chapter 6 has brought about doubts in its capability to fully equip learners with literacy skills. As a challenge to the mobile learning practice, Crystal’s (2008) expression has provoked questions of how empowering writing and reading on mobile phones has been for young people when all they do is replace words with letters, signs, numbers and special characters. Even more doubts are being expressed regarding the potential negative transfer from text communications to written essays in books. Like have the participants of this research, Horst & Miller (2006); Walton (2009) have gone out of their way to explain that learners have greatly improved in literacy after being taught on mobile phones and other ICTs. However, to neutralise the tension between those who argue for and against the ability of the mobile phone to improve on writing and spelling skills, Gerver (2010:14) cites studies conducted in the United Kingdom and Canada. These studies found that children who have repeated exposure to written words are more literate and that they learn more through doing so for fun. In this study, Gerver (2010) argues that the fact that these learners are able to shorten or modify these words, actually means that they can spell them.

Without arguing, it makes sense to comment here that young people today are successfully using text messaging communication differently for different purposes. Texts in forms of emails, chat messages and instant messaging are used differently in different times, places, needs and purposes and ‘with a sense of purpose and informed participation that may be surprising to many adults concerned about the influence of computer-mediated communication on the lives and literacies of the younger generation’ (Lewis & Fabos, 2005:482, cited in Braun, 2007:14). Even though this research does not find evidence at this primary school, many teachers, parents and institutions are not fooled by claims of lack of text crawl. According to
Vosloo et al., (2009:2), enthusiasts of mobile phone learning, there are fears that informal texting language may subsequently appear in formal writing. Using very strong language, Humphrys (2007, cited in Vosloo et al., 2009:2) likens the role of mobile phones to the work of ‘vandals who are doing to our language what Genghis Khan did to his neighbours eight hundred years ago ... pillaging our punctuation; savaging our sentences; raping our vocabulary’. When questioned about how effective mobile phones have been, the mobile phone learning coordinator, the principal and even the learners will be quoted in the next chapter as saying it has been very exciting and helpful. The two members of staff at this primary school will explain how literacy and the English language have greatly improved in learners from Grades 4 to 7; an improvement that was not noticeable when mobile phones were absent from classrooms. Even though he does not link his argument to incorrect spelling, only F1P5 showed a strong rejection for mobile phones as a learning device. To him, it makes learners ‘lazy’. To explain just how lazy learners can become, some authors, (Horst & Miller, 2006; Prensky, 2006; www.itu.int) have decried that given their nature, mobile phones could easily be used by learners to cheat during tests. However, Prensky recommends that to escape this dilemma, tests and exams should be conducted more as open books (phones) to combat this fear.

The list of challenges created by using the mobile phone in the classroom can be long. Like the principal, some people vocalise that the use of mobile phones on school premises has resulted in new forms of bullying (May & Hearn, 2005). Whether or not their assertions are true, another intriguing fact seen in the percentage of mobile phone ownership by participants of this research makes it clear that most learners spend the better part of their time out of school using or in the company of mobile phones. It could therefore be important for their time on school premises to be used as an unavoidable excuse to keep them away from mobile phones. Such an excuse could be worthy because Park (2003) warns that alarm bells sound in instances where, for example, in Korea, reports of mobile phone addiction amongst younger generations have surfaced. Apart from being addictive, mobile phones seem to bring with them some risks to society of misuse of cameras with paedophiles, criminals and the wrong people contacting children and risk to privacy (intrusion into others’ space via junk and spam messages). It also raises questions of
affordability (apart from the cheap acquisition cost, there is the cost of calls and data), risk to health (caused by waves), personal safety (stealing, misplacing, harassment or bullying), offensive content or access to adult-rated content (Pachler et al., 2010).

Apart from content, the device itself has problems with battery lifespan, network coverage and lack of interactivity for SMSs (they are very personal). The small keys are difficult to master (said F1P1, P1P3 and F3P3) and this sometimes slows learners down when they input long texts. Small screen size causes limited display. Limited input such as no USB outlets, limited file sizes, low rates of connectivity (Hershey, 2011:4), lack of technical support, limited storage in device, inconvenience in mobile printing, slow processing speed, low resolution, lack of security and cost of maintenance, and in the case of this study, no Internet access, are just some of the issues that will keep mobile phones out of classrooms longer than is foreseen. There is also the fact that learning on these devices could potentially make learners too mobile, and therefore become unsupervised at times. The fact that learners at some point may have no privacy and no anonymity in gathering and utilising learning content on mobile phones makes learning very informal. Mobility and group work make it difficult to learn in a structured environment. However, no matter where they are, their school work can still be done, they can become creators of the knowledge they consume and mobile phones remain their most cherished possessions and should not be taken for granted. These facts have prompted Naismith et al., (2005, cited in Hanewald & Ng, 2011:5) to observe that teaching on mobile phones will position learning as an important, integral part of everyday life and a lifelong activity for all.

Agreeing with Naismith et al., the M-Ubuntu programme is structured in such a way that most of the above challenges can be easily overcome. The principal’s biggest drawback to the current set-up is charging the phones: ‘If you forget to charge them. They need planning. If you forget to charge them, then the next day when you use them … then you don’t have 15 minutes …’ As seen above, this challenge has been catered for and even though they have a way of escaping this problem, the short lifespan of the batteries is one of the reasons for learners’ disappointment, noted in the pre-interview discussion by the mobile phone learning coordinator regarding the
short lengths of mobile phone lessons. Globally, this drawback may not last because news has it that an 18-year-old American woman has produced a charger that could fully charge a mobile phone battery in 18 seconds\textsuperscript{17}. Expanding on her challenges, the principal continued: ‘That’s number one. Number two is electricity. Even if it doesn’t happen much, is if you have no electricity, sometimes you find that the battery, they are dying’. The second problem resonated with some of the above claims that third world problems – such as lack of electricity – will always find a way to interfere with the smooth usage of mobile phones as learning and teaching tools. However, to the mobile phone learning coordinator, this does not seem to be a concern to the mobile phone learning process at this primary school.

The principal revealed her concerns on the current situation and continuity issues with the M-Ubuntu project. She added that the project would have been enjoyable and well run if not for the fact that its funders, the handsets and all the accessories are based overseas. The distance between the school and its funders has created some communication problems:

\textit{[The M-Ubuntu project leader] is from far-r-r-r-so you communicate … so they are not user friendly, they are not friendly, neh. So I know for five of them their batteries is down, it’s finished and I know we will wait until [name omitted] comes this side or phone and courier you know.}

Responding to a separate question about sustainability, the principal undermined the school’s challenges with the M-Ubuntu project. She made it clear that the school is able to continue with the programme should the donors stop supporting them, as long as the mobile phones are not taken away from them:

Emmm. The only problem is that if they say they take away phones, then it will be the end. I don’t have the kind of money to buy the phones. But other than that, I am happy with … it … You know the difficult part is that it is not like a computer where if it was stroke by thunder, we don’t know what you know. … this is usable. So if they stop sponsoring, maybe … we will continue with the children, working on projects … but maybe if they decide to take the phones, maybe I’ll not be able

\textsuperscript{17} News was reported on various media but researcher accessed it on 24 of May 2013 on 702 Radio. Three months after data was collected for this research.
to ... to have the budget. I only have budget for paper and pen and you know, teaching material.

The principal stated that there is no end to this way of learning, explained how viable the school has been in the past, and emphasised her and the learners’ enthusiasm for this way of learning. She discussed the possibility of hiring a librarian:

... sustain paying a librarian as a township school, ... We could look into it, you know, put it in the budget and then think about it well ... You know, dumping a project like this could be very unfair ... to our learners ... especially with the intensity of passion that they have revealed towards this mode of learning.

For the respondents of this research and the educational milieu in general, it will take a lot more than the responses in this research to determine the future of mobile phones in education. Apart from that, whether or not access to learn on mobile phones has improved the learning and teaching experiences for both learners and teachers remains an important question. It adds to the debate on the impact of ownership and access to the use of the mobile phone as a device for learning, because value could be derived from the following response from the mobile phone learning coordinator:

The Gauteng Department of Education needs to take the education of kids very seriously. For example, now they are pushing each like the township schools. They are pushing them to have a library, but they are not taking initiatives to say ok let’s start a library in each and every school. But about literacy especially, they are not taking it seriously. So I will say with the mobile phones and libraries, there is a lot to be done in literacy by the department of education. If they can focus on literacy, but at the moment I am thinking, I don’t know what they are focusing on. But if they can focus on literacy, because for me I don’t see the point for a child learning how they read but not understanding what they are reading. For me I don’t see that.

Her response positions the mobile phone as a simple alternative to books and computers, and it would make sense for the Department of Education to make peace with the fact that mobile phones – not only books – are minimising illiteracy in rural
areas. She adds that drawing up policies and advocating that schools should have a library is one thing, and actually implementing these policies is another. She pleads for the Department to kindly implement libraries and make literacy a priority. But where the Gauteng Department of Education does not implement this, her advice is that this does not matter because mobile phones could easily represent libraries, and are better placed to help in teachers’ efforts to have literate learners.

As already mentioned, the reason could be that most schools and homes in underprivileged Africa are not privy to books and computers. However, this is changing as more and more young learners seem to be depending on mobile phones for learning (with the support of the M-Ubuntu and other projects). Studies of South African learners are emerging and they show that literacy practices would work well if learners are exposed to learning materials and also encouraged to read and write at a very early age (Walton’s 2009; Haagan & van Rensburg Lindzter, 2010). This will be a painstaking process because at this level of their studies, young learners in underprivileged societies have very little exposure to literacy and literacy practices.

Having mobile phones could make a difference to literacy practices, especially where the mobile phone enables a wider range for access. It was mentioned in Chapters 2 and 3 that with Internet access, learners in rural Africa will be brought to the same level as those from urban areas and developed countries, where devices such as computers, iPads and laptops are used to access the global world of information. It should be noted that the aforementioned literature cited devices but not mobile phones. This could be proof that these devices, when connected to the Internet, could easily and conveniently collaborate with the mobile phones that are offline. The principal spoke on this point when she stated: ‘I am in support of the fact that a child in this primary should be able to get access to information that a child in Hollywood for instance is having on the mobile phones. Why not? Yeah, why not you know?’ Her comments echoed the fact that as an individual and perhaps because of her position as principal, she would very much want these mobile phones to have Internet access. It also confirmed the fact that mobile phones could easily represent the only method of remote communication, the only way of gathering information and the first and sole means of interaction with ICTs and digital information (ITU, 2009;
Valderrama, Doring & Schmidt, 2008:121) to many in rural areas. The participants of this study are sharing Schmidt's (2011) view that the current high use and ownership of mobile phones in developing regions could represent a realistic alternative to computer and other technologies (even books) for learning.

Although lack of Internet access may narrow the scope and pace of access to information, they reduce the level of using the devices to entertain rather than learn. Collaborating mobile phones with other ICTs, learners should know that this way of learning comes with unique benefits for the school. Mobile phones expand the scope of teaching and learning for teachers, learners and even parents and caregivers through various curriculum offerings, technology-rich instructions, unprecedented resources, and they significantly enhance teachers’ skills in technology (Berman & Tinker, 2000). In their research, Haagan and van Rensburg Lindzter, (2010) found that in South Africa, mobile phones have improved the motivation, behaviour and literacy levels of learners. They also noted positive changes in teachers' behaviour, as most demonstrated improved morale and an extended range of teaching techniques. This research also found that Grades 6 and 7 learners at this primary school would prefer to spend more time learning on mobile phones than reading books. The mobile phone learning coordinator captured the above sentiments thus:

For example you become innovative. Like I took a mobile phone home for a whole weekend for example. To see that this is not what I want to do with the phone. Ok what else can this phone do? And I find out exciting things and also share with the learners. So in most cases I will not sit and then tell the learners what to do. Only may be for the first week or two, they know what to do.

As a follow-up, the researcher asked her if these mobile phones have room to improve the method of teaching; her response was: ‘A lot of room for improvement’. Coming from someone who thinks the current mode of implementation needs no improvement, her attitude adds value to the results of Horst and Miller’s (2006) study in Jamaica. They found, as did Berman and Tinker (2000) and Haagan and van Rensburg Lindzter, (2010), that where technology is used for learning there is less boredom and tiredness and better morale. They
conclude that a higher attendance rate reflects increased motivation by learners and teachers to attend lectures.

Giving credit to mobile phones at this primary school could be true for the learners and these two members of staff only. When the researcher asked how mobile phones have empowered individual teachers or improved their teaching styles, the mobile phone learning coordinator reacted negatively. She stated that some teachers, even those who had attended the initial training in Mafikeng in 2009, are still not able to teach on mobile phones almost 4 years later. According to her, they are not interested:

Reason being we are at a primary school where technology is not very well advanced. The teachers at our school are very old fashioned. ... they don't know how to use their own cell phones. They only know how to answer their phones and then send SMSs. So if we were to take them and teach them how to use the mobile phones because ... it is a mobile computer. So it will be very difficult for them to use the mobile phone. Because the mobile phone has the Words, Excel the PowerPoint inside.

If mobile phones have been described by all parties in this research as motivational and as holding attention, then the above statement creates more doubts than clarity. However, as one reads further, those doubts are eliminated by the principal’s own reasoning behind this lack of interest or capability by teachers;

Yeah, the teachers have improved. Though I must say we have challenges because Gauteng itself is introducing the GPLS and other things. Gauteng Provincial Learning Strategy, which has got a lot of resources. So you have seen when things are prescribed to you and you have to work with timeframes? I think that is where we got a bit of a challenge, where we have to reduce the utilization. Because they are following a certain programme. 2009, 2010 it was easy. But with the GPLS. Though it is a very good programme I must say. But the problem is that you are monitored until you should be able to cover, do a certain work on this time. You see, so the problem became that we couldn’t emphasis the mobile phone. So then we shifted to using them in the afternoon in the media centre. You see.
These teachers are not unique. As far as mobile phones are seen as technological devices and not aides for study, such attitudes will remain in schools, in homes and on street corners. For schools that have adopted the mobile phone as part of their curriculum as this primary school has done, its use for learning should not clash with traditional times. At this school, learning is typically conducted after school hours as learners wait for their transport to arrive. The reason for this, according to the principal, is that learning with mobile phones is sometimes taken out of a set curriculum. Therefore, it is possible for the current mode of practice to delay the school from completing the curriculum at the Department’s stipulated times.

Considering that these learners need to be guided as they improve these skills and without pre-empting the above responses, this research saw the need to find out if the teachers at this primary school are literate enough to conduct lessons on mobile phones;

No, no. Some are new to the stuff and some as much as they want; they are doing other learning areas. Some subjects like I told you. Unless a person who’s got an interest. … Maybe we are funny because we have not given everyone else but I think we should start motivating our teachers, to say maybe take the phones and do something with it. I don’t think it will be a problem …

The principal has just reasons for her stance. In the above insert, the amount of energy or lack thereof in her tone and her sad face gave away her attitude regarding the teachers’ level of technical know-how. Given the perceptions of its uses and implementation, one may conclude that the M-Ubuntu project was born because learning on mobile phones is not just about being able to read and write on them (Crede & Mansell, 1998, cited in Kent and McNerney, 1999:7), but involves support from other sectors of the economy; both in infrastructure and human resources. To align with this approach of social learning, Crede and Mansell (1998, cited in Kent & McNerney, 1999:7) continue that developing countries need to devise effective strategies to incorporate these learning tools (mobile phones) into their learning curricula. The principal’s support comes with a pledge to make sure that one by one, her teachers are taught how to teach using mobile phones. Her pledge, together with
Crede and Mansell’s claim, provoked the need for this research to discuss the current and perhaps the future uses of mobile phones in education.

The following questions need to be asked:

- Should these gadgets be used in or out of prescribed curriculum times?
- Should they be used with or without Internet access?
- Should learners be allowed to bring private mobile phones to school?
- How will learners play and learn with their own devices?
- How will the current state of safety and security affect the uses of privately owned mobile phones?

As has been demonstrated, the desire and willingness of users could only be better understood after looking at how the device is culturally and socially constructed within the context of uBuntu, how private ownership and access, safety, security issues including their challenges have worked into the edutainment practice of learners and staff of this primary school. An even better understanding is given in Chapter 6 which discusses how mobile phones are used to study, research and do homework by individuals and groups and how they are positioned alongside computers and books, and the perceptions of mobile phones as devices for learning are explored.
CHAPTER 6

FINDINGS ON THE USES AND PERCEPTIONS OF MOBILE PHONES IN THE LEARNING PROCESS

6.1 INTRODUCTION

This chapter builds on the previous chapter, where it was discussed how learners and teachers at this primary school have introduced and implemented the use of mobile phones within the school, and how the devices have impacted on learning processes. To elaborate on the uses and perceptions of mobile phones within this learning environment, the following themes are identified; use of mobile in study, research, homework and mobile phones versus computers and books. Drawing from the introduction already given in Chapter 5, this chapter begins by discussing the role of these devices in the lives of these learners and teachers.

6.2 THE ROLE OF MOBILE PHONES IN STUDY, RESEARCH, HOMEWORK AND COLLABORATIVE LEARNING

For this research, learning has been positioned as a ‘social and cognitive activity, occurring within a rich milieu of physical and cultural tools, settings and social interactions. And it comprises not only a process of continual personal development and enrichment, but also the possibility of rapid and radical conceptual change’ (Taylor et al., 2006:6). In most instances, if not always, learning is about wandering in the spatial world in a self-determined way and picking-up knowledge in a ‘problem-solving, orientated, subconscious, subliminal and tacit, experience-based, non-routine and serendipitous’ manner (Taylor et al., 2006:221). According to Vavoula and Sharples (2001:152, cited in Hanewald & Ng, 2011:4), learning has been divided between space (learning at home, schools, church or any other place), time (learning
any time of the day, week, month or year), and area (learning for personal interest or self-improvement). However, no matter where and how learning is conducted, it remains a conversation between different knowledge systems with technology (in this case mobile phones) providing support for modelling as well as an environment that enables conversations (Taylor et al., 2006).

With mobile phones now available at almost every corner, the art of learning and even knowledge-sharing has never been so empowered. In their classrooms and learning environments, learners do access, explore and share interactive content on mobile phones. This includes maps for history and geography lessons, graphics of anatomy for biology, videos, short films and documentaries on people, places and events for history lessons. They have accessed the calculator for mathematics, and the watch and calendar when they plan. F2P2 stated that they use mobile phones to access the weather, the map of Gauteng and also celebrity news. As seen in Chapter 5, Grades 6 and 7 learners in this primary school have even begun to create, use and distribute their own content for lessons and leisure. In order for them to play an effective role in knowledge creation and sharing, these learners have articulated that in the future, these devices have to be connected to other learners via Bluetooth, memory cards, USB cables and to a lesser extent the Internet. Since one of the biggest responsibilities for children, young adults and even adults has been to learn, this is important. Traditionally, they have had ‘to go to school and receive an education’ (Greig & Taylor, 1999:3). However, receiving education expands their right to share knowledge gained with others; either through face-to-face interactions or through social media using ICTs such as computers and mobile phones.

Connected or not, it seems as though access to a diversity of learning content is facilitated through mobile phones. If this is the case, then learning on mobile phones, either as a stand-alone device or in combination with existing approaches, including books and computers, is supporting and extending education in ways that were not possible before. With no formal education, most children around the world, and particularly the participants of this research, have acquired skills on how to access and use mobile phones for varying reasons – so have adults. This group of learners have rated themselves as ‘very good’ at using the mobile phone for whatever they
set out to do, but especially when accessing it as a device for learning. As they spoke highly of their skills, it is also important to highlight that these learners did not hesitate to credit their mobile phone learning coordinator, their school’s German volunteers and family members for their skills development. Only 3 of the 17 learners mentioned that an older sibling, a mother and an uncle had helped them learn how to use mobile phones as aids for doing school work.

All 17 learners in this research have acknowledged their love for working on mobile phone learning projects. In her experience on how mobile phones have effectively been incorporated into class work, the mobile phone learning coordinator thought the idea of seeing the phone as a toy makes it easier; she added that the learners were very excited:

‘Because kids like to fiddle around with things. So when you give them the mobile phone, they are playing. They are playing with it. They are playing but without realizing that they are learning. At the end of the day, eh let’s say maybe for example we do a story, and they answer questions on maybe about that story that was in the mobile phone. At the end of the day when you ask them questions on what they did. … they will be able to tell you that we did one two three with the mobile phone. So they will be able to remember that for a long time to come. Not for that day only.’

Learning is an active social process and this means to do is to master. Howland, Marra and Crismond (2008:2) think that to learn meaningfully, learners have to be ready to engage in tasks and projects that are ‘active, constructive, intentional, authentic, and cooperative’, creative and interactive; this teacher agrees with this view. Rating mobile phones as ‘helpful’ to study adds value to Kolb’s (2008) position that what were once regarded as toys are fast becoming unavoidable and worthy devices for learning. Similarly, it brings into perspective the assertion that most children have learnt on and from mobile phones, while under the impression that they were just playing (Prensky, 2006; Walton, 2009). Mobile phones have created a scenario where during active use, children negotiate rules as they play and learn. They observe the effects of what they have done and adjust as they learn and play (Prensky, 2006).
Narrating how they produce content as they learn on mobile phones, F1P3 recalled that: ‘Usually, we did the newspaper project and other projects’. He added: ‘because games, we are wasting our time and we wouldn’t finish on time if we are playing games ... We did the research of the books and the research of the newspaper projects’. At this primary school, learners do not just work on projects; they use the mobile phone during structured class lessons in fun but effective ways. They take pictures and record interviews when they do class work, homework and other school projects. Interviewing teachers and older members of the Atteridgeville community is also seen as ‘fun’ and recreational. Their activities endorse Ling’s (2004) assertion that mobile phones are devices that will take, keep and playback records of our lives. This learner’s comment exposes the perspective that mobile phones afford them the opportunity to play games. However, during lessons they choose to use it as a device for learning. Without being prompted, F1P3 explained that mobile phones could easily be used for games but the onus is on the learners to decide either to use it as a learning device or a toy. He explained that when they use it to learn, they really enjoy doing so.

In this primary school and in line with one of the principles of the M-Ubuntu project, collaborating entails pairing learners when they work on mobile phone projects. At this school, older learners are paired with younger ones as they do projects. Asked how the process of pairing across grades works, the principal responded that:

The Grade 7s, they are the seniors and they have been using them for three years. The Grade 6s have been using them for two years. And also to empower the Grade 7s to see themselves as; apart from learning with the gadgets, I am assisting my junior.

Like most of the learners and her colleague, the principal feels that the mobile phone has improved the style of teaching and learning drastically. It has created a new quest for knowledge and by so doing has widened the scope of learning and lengthened the attention spans of these young learners. A positive attitude to learning is enhanced by the fact the older learners see themselves as mentors and
younger ones as mentors in the making. This answers one of the research questions: It positions the mobile phone as an effective learning device for these learners.

The one theme that all participants seemed to agree on is that learning is a collaborative exercise and learning on mobile phones either in or out of class helps improve both collaborative and independent learning experiences. As seen above – and to be expanded on in the section that discusses mobile phones versus computers and books – all participants gave the impression that using mobile phones at this stage of the learning could combat resistance to the use of ICTs for learning. It could go a long way to lessen formalities in the traditional learning process, where learning has been a routine exercise performed in structured environments while sitting still quietly. As expressed by the learners and their teachers, mobile phones help them remain more focused for longer. The devices also help to boost self-confidence and help them to identify areas where they need support and assistance in the learning process (Pachler et al., 2010).

The instant and non-critical way of assessment by the mobile phone seems to be noticeable here too. The principal explains how her learners benefit from learning on mobile phones. She proudly stated that:

Obviously. Language-wise, because you see with the phone … when you spell, it spell-checks. Sometimes they do presentations. They will do a presentation based on the mobile phone and when they get it back, the teachers have marked them. They are able to see the standard was there, now it is here. … It gives them the motivation that actually I have to send this activity to the teacher. So you will see, before you send, you will double-check. And sometimes, you know, with the phone which highlights what is wrong. It is immediately. Unlike you waiting for the teacher to mark and say what is wrong in the afternoon … and if you are not sure, you start to … look for these words and check it and do something. So you can see they are growing. And some of the activities was to make sure that they do not have too many highlighted words. So they will try not to have a lot of highlighted words before they show their teachers.
Presenting work done on mobile phones teaches learners how to take responsibility and as discussed in Chapter 3, the perception is that it teaches skills that are not necessarily taught in school but pertinent for survival. One of such skills expressed by the principal of this school is public speaking. The principal’s comments link to Walton’s (2009) opinion that mobile phones also teach learners team spirit and how to queue communication (Ling, 2004). In the above insert, the principal glorifies the instant nature of the mobile phone in the way it gives feedback. She stated that knowing that they are taking part in creating the messages is very encouraging (especially in instances where this content is consumed as in their newspaper). As they learn in this manner, these learners ‘work together in learning and knowledge-building communities, exploiting each other’s’ skills and appropriating each other’s’ knowledge’ as they seek out others to help them understand and solve problems’ (Howland et al., 2008). This is done without necessarily rating their work.

6.2.1 Individual versus group work

It is important for this study to be able to understand the comfort level of learners as they work on mobile phones. A point of enquiry is: do learners work better in groups or as individuals? Even though this question was initially posed to the mobile phone learning coordinator, the principal captured it in the statement below:

And it was one-on-one learning. It was your cell phone and you doing activities in your phone and they have that freedom. So it gave them the freedom to do their own. You see. You choose your own topic, you type it on the phone then you then send it to your teacher and then you work with it, uh.

She explained how using mobile phones for various activities has taught these young learners that as they thrive in groups, so too can they thrive as individuals. In her opinion, they learn better when they know that the knowledge in the mobile phone is imputed by them to be consumed not only by them, but by their classmates, their teachers and their community members alike. In this sense, they give creativity and thoughts their best. This is why Pachler et al., (2010) construe that at such moments where learners become the creators of learning material; their personal space merges with their virtual space. This merge shifts power from the hands of their teachers to their own. The mobile phone learning coordinator added to the
principal’s confidence in illustrating how mobile phones have empowered learners, particularly in literacy:

Uh in the class we'll recognised one or two stories which the kids need to learn. And then we take the kids, they come to the computer centre. They Google a story. Like a short summary of a story, not a full book. They go on the mobile phone they type the story into the phones, and then they also type stories as well. And sometimes they only type stories, and then we type questions for them. Then we give them the hand-outs of the questions. They will use the mobile phones, and then they give and the answers to the questions on the phone.

Even though all learners explained that they love reading as individuals, activities are designed so that they mostly work in groups. This may not be surprising because by nature, mobile phones’ consumption is tagged to ‘participatory culture’ (Jenkins, 2006 cited in Vooslo et al., 2009:2). According to Jenkins (2006), mobile phone consumption occurs when consumers are invited deliberately or not to actively participate in the creation and circulation of its content. Because of the nature in which the device is being perceived and used, the M-Ubuntu project encourages learners to invite each other and participate in content creation as they study. Adopting this concept, this primary school makes a slight variation. As the principal stated, it opts to pair senior and intellectually strong learners with academically weaker and junior learners. Apart from using this strategy to encourage weaker learners and empower stronger learners, participants benefit in ways already mentioned above. In Chapter 2, it was discussed that using mobile phones as aides to learning may also make it easier for these young learners to exchange views and to openly but unknowingly criticise each other as they create and consume what has become their own content (Shih et al., 2008, cited in Pachler et al., 2010:31). That is exactly how it works out in this school.

Although 12 of the 17 participants said that they would rather read alone on mobile phones, all 17 agreed that they thoroughly enjoy learning in groups when they do so with mobile phones. They added that the difference is that when they read, the screen has to be still and it is difficult for more than one person to read at the same pace. However, when they do activities they take turns in using the device (as
picted below), and as a result they enjoy being there for each other in ways better described by Hwang et al., (2008) above. To fortify learners’ mind set, as she responded to the question on whether or not learners have shown preference to learning alone or in groups, the mobile phone learning coordinator added;

They enjoy both. But there are some that enjoy that ownership, saying I am owning the phones. So some, some but not all of them has that thing that says I am enjoying the phone working in the group, but there are some of them that want to work alone.

The claim that when they work alone, learners’ show of ownership tendencies builds on the principal’s comment above. When asked to further explain how she took note of these preferences, the mobile phone learning coordinator added:

Uh. Give an example of a newspaper project that we did. Our first edition. Uh we took a group of learners; they went and did research about the school. For example how was it? How it came that this school is named [name omitted] primary school. Who is [name omitted]? Why did they name a school after that person? Do the teachers have all the qualifications to teach in South Africa? And when they interviewed teachers, why did they decide to be teachers? Or did they become teachers because there was no work or maybe they like it, something like that. We also have a tuck shop. They interview the lady at the tuck shop, and advertisement in tuck shop and all that. So it is not only about teaching in the mobile phone. There is a lot of things that learners can do in the mobile phones. Cos some of them became like very good editors. Like some kids, F1P5 and I think F1P6, they were in sports. Like every match that they went to, they went with their mobile phone and with permission of the coach was asking questions and they were writing about what happened on that day. Did they win? And if they want to win, what can they do? So they did all that on the mobile phone.

The above expression covers a lot more than the question asked. It describes how the learners portrayed their characteristics and preferences as they learn. It also explains how they have used mobile phones successfully in team and as individuals. It narrates the manner in which they have used the devices and exposes the type of content they have created with it. It further explains that apart from depending on
mobile videos and tapes, these learners also write notes by hand to fortify what their interviewees have said. This therefore empowers them with note-taking skills and contradicts claims that learning with mobile phones reduces learners’ abilities to use pen and paper. It places this research at a point where it could be safe to mention the fact that when used in the learning environment, mobile phones also empower learners on multitasking skills.

Multitasking skills come to the fore when the Grades 6 and 7 learners at this primary school all agree that during in-class or out-of-class activities, they take and edit pictures and video using mobile phones. Working in groups on various themes, they said that they actively participate in different tasks. Their enthusiasm has enabled them to publish the bi-term school newspaper pictured in Chapter 5; a concept that was born shortly after the introduction of mobile phones to this school. They explained that they write stories for each issue, and these stories are written after a lot of research has been done, and after interviewing many role-players in their educational system and environs. These role-players include, but are not limited to, teachers (about their jobs), fellow learners (about education and social activities like sports and ‘fashion designs’ on Fridays), the tuck shop manager (about nutrition, prices and specials), kitchen staff (about meals for the week) and community members (on history regarding the community and the school). They love doing interviews on Fridays because; ‘Friday is a day that children wear clothes from home and we have interviews and teacher for gymnastics’ (F2P1).

These learners said they enjoy working in groups since this gives them the opportunity to learn from each other. F2P1 put it better in his response: ‘Yes I love to work in groups because if I don’t understand I’ll ask my partner to tell me what this word means’. Out of curiosity, the researcher asked whether they encounter disagreements. She responded: ‘No, we don’t fight when we work in groups’. By not fighting and bringing self-esteem issues to the fore, the group learning is even more enjoyable. This finding echoes Ryu and Parsons’ (2009) view that learning can be more effective when done in groups because this gives learners the opportunity to converse with each other by questioning and sharing their experiences.
When they work in groups, learners use the mobile phone differently for different projects. Sharing how working in a team as classmates has worked well for him, F1P5 expressed that;

As they say, we were doing our projects and I was sharing with F1P6 [name omitted]. Like projects we were doing. We were doing many thing maybe things like sports. Maybe interviewing teachers or other people on sports or other things … yeah things like that.

While some groups are assigned to read and write in class, others are asked to interview non-classmates either within or outside the school premises. In the school principal's words, even though learners rotate tasks, they are assigned to responsibilities according to their fortes, their interests and of course according to project goals. The school principal made reference to the M-Ubuntu project and this primary school in particular as she adds to F1P5's points. The principal regards working as a team important:

Hence we need to network, because if a child is using a mobile and the child's got eye-sight. We should be able. Eh, you know with my Blackberry, I could connect it to the computer, and then I work there. So if they could work together in teams from classroom to mobile phone from mobile phone to the bigger
screen. You know collaborative way of learning, because obviously before they go to mobile. It is manually with classroom interaction, to the classroom, then to mobile. You see.

Class discussions always precede project times when mobile phones are used. The principal said there is a need for learners to work together to offer support where others fall short. She emphasised that collaboration does not begin and end when learners are given projects on mobile phones. According to her, it starts when learning begins and includes all spheres of learning. Her point makes sense because collaborative learning occurs when learners work in groups towards a common goal, sharing and clarifying ideas, actively contributing to teamwork and solving problems together as per the task at hand; better still, when there is no time, place or space constrain to the group (Nurrullah, 2009). Such collaboration will work better for F1P1 and F1P3 who complained that they do not enjoy learning on mobile phones because the screen is not wide enough for their eyes. Introducing her challenge, F1P1 stated: ‘We find differently than we read on our books. We find small words in the mobile phone, and in the book we find some big words’. Referring to the question that asked how learning on mobile phones has made a difference, she said in a defeatist tone that ‘it affect … me. I cannot see well my eyes … yeah’. This is not because she has any eye problems. F2P6 adds that in his experience, studying with the mobile phone is:

... different from computers and books because the phone screen is tiny and the computer screen is not tiny and you can see all the words. The books are different from the mobile phone because the mobile phone is different. The screen is tiny.

For the sake of this research, the idea of pairing both learners and devices are a better solution to combat these and other difficulties; especially as, apart from pairing weaker with stronger learners, sometimes learners with similar hobbies get paired to work on projects. This reveals the power of teamwork. The principal stated that where there is a shortfall in learning abilities – such as a child with poor eyesight (F1P1 & F3P3) – other members are there to assist in the same way as do computers or other technological devices with bigger screens. When the principal
said that collaboration between learners is as important as between devices, she is sharing a view previously mentioned in this research. Chapter 3 mentioned Dede (2000) who states that it could be easy and more empowering for a mobile phone to collaborate with other devices using Bluetooth, memory cards and USB cables. Such collaboration is even more vital when aimed at accommodating learners with learning difficulties, especially with the inability to see small screens well.

Pictured here is a typical situation where learning devices (a book, mobile phone and computer) are used simultaneously

In addition to the above, no matter how enjoyable working in groups may be, not all learners enjoy using the mobile phone as a device for group learning. F1P3 stated that he enjoys reading on the mobile phone when sitting alone because ‘nobody is going to disturb me when I am reading’. The mobile phone learning coordinator also mentioned that learners enjoy the fact that they can own the phones and their content. The principal also took pride in explaining that during content creation, when learners work individually with mobile phones, they do it with distinction because they know that they will not have to share the glory of the outcome. However, to other authors, the fact remains that no matter how learners feel, learning remains a collective activity that promotes social relationships, encourages healthier mental states and fosters self-respect (Shih et al., 2010). This leaves learners in and out of
school deeply connected to one another, to families and to communities (Wood, 2011) and in almost everything they do. Wood continues that this works better in Africa where collective well-being seems to come before individualism.

6.2.2 Choice and preference of educational content

Working either in groups or individually, this study expects learners to access contents on mobile phones that are related but not limited to mathematics, sciences, geography, history, English language and literacy. This hypothesis considers the fact that mobile phones are ubiquitous devices with many functions. This research also assumed that whatever subjects they are involved in, younger learners prefer to learn through activities like ‘short, frequent quizzes drawn from clearly specified study questions, graded assignments and extra-credit activities’ that could raise their scores (Eison,1986:10, cited in Claxton & Murrell, 1987:45) and their awareness to continuous learning and projects that enable them to research. But as more insight is gained into the school and specifically the M-Ubuntu way of learning, these assumptions give way to reality. Asked what they enjoy more, the learners acknowledged that ‘maybe making videos or writing messages. Maybe about the newspaper projects’ (F3P1). In the researcher’s opinion, this shy respondent made a conditional statement because every other member of this group earlier expressed that unless compelled to do so on mobile phones, they love and would rather play games, listen to and exchange music, take pictures and videos of themselves and their friends.

In all groups, when learners were asked to indicate what subject they like studying most on mobile phones, their choice was expected from the above listed subjects. Three learners in Group One chose English, agreeing with all learners in Groups Two and Three. Two members of Group One selected technology and one learner chose natural science. Upon making his choice, F1P3 explained: ‘I can say I like natural science because it teaches me about animals and how they fertilise, produce and do other stuff, because if I don’t have that knowledge, I will not be a better person’. After stating her preference, F1P4 linked her argument to her colleague’s as she added:

‘Yes. I like all the subjects to be on the mobile phone because while I am searching, I must find it all in there. I must not be confused that natural science is
not there. I must go find it in the book. EMS\textsuperscript{18} is not there. I must go find it in that book. So when I research on one subject it must be in there in the mobile phone, I must find it in there.’

As already mentioned, this device could easily be an all-in-one stop where learners could access any subject. Even though the mobile phones at their school do not have Internet connection, participants still look forward to the device as an open door to accessing and sharing knowledge of all kinds.

Discussions did not move away from the types of subjects accessed on mobile phones without referring to how the devices are used when learners do assignments. F1P2 explained that she has used her uncle’s mobile phone to do ‘the newspaper projects and the other projects that we were researching all about the school’. F1P5 said:

‘I remember me and F1P6. They give us homework. It was on banana bread, so we did homework on mobile phones. We wrote and we read some stuff. And they say maybe we must ask our parents to help us with something on mobile phones. Then we did.’

However, referring to his preference for mobile phones as suitable devices to use to complete homework, he was indifferent and said: ‘I can’t say that I enjoy or I don’t enjoy because I didn’t even use it to do homework. I did use it to when I research’. His statement gives the impression that he confuses homework and doing research. It seems to suggest that he does not consider research on the newspaper project as homework. However, as will be shown below, this is a comment that introduces F1P5 to the new stance he will take as the discussion unfolds. As will be shown later, his perspective will change the phase of Group One’s discussions, heat up debates, split opinions as well as lengthen the time used by this group. In the meantime, the next section discusses the place of mobile phones compared to books and computers as seen by Grades 6 and 7 learners at this primary.

\textsuperscript{18} Economics Management Sciences
At this primary school, mobile phones have been used enjoyably as learners study, research, do homework and collaborate either in groups or as individuals. There is possibility of evidence to position these devices as wider ranges of access for both the Grades 6 and 7 learners and their teachers. Almost four years after it was introduced, the mobile phone learning coordinator spoke of how the M-Ubuntu programme initially approached mobile learning. She stated that its intention was to make sure that all teachers from Grade 4 to 7 use this device during lessons. However, as time unfolded and as they began to practise this form of teaching, she said the school realised that learners are not very robust in literacy. This is because according to the primary school curriculum in South Africa, Grades 1, 2 and 3 learners in public schools only study in the indigenous language of their choice. In this school, this choice is between IsiZulu and Sipedi. For this reason, learners only formally begin to learn the English language in Grade 4. When teaching on mobile phones, the school tasks itself with making sure that the transformation to English is not seen as a burden, but rather as fun. She emphasised that for learners to be fluent in the English language, their assumption is that they have to be literate first. This is why;

mostly, we doing English. Uh we didn’t incorporate many subjects. But the kids did some basic Mathematics but they didn’t go deep in it. Like when we did uh. When we published our newspaper, it had a section where it said ‘learn a sum’. And then it had a little bit of mathematics in it. So the kids were calculating to see if the answers were correct on their mobile phones then they put the answers on it. But a lot of the times they were doing literacy.

The principal reaffirmed her colleague’s statement. In answering the question about which subjects are taught more on mobile phones, she elaborated on why other subjects cannot be taught on the device. To her, the choice of English enables them to do a lot of article writing and ‘other things’. She lamented that due to lack of skills, subjects like mathematics cannot be taught on mobile phones. It is definitely not an easy task to fully implement mobile phones as educational devices in the current
situation faced by this primary school, as mentioned by the principal in Chapter 5. For this reason, it would be incomplete for this discussion to come to an end without mentioning Africa’s problem of poverty and scarcity of resources for the smooth running of projects of this nature.

In retrospect, and adding to the above statements, the principal explained that when the roll-out was done, strong preference was given to: ‘maths and language. … It is for learning like for projects like the newspaper sports projects. It wasn’t specifically maths or anything, it was research’. Like her colleague, she acknowledged that their way of teaching via mobile phones includes, but does not emphasise mathematics. In their paper that explains the raison d’être of the M-Ubuntu project, Haagan and van Rensburg Lindzter (2010) clearly articulate that a needs assessment established the necessity for literacy in primary education in South Africa. They noted that literacy (which includes reading and writing, motivation or social behaviours and mathematics) was the primary area that needed focus in teaching and learning using mobile phones. The stance taken by this primary school is in line with previously mentioned perceptions that learning on mobile phones could help learners improve their literacy, social and numeracy skills. Such a position has widened the scope of research into the current and possibly future role of mobile phones in education at the primary level.

This discussion is important because books have been synonymous with education, and computers have for a long time gained a place in schools, libraries and even homes. The participants of this research have proven that mobile phones are slowly finding their way into the educational system. Learners and teachers have discussed how they have used mobile phones to do both class work and homework. They have elaborated how they have worked in groups and as individuals. After all, in today’s set-up, mobile phones are perceived as the most important communication device to everyone and remain unavoidable and intimate companions to Millenials. Even though books and computers have been there longer, their current initial acquisition cost surpasses that of mobile phones. This is because when we look at functionality - particularly the fact that a science text book cannot be a dictionary – it gives the mobile phone an advantage over books and even computers, as will be seen below. For this reason and because young people no longer seem to fully function without
these devices, Kittl et al., (2009) recommend that it makes sense to use mobile phones for educational purposes. In their words, ‘traditional learning methods no longer suffice to fulfil the requirements of a modern teaching structure and do not sufficiently contribute to the acquisition of core competencies such as teamwork, independence and willingness to take on responsibility’ (Kittl et al., 2009:61). That said, multiple media has the power to visually, cognitively, emotionally and socially engage learners if the quality of the content is good and complimented with sound and informative applications (Murray, 2011:211). The principal of this primary school seemed to align her comment with these writers, when she stated that: ‘...you know with government ... They provide text books and other books so mobile phone is just to provide an additional support. So we cannot focus our lives 100% on that phones’. However, the principal commented that if books, computers and laptops were enough for today’s learning style, and perhaps if mobile phones were not here to stay, they would definitely not be needed to supplement the traditional way of teaching and learning.

We may not accept it, but traditional learning methods no longer suffice as a stand-alone requirement within the modern teaching structure (Kittl et al., 2009) and no longer provide learners with instant results in their pursuit for knowledge. Some effort needs to be made to ensure that teacher education programmes include lessons on the use of the mobile phone as a device for learning. Perhaps if pedagogic structures had been in place, the rest of the staff of this primary school would not have come across as unmotivated to teach on mobile phones. For the learners, the story is different. The one question that saw an increase in energy levels in the groups, particularly in Group One, is that which asks whether mobile phones have made learning easier than did books, computers and laptops. As soon as this question was asked of Group One, there was a change in body language amongst members in the sense that most learners leaned forward showing interest and readiness to talk, even though it was not yet their turn. Across all groups, this question stirred a degree of spontaneity and learners’ levels of involvement drastically increased. There was noticeable and intense excitement. Most noticeable was that in Groups One and Three, non-talkers started talking; an attribute mentioned in Chapter 4 by Barbour and Kitzinger (1999:19) as an influence of group dynamics.
F1P4 stated: ‘There is a different cos mobile phones ... now I can use it to search, use it to read some words, see words. It has a big different, since I started using mobile phones’. F1P5 added that this device has also been a one stop learning portal for him, and also said: ‘I will say mobile phones changed my life because. I didn’t know how to use the phone and I learnt about everything. There is a map on mobile phones. That is where I learnt the provinces ...’ He explained that the use of mobile phones as devices for learning introduced him to the concept of learning on the move. He has learnt how to explore the mobile phone and his ability to access the map function has taught him where the various provinces of South Africa are located. The staff and learners of this school have joined the chorus of authors who state that the mobile phone will soon assume the position of an all-in-one learning portal. In the following exchange amongst Group One members, they became emotional as they compared mobile phones, books and computers;

**Researcher:** ‘You can only see a few words on the mobile phone at a time. Do you find that you read and write differently on the mobile phone than on books and computers’?

**F1P2:** ‘I mean that the mobile phone is better than books’.

**F1P4:** ‘I prefer to read on the mobile phone because sometimes I prefer to read novels. And novels are just like mobile phones. So it is fun when I use mobile phones because I am used to it. To me there is no different between books and mobile phones’

**F1P5:** ‘The difference is the words that are in mobile phones (pause) the words that are, you won’t know where do you start or somewhere. But with a book, you go page by page and you see this is page one but with the mobile phone, you don’t know if this is a full stop or something. Eh’

**F1P6:** ‘Me I prefer mobile phones because a mobile phone is more like a computer and with a book. Well a book it is better but it is not better than the mobile phone. Because a mobile phones, you find better information than in books and mobile phone has dictionary and one book can’t have dictionary and other stuff’.

Shortly after the above comment where F1P5 stated that mobile phones had changed his life, he introduced his preference to books rather than mobile phones. Although this was a different opinion, no one took much notice at this point. This could be because his colleagues thought that he was merely complaining about the
screen compared to books and not the device as a whole. It could also be because everyone was so eager for a chance to speak that they paid little attention to what others were saying.

The possible reasons could be far-fetched. Even though F1P5 explained that finding information in books is easier, some learners disagreed with him. They prefer mobile phones to books because they are easy to use and save time. F1P3 explained that;

… Because when you are using mobile phones, you just gonna do this and that and it comes easily, so with a book you gonna search, search, search, until you find what you are looking for. Like you are in page one and the answers are in page 100 and something, so you must go there wasting a lot of time.

Even where schools have books and computers – as this primary school does – using mobile phones for learning has other advantages. They are portable and need no set-up (Bahamondez & Schmidt, 2011). Although their phones are not connected to the Internet, learners generalised when they stated that books have a narrower platform for research. F1P6 joined his colleagues to explain:

I enjoy reading more and writing more on the mobile phone … A book when you search for something, it gives you something in the mind. But even in the mobile phone... it don’t give you maybe a single answer, it gives you more answers. You decide on which you are getting. Maybe you search and choose.

Most participants see a mobile phone as a device that widens their knowledge, especially when searching and doing research. The exceptions are F1P1 and F3P1 who have eyesight defects, and F1P5 who later changed his mind from favouring mobile phones to preferring books. Like other authors, F1P6 and others explained that with the mobile phone, once a user gains access they choose how to use it, when to use it and they even choose what to get from it. F1P6 stated that mobile phones give more than one point-of-view, whereas books do not. His point is reminiscent of the fact that where there is access to more information, the probability of widening one’s scope of learning is higher.
Agreeing with the above learners, even those challenged with eyesight problems, F3P1 added that: ‘... mobile phones, it can correct you what words. If you, maybe if you don’t know how to write, maybe it will tell you, that with buttons …’ Like computers, mobile phones will correct spelling and in some cases, it will suggest what words you could use. Like his fellow learners and teachers, F2P6 hailed the frequent use of mobile phones to their improved ability to use ‘punctuation marks and writing and reading’. F1P2 stated that she does not see the difference between studying from books or from mobile phones. She added: ‘It is no. It was no differences because I can go to the computer centre and research for the-eh, for the words that I can-n, that I cannot know the m-m-meaning. They were such as normal as com-computers’. This learner may be correct in the current context. But she seems to be taking African realities explained by Dede (2000) in Chapter 3 for granted. Her statement fails to consider the fact that in many schools across Africa, a computer lab is far from being a reality. Most schools have no computer labs and for those who have, these labs are dysfunctional most of the time and for many reasons. Some schools face challenges such as infrastructure up-keep, lack of ‘techno-savvy’ teachers or are equipped with a limited numbers of computers.

All participants in the focus groups initially expressed their love for reading. Although they have all read on mobile phones, their preferred modes of learning differed. Five of them said they love reading on mobile phones, while the rest adore books. However, all of them stated that learning with the mobile phone requires less effort. F1P1 added: ‘I find it easier because the words that I see, I usually see it in the books that I read every day and it is so easy for me to read, it is so easy for me to read it like a book’ F1P1 added:

… Mobile phones because it gives you more orientation than books and it can still get what the words means if you don’t know them and with books, you will need the dictionary to know the meaning of the words. That and the phone will just show you the meaning of the words, as simple as that.

Adding her voice to the chorus, F1P3, explained that reading on the mobile phone is not only less effort in sourcing material, but also saves time, as one does not need to move around or do a lot of paging through books. With only a few learners less enthusiastic, this study finds that the future of mobile phones for educational use is
promising. New technology leads to new ways of thinking and changes how people work and interact within a given context (Sproull & Kiesler, 1995, cited in Grabowski et al. (2009:303). Most participants’ views seem to echo the fact that although books are also a very good means of learning, the level of attention they attract and hold is different. This is in line with those authors who have noted that these devices demand different levels of urgency, but that of the mobile phone is perceived as immediate (Kritt & Winegar, 2007:5).

It is important to mention here that in Group One, two members preferred to read from books while four fancied reading on mobile phones. Conversely, five members of Group Two preferred to read on mobile phones and one member chose to read from books. Overwhelmingly, every single Group Three member preferred to continue reading books. F1P1 reasoned that ‘because mobile phones are such as books and they just have stories and other poems or other stories that people want to know. So we enjoy reading on mobile phones’. To contradict F1P1, F1P2 stated: ‘Books, cos mobile phones will talk only about mobile phones, but books will give you communications about other things’. F3P1 preferred to compare books to computers, and stated that ‘I prefer to read on books because they are better than computers. Because computers you write but books you only read, you don’t write anything’. Even though their comments may not come across as very clear, subsequent discussions make it obvious that these learners enjoy the company of mobile phones. It points to the fact that they prefer to spend longer times on the devices.

F1P3 showed disappointment that the culture of books is declining. Standing by F1F5, who has had a major change in opinion and this time seemed to be sticking to this change, F1P3 strongly advocated the benefits of books over any forms of technology, especially the mobile phone, and said:

I agree with F1P5 [name omitted]. If there were no mobile phones, what she\textsuperscript{19} will use. Like in the past neh, [in a satisfactory mood, he puts on a smile as he looks straight in the researcher’s eyes seeking approval] there were no computers there were no mobile phones neh. So where ... [interrupted] ok now is a new

\textsuperscript{19} Referring to F1F5 who has just reiterated his desire to continue learning on mobile phones.
generation neh. But tell me one thing. Now they are using book, why they want to change that cultural thing and make it mobile phones?’

It was interesting to note that F1P3 remained composed as he voiced his opinion. It is amazing to find out that at this early stage in his life, F1P3 attaches a cultural value to books like many grown-ups.

To show how much they have enjoyed learning with the aid of the mobile phone, all Group One and Group Three members claimed that they are proficient at operating mobile phones. However, in Group Two only one member made such a claim, with all five saying they could not operate mobile phones fully, without help. Whether or not they can manipulate the device successfully, F1P1 claimed that: ‘It is not different because … the books sometimes are too tricky and the mobile phones are too too competitive’. F1P1 had previously denied claims that the mobile phone eases learning, and blamed this on her poor eyesight. The reason for her changed opinion is not known, but it is recorded as a point in favour of mobile phones in the learning environment. When speaking on this subject, F1P2 did not limit his response to himself and stated: ‘Yes, we really know how to read in the books and in the mobile phones so that we can summarise the stories and write in the mobile phone. So we enjoy reading in the mobile phone because we can summarise.’ His use of collective phrases makes sense in a setup where the majority of mobile phone learning is conducted in groups. F1P3 added:

I enjoy using the mobile phones because when you are typing, you can … learn more and when you are writing in a book you can write short notice but when you are typing on the mobile phone, you can type long notice because you are very interested in it. And yes it makes me want to do more.

The researcher questioned whether this learner believed that learning on mobile phones is so interesting that the learners get a lot of work done without noticing.

F1P1 likened mobile phones to books, but felt that its ease of access gives it an edge over books. To expand on F1P1’s point, F1P3 agreed with previous comments
which inferred that when armed with the Internet, mobile phones are able to access everything. Group One’s discussions on this topic were random and fast-moving. Interrupting his classmate as he attempted to voiced his preference for books over mobile phones, F1P2 said: ‘… books are such as the mobile phones because the mobile phones, you can read and your teacher writes you a comprehension, you just answer, just like a book, you read, you answer it is the same’. As vocal as he was, F1P5 (who started this discussion in support of learning on mobile phones as opposed to books) seemed to enjoy changing his preferences, but perhaps he did not pause to think of what choices he was making. In a heated, rowdy and excited manner, all participants spoke at this point. Except for F1P3 who remained quiet, they all scrambled to voice their concerns for F1P5’s new stance. They were worried because just before question 7, F1P5 had been very articulate in his support for both mobile phones and books as tools for learning. Addressing the entire group after the researcher succeeded to mute them, F1P5 clarified that:

Books are your keys boss. Not mobile phones I am disagreeing with you guys now. I am disagreeing [shaking his head negatively and waving both hands in disagreement], because books will give you a brighter future. Mobile phones, [he continues to shake his head negatively], you won’t even think about books.

To prove the power of technology and the fact that books could be phasing out, F1P6 decided to broaden his argument in this question: ‘Why is it that people who work, they don’t use books they use computers, why? Are you going to tell me why?’

It is good at this point to consider the path travelled by F1P5 so far. This review is expected to give insight to the above reactions. When asked if it is easier to study using mobile phones, books or computers, F1F5 said:

Me I think it the mobile phone cos the mobile phone is more like a computer as I said, cos in a computer, we get Google, all these stuff so in a book maybe if you want the meaning of a word, a bombastic word or something you must find a dictionary but when you have a mobile phone, when you find a bombastic word, you just Google and fine the meaning.
This comment refers to the school mobile phones which are offline. The importance of these comments is that they add value to the assertion that Information Technology (IT) enabled environments can significantly enhance learning. From the way they spoke, learners seemed to agree that this value is greater when mobile phones are employed as the central aspect of learning rather than merely accessories (Kritt & Winegar, 2007: ix).

F1P2 seemed to agree with the above sentiments when he stated that a dictionary, for example, may have all the words and their meanings, but it is not as good as the mobile phone in sorting these words (on readers’ screens). Without pictures and videos that could prolong attention, F1P2 sees books as less attractive. When a classmate stood firmly in support of books, he said:

I am disagreeing with F1P5 [name omitted]. But, but the mobile phone are better than reading. When you read or when you do a research. Just like when you are looking at the dictionary you will get confused of those many words. At the mobile phones you will just research and the mobile phones are such as the computer. Just like you are having a computer, or you are free and you learn more than the dictionary because the dictionary book will show you just the word. The mobile phone will show you the pictures, videos and other things that you need to know.

Everyone seemed to centre their responses on F1P5’s new stance, and yearned to popularise this stance. The normally firm and eloquent F1P6 also appeared confused as he made the following statement: ‘I disagree with them because when mam, we don’t find the answers from these books, where are you going to get the answers then? So me I disagree when they said that the mobile phones are the best than books’ F1P6 continued in contradiction;

me I think that mobile phones, they are very clever than books because when we were talking, F1P4 [name omitted] instead she said many stories in books are coming from the mobile phones and when the stories there they are coming from a computer or some other things.
Confused as this learner may seem, he at least had an opinion. He repeated his support for mobile phones. This seemed to have provoked the quiet F1F2 who stated:

Mam, I’m agreeing with F1P5 and F1F3 [names omitted] because mam. Because the books are important than the mobile phones because the phones are too, are too simple and many people want to play games. So many games. In this our generation mam we got so many technology. You can use maybe cell phone to Google something. But the thing that is more important is books.

Starting with the impression that he preferred books, this statement left F1P2 in support of both books and mobile phones.

Whatever choices they make, seeking the learner’s opinions on the future of the mobile phones in the curriculum could clarify their stance. After all, young people of today are the builders of tomorrow’s technological opinions, and the economic and political decisions made today must consider the youth population. Though not phrased as such, this question seemed set to find out whether mobile phones are replacing the role of teachers. F1P2, talked about his view of the device: ‘Yes I will like for the mobile phone to have all the subjects because while a teacher comes in, she wants you to write long notes and we all get tired at the end of the day’. This learner’s statement gives the impression that where mobile phones are used, learning becomes an easy process not characterised with the manual ways of teaching and learning that include writing and copying notes from the chalk board. F1P2’s statement agreed with literature which states that the mobile phone can only expand on a teacher’s mode of teaching; it cannot replace the presence of a teacher in the classroom (Blake, 2008) or replace books. Rather than thinking that technology could replace teachers, Clifford (1987, cited in Blake, 2008:14), warns that teachers who teach with technology will easily replace those who teach without it (just like the mobile phone learning coordinator is to an extent replacing class teachers at this primary school).

The principal, the mobile phone learning coordinator and all learners (except for F1P1) said they would agree should the Gauteng Department of Education propose
to put all learning contents on mobile phones, so that they will no longer teach and learn with books. There were many reasons, but the following points stood out:

**F1P3:** ‘I am going to tell them yes because I am not going to waste my time to go up and down to take books’

**F1P4:** ‘I can say yes because they can help. We will no more be in the queues for other children to push us’.

**F3P1:** ‘I’m going to say yes cos it is going to be easier. We are not going to come to the library and fetch a book’

**F3P5:** ‘I am going to say yes because when, when we are when we come here and we are seen in front of the library and they take us out and other ones push us and they want them to be in the front to come in first. I don’t like that’.

Even though, according to the principal, there are currently only 20 handsets to be used by 300 children, learners do not notice any scramble in using the devices as they do when using library books. Ignorant of the hurdles that may accompany the use of mobile phones as the main source of access – such as lack of electricity and short battery span – learners see going to the library as a bigger challenge. It is seen as a lot of effort and a waste of time and energy. So too is standing in queues and the fighting that ensues.

In what appears to have taken a cue from the above, the principal explained that when using mobile phones, learners get so excited that ‘you wouldn’t remind them to read books. They will go on the mobile phone and open pages and read …’ Her stance aligned with those learners whose description spoke that learning with the mobile phone is so fulfilling that one needs no effort but just has to scroll to whatever page they intend to read. With the enthusiasm at this primary school, learning and teaching on mobile phones looks easy, mainly because learners and teachers alike love these gadgets. Today’s teachers have to know that even if they avoid teaching on mobile phones, the gap between learning with books and computers and that of learning with mobile phones is narrowing.

One of the research questions sought to find out how the mobile phone has been used as an effective device for learning amongst Grades 6 and 7 learners in this school. As seen from past comments, this question was motivated by the
assumption that in the near future this device could be introduced in more and more schools around the world. To the mobile phone learning coordinator, whether these learners are actually learning or playing while learning, the mobile phone keeps them alert and focused during every learning experience. As participants have explained before, emphasis is placed on learning in the sense that when a book is read in hard copy, its summary is typed out on the mobile phone. It should be recalled that this summary is imputed in the mobile phone by the learners as part of the literacy programme. These learners then either submit the written content to the teacher or read them out in class for criticism. In her opinion, learning in this manner prompts learners to remember what they have learnt. It also places the mobile phone in a position where it collaborates with other learning devices.

**Conclusion**

Chapters 5 and 6 have elaborated the implementation, the uses and perceptions of mobile phones in the learning environment: specifically amongst the Grades 6 and 7 learners at this primary school. Based on the result of this study, the next and closing chapter will give a summary of this research. It will describe identified limitations and suggest areas for future studies. It will also give recommendations as to how educational institutions may consider adopting mobile learning in light of this study’s findings.
CHAPTER 7

THE CONCLUSION

7.1 SUMMARY OF RESEARCH

Millennial use mobile phones and other mobile services unquestionably and without prejudice. The purpose of this study was to determine if the mobile phone is a suitable device that could help formal and/or informal learning at the primary school level. The research questions include:

- What are the benefits and challenges of implementing mobile phones as devices for learning at primary school level?
- How are Grades 6 and 7 learners using mobile phones to expand their educational experiences?
- Could the mobile phone be used as an effective learning device amongst learners in primary schools?

The findings of this research have shown that role-players in education are beginning to realise and accept that mobile phones – like computers, overhead projectors, chalkboards and other educational tools – are facilitating both individual and collaborative learning, while enhancing social interaction. It is becoming clear that over the years, education has evolved from chalkboard to electronic or E-learning to mobile or M-learning. Prompted by their popularity and possibly constructed by social activities and the manner in which mobile phones are used (the theory of social construction), M-learning seems to be becoming popular and perhaps most desirable to learners. The result of this study brings to the fore the fact that although mobile phones are slow to become mainstream learning devices, the creation, delivery, and retrieval of content on them has the capacity to alter attitudes to the interpretation of instantaneous learning.
This research finding has necessitated a call for role players’ attitudes to adjust, because even though learning with technology from illustrations, slate chalk, lantern-slides, opaque projectors and motion pictures has always been a part of learning, mobile phones are also slowly being welcomed into learning environments and classrooms. This is because a better part of mobile phone use has been constructed as social. However, the outcome of this research has shown that if designed properly, teachers are able to deliver mobile phone learning contents to learners during lessons like they have done via the above-mentioned technologies using textbooks and computers. After all, this is what prompted this research to attempt to find out and stimulate discussions about whether there is a place for deliberations on the use of mobile phones for education; particularly in classrooms and other structured learning milieus.

The finding of this research shows that like many other children under the age of 18, learners who own mobile phones acquired them and their accessories as gifts from their parents or caregivers. This study found that where learners do not own mobile phones, or even when they do, it is common practice to use other family members’ phones when they create, exchange and/or consume content. Creating and sharing content is an influence of youth culture while sharing devices is a well-known practice in Africa.

This study found that when out of school, and despite the lower economic status of their area, the Grades 6 and 7 learners of this primary school, like their counterparts around the world, use mobile phones in almost every activity in their lives. These learners have also revealed that except when using the school’s donated mobile phones, they use their private handsets unsupervised. They do not only use them to create and distribute content, but revealed that they use the phones to access websites and pages of an edutainment nature. Consequently, they could have used these devices to access news and current events, and might have accessed content that is not age-appropriate. Because these devices are theirs, it is difficult for anyone but their parents and caregivers to monitor their usage. It is equally difficult for their adult caregivers, perhaps with little exposure to technological skills and even less financial capability, to monitor their uses. As a result, learners are at liberty to access or not access the various types of content on cyber space. Supervised or not,
according to this study, there are more safety and security benefits for mobile phones to be accessed offline when used as learning devices than when they are connected to the Internet. Participants revealed that this is because the chances of younger learners being exposed to child-unfriendly material become limited. In their opinion, these chances are almost zero where the mobile phones are not SIM card-enabled, as in the case of the M-Ubuntu handsets.

A fascinating way in which mobile phones developers have reshaped both the device and learning is that they have equipped the modern mobile phone with educational games. Most of these games have been modelled to teach learners literacy skills, mathematics, sciences and more. This research found that these devices have been built so that even without games – as with the M-Ubuntu handsets – lessons can be designed to come across as if there are no structured textbooks to read and no organised tests to write. Participants of this research said that they have learnt with mobile phones in fun ways. To them, one such way is that which minimises the presence of their teacher. Learners revealed that when mobile phones are used, effective learning is conducted through projects in a conversational or playful format. Learners have shown that through the M-Ubuntu learning style, they do homework without feeling that they are actually doing homework. An example is when they insist that interviews they conduct on mobile phones out of school are ‘projects’ and not homework. These young learners enjoy the engaging and less evaluating learning style modelled by mobile phone learning.

Learners have commended the influence of these devices as they develop literacy skills. Mobile phones are making learning experiences meaningful and interactive and at the same time giving learners control of their learning content. An example of such control has been displayed in the school newspaper which is written, edited and published by learners, with content created on mobile phones. Although their content is not published online for a bigger audience, it is not only consumed by themselves and their teacher(s) either. Readership broadens when copies are sold to the greater community. At the same time, learners’ content generates some money that could come in handy for the school, the M-Ubuntu, and other projects.
This research literature has also shown that studying on mobile phones or independent reading benefits children in numerous ways. For example, according to learners, the text that they read and write on their mobile phones contributes to literacy achievements. At the same time, this research outcome has also revealed that mobile phones have helped learners improve academic performance through increased participation, motivation and attendance rates. Just like the M-Ubuntu project or much more than the project, learning on mobile phones requires collaborative effort from content creators, schools, their governing bodies, staff members, learners, parents, caregivers and the respective government department; in this case, the Gauteng Department of Education. Considering how empowering this could be for learning, these bodies and policymakers have to realise that times are changing. They have to be especially conscious of the fact that being the older cohort, they have to give the younger ones a chance to thrive with these changes. The outcome of this study reveals that most of these role-players are not physically involved in the implementation of mobile learning, while they are not completely cut out as in many indirect ways they influence how the programme is run. They partake at different levels including content development and consumption, device and content safety and security, mentoring of learners and income generation when they purchase copies of the newspaper.

This research finding establishes that mobile phones have the ability to attract and retain learners’ attention and to attract, motivate and stimulate teachers to be creative and innovative while teaching. This is particularly true if used in a similar way to the M-Ubuntu project where learning objectives are clearly set with learners and teachers given the right devices (not loaded with games and distracting sounds). The outcome of this study has revealed that these learners did not get structured training on how to use these devices, and also shows that the capacity of mobile phones to attract and retain their attention stimulated them to learn to use it mostly by playing with it. This research has also provided evidence that due to their knowledge of and passion for this device in learning, learners at this school have used their personal mobile phones during non-learning set-ups to learn in exploratory ways.
The finding of this research indicated that all participants (including the two learners who expressed difficulty to see on the small mobile phone screens because of their eye-sight challenges) agreed that they could use mobile phones as effective learning devices. They said that they would love to study using mobile phones, without considering the fact that at least for now, mobile phones need to collaborate with other devices to make their presence in education felt. But when the staff of this primary school spoke, they were cautious not to position this research outcome to see mobile phones as stand-alone learning devices. The M-Ubuntu project has been exposed by these research participants as having enabled mobile phones that are not connected to the Internet to collaborate with other learning materials, such as books and computers, to make learning and teaching fun. The M-Ubuntu way of using mobile phones in schools has left this study with the thought that just as traditional ways do not longer suffice for learning, so too can mobile phones not be considered as stand-alone sources for learning. This is probably why the principal of this school pledged to assist teachers to be able to teach with mobile phones in the same manner they have with books, chalks and chalkboards. Should the principal’s wishes succeed, her school will be equipped with ‘techno-savvy’ teachers and learners. This will be a great and desirable stance in the mobile phone learning process.

Agreeing with literature in Chapters 2 and 3, this research finding correlated with the argument that even though technology is not the only item that has given children inquisitive minds, the mobile phone is playing a role in boosting their way of thinking and doing. This is possible because most often when they learn with mobile phones, learners have said that they search to get information and that they do even more searches to create content when there is a project to accomplish. The result of this study shows that, to an extent, activities like research and interviews conducted by learners on mobile phones for recreational purposes are important because they expose them to skills and knowledge such as editing and multi-tasking. This is a good step as more and more schools are beginning to accommodate mobile phones on their premises and in classes.

The outcome of this research also exposed the fact that by virtue of existing policies – and like other African countries – South Africa does not only lack the infrastructure
in its educational sector, but, in reality and as explained by the principal, it also lacks the technical and pedagogical capabilities that could be convenient to accomplish mobile learning; a problem overlooked by the hypothesis of this study. The challenge facing the use of mobile phones in every school in South Africa will be the availability of infrastructure. The following questions need to be answered:

- Will there be continuous access to the Internet?
- Who will maintain the acquired infrastructure, such as up-dating mobile phone software and interconnectivity?
- Will there be continuous funding?
- Will there be continuous staff and/or learners training?
- Will more courses other than Mathematics, Literacy, Sciences and English Language be learned on mobile phones?
- Will there be enough stakeholder support?

Acquiring these mobile phones in the M-Ubuntu style may lesson pressure on parents, caregivers and even the school to provide mobile phones, but South Africa’s pressing needs like food, water and sanitation, electricity to power the batteries of these mobile phones, buildings, roads, books, papers, pens, printers, computers and photo coping machines remain priorities in schools and learning institutions.

The central aim of this study is to determine the role of mobile phones in education, with particular attention to Grades 6 and 7 learners of a particular primary school in the Pretoria area. The finding of this research has revealed that despite challenges (such as their ability to distract learners and having a short battery span), mobile phones stand a chance of being welcomed in classes and libraries by teachers and learners alike. It has been found that where it is accepted, the decision rests with the learners and their teachers to make sure that there is effective use and implementation of mobile phones in learning, not just on school premises and libraries, but also in classrooms. As already seen, the learners have chosen what subjects they would like to learn more on the mobile phones and they have said that they prefer longer mobile phone learning periods. They have said that given the opportunity, they will ask the Gauteng Department of Education to have all text
books loaded on mobile phones. Their sentiments have been echoed by both the mobile phone learning coordinator and the principal at their school.

When the two members of staff spoke of their colleagues’ levels of engagement in the M-Ubuntu project, it appeared that the older generation were not aware of the fact that mobile phones could be used to teach learners in the same way the teacher does with books. It will benefit teachers if their education or training programmes have to include lessons on mobile phone use in the learning environment. This research appeals to training and governing bodies to be sensitive to the fact that if the most up-to-date mode of teaching and learning is implemented, these leaders of tomorrow may just be equipped with an easier route to find solutions to tomorrow’s problems.

It does not matter whether these mobile phones are donated or owned by learners. What is important is that as schools adopt mobile phone learning projects (such as the M-Ubuntu project), they have to provide administrators, teachers and other school staff who have the basic skills needed to implement such projects; even where the training bodies did not. Similarly, schools need to ensure that the use of mobile phones does not disenfranchise learners and the learning process. They have to do this by making sure that mobile phone learning materials are designed to suit the devices, and that materials delivered to learners reflects the curricula. Schools must know that introducing mobile phones in learning environments necessitates many shifts in how learning is done both at school and out of school. In a country with a diverse heritage like South Africa, such changes may have to consider socio-cultural differences between learners and teachers, as well as current and future trends in mobile phone acquisition and usage.

The outcome of this research by no means suggests that mobile phones are used as instructional devices that would replace the presence of teachers and parents in learners’ careers. Similarly, or at the current stage, schools do not need to adopt mobile phones as replacements to books, computers, chalks and the blackboards. This study simply anticipates the learning environment of tomorrow as one where teachers may teach in the form of mentorship, where they may have to set objectives and goals with an aim for learners to self-organise. These environments may be
‘learner-led’, where learners will be allowed to evaluate others through creative, competitive and collaborative exercises executed via projects and/or games as does the M-Ubuntu style.

An unanticipated difficulty in operating the device for learning and one of the challenges that this research did not foresee is its consideration to learners with eyesight problems. As mobile phones and software learning materials are all designed, and as schools consider adopting these devices in their premises, all role-players have to consider this drawback. Fortunately, the principal of this primary school has acknowledged this and recommended that for this set-up to work well for challenged learners; mobile phones need to collaborate with computers and perhaps other ICTs. It is also important for learners to work in groups because in a situation of this nature, the visually-challenged learners get support from their counterparts.

It is worth mentioning here that including staff members amongst the participants of this study was a considerable decision. Apart from helping in contacting the parents and assisting in the sampling process, they had more to say than the learners on how the mobile phone plays out in the learning career of these young people. Their roles in deciding how and why the school uses mobile phones, reasons why learners and devices collaborate and even the decision for staff members to teach without mobile phones were very constructive. It also turned out that teachers, like the learners, need to be motivated to teach on mobile phones. For this reason, this study recommends that for impending decisions regarding the future of learning on mobile phones, it is important for staff members and their administrators also be consulted.

7.2 RESEARCH LIMITATIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH

It is regrettable that there is no evidence of research in this particular area of study in South Africa and possibly across Africa. For this reason, the first recommendation is for scholars to consider exploring this area of research at varying levels, including geographic location, demographic layout, age of learners, subjects studied, different funders, length of existence of similar projects and role players. Even though the
result of this research is satisfactory, its outcome cannot be generalised. This is because this research is limited to a particular school where learners share similar socio-economic, cultural and ethnic backgrounds. In a country as geographically, economically, culturally, socially and racially diverse as South Africa, a study that focuses on a single demographic and a fairly homogeneous school is limited. At least a research question designed to cover a diverse group is important, as various groups might have different views on the use of mobile phones as devices for learning and even teaching. This could be true particularly in South Africa where there is a lack of existing research that interprets the specific uses of mobile phones as devices for learning. However, because mobile phone learning is a relatively new concept, it was only possible to work with a specific school with a structured programme in place.

One of the assumptions of this research was that the Grades 6 and 7 learners own the mobile phones with which they will learn, and that these mobile phones have Internet access. However, the findings indicated that even though these learners sometimes use their personal mobile phones with Internet connection in their homes to do school work, the M-Ubuntu style of learning is done using donated mobile phones that are not connected to the Internet. As personal devices are not used in this school, the finding of this research is more biased towards formal than informal learning. However, the researcher did discuss the use of personal mobile phones in order to address this issue.

The result of this study is consistent with those of other studies highlighting the need for technology in education. It also leaves room for a recommended study to explore learners’ impressions of using their personal mobile devices for learning during official school hours. The principal displayed signs of hesitancy in asking learners to use their personal mobile phones. It is a good stance in an economy where parents battle to meet ends. However, because not every school has the opportunity to have donated mobile phones, German volunteers or the personnel and resources required to implement the M-Ubuntu project, it will be important for future research to explore how schools have used mobile phones as devices for learning in the absence of funders and volunteers.
7.3 RESEARCH CONCLUSION

In answering the research questions, this study found that in this primary school, mobile phones have fulfilled educational dreams by providing the possibility of creating innovative learning and teaching experiences. The theory of social construction of technology has been useful in describing and explaining the findings of this research. Where learning is done later in the day before learners leave for their homes, the M-Ubuntu project does not only teach them, but it also helps learners by keeping them busy and not wandering around after lessons. This has hopefully enabled the school to create and inspire a culture in which young people and their teachers are encouraged to be enthusiastic mobile learners and teachers. The outcome of this research reveals that because it seems impossible to go back to the old way of teaching and learning, educators and caregivers are slowly but surely adopting the mobile phone as a library needed to reach, teach and learn. The opinions of participants of this research have positioned this study in such a way that it may influence how learning programmes for mobile phones are designed and ultimately how they are being delivered. In order for schools to become modern teaching and learning centres – as this primary school has done – they have no choice but to shift and embrace emerging forms of learning. They may have to accept that mobile phones have been appropriated to change the way people acquire, create, share and perceive information whatever the purpose. They have to agree that mobile phones are quickly becoming preferred devices for learning for many. As such, they are also changing the way people teach and learn. They are fast becoming effective devices for learning and teaching, not just for Grades 6 and 7 learners, but for primary schools and beyond.


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APPENDIX

QUESTIONS FOR THE GRADES 6 AND 7 LEARNERS

1. How do you prefer to read? On print books or e-books/mobile phone books?
   - Why?
2. Who taught you how to use the mobile phone for learning?
   - Do you think you know how to use the mobile phone for learning?
3. How often do you read on the mobile phone?
4. How often do you go on the internet on your mobile phone?
5. You can only see a few words on the mobile phone at a time. Do you find that you read and write differently on the mobile phone than on books and computers?
   - How can you explain the difference?
6. Do you find it easy or hard to use the mobile phone for learning?
   - Why?
7. How does the mobile phone help you to learn better than books do?
8. When learning, do you share information among each other on mobile phones?
   - Do you do it through Bluetooth, Memory Card, Internet or Infrared file transfer?
   - Who helps you and how is the process done
9. Are you reading and writing more now that you use the mobile phones?
   - Explain why and how?
10. Which subject do you like studying more on the mobile phone? Is it English Language, Mathematics or Literacy?
    - Why?
11. Do you have to ask for help from someone when you study on the mobile phone?
    - Who helps you?
    - How do they help you?
12. Since you started using the mobile phone for learning, what has been different for you?
13.
APPENDIX B

QUESTIONS FOR THE MOBILE PHONE LEARNING COORDINATOR

1. How long have you been a mobile learning coordinator?
2. How would you rate your mobile phone skills?
   - Basic
   - Moderate
   - Advance
   Why?
3. How did you feel when you were told that you will have to start using the mobile phone to teach?
4. Did someone show you how to teach on the mobile phone?
5. What subjects are taught on the mobile phone?
   - How?
6. Is learning on mobile phones effective?
   - Why do you think so?
7. How are you incorporating the mobile phone into class work?
8. Have you noticed that your students work well with mobile phones as individuals, groups or both?
9. Do you think the mobile phone has improved the learning and teaching experience?
10. What pressure do learners/teachers encounter on working on mobile phones?
11. How do you intervene in times of deviation and/or misunderstandings during class work?
12. What will you recommend is needed to make the use of mobile phones for learning more exciting?
13. How will you rate the quality of content available on the phones for learners?
14. How do you give students instant learning support when they are out of class/school?
APPENDIX C

QUESTIONS FOR THE PRINCIPAL

1. How long have you been a principal in this school?
2. Were you the principal of this primary school when the M-Ubuntu project was introduced?
3. How did the idea of introducing the mobile phones in your school curriculum come about?
4. How did your staff and learners get initial training?
5. What difference has the mobile phone made in the teaching and learning experience?
   - Do you think it has improved on your staff’s performance?
   - How?
6. How is the relationship of various parties (learners, teachers, parents, community, other institutions, principal) been changed by the use of mobile phones in your school?
   - What makes you say so?
7. Do you think all classes of your school could benefit from learning on mobile phones?
8. Is there a school policy to control what content students access on mobile phones?
9. May you share your personal/school aspirations regarding the use of mobile phones for learning?
10. What challenges do you have in using the mobile phone for learning?
    - How do you combat them?
11. When the M-Ubuntu project was introduced, did you have to hire extra staff?
12. How and who finance the running of these phones?
13. How sustainable is this project?
14. If there are donors, is the school able to continue with the programme should the donors stop sponsoring?
15. Would you advice all schools to introduce the mobile phone in their curriculum?
    - Why?
16. Your advice to other principals regarding this or such a project … the hidden side of it all.