THE RELEVANCE OF SOCIAL MEDIA IN PUBLIC SCHOOLS IN THE RICHARDS BAY AREA

By

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A thesis submitted to the Faculty of Arts in fulfilment of the requirements for the degree of
Masters in the Department of Communication Science at
the University of Zululand

Supervisor: Professor H Rugbeer
Co-supervisor: Doctor GM Naidoo

Date submitted: November 2012

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ETHICAL STATEMENT BY RESEARCHER

I, the undersigned, hereby acknowledge that this research paper, except otherwise specified in the text, is my own work and has not been submitted at any other university.

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ABSTRACT

The Relevance of Social Media in Public Schools in the Richards Bay area

Avashni Reddy

Social media participation has spiraled exponentially and has transformed the way in which we communicate. It has opened up a new window which can maximise teaching and learning opportunities in the educational sector. However there are numerous challenges that public schools face when it comes to introducing and implementing technology but there is a need to overcome these barriers to develop and prepare educators and students at public schools for the 21st century. This thesis examines the relevance of social media in public schools. The first part of the study reviews literature on electronic communication, technology and its impact on society and education, challenges faced in educational technology, social media and programmes used in South African schools, Department of Education policies and procedures. Subsequent chapters describe the construction of a survey instrument employed to measure and evaluate the relevance of social media at public schools. The main tool for collecting data was the questionnaire and semi-structured interviews. A questionnaire provided appropriate information required for the research, as questions were asked to learners, educators and personnel from schools in Richards Bay and surrounding areas. Data analysis included using Moonstats to codify the data and graphs were imported to Microsoft Excel which was used for interpretation.Penultimate chapters blend the insights gained from the literature review to interpret the results obtained through the research methodology and to draw up recommendations and conclusions in the context of the relevance of social media in public schools.

ACKNOWLEDGMENTS

WRITING CONVENTIONS

The following conventions are used in this study:

- The abbreviated Harvard style of referencing in this study, for example Skinner and Mersham (2009:18), meaning Skinner and Mersham 2009, page 18.

- Illustrative tables and figures are all given as Figures 1 – 33 and Tables 1 – 10 in their chronological sequence of appearance.

- Relevant material relating to investigate the relevance of social media at public schools. Such website addresses are included in the dissertation, both for verification and for acknowledgement of the source information. An example of a typical website is: www.ffc.co.za/.../333-chapter2financinge-edicationandachievingpolicygoals

- The World Wide Web (www) is transient and ever changing, therefore one should expect that websites from which information is gathered will be offline or may alter the contents of the website over a period of time.

- In instances where the electronic document has been downloaded from a website, the author is given, followed by the year as in Motau (2010).

ACRONYMS

- TAM: Technology Acceptance Model
- TRA: Theory of Reasoned Act
- FBL: Feedback loop
- ISP: Internet Service Provider
- ICT: Information and Communication Technologies
- GET: General Education and Training
- FET: Further Education and Training
- OBE: Outcomes Based Education
- CAPS: Curriculum and Assessment Policy Statement
- ANA: Annual National Assessment
- AR: Augmented Reality

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Chapter 1

Orientation

Introduction

This chapter provides an overview of the purpose of this research project which focuses educational methodologies. Public schools in South Africa usually use conventional methods of teaching in the classroom. Some of these conventional methods are: discussion of worksheets, stories, posters and written notes on the chalkboard. This did stimulate and promoted learning in the past. Today students are born in an information rich with advanced digital technology (Devries, 2007). The Internet has transformed the manner in which we apply technology to our daily lives. Although this may be the case for an organisation, it has also brought about a spectrum of possibilities for education. Intel Corporation (2007) asserts that new technology provides interactive possibilities which can benefit schools. New technology provides opportunities to maximise creativity and innovative learning strategies in the classroom. Globalization 101 (2012) suggests that electronic communication has evolved rapidly since the introduction of the Internet. Electronic mail (email) and the World Wide Web (WWW) have provided an ideal platform for virtual classrooms and e-learning. We have learning channels on SABC which has benefited students all around the country. New technology also has brought innovative ways to reach a large amount of students anytime and anyplace. Kimmel (2005:34) agrees that technological innovations have played a role in the transforming of mass communication.

Motivation for the study

The minister of basic education, Ms Motshekga, admitted that the old curriculum had major problems and that the department was reviewing the design and methodology of the OBE system (News24, 2011). Kozma (2010:01) adds that, society expects a lot from its education system. Schools are expected to train the work force of the future, prepare citizens for active participation in the democratic process, preserve and enrich the cultural environment.

Casey (2010) suggests that the Western Cape Ministry for Education welcomes the announcement on changes to the education curriculum by the minister of basic education. The changes will bring back a far greater focus on the use of textbooks and on content knowledge. This provides an ideal opportunity to embrace the use of social media within the classroom environment. The Internet provides a host of content knowledge which will assist and compliment teaching applications. Education models must keep abreast with innovative

developments and exploit all available resources to equip students. According to Pempek *et al.* (2009:227), instant messaging, social networking sites provide an easy, accessible way to interact with peers and gather feedback. These opportunities may be particularly significant since peers are readily available online at almost any time, and the tools provided make communication easy to accomplish.

These models should also aid in developing the full potential of each student and assist in addressing some of the most pressing problems that the nation faces, such as persistent poverty, HIV and AIDS issues, food, security, energy shortage, global warming and environmental degradation.

Kozma (2010:01) admits that education policy-makers, around the world, are faced with the challenge of devising programmes and initiatives that respond to these multiple demands and but are constrained by tight budgets. The challenge for policy-makers is to weave together education policies and programmes that foster sustained economic growth which could, over an extended period of time, produce sustainable economic and human resources that would assist to address these multiple goals.

One of the problems faced by government schools is that there are approximately thirty to forty learners per classroom. It is difficult for the educator to ensure that each child receives individual attention. Teaching time is restricted in the variety of learning areas that is been taught at schools. Consequently, some learners get distracted or bored and do not complete or attempt assigned tasks. Methods and programmes, therefore, need to be interactive and it ought to engage the learner. Basic systems can be adapted to include new technology in the classrooms such as those in use by many developed countries. Instead of using dreary conventional methodologies to teach, the use of new technology shows potential to allow learners to constructively glean knowledge (Reuben,2008).

Educators may be able to use a range of programmes to illustrate processes and experiments in their teaching. Reuben (2008) expresses that, social media comprises of various activities that involve socialising and networking online through variety of words, pictures and videos. Gulley (2003) suggests that one of the biggest problems in the world today is illiteracy. Nash (2011) highlights there are three kinds of illiteracy problems, namely functional, moral and cultural illiteracy.

There are various types of new technology which shows promise of being able to assist learners with various academic problems which they are facing. It is also envisaged that a child who has been exposed to learning with new technology shall be fully computer literate upon leaving school. Stempel and Stellar (2009) acknowledge that technology is linked with

social media that expands communication to a larger and more assorted sample of participants, but it gives people the chance to voice their opinion and let their thoughts be read. Exposure to new technology, if implemented strategically, could assist the vast majority of school leavers, who do not enrol at tertiary education intuitions, to enter the job market with contemporary basic skills (Steven, 2012). This new strategy has the capacity to stimulate learners to attempt homework exercises on their own instead of waiting on their family or friends to do the majority of work. Watkins (2009:24) admits that studies have revealed that young people's online media behaviours consistently find-that they spend most of their time online with the same people they interact with off-line.

The aim of this study is to examine the feasibility of using new technology to enhance teaching and learning in public schools. It is hoped that interactive and innovative ways of learning can be embraced to making teaching and learning an enjoyable experience for both teachers and learners.

STATEMENT OF THE PROBLEM

Daily Industry News (2012) asserts that Richards Bay's status as one of the fastest growing industrial areas in South Africa puts the area on the global map. Hence the youth of the community have to be taught to communicate and interact in a global context starting with increasing the use of technology in the classroom. A number of factors influence schools' adoption of social media. There is a need to find ways in which schools can use various technological instruments and how it can maximise teaching and learning. This research will examine the feasibility of allowing learners to have social media in the classroom which will serve as a teaching aid. The use of online learning sites and social media applications may provide innovative methods for interactive teaching and learning.

Can new social media be feasibly used to optimise the benefits of teaching and learning?

RESEARCH OBJECTIVES

1. To investigate new technology that can be used to advance education in public schools.

2. To create an entertaining but educational environment in the local classroom.

3. To develop and create exciting, innovative and interesting methods of teaching that can be used in and out of the classroom.

4. To develop computer skills and knowledge of learners and educators.

5. To develop interactive lessons using new technology and encourage *ubuntu*.

6. To examine new technology that is commonly used by learners, encourage the use of technologies for productive e-learning instead of unconstructive and disruptive activities.

7. To identify programmes that can be used so that educators and personnel upgrade their skills with latest advancements that can be used in the classroom.

Research Methodology

The research is quantitative and qualitative in nature. Questionnaires administered to students formed the basis for quantitative data collection. Qualitative data has been collected by means of interviews conducted with various educators and personnel. The mathematical theory of communication model proposed by Shannon and Weaver as well as the '*Uses and Gratification*' theory has been used to conceptualise this study. Relevant references for choice of methodology and sample size are supplied and explained in chapter nine.

- **The sample size:** 300 respondents (representing the total sample population of approximately 5000).

- **Composition**: Learners, educators and personnel from schools in Richards Bay and surrounding areas.

- **Sampling technique**: Random sampling has been used so that all members in the area had an equal opportunity and chance of being selected.

The main tool for collecting data has been the questionnaire and semi-structured interviews. A questionnaire provided appropriate information required for the research, as questions were asked to learners, educators and personnel from schools in Richards Bay and surrounding areas. Data is analysed using Moonstats and Excel.

Demarcation and Limitations of Study

This study has been undertaken at various government schools in Richards Bay.

In this study, the following limitations have been identified:

- Time and resource constraints placed limitations on the number of respondents that could be interviewed.

- Delays and deviations from the schedule were experienced due to unforeseen circumstances. Extra time has been allocated to compensate for these unforeseen delays.

Chapter Outline

- Chapter 2 discusses electronic communication dealing with issues regarding the communication process, defining electronic communication, the importance and impact of electronic communication in education, technology acceptance issues, the interactive nature if electronic communication, the advantages and disadvantages of electronic communication and the types of electronic communication and etiquette.

- Chapter 3 highlights technology and its impact on society and education and examine the issues of the use and purposes of technology, perceptions and views of technologies at schools, past and present teaching methods and the sociology and psychology of new technology.

- Chapter 4 explores the challenges faced in educational technology discussing problems such as affordability, training and development of staff, maintenance and infrastructure, sustaining new technologies, convincing communities to accept technology at schools and the inequality of educational technology.

- Chapter 5 examines social media and programmes used in South African schools such as the Intel Teach Program, Electronic Smart Boards, SchoolNet SA, NEPAD e-schools initiative and Dimension Data. The success of social media in other countries is also highlighted in this chapter covering the countries, Canada, India and New Zealand.

- Chapter 6 focuses on the Department of Education (DOE) policies and procedures explaining issues regarding the implementation of Curriculum Assessment Policy Statements (CAPS), Annual National Assessments (ANA) and curriculum planning.

- Chapter 7 explores Augmented Reality (AR) highlighting what is Augmented Reality, benefits and drawbacks, AR applications, preparing for generation Z.

- Chapter 8 will discusses the conceptual framework utilising a combination of the *Shannon and Weaver* model and the *Uses and Gratification* theory to develop a conceptual framework for this research project.

- Chapter 9 concentrates on the research procedure explaining the research design, ethical requirements, research sample, and instrumentation, collection of data and analysis of data.

- Chapter 10 focusses on the analysis and interpretation of data using graphs and tables.

- Chapter 11 highlights the conclusion and recommendations of the research by providing possible solutions to the problem and concluding the study.

Ethical Requirements

It is important that the research is conducted in an ethical manner in order to maintain credibility. A letter of consent was sent from the researcher to prospective respondents explaining the focus of the research project. This letter was accompanied by a statement which was signed by each participant indicating that they understood the nature of the research. Respondents have been informed that participation is voluntary, and that they could withdraw from the project at any time. Participants were not be discriminated against and all relevant parties were be given an opportunity to participate in the research. Anonymity and privacy has been observed.

Chapter Summary

New technology is a positive supplement to bridge the gap between education and the technological world in which we live. The use of assorted technologies in schools offers students greater access to information, an eager motivation to learn, a jump-start on marketable job skills and an enhanced quality of class work. Educators must be challenged to effectively use new technology in ways that both take advantage of the unique characteristics of new technology and also create new approaches to fulfilling a person's desire to learn. Rather than selecting new technology based on what it can help us accomplish, we must select it based upon what it will help the learners accomplish. The needs of the learner are the key to the effective use of new technologies that support learning. Therefore this study aims to advance education with the use of new technology at schools. The literature review chapters will follow beginning with electronic communication.

Chapter 2

Electronic communication

Introduction

The previous chapter provided an overview of the research undertaken. This chapter deals with matters relating to electronic communication and its impact on today's society especially in the schooling environment. Electronic communication has added new dimensions to the process of interpersonal and mass communication. Globalization 101 (2012) expresses that electronic communication is the catalyst which drove the change in the manner which we interact with each other. It has created entirely new ways to interact. Knowledge Way (2011) avers that the Internet and electronic communications (also called computer mediated communications or CMC) does not just mean new tools for communication; it means new ways to communicate.

While most adults struggle to assimilate new technology into their day-to-day communication, the younger generation of people easily incorporate it into their daily lifestyle. The new communication technology seems to mutate to incorporate different needs. Green and Hannon (2007) point out that the youth have been completely normalised by digital technology – it is a fully integrated aspect of their lives. In today's fast growing technological world, everyone is using technology be it to conduct research or for pleasure. We are living in a world surrounded by technologically savvy children who do not know life without the daily use of technology and are referred to as the Generation Z (Looper, n.d.).

Defining Communication and its process

Over the years many definitions have evolved of the term 'communication' and it is difficult to find a single agreed upon definition for communication. Merriam-Webster (n.d.) states that the term communication refers to the exchange of symbols; common messages and information; the process of exchange between individuals through a common system of symbols; the art of expressing ideas; the science of transmitting information. Thus communication simply means the management of messages with the objective of creating meaning (Griffin, 2005). There are many different ways to analyse the process of communication, one way is to use a communication model. Mersham and Skinner (1999:07) suggest that this structure is sometimes referred to as the 'triptych of communication'. It consists of a communicator, a medium which 'carries' the message and a recipient.

Figure 1: Triptych of Communication

Communication cannot take place unless all three of these elements are present. We cannot exchange meanings or thoughts directly into messages. Messages first have to be converted into signs and symbols in a physical form called the medium. It may be in the form of speech, writing, images or sounds that the recipient of the messages can physically experience. Once the recipient receives these symbols he or she interprets and gives a meaning to the message. Then the receiver wants to give feedback and the process repeats itself and communication then becomes a two way process. Therefore the individuals play two roles in the process of communication, as a communicator and a receiver.

Defining electronic communication

Electronic communication is made up of websites, software applications and e-mail which allow users to access and gather information. It enables users to interact, exchange and create information online. Facebook, Twitter, Myspace, YouTube and Wikipedia are just few of the frequently used websites today (Crawley, n.d.). Effective electronic communication is the ability to create persuasive communications in different media, such as websites, video audio, text or animated multimedia. Aho (2005) suggests that starting in elementary school and extending into higher education, students can learn a variety of electronic communication skills across all their courses, whether they build multimedia presentations to demonstrate their knowledge of academic subjects, create portfolios of coursework or present ideas in a virtual classroom. This will be presented in greater detail in Chapter 5 and 7.

Kozma (2010:01) explores the potential that ICT can provide access to remote colleagues and experts, provide simulations and media-rich learning environments, and provide data collection and management tools that support teacher training, improve student learning, and increase the efficiency of the education system. Effective communication presumes that students select and use multiple technology tools to create persuasive messages (Aho, 2005).

Electronic communication in education

Electronic communication can be very effective when used with caution and in a professional manner and serves a range of purposes. It allows learners and family members' access to

assignments and resources related to studies in the classroom. Cole and Crawford (2007) explain that electronic communication allows for connectivity with communities in other countries to discuss information. Electronic communication is interactive and engages audiences in two-way communication. Two-way communication goes back a long time but with electronic communication, it creates a new form of many-to-many communication. This lets geographically distributed groups to communicate interactively and simultaneously. Engineering Tips (2012) suggests that electronic communication lets you combine a range of media into a single message which can result in a far more meaningful communications which can be adjusted and set to suit your audience.

Educators all over the country can use electronic communication such as the Internet and social networking sites as instructional tools and for professional development. Educators can seek information on lesson plans, new developments and methodologies. In school, it is vital for all students to communicate what they know. Electronic communication levels the playing field between learners (Crawley, n.d.). At schools many learners may struggle with writing but find that they are much stronger by using audio, video and images. Multimedia not only motivates students it allows them to showcase their different strengths and allow them to tell a story more richly. Aho (2005) notes that demonstrating an understanding of a science process, for example, can be difficult to do with words alone. When a student shows the process using animated images with narration, then the explanation can be more complete. As they build knowledge of science, students learn digital communication skills.

What types of communication tools will be available when primary school students graduate from college are unknown. Students need substantive opportunities to learn how to approach a communication problem, select appropriate media and express themselves effectively across different scenarios. They need real exposure to a lot of communication media so they can become adept users of the next generation of tools. An advantage of having computer-assisted instruction in the classroom is that the computer can serve as a tutor. Teachers can only aid students in the learning process so far. Computers can assist teachers and act as a tutor for the students who are falling behind.

Bennet (1999:74) asserts that with computers as tutors, no student will be overwhelmed because he or she is missing fundamentals the computer will repeat material until each lesson has been sufficiently mastered. Teachers do not have the time to repeat lessons over and over again. It is imperative to give all students in the classroom the opportunity to adequately learn the lessons, and with computers acting as tutors they can. Levine (2008) believes that as educators they must be challenged to similarly take advantage of new technology. Not just to

play with gadgets, but to create new approaches to fulfilling a person's desire to learn. We have to become so familiar with new technology that we can move beyond its glitter and begin to creatively exploit the uses of the technology to better facilitate learning.

The world of communication which now includes all sorts of media has impacted the way we live our lives. When one walks into a 'new technological-age' home at dinner time in South Africa, everyone is busy. You are more likely to find mum multi-tasking on her laptop and cooking in the kitchen. Dad glued to the sports channel. The children engaged on their cellular phones busy chatting on one of many social networking sites (Dlamini, 2012). Societies have all been influenced in some way or the other to access and use the latest technological gadgets. Many organisations are using electronic communications facilities, such as the World Wide Web, as internal communications tools to improve team work. Many individuals at diverse locations can work on the same documents, hold meetings and incorporate research findings. Knowledge way (2011) suggests that electronic communications removes the power of communications *gatekeepers* to both positive and negative effects. Most organisations are used to controlling the messages that go out to its constituents through managers, spokespeople and others. But with the Internet, constituents begin to converse among themselves, requiring innovative approaches and a new emphasis on listening and reacting, not just chatting. With the Internet one has the ability to transmit and receive large amounts of information quickly to and from individuals and workgroups around the world.

Rollag and Billsberry (2010:186) admit that although new technologies have always been part of management education, recent times have witnessed a rapid acceleration in both the emergence of new technologies and the experimentation and use of them in the management classroom. For example, faster processors, higher bandwidth speeds, quicker downloads, improved graphics and cheaper screens make computers a platform able to handle streaming video and audio in real time, and Web sites like iTunes , YouTube, and Academic Earth have become shared global repositories of video-based teaching materials.

Virtual worlds like Second Life are challenging our notion of a teaching environment. Wiki, blog and web-conferencing applications, and social networking sites like Twitter, Linked In, and Facebook can be used to encourage group-based learning (Open Culture, 2012). New media players (example: MP3 players, Kindles, and various other e-book formats) are changing the platforms through which we deliver materials. Mobile technologies such as PDA's, mobile phones may provide alternative distribution models for distance learning. In the physical classroom, clickers allow instant feedback from students. And these are just the

beginning of an advanced technological world. Communications technology is both 'shrinking', becoming portable and seamlessly entering everyday devices, as well as becoming all-encompassing and distributed throughout the world. This continues to have a considerable impact on how communities interact. The emergence of new genres, new communicative modes will inevitably follow (Open Culture, 2012).

The Technology Acceptance Issues

Dillon and Morris (1996) states that the Technology Acceptance Model (TAM) is an information theory that suggests that when users are presented with new technology, a number of factors influence their choice about how and when they will use it. The TAM is an adaptation of the Theory of Reasoned Act (TRA) to the field of information systems. Attempts to extend TAM have generally taken one of three approaches: by introducing factors from related models, by introducing additional or alternative belief factors, and by examining antecedents and moderators of perceived usefulness and perceived ease of use (Wixom and Todd, 2005). The TRA and TAM both have strong behavioural elements assume that when one forms an intention to act they will be free to act without limitations. Bagozzi and Warshaw (1992) suggest:

> *"Because new technologies such as personal computers are complex and an element of uncertainty exists in the minds of decision makers with respect to the successful adoption of them, people form attitudes and intentions toward trying to learn to use the new technology prior to initiating efforts directed at using. Attitudes towards usage and intentions to use may be ill-formed or lacking in conviction or else may occur only after preliminary strivings to learn to use the technology evolve. Thus, actual usage may not be a direct or immediate consequence of such attitudes and intentions".*

The goal of TAM is to predict information system acceptance and diagnose design problems before users experience with the system. User acceptance of any technology predicted by TAM is determined by two factors; perceived usefulness and perceived case of use. Dillon and Morris (1996) discusses that within TAM, perceived usefulness (U) is defined as the degree to which a user believes that using the system will enhance his or her performance, perceived ease of use (EOU) is defined as the degree to which the user believes that using the system will be free from effort. The question of user acceptance is of concern to all researchers and procurers who wish to predict which technologies will prove the most suitable for an organisation and how it is received by its users. TAM has been widely criticised despite being used frequently, leading the original proposers to help redefine it several times. In general TAM focuses on the individual 'user' of a computer with the

concept of perceived usefulness and factors to explain how a user perceives usefulness. Below is the diagram of the theory originally developed by Davis *et al.* (1989) and later modified by Venkatesh *et al.* (2003)
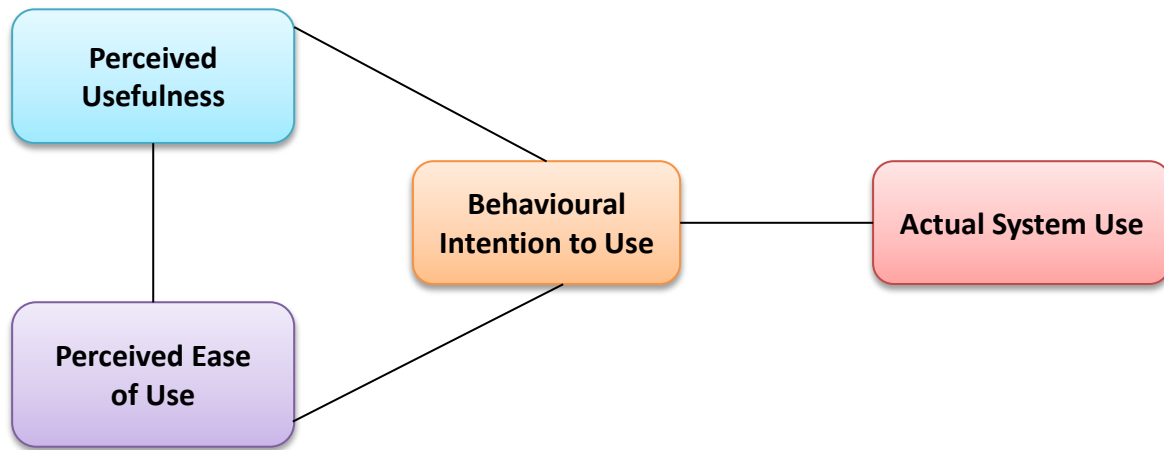
Source: Venkatesh et al. (2003)
Figure 2: Technology Acceptance Model

The Interactive Nature of Electronic Communication

Interactivity is now a term broadly used for new media options due to the rapid dissemination of Internet access points, digitalisation of media and media convergence. The 'one-to-one' model of traditional mass communication is now replaced by the 'many-to-many' web of communication. Anyone with the appropriate technology can produce their own online media. Crosbie (2002) described three different kinds of communication media. He saw Interpersonal media as "one to one", Mass media as "one-to-many", and finally New Media as Individuation Media or "many-to-many". Interactivity is usually associated with conversation dynamics which occur face to face. Interactivity is present in programming works such as video games. Other settings of interactivity include radio and television talk shows, letters and listeners' participation, computer and technological programming. Interactive media is a true benefit because people can express their artwork in multiple ways using technology today because there is no longer a limit to creativity. Being considered the central concept in understanding new media interactivity comes in various media forms for various degrees of interactivity (Wingfield, 2012).

Flew (2005:101) argues that, the global interactive games industry is large and growing, and is at the forefront of many of the most significant innovations in new media. Prominent online computer games showcase interactivity such as, the Sims online, World of War craft and Second life. New media has created virtual realities that are becoming virtual extensions of the world we live in. New media is continuously changing as it is always being modified and redefined by users' integration and emerging technology. A feedback loop (FBL) is an inter-organisational form of feedback where an Internet service provider (ISP) forwards complaints from the user to the sender's organisation (Declude, 2012).

The feedback loop is also known as the complaint feedback loop. Wood (2012) explains that ISPs can receive users' complaints by placing report spam buttons on their webmail pages, or in their email client, or via help desks, the message sender's organization, often an email service provider, has to come to an agreement with each ISP from which they want to collect users' complaints. The provision of the feedback loop (FBL) is a choice of the mailbox provider. Users should report abuse to the providers reposting centre to help filtering. Alternatively competent users are allowed to send abuse complaints directly. It is quite simple as the example below illustrates the reporting process.

Kate sends a message to Amanda. Amanda complains to Sam (her Internet service provider) about the message by hitting the *report spam* button. Sam encapsulates the message and sends it to Kate (if she is signed up to receive feedback) (Mailchimp, n.d.).

Advantages and Disadvantages of Electronic Communication

Electronic communication is popular due to it being fast and accurate which can be used easily and comfortably but there are also some adverse effects. Steven (2012) proposes the following advantages and disadvantages of electronic communication:

- Advantages

Marketers who want their mail to be delivered can remove subscribers that do not want to receive that kind of advertising and they can analyse the complaint rate to see if the advertising meets the market expectations. Internet service providers delivering unwanted messages dissatisfy their customers so they use spam filters. People across the world can share televised pictures, conversations, graphics, circuits and interactive software. People residing in different geographical locations can communicate with conversations being more visual and textual. This also assists the hearing impaired individuals. Infosec (2012) states that messages can be sent almost instantaneously with electronic communication. This allows

for faster processing of important matters at various organisations. The learning process has become easy and efficient as the information can be stored and retrieved whenever required. Cost reductions at organisations as money for continuous printing hard copies are saved.

- Disadvantages

Setting up feedback loops requires filling out web forms which can be inconsistent from one feedback loop to another. Some feedback loops provide no option for communicating feedback automatically to multiple parties. Neolane (2011) asserts that there is no convenient way for a sender to automatically and repeatedly verify that a feedback loop is operating correctly without damaging the sender's deliverability. There is no convenient mechanism for discovering new feedback loops. The main problem area is security. Computers can be hacked into and affected by viruses spread on computers. Electronic data can be easily duplicated without proof of duplication and messages can be modified. Malicious programmes can be sent intentionally and it difficult to detect. Email privacy is another issue as it has to bypass the various channels in the computer network and routers before reaching its destination so it can be tampered with.

As any part of media there are pros and cons but many of us depend on electronic communication daily and it has formed part of our lives.

TYPES OF ELECTRONIC COMMUNICATION AND ETIQUETTE

As technology becomes more advanced and affordable, new ways are presented to us to perform old tasks. As these devices continue to evolve allowing us to communicate, stay informed and connected communication methods also evolve. Srinivasan (2007) clarifies telephone, fax, email, teleconferencing, instant messaging, bulletin boards,threads, social networking, news group, Skype, text messaging, video conferencing, chat lines and discussion groups all form part of electronic communication.

Archbold (1995) advises that in the era of enhanced communication, electronic gadgets are everywhere and it is easy to be impolite. Hence we have to remember and take into considerations others around us. No matter how hi-tech the medium because we are ultimately communicating with other people, common sense and courtesy are still expected. A downside of email is that it can take an important message seem informal and unimportant. When emailing about work, always maintain the tone of a business correspondence. Always include a subject line, do not use uppercase letters, check grammar and spelling, sign off with your name, company name and a phone number. Avoid communicating in anger whenever possible (Bacal, 2012). The use of loud ringing cell phones all around is almost always rude;

a remedy is a device that vibrates rather than making intrusive sounds. People on the phone whist driving is hazardous and the recipient has to listen to crackles and fades which is frustrating, make arrangements to return their call from an office or payphone.

This way the conversation is private, less expensive and not interrupted by breaks and blackouts. Electronic communication devices give us the opportunity to make an appointment or leave a short message. This saves both parties time and facilitates more communication later on (Archbold, 1995). Facsimile machines are the best thing since printing was invented but if you need to fax more than a few pages it is best to call ahead so it can be sent through at a time that is convenient. It is good to acknowledge receipt by placing a quick call to the sender. A thank you note is still welcome whether typed, handwritten or sent through email. When setting up your voicemail or answering machine, make sure to keep it short and simple provide clear and relevant information only. If one prefers conversing via speaker phone ask the caller permission before activating the speaker function. Always introduce all participants or even all present in the room to prevent embarrassing situations. When video conferencing listen carefully as there the delay in transmission can be confusing. No matter how sophisticated communication technology becomes, the two end users are always human; the sender and the recipient. So being courteous and respectful is a must.

Chapter Summary

Using electronic communication offers learners a way to provide their own expression and interpretation and does not restrict or limit them. Most students have the technology (Wingfield, 2012). Therefore electronic communication applications can easily be implemented on the school network. Schools may consider further utilizing the existing resources to help teachers and students get better prepared for the information and technology era and enjoy the benefits brought about by the emerging technologies. On implementation, schools should be aware of the IT security, especially when students are using the services on the Internet which may contain inappropriate materials. They experience the world through multimedia and want to communicate in the same way. According to Aho (2005), one can prepare them to communicate effectively by teaching them the whole communication process from planning the message all the way to testing for usability. The next chapter explores technology and its impact on society and education.

Chapter 3

Technology and its impact on society and education

Introduction

In Chapter 2 we examined how electronic communication has given people around the world an opportunity to easily communicate with various types of technological devices that are continuously evolving. Together with the changes being brought on every day, new expectations appear towards educational institutions and schools need to teach their learners how to gain information and how to select and use it (Szucs, 2009). This happens so quickly that students learn how to use the Internet together with their teachers. This chapter therefore outlines issues that deal with technology and its impact on society and education.

Uses and purposes of technology

When we think of technology, the following visions come to mind, computers, cell phones, digital video players, computer games, spaceships, advanced military equipment and other machines (Edward-Blackhurst, 2001). These perceptions have been gained through the exposure of televised reports of the latest fascinating devices and news articles about them. Attri (2010) states that technology can refer to material objects of use to humanity, such as machines or hardware, but it can also encompass broader themes, including systems, methods of organization, and techniques, some modern tools include but are not limited to overhead projectors, laptop computers, and calculators and newer tools such as "smartphones" and games (both online and offline) are beginning to draw serious attention for their learning potential. Galinovsky (2011) emphasises that technology is important in today's world and taking a comprehensive approach to technology education will ensure that children thrive in the modern education system and in the jobs of the future.

Public schools such as primary and secondary education institutions have tended to focus on the use of equipment such as film projectors, audio and video tape recorders, overhead projectors and computers (Toyama, 2011). Cia (2012) asserts that with the increasingly fast development of microcomputer technology, the latter 20th century has borne witness to a dramatic evolution. Blackhurst and Edyburn (2000) identify that the current perspective is a broad one in which six types of technology is recognised: the technology of teaching, instructional technology, assistive technology, medical technology, technology productivity tools, and information technology. Education policy-makers and planners must outline what educational outcomes are being targeted at schools (Pagliaro and Klindera, 2001). This will

then serve as a guide to the selection of technologies to be utilised. The potential will depend on how it is used. Radio and television broadcasting have been used as educational tools since the early 1920's. There are three general approaches to the use of radio and television broadcasting in education.

Direct class teaching, this is where the broadcasting programming is used as a replacement for teachers on a temporary basis. School broadcasting is complementary teaching and learning resources provided by broadcast programming. General education programming is used to provide general and informal educational opportunities across community, national and international stations. Devries (2007) states that the radio lessons developed around specific learning objectives at particular level of maths, science, health and languages in national curricula are intended to improve the quality of classroom teaching and can aid poorly trained teachers in under-resourced schools. DSTV's learning channels is another example of direct class teaching, this time using broadcast television, which covers curriculum offered at school. Various subject areas are taught. Students are exposed to a variety of teachers on television such as Wise Up, Ratanang and Matrics uploaded a programme that is aimed at assisting matriculants with subject matter (SABC, 2012).

Over the years the programming has undergone tremendous changes encouraging more interactive and dynamic programming offering children an integrated education. Wikibooks (2012) states that often deployed with print materials, cassettes and CD-ROMs school broadcasting, like direct class teaching is geared to national curricula and developed for a range of subject areas, but school broadcasting is not intended to substitute for the teacher unlike direct class teaching, it is merely an enrichment of traditional classroom instruction. Educational programming consists of a broad range of programme types such as news programmes, documentary programmes, quiz shows and educational cartoons that afford non-formal educational opportunities for all types of learners. Therefore radio and television programming with informal and educational value can be considered educational programming. According to Indosoft Inc. (2012) teleconferencing refers to an interactive electronic communication among people located at two or more different places; this includes audio conferencing and videoconferencing. Audio conferencing involves the live exchange of messages over a telephone network. Videoconferencing allows the exchange of voice, graphics and moving images. It uses a satellite link or television network to broadcast. Teleconferencing is used in formal and informal sectors of learning to facilitate teacher-learner and learner-learner discussions, including access to experts and other resources (Wikibooks, 2012).

Santally and Senteni (2005) suggest that computers and the Internet have three general approaches which can be used for teaching and learning. Learning about computers and the Internet and the end goal is technological literacy. Learning with computers and the Internet and technology is used to facilitate the learning process across the curriculum (Richmond, n.d.). The last approach would be learning through computers and the Internet, by incorporating technological skills development with curriculum applications. Computers and the Internet focus on developing technological literacy (Cordes *et al*, 2012). It includes fundamentals such basic terms, concepts and operations, use of the keyboard and mouse. It allows you to use productivity tools such as word processing, spread sheets, data base, graphics programmes and research and collaboration tools such as search engines and email. It develops awareness of the social impact of technological change. Learning with technology aims to assist with learning across the curriculum (Serim, 2001). It comprises of presentation, demonstration and the manipulation of data using productivity tools, curriculum specific applications, information and resources.

Many educational institutions have started to leverage the Internet to improve and enhance teaching methods and classroom exercises and actively engage learners. Students must learn more than just skills and knowledge of operating new technologies. They must learn how to manipulate technology to allow for new opportunities and raise expectations, use it to increase their imagination and creativity standards (Siemens, 2004). With virtual classrooms now being introduced and used at schools learners and parents can be updated continuously with what's going on in the classroom even in absence, discuss homework and experiments, be notified of meetings and any changes. Oblinger and Oblinger (2005) allege that the use of technology can also be a new way of engaging students whose attention spans are short and they may respond better to visually stimulating material.

Perceptions and views of technologies at schools

DeSantis (2012) points out that schools are increasingly investing in technology. Teachers conceptualise and approach teaching in a limited number of qualitatively different but related ways. Hoffner (2007) adds that researchers, educators, policy-makers and parents are exploring the best ways to integrate technology in classrooms to enhance teaching and learning with technology, whilst many others are apprehensive about the impact of technology in classrooms (Drier, 2001). Teachers and their students are essential keys to integrate technology into schools as their beliefs and views must be thoroughly understood before any programme takes place.

Pedrettti *et al.* (1998) claim that, as with any new educational innovation, the impact of the changes that accompany the introduction of technology on all the stakeholders needs to be considered, in a technology-enhanced classroom, the voice of those affected most must be heard. Garthwait and Weller (2005) claimed that teachers' educational beliefs about teaching and learning, about students and about the role of technology strongly influenced the integration of technology. In-depth interviews and classroom observations of five primary school science teachers were conducted and the teachers perceived that using the Web resources made learning for students more dynamic and interactive. This method motivated learners to communicate and interact with each other and with their teachers. The Web enhanced environment forced teachers to change their role from knowledge distributors to facilitators (Scheirer, 2000).

Yuen and Ma (2002) mention that their study revealed the usefulness of technology had a significantly positive effect on teachers. Teachers' embraced the use of computers in the classroom because they used computers on a personal level. While the benefits of technology were emphasised the attitudes of math and science teachers were generally different. A review of literature indicated that many teachers feared that using technology would harm students' basic understanding of math concepts; they would become too dependent on technology instead of using it as an instructional tool. Guerrero *et al*. (2004) notes that the attitudes of teachers were summarised (toward the use of technology in mathematics classrooms) as 'apprehensive' whilst students' attitudes were mainly 'enthusiastic'. Teachers' perceived obstacles were identified.

Demetriadis *et al*. (2002) explain the most commonly cited obstacles to the integration of technology in education were:

1. Material conditions (including an insufficient number of computers and insufficient technology expertise among teachers);

2. Difficulty integrating technology into the regular curriculum and instruction;

3. Lack of supervisory and technical staff.

Another problem was that computers have been available at most schools but have not been used by many teachers. Rosen and Weil (1995) claim that many elementary and secondary teachers were techno-phobic and were most anxious about dealing with the actual hardware in classroom settings, about computer crashes and errors, and about learning to use computers. Students' approaches to learning are related to their teachers' approaches to

teaching. When the Internet was used in science rooms, students' appreciated the rich sources and the increased accessibility of the Internet. Ng and Gunston (2002) studied grade 10 Australian students and found that the students perceived four advantages and four disadvantages of the Web as a research tool:

- The advantages included:
    1. Unlimited information;
    2. Increased accessibility;
    3. Allowed open, self-directed learning; and
    4. Improved technical skills.

- The disadvantages involved:
    1. The difficulties of finding good Web site information;
    2. Time-consuming;
    3. Substantial assistance needed; and
    4. Technical glitches.

Students' view technology as an enhancement to the learning process rather than a substitute, this should help diminish any fears that teachers might have of being replaced by computers (Sabornie, 2009). The use of technology enables diverse approaches to teaching and learning, sometimes in ways that could not be achieved by traditional textbook-based methods.

Oriko (2011) a Kenyan-born Internet and Social Entrepreneur firmly believes the power of Information Technology and what it means is that Information and Communication Technologies are playing a "facilitative" role in the development of Africa's youth. Society must understand the value that technology presents and use that value to seek out opportunities in social change practice.

Teaching Methodology: Past and Present

There is an increased need for bright and educated individuals as technology continues to advance but school systems are falling behind in meeting that need (Morton and Ross, 2012). While new and innovative teaching methods can be welcomed, it has to supplement and enhance the old tried and tested methods of education. A method of old school teaching which was successful for generations was reading out aloud in class. Much of the day was spent taking turns to read out aloud from story and textbooks. This was done on a daily basis,

although disliked by some students. But we all were proficient readers and had an extensive vocabulary. This method also allowed teachers to identify students with reading difficulties sooner and they were given the needed guidance and could catch up with the class (Gagen, 2004). Early identification of reading problems would prove helpful in today's modern world as there are advanced methods of helping students with reading problems such as dyslexia. Another activity disliked by many is diagramming sentences.

Diagramming sentences helped students visualise and create affective writing and allowed students to distinguish between verbs, nouns and adjectives (Suttor, 2012).
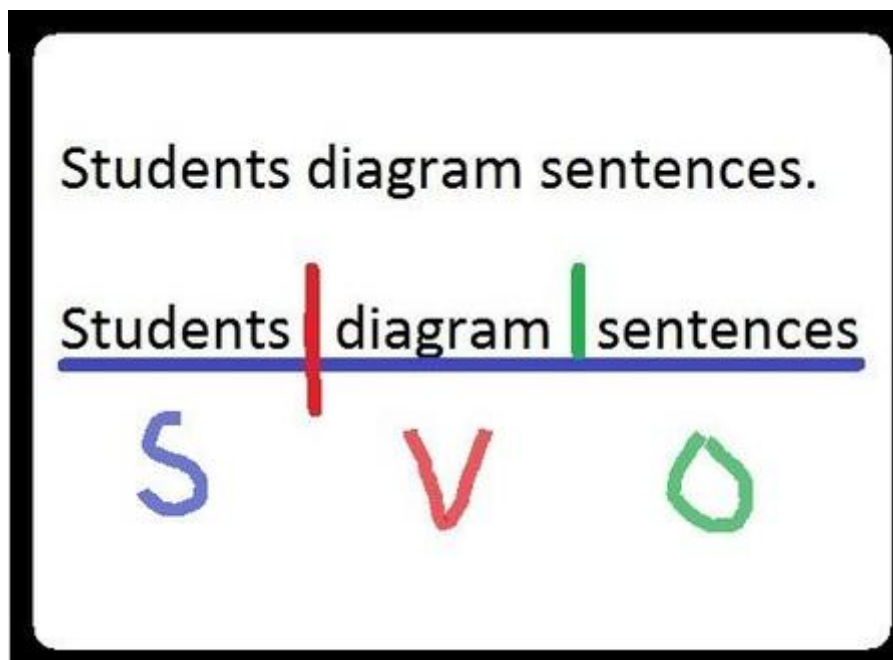
Source: Hess (2011)
Figure 3: Diagramming sentences

 Many students have difficulty writing as it was outlined in this year's annual national assessment (ANA) written across the country. Assisting a student to understand a word and use it correctly will serve to improve writing skills. Book reports and research papers have been brought back into schools. It encourages students to read with the added benefit of teaching them to organise thoughts in a logical manner and teach them basic life skills. Students learn how to summarise, outline and reference their research papers.

Today with computers in schools research papers can be expanded to include research from magazines, newspapers, books, interviews and the Internet. This allows them to get an in-depth knowledge of the topic and work involved in completing a research task. It also increases reading and writing skills. Gone are those days of only using the chalkboard and dull worksheets, with the availability of 3D and HD screens, classrooms can now be alive and

real initiating the learning process by using technology and social media as a draw card (Gagen, 2004). It is something that students are familiar with and are usually enthusiastic to use or learn more about. They recognise and relate to objects that are familiar with.

Honey *et al.* (2005) state that technology is being utilised everywhere, therefore, we should use it to create a good learning environment which could work to the teachers' advantage. In the past teachers used to follow a syllabus which was compulsory, but with the National Curriculum teachers at lower level grades have the independence to choose their own teaching materials (textbooks) and make up a syllabus of their own so that students' can perform well in their examinations and in life. Teachers cannot be chalk faces anymore they need to be an information technology 'expert' as they need to handle technology effectively. Both the past and present teaching methodologies can be incorporated to create stimulating and interesting lessons (Suttor, 2012). These resources are available so teachers must utilise them to enhance lessons and bring about effective learning.

Sociology and Psychology of New Technology

Psychology plays an important role in social media's success and it is influencing the way organisations use the various social media (Divol *et al*, 2012). From a psychological perspective there are certain elements people are looking for in social media. Cohn (2010) professes that people react to content that touches them on an emotional and/or personal level. If you make sure to offer content that is arranged in a format that is easy to follow, presented clearly and logically and has emotional elements, people will pay attention and will want to continue engaging. All people want to be acknowledged and want others to recognise that they are thinking out of the box. One of the main reasons that people decide to connect with others on social media channels is to have a sense of belonging to a community. Ridivi consulting (2012) claims that people want to be considered as an important part of a valuable group.

Scott (2011) feels that social media is essentially human communication through digital media**.** Communication theorists including William Schutz worked around the notion that people communicate to gratify their own needs or wants. Technology has altered our modes of life (Sociology guide, 2011). It has not spared the social institutions of its affects. Families, religions, morality, marriage, state and property have been changed. Although technology rapidly changes all the time, man's way of thinking hasn't changed because they still crave a connection with others to find meaning in their lives. The contemporary change and development in society is now usually caused by the technical attributes of the new

information and communication technologies (ICT's). The challenge for sociology is to develop analytic categories that allow us to capture the complexity of technology and society (Sassen, 2002). Once captured it can be utilised and managed appropriately at schools, allowing students the freedom to access online virtual classrooms and online libraries for research purposes. Allowing them to ask questions and make suggestions. Diverse relationships can be formed between various race groups and eliminate segregation.

Chapter Summary

In this chapter it is noted that radical technological changes have taken place in the past few years. As a developing country we need to advance and align ourselves with the latest technology being used around the world. Society has been taken by technology in various ways, we need to ensure that whilst at school students' are able to learn and use these technologies in the correct manner. Honey et al. (2005) state that learning how to utilise new technology is easy, the processes of using it appropriately has become a problem.

Therefore at school level teachers and parents need to educate students' about using technology responsibly. So as the new technological age continues to expand, the younger generation, the leaders of tomorrow can bring about change in the correct and ethical manner when using technology. On the other hand the implementation of technology is not that simple, therefore the next chapter will be discussing the challenges faced in educational technology.

Challenges faced in Education Technology

Introduction

The previous chapter focused on electronic communication and the emergence of new technologies which can aid in the pedagogy process but there are many barriers which make it difficult to implement new technologies at public schools. In this chapter the challenges that are experienced when technology is used in education will be discussed. Without a doubt technology does have a huge impact on today's society and its education system but there are many challenges that come with its implementation as well (Raizada, 2012). There are many information technology applications being utilised at schools that validate technology based models of teaching and learning that have the power to dramatically improve educational outcomes (Soares, 2012).

Dede (2010) discusses that undertaking 'systematic reform,' requires policies and practices different than fostering pilot projects for small scale educational improvement. Systematic reform involves reconfiguring existing budgets to free up money for innovation. Educational innovation must be modified so that it can be implemented by typical educators. The power of high performance computing and communications to enhance the reshaping at schools is embedded in systematic reform. But the cost of technology with its rapid evolution poses barriers to effective utilisation (Silverstone *et al*, 2009).

Affordability

It is common to give all students access to multi-media capable Internet connected computers. Teachers are administrators who use new media are assumed to be more effective than those who do not. The use and access does not come cheap. An Internet connected computer for every two to three students yields a high price tag, a financial commitment that could drain schools for almost a decade of funding. Therefore this is an impractical approach for improving education (Singer, 2011). Firstly computers and cables are too large and just one part of the infrastructure needed. Other parts of the schools infrastructure could possibly deteriorate.

Dede (2010) suggests that putting money into computer-and-cables is to large an investment in just one part of the infrastructure improvements that many schools desperately need; buildings are falling apart, furnishings are dilapidated, playgrounds need repair, asbestos

must be removed, otherwise the machines themselves will cease to function as their context deteriorates.

Funding is also needed to make instructional hardware effective. If most of the money is spent on the new media little funding is left for the empowering messages of the devices. Educators will not utilise these devices to their full potential unless they are given professional development support. Benson (n.d.) affirms that schools are faced with the reality of a limited budget for equipment and software and must make the hard choice about how to get the most of what they have. Money for technology can be obtained from private grants, businesses and state governments. Securing funds for technology is an on-going process. Schools must determine the vital components in technology used and provide a permanent source of funding for those components. Additional components can be added as funding continues. It is important to inform and make the community and businesses aware of the use of technology at schools. When they understand how the school is trying to prepare students for the workforce and the role technology can play, they may wish to fund technology to ensure that they have a pool of future workers with necessary skills.

Training and Development of Staff

Omer (2011) declares that many teachers have little training in computers. Teachers are unable to understand why they should use ICT's and how exactly they can use ICT's to help them teach better. Teacher anxiety over being replaced by technology or losing authority in the classroom can be alleviated if teachers have a keen understanding and appreciation of their changing role. Leadership plays a key role in ICT integration in education. For ICT integration programmes to be effective and sustainable, teachers must be competent in the use of technology and must have a broad understanding of the technology, curriculum and administration, financial and social dimensions of ICT in education. With the vast range of information to be covered in the curriculum and the demands of administration, co-curricular activities, sports and meetings, teachers have little or no time to get the adequate training needed by a professional to fully equip them with the relevant technological skills needed. They usually sought after the help of more experienced educators with more expertise on the use of the computer and its programmes. If schools are attempting to implement technology at schools they need to have on-site technical assistance (Gahala, 2001).

Although they do receive help from a knowledgeable teacher volunteer the results are often unsatisfactory. Like many other teachers trying to use technology in the classroom, they all want technical help on demand. Managing a classroom of thirty to forty students in the midst

of some technological activity when the system goes down requires skills and flexibility (Blurton, 1999). If these technological problems arise frequently and teachers have to wait a long period of time they will eventually abandon their efforts to incorporate technology into lessons. Technical assistance is needed to provide training, demonstrations, on demand help, low level maintenance and assistance in planning. As time goes by there is an increase of maintenance on hardware and teachers need to allocate resources and to make reasonable use of the less powerful equipment in the schools inventory. One encouraging trend has been the emergence of national and regional school networks, or SchoolNets that facilitate sharing of content and information, such as curriculum guides, teaching and learning resources, training curricula, research and policy papers, start-up tool kits among others. Countries like South Africa, Ghana, Japan, Canada, Australia, and France to name a few all have SchoolNets. Gahala (2001) highlights that as teachers all learn at different rates and have individual needs when mastering new skills, the training in technology should be flexible but cover comprehensive skills. Each teacher's current level of skills should be determined using appropriate instrument tools. Then only can they be work shopped to advance to the next stage. Time for independent study, experimentation and curriculum development is also important. Teacher technology training is not easy to implement and requires time and money. The teacher must be able to go beyond the basic computer functions to use technology to meet the learning needs of all students and to actively engage all students. Offering incentives for teachers will be as easy mechanism to draw teachers in to devote their time to professional development. Mini – grants can be used to reward teachers who develop innovative uses for classroom technology. This grants or incentives can be used to acquire classroom technology, receive loans on hardware or software or to negotiate discounts on personal equipment.

The Department of Education is now offering teachers' laptops to purchase with the latest software they need to develop lesson plans and programmes for classroom use with an added benefit of being subsidised a certain percentage (Intec College, 2012). Teachers need to take full advantage of the resources being offered to them to increase learner participation in class and create exciting and enjoyable lessons to keep learners actively engaged. Another barrier faced by teachers is finding and selecting the correct software for instruction. This being due to the fact the number of high quality curriculum materials has increased and there is a wider variety. Teachers should then form and work in teams to draw up criteria for selecting software.

Maintenance and Infrastructure

Firstly appropriate allocation of room space or buildings need to be allocated to house the technology. Offord (2008) explains that in countries where there are many old school buildings, extensive retro filling to ensure proper electrical wiring, heating, cooling and ventilation and safety and security would be needed. The supply of electricity and strong support structures to hold and safely secure the technological equipment in place. Proper alarm systems and software is needed for these devices, which usually need to be updated regularly. These entire infrastructures utilise a lot of capital which schools cannot afford. They have to keep within the required budget and cut down in all areas. Resulting in a smaller space, fewer computers, little or no access to the Internet and very few updated software. Whether provided by school staff or external service providers, or both, technical support specialists are essential to the continued viability of ICT use in a given school. Wikibooks (2012) expresses that without onsite technical support, much time and money maybe lost due to technical breakdowns.

Sustaining new Technology

With the strong push to get educational technology to be used by teachers and students, the obstacle of sustaining the technology still exists (Gahala, 2001). The initial technology funding may not be sustained and therefore unable to provide upgrades, maintenance and on-going professional development. Many schools do have computer labs but the location of the computers determines its effective use. If Internet connected computers are not in a convenient place the availability to teachers and students are limited. Schools need to explore strategies for allocating computers. Learners are usually allocated one period a week on the timetable to spend at the computer lab. No after hours or time is allocated to conduct research or surf the net. If the use of the computer lab is carefully scheduled it will provide high equipment utilisation.

Mobile computer labs should be made available on small carts on wheels so that they can be moved and used in the area of need (Rusten and Hudson, n.d.). It offers a workable approach. This can also allow teachers to pool resources instead of over spending on trying to get all teachers computers. Without continuous technical support technology integration in the classroom it will never be adequately achieved. Teachers sometimes complain about equipment failure, software complexity, data loss, embarrassment and frustration and need immediate help and support. Gahala (2001) advises that infrastructure repair or upgrades must be responsive and well timed, frequent occurrences of a server being down, printers

jammed, or insufficient computer memory will not only disrupt instructional and administrative activities but also may undermine the entire technology programme. A barrier commonly found in technology integration is finding and using appropriate software for instruction. Once particular software is elected you have to ensure it is compatible to your devices and updated regularly. As time goes by later versions are released and the cost of continuously upgrading totals to a lump sum of money. Gahala (2001) clarifies that:

> "*Technology implementation is not simply putting computers in every classroom or linking every classroom to the Internet. It also means obtaining sustained funding for on-going professional development, technical support, equipment upgrades, and regular maintenance. Funding should be addressed at the beginning stages of technology planning. Consideration should be given not only to initial costs but also to a means of providing a varied and constant source of revenue that will continue into the future.*"

Schools need to implement a technology plan into their budget to oversee the various costs involved in sustaining new technology. Several different sources of funding can be identified to ensure the on-going flow of money for technology. Funds also can be allocated from the existing budget. Some of the funds allocated to textbooks could be directed to purchasing multimedia courseware and online materials to supplement traditional textbook purchases. Professional development of teachers can be deployed by forming partnerships with local colleges and universities (Sowder, 2003).

Convincing Communities to Accept Technology at Schools

Many people are not at ease on whether or not the conventional teaching methods are equipping and developing students with the skills and knowledge they require for their future. But most people from the older generation still feel the education system works well and do not want to change it unless new methods prove it. They want evidence that technology can affect teaching and learning in a positive way (Sowder, 2003). Mass media is very influential and sometimes showcases the impact of technology in a negative light because of its misuse. With the rape, crime and pornography going on in social networking being some of the concerns of parents, no parent would want their child exposed to these unscrupulous acts. Therefore teachers need to assist in creating a positive energy and using technology to decrease the use of unprincipled practices. Dede (2010) mentions that research documents

that new technology-based pedagogical strategies result in at least four kinds of improvements in educational outcomes; some of these gains are easy to communicate to the community whilst others are difficult – but together they constitute a body of evidence that can convince most people. Increased learner motivation allows students to be exposed to new learning experiences that cause them to be excited. Ehrmann (n.d.) believes that the key is for education itself to learn to live with the rapid pace of change and make choices that enable us to improve effectiveness and outcomes.

This evokes increased learner participation, better attendance, higher concentration and greater time on a task. Teachers take little advantage of opening a dialogue about instructional improvement in the community. Most parents want their children to study with the intention of having a prosperous lifestyle. Information technology can assist students to learn difficult concepts but teach them to master skills needed to keep them current with the evolving economy (Dede, 2010). Once technology – based instructional strategies shows its changes, taxpayers will be impressed. The process of assisting students to develop problem solving skills is not an easy task. With the advanced multimedia programmes available in technology today this is not an impossible task. Students are now engaged in using the information tools to perform complex tasks and create intricate products which excite community members. The most important evidence to show communities that information systems has worked is students marks in their assessments and reports.

Although results might not increase immediately, research shows test scores rise when technology – based educational innovations are implemented. But first teachers and students must master the new model of pedagogy (Jonassen *et al*, 2012).. Ultimately communities support schools to use approaches which involve them in the students' education. Schools should use technology – based models to build partnerships between schools and society to further enhance educational objectives.

Inequalities of Educational Technology

Although emerging information systems can produce improvements in learning outcomes, it can also widen inequities in our society. All students might have limited access to computers at schools but it differs in the amount of information devices in their homes and communities. The wealthy communities can afford the latest technology (Waxman, 2012). Whilst it is a struggle to survive for many and they cannot afford luxurious technological gadgets. Perhaps this could possibly worsen society's gaps with income and power between the rich and the poor. With the rapid acceleration of new technology being readily available, prices of older

technology models do drop. But the richer will always have access to the latest devices of greater power than the poor (Hanson, 2012). This increases inequality and limits the advantages of distributed learning. The current educational policy is challenged to minimise the period which the gap between the privileged and underprivileged expands and provide access to technology that promotes increased equity.

Access and literacy are at the centre of society's efforts to decease inequalities that new technologies could create. Coley *et al*. (1997) confirms that to compensate for home based technology in affluent areas; many feel that our best strategy is providing teachers and students in low socioeconomic status areas with additional technology to level the playing field. This approach to educational equity will not work unless the issues of content and services are also addressed. The diverse needs and interests of the teachers and students must be reflected when selecting online materials and types of assistance. Empowerment in equity needs to be addressed, developing information technology to give dispossessed groups what they want. Educational equity can be justly achieved by working together with the populations' that are less fortunate and have little or no access to information-based technology. It is important to develop programmes and services that will serve their needs and be designed to expand their strengths. The goal of improving access and literacy can be attained by preparing for learners on all scales (Cisco, 2008). Abrahams and Sibanda (2012:59) state that South Africa's ability to promote inclusive growth depends on producing successive generations of well-educated young people contributing to socio-economic development.

Chapter Summary

This chapter outlines that educational innovation and creation at schools will never be easy as it is done on a large scale. However it can be less difficult if we look beyond the challenges and try to find solutions to the problems. Once implemented at schools, begin with the basics, allow educators to use multimedia at least twice a week in the classroom. Whether it is watching a DVD to demonstrate a chemical reaction in science, browsing the Internet to get information for an assignment, a PowerPoint presentation to illustrate a business plan and the list is endless. This will allow educators and students to become eager to engage in the learning process. Soon the challenges become a thing of the past as solutions fall into place regarding any problems experienced. The main focus should be creating and customising multimedia lessons to adequately suit the needs of students to make learning easy (Jonassen *et al*, 2012). In addition to try and align ourselves in South Africa with educational

technology to that of developed countries who are successfully implementing e-learning at schools. Therefore the next chapter analyses the technological programmes that are used in South Africa.

Chapter 5

Educational Computer Programmes Used in South African Schools

Introduction

Although our country faces many challenges with the implementation of technology at schools, majority of students are still able to matriculate. BuaNews (2012) reveals that the Department of Education was elated with the 70.2% matric pass rate in South Africa in 2012. Our country should be aiming much higher though. Mathematics and Physical Science at secondary level is still a major issue in South Africa. Some schools are currently using ICT programmes and are reaping the benefits of being rewarded great results from learners. But there are still a large percentage of schools that are still living in the 'stone age' and the learners are the ones suffering. ICT is readily available and educators should be using it to their advantage to manipulate the situation by using interactive programmes that learners enjoy and can quickly become familiar with. Perhaps the problem lies with the educators who are struggling and are unable to use ICT appropriately. But there are a variety of programmes that are now available to all public schools as the government is trying its best to increase the use of ICT at schools.

Globally ICT is one of the most rapid development technological fields. Far reaching changes are taking place all over the world. A range of instructional reforms are under way. ICT educational revolution is the focus area of education reform. Countries are stressing on professional development for teachers to utilise and integrate ICT into a modern curriculum. Therefore this chapter discusses some of the programmes being used in South African schools. It will also be looking at ICT integration into education and the success of social media in three other countries.

Intel Teach Program

Intel Education (2011) recognises that South Africa faces many challenges in incorporating information and communication technology (ICT) in its education system, including limited access to technology, a lack of teacher computer literacy, and a need for methodologies to help students use technology. However, with the Intel Teach Program, South African teachers are learning to effectively integrate technology in the classroom and bring 21st century skills such as digital literacy, problem solving, critical thinking and collaboration to students. The Intel Teach Program provides a hands-on approach to ICT learning opportunities for teachers

by providing training which exposes them to new methods for creating assessment tools and aligning lessons with educational learning goals and standards.

The Intel Teach Program has helped to improve ICT usage and knowledge among South African teachers and they are better prepared to promote and develop 21st century learning amongst students. Mercy Ntlemo, an educator in a semi-rural region in the Limpopo province discusses the Intel Teach Program. Her school was lucky enough to have a room equipped with computers donated by Telkom. But many teachers lacked knowledge and training to integrate technology in the classroom. Mercy then enrolled in the Intel Teach Program tailored to assist teachers integrate technology effectively in the classroom. The main objective is to assist students build 21st century skills. She is now a mentor at her school and helps her colleagues.

As a result of the Intel Teach Program, Ntlemo says that technology is now an integral part of the curriculum at her school, and project based learning is the norm. Intel Education (2011) claims that due to the improved teaching and student performance in Limpopo, the premier's office in that province has allocated millions to expand ICT in schools. Schools in South Africa differ widely with regard to resources, management expertise, teacher capacity and commitment. This is due to the apartheid regime, even provincial differences regarding managing capacity and financial status further complicate the situation. During the apartheid era, 19 separate education departments existed organised on the basis of race, race and ideology. Since 1994, the education system has been engaged in a transformation process in South Africa. The curriculum development is trying to move towards learner-centred approaches.

While statistics for technology access in South Africa may seem bleak, it should be noted that the number of schools with computers for teaching and learning has increased by 12.3 percent between 1996 and 2002. Further, in an e-Education white paper released by the South African Department of Education (2003), the government committed to ensuring that all schools have computers by 2013. The Intel Teach Program was launched in South Africa in January 2003. It is adapted in each country to address detailed needs and focuses on teacher training and technology innovation.

The University of Pretoria and SchoolNet SA (SNSA) initially localised the Intel Teach Program in South Africa and has gone through various revisions (Intel Education, 2011). Thorough attention is paid to the roles of curriculum outcomes and assessment strategies at an early stage of planning. The emphasis on a strong focus question ensures that learners are challenged to think at higher levels as they process the information they have gathered during

research. The Intel Teach Program has gained acceptance across all nine provinces at both primary and secondary schools. Intel Education (2011) reports to date 35,000 South African educators from 852 schools have taken part in the Intel Teach Program, and 783 facilitators have been trained to deliver the program curriculum. Future plans for the Intel Teach Program in South Africa include a well-structured, capacity-building program for provincial department personnel. The programme helps local teachers build capacity by training departmental officials in each province who then train facilitators at each school. These facilitators then train other teachers at their school and are on-site for on-going support.

This will ensure the sustainability of the program and, thus, the long-term support for teachers in the integration of ICT across the curriculum.

Electronic Smart Boards

As a teacher, imagine being away from school a week before the examinations and students are frantic (Tabe, 2005). But a teacher, Ron Bayers has found a solution, an electronic smart board. Students are seated in a computer lab at Gatang high school in Mamelodi, a poor black area outside Pretoria whilst Bayer is located several kilometres away at St Alban, a private school. But the class interacts easily through a wireless broadband connection, which allows high speed transmission of sounds, images, graphics and other information. There are web cameras at both ends of the classroom so the teacher has a clear view of the class on a screen at his school and students can hear and see what he does at their school. Both use an electronic smart board which instantaneously shows what's written on them (Tabe, 2005).

Due to a lack of teachers, facilities and textbooks at their school, students from Mamelodi were taken by bus to St Albans for extra lessons in a variety of subjects. Little investment was made for black children during the apartheid who were seen destined for the unskilled labour market. But the use of buses still limited the number of children being transported. This set the platform for e-learning which begun in 2003 at five schools. The Mamelodi e-learning was headed by Bayers. According to Tabe (2005), Bayer stated that the availability of wireless broadband communication technologies and other state-of-the-art hardware and software tools led us to the vision that these might be harnessed for modern knowledge-sharing and teaching methods (Tabe, 2005). Students enjoyed it too claiming that it made science easy and paved the way for them to university.

SchoolNet SA

Intel Education (2011) discusses that SchoolNet SA provides training and course materials to suit all types of teachers and education managers. Using specialised training SchoolNet hopes

to enhance and transform learning to another level. SchoolNet conducts educational competition to promote innovation and they work together with the provincial Department of Education to conduct ICT teacher development programmes. SchoolNet SA started as a national organisation during the 1900s by volunteer educators and innovative thinkers. It was formally founded in 1997 with the support of the Department of Education and several corporate sponsors. It was a funded project by the Canadian International Research and Development Centre till 2001. Then it became a Section 21 non-profit organisation. Decisions and content included in the e-Education White Paper and the Teacher Development Framework were influenced by SchoolNet SA. SchoolNet SA (2010) embraces the following:

- Addressing the needs and interests of educators.
- Skills development, courses and events that will be immediately meaningful to educators in the classroom.
- Developing capacity in people to sustain better teaching, learning and school management.
- Lesson improvement skills.
- Finding appropriate ways to use ICT as a resource to enhance learning.
- Using ICT to learn, not just learning to use ICT.
- Helping to make teachers more innovative.

SchoolNet strives to:

- Influence decision-making in the interests of a better education for all.
- Support teachers to integrate ICT in imaginative ways.
- Provide quality courseware for teacher professional development in ICT.
- Be the thought leaders for ICTs in school education.
- Empower and support departmental officials, schools, teachers and learners in the effective use of ICTs.
- Grow excellence in training and project management.
- Develop stronger support and liaison with schools and provincial education structures.
- Increase volumes of teachers effectively trained in and implementing ICT integration.

In South Africa, Microsoft is using SchoolNet SA as part of a five year intervention plan to develop ICT teacher skills and integration training programmes. Since January 2005 more than 20 000 teachers have received training. Currently Microsoft is funding provinces to

provide capacity building and train provincial personnel in all programmes. SchoolNet SA (2010) discusses the partners who have either funded training or adopted aspects of it including: Telkom Foundation, Nelson Mandela Foundation, Oprah Winfrey Foundation/Cisco, Angloplat, Lonmin, NEPAD, ISETT SETA, Multichoice, Thutong, Vodacom Foundation, SITA, WITS University, Provincial and the national Department of Education.

SchoolNet SA (2010) highlights the following courses that are currently offered by Partners in learning:

ICT Skills for Teachers / Principals
Caters for a range of computer experience - teachers / principals choose their own activities and their required level.

One Step Further
A bridging course that takes teachers one step further on from basic skills and leads teachers to other courses such as WebQuests and Intel Teach.

ICT Integration (WebQuests)
Structured but simple ICT integration projects explained and modelled - teachers adapt existing WebQuests.

ICT Leadership for Education Managers
Targeted at school and district managers it is about how to manage ICT facilities including budgeting and school ICT readiness.

Peer Coaching
Teachers sharing ideas among peers - peer-centred whole school staff development in ICT integration and lesson enhancement- conducted as "a series of quiet conversations".

Student Help Desk
Technical support training - for students and teachers in school clusters - establishing a help desk to support own and neighbouring schools

Innovative Teachers Forum
Innovative Teachers Forums are a set of national, regional, and worldwide events that identify and reward exceptional examples of the effective use of technology in the classroom.

Innovative Schools
The extent to which a school can innovate depends a great deal on its environment. The Innovative Schools 6 i Process provides an effective framework for decision making that guides each school in finding the right answers for that particular school.

**Innovative Universities**	
This programme provides a strategic ICT integration guide for leaders of teacher education institutions (TEIs). It includes a TEI toolkit for evaluating current status and planning implementation as well as the opportunity to adopt, customise and collaborate on sample pre-service courseware.	

**Source: SchoolNet SA (2010)**
**Table 1: Courses currently offered by Partners in Training**

SchoolNet also has a course called Sizanani. Sizanani is a programme that SchoolNet South Africa has developed for the non-formal education sector to use. This course targets high schools learners, youth outside school and members of the community utilising a computer for the first time. Those wishing to participate will work in groups over 12 workshops and thereafter provide community services through their ICT skills. Training takes place at schools, community centres or suitably equipped centres. Participants are exposed to various programmes being used daily. On completion of the course they receive a certificate.

NEPAD e-Schools Initiative

New Partnership for Africa's Development (NEPAD) publicly launched its e-schools initiative at the Africa Summit of the World Economic Forum in Durban on 12 June 2003. NEPAD aims to ensure that the youth of Africa graduate from school with the skills that will allow them to effectively participate in the global information society. The initiative hopes to import ICT skills to primary and secondary learners and use ICT to improve and expand education throughout Africa. The project was executed using a holistic approach which included infrastructure, content, curriculum development, ICT training for educators and community development. The objectives of the programme outlined by NEPAD (2008) are:

- To provide ICT skills and knowledge to primary and secondary school students that will enable them to function in the emerging Information Society and Knowledge Economy;
- To provide teachers with ICT skills to enable them to use ICT as tools to enhance teaching and learning;
- To provide school managers with ICT skills so as to facilitate the efficient management and administration in the schools; and
- To make every learner health literate.

Throughout the African continent various schools are participating in the NEPAD e-schools initiative. In South Africa the following schools are involved in the programme: Isiphosethu High School, Thozamisa High School, Lomahasha Secondary School, Ipetleng Secondary

School, Hendrick Makapan High School and Maripe Secondary School. Various partnerships have been fostered between the private sector and government to contribute to the development and implementation of the NEPAD e-school initiative. NEPAD (2008) discusses that there are other partners, who are contributing to the development and implementation of the NEPAD e-Schools such as The South African Department of Communications, International Telecommunication Union; South African Council of Industrial and Scientific Research (CSIR)-Meraka Institute; the Commonwealth of Learning together with InfoDev; African Development Bank; and many others. NEPAD e-schools have already been launched in nine countries. The countries are Egypt, Ghana, Kenya, Lesotho, Mali, Mauritius, Rwanda, South Africa and Uganda. Regular monitoring and evaluation of the project assists to highlight any issues that may arise.

Dimension Data

Dimension Data is an ICT provider that was founded in 1983. Muzata (2011) reveals that Dimension Data is an ICT services and solutions provider that uses its technology expertise, global service delivery capability and entrepreneurial spirit to accelerate the business ambitions of its clients. Dimension Data in partnership with the Dambuza Community Development Trust successfully launched the Dambuza e-learning centre on the 11 October 2011 in KwaZulu Natal. This is a computer skills training centre for the benefit of the Dambuza community. In addition two schools, Kwapata High School and Nyonithwele high School also have e-learning centres which are beneficiary to the learners and educators in Dambuza. ICT will give the two schools access to technology applications to demonstrate amazing innovation whilst still supporting the curriculum being used.

The Dambuza centre will support the conventional six curriculum subject areas which comprises of, Mathematics, Physical Science, English Home Language, English First Additional Language, Life Orientation and Accounting for grades 10, 11 and 12. The e-learning programme hopes to increase the pass rate and assist in improving the quality of secondary education in the areas (Muzata, 2011). The schools centres are fully equipped with the needed equipment and teachers have been trained to utilize the system to its optimum. They are given aids to prepare lessons using innovative materials. ICT aims to bring the subject curriculum to life and encourage active learning.

All the e-learning material used is endorsed by the Department of Education. The project was first piloted in Gauteng in 2006 using 14 schools and the results were outstanding. Muzata (2011) announces that Dimension Data decided to expand and launched e-learning centres at

three schools in Umlazi, KwaZulu Natal in June 2011. Thus far 25 700 learners from beneficiary schools nationally have benefited greatly.

The Success of Social Media in Other Countries

Canada

One of the world's leaders in ICT in education is Canada. All primary and secondary schools have access to the Internet. A pupil computer ratio is 6.5:1. According to Richardson (2000), the national vision states that:

ICT contributes to developing intellectual skills, problem solving abilities and communication skills. It aids in the development of a solid, multidisciplinary approach to the learning and the mastering of skills necessary for the selection, processing and analysis of information, enabling pupils to develop critical thinking skills directly linked to using ICT and to navigate on telecommunication networks. These skills underlie the capacity of students to learn 'differently'.

The implementation strategies involve three key levels:

- **Schools** – schools develop their own ICT integration plan. Educators play a vital role in drawing up the plan. A team from the Department of education and a website is set up to support all the efforts of the school. Once ICT integration priorities are set, they then budget accordingly. An approximate annual budget of 60 million dollars is allocated to schools to purchase computers and to connect to the Internet.

- **Ministry of Education** – the ministry is responsible for the co-ordination of the projects involving schools and communities. They are also responsible for the promotion, adjustments and getting the private and public sector to contribute.

- **Teacher training, innovation and research** – graduate educators and trainee educators are usually not well equipped for integrating ICT into teaching practice. Therefore the ministry has undertaken various measures to try and find solutions to address this issue. Universities are working with schools to record the best ways of implementing ICT into teaching practice.

Trainee educators will have to complete practical training at schools utilising ICT in the classroom. 300 000 dollars is budgeted to support innovation and research projects and 400 000 dollars to finance new projects and promote exploration of ICT in schools. The ministry has set high standards at schools for the implementation of ICT at schools in Canada.

Schools rely on the assistance of websites like SchoolNet to provide support. They are also given support from outside school sources and many schools have an IT agent.

Factors contributing to the success of implementing ICT at schools are team work, training and student mentoring. Primary and secondary schools use ICT as a tool across the curriculum. New methods of assessments are being introduced such as electronic portfolios and comprehensive assessment strategies. A vital factor which also contributes to the success of ICT implementation in Canada is the high level of parent support. The close links between schools and families along with the effort of the ministry and media raise the importance of ICT in education in Canada.

India

When it comes to ICT implementation in schools India has always tried to play an active role. Being a developing country India has proved to be a successful ICT powered nation even in the education sector. The easy access to learning resources and anytime-anywhere factor of ICT acts as a motivating tool to engage learners in the learning process. Addison (2010) reports that the vision of ICT is to create a competitive, sharp India which is resplendent with knowledge, research, creativity and innovation. India found that ICT in education had numerous advantages for them:

- Access to exam results online.
- Ability to register at educational institutions online.
- Distance education.
- Virtual classrooms.
- Online textbooks.
- Scholarship information.
- Online sample papers.
- Education opportunities overseas.

The benefits however of ICTs in India has not reached its target yet as many rural areas have minimal level of ICT facilities. Government has begun providing ICT facilities in rural areas but many are working properly. The implementation of ICT in rural areas needs to benefit the requirements of the rural learners. Rural learners need knowledge on ICT education and its usage first before implementing it. Learners in rural areas have little knowledge about the benefits of ICT. The educators therefore play an important role in educating learners on the importance of ICT education (Addison, 2010). By allowing all learners to equally use and

implement ICT, it will give learners the opportunity to improve their education by using world technological developments (Pandor, 2007).

New Zealand

The world's highest access to telecommunication per capita is New Zealand. The cost of accessing the Internet is also very low. ICT strategies since 2002 have been developed by various key players in the public and private sector. The ICT strategy recognises that the focus must be on extending and deepening educational experiences. Research and feedback in New Zealand has shown that no single model will ensure that ICT is used to its greatest effect in every school. New Zealand's ministry believes that informed high quality leadership is essential to bring about improvements. Teachers need to transform their practice and use technology with confidence. They also need to support partnerships and community initiatives which help to fund ICT integration at schools. According to the United Nations Educational Scientific and Cultural Organisation (UNESCO) (2010), the vision states that all students, irrespective of their backgrounds, develop the knowledge, understandings, skills, and attitudes, to participate fully in society, to achieve in a global economy, and to have a strong sense of identity and culture. The goal of the ICT strategy is to enhance the development of students' knowledge, understandings, skills, and attitudes through the appropriate and effective use of ICT. The New Zealand curriculum framework supports ICT integration in education. UNESCO (2010) suggests that the strategy supports the framework, which:

- establishes direction for learning and assessment in New Zealand schools;
- fosters achievement and success for all students;
- provides for flexibility, enabling schools and teachers to design programmes which are appropriate to the learning needs of their students;
- encourages students to become independent and life-long learners;
- reflects the multicultural nature of New Zealand society;
- relates learning to the wider world.

New Zealand has found that ICT in education has help develop a wider range of skills for learners and has helped maintain their multicultural nature. By working together as a whole they expect to achieve their goal faster and enhance education for all.

Chapter Summary

This chapter explained the computer programmes offered to South African schools. South Africa is trying to align itself technologically with other countries but the education system is still failing. Pandor (2007) accentuates that:

"In our country, we have a strong commitment to ICT in education, bringing ICT connectivity to our schools and education institutions will and must happen. It is our belief that ICTs in Education should integrate teaching and learning with access to infrastructure. Key to reaching this objective is the successful integration of teachers into this process."

As stated in the September 2003 Draft White Paper on e-learning South Africa should have been well on its way to success as education authorities indicated that by 2013 they aim to have a computer in every school. But the reality is very few even know how to use a computer. All programmes discussed in this chapter aim at assisting and equipping the educator with the correct tools to enhance lessons. The education system has begun implementing its transition towards more learner-centred approaches. An analysis of the three countries discussed shows that ICT integration into the education system and curriculum makes learning fun, entertaining, easily accessible and beneficiary to all. With technology always upgrading, schools always have a new learning tactic to explore and implement. The benefits of ICT integration in education are often endless. The Department of Education needs to review and revise whether ICT is being adequately utilised by educators and learners at schools across the country. The next chapter reveals the changes taking place within the education sector.

Chapter 6

The Department of Education and its Changes

Introduction

The previous chapter highlighted that South Africans do have access to programmes that can help enhance technology in the classroom but is it actually be utilised to its optimum. Although the Department of Education (2003) emphasises that they are working together with provinces to provide relevant and cutting edge quality education for the 21st century. With the failure of the Outcomes Based Education (OBE) system, the old curriculum was brought back. While many agree that the old education system is still the best, our country desperately needed the change. This year the Department of Education implemented its new Curriculum and Assessment Policy Statement (CAPS). Although sceptics believe it will also be a failure. The Department of Basic Education (2011) reports that the National Curriculum Statement Grades R-12 gives expression to the knowledge, skills and values worth learning in South African schools, this curriculum aims to ensure that children acquire and apply knowledge and skills in ways that are meaningful to their own lives, in this regard, the curriculum promotes knowledge in local contexts, while being sensitive to global imperatives. Therefore this chapter discusses the Department of Education and its changes taking place.

Policy and Procedure

In 2001 the Presidential National Commission on Information Society and Development (PNC on ISAD) comprising of representatives from the public and private sector was established (Department of Education, 2003). The government is advised by the commission on how to maximise the use of ICTs. Simultaneously a Presidential International Advisory Council on Information Society and Development (PIAC on ISD) was established. The council was made up of chief executive officers from major international corporations and active experts in ICTs. The Advisory Council's core function was to advise the government on addressing the digital divide. In September 2002 at their second meeting, the Advisory Council identified three main areas to develop ICTs, which is education, health, small, medium and micro enterprises. The Electronic Communication and Transactions Act (2002) through the Department of Education leads all ICT initiatives in South Africa (Department of Education, 2003). This act called for the development of a five-year nation e-strategy. Through ICTs South Africa is expected to 'leapfrog' into the 21st century. There was also the

challenge of compiling an ICT profile of South African schools as all provinces were at different levels of ICT integration. The focus areas of South African schools are ICT professional development, electronic content, resources, infrastructure and connectivity. The Government Gazette No. 26762 (2004) comments that the Telecommunications Act 103 of 1996 and amended in 2001, called for the development of an Educational Network and the implementation of an e-rate (a discounted connectivity rate) for General Education and Training (GET) and Further Education and Training (FET) institutions. A census conducted by Statistics South Africa (2010) implies that at schools there hasn't been much change with regards to Internet and email access at schools since 2001 to 2009, although there has been a notable increase of computers at schools. Table 1 illustrates facilities at schools from 2001 to 2009.

Facilities and services at school

	Maths teacher	Electricity	Running water	Library	Computer	Email	Internet
C@S2001	64,0	52,7	48,4	20,1	23,6	13,4	12,7
C@S2009	68,6	65,9	60,5	24,6	53,0	14,7	14,5
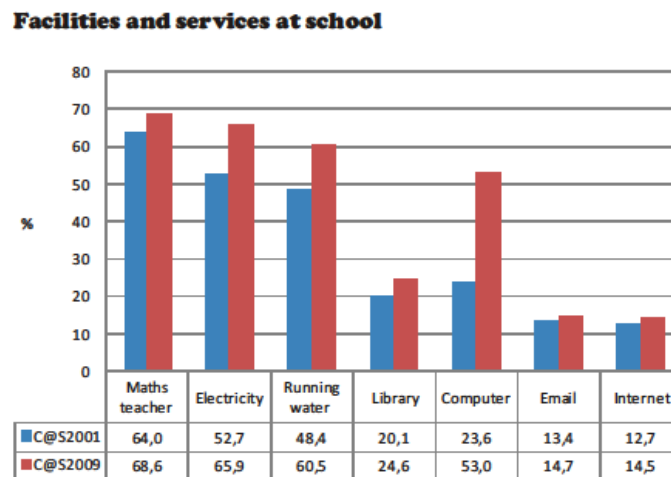
Source: STATSSA (2009)
Table 2: Comparison table between 2001 and 2009 (Census at schools)

The e-education policy goal according to the Department of Education (2003) declares that, every South African learner in the general and further training bands will be ICT capable by 2013. The intention of the policy focuses on learning and teaching a new generation of youngsters growing up in the technological 21st century. This is a reality and GET and FET must reflect these changes. The Government Gazette No. 26762 (2004) states that the policy intention is not just to build technical skills, but also to use ICTs to extend and enrich educational experiences across the curriculum, the objective is to build digital and information literacy so that all learners become confident and competent in using technology to contribute to an innovative and developing South African society. Once ICTs are

embedded in the learning and teaching process, it can be adequately used as an assessment tool in conjunction with other methods. Figure 3 illustrates the policy framework which underpins the key elements used in ICTs teaching and learning.
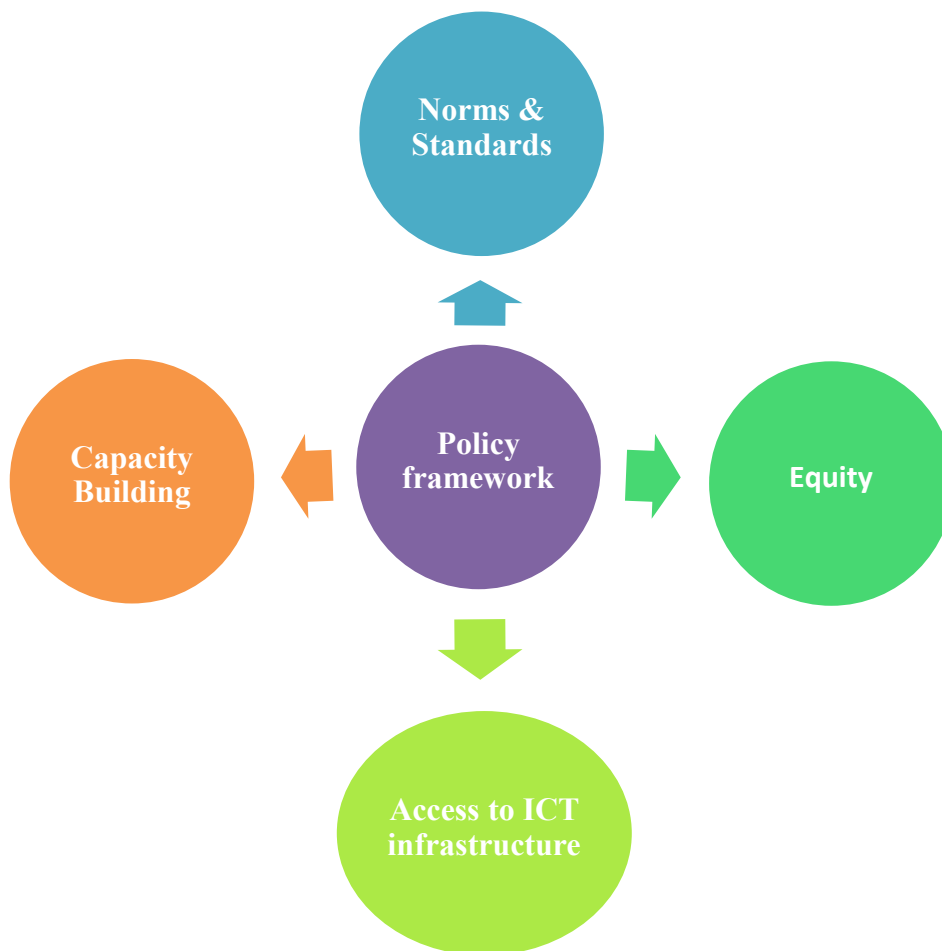
Source: Government Gazette (2002)
Figure 4 :The Policy Framework

- Equity – equal access and equal competence should be the objective of the education system.
- Access to ICT infrastructure – learners must have regular access to reliable infrastructure for e-learning to be successful.
- Capacity building – many educators had limited access to electronic technology when growing up. Therefore they need to rethink and reshape their way of thinking of the curriculum and adapt to ICT integration. Hence on-going staff development and support training will be given to educators.

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- Norms and standards – the need for national norms and standards for educational ICTs must be adhered to in order to ensure equitable access to learning for all South Africans.

The Government Gazette No. 26762 (2004) explains that e-Education will enhance the development and growth of the relevant existing legislation and regulation such as Telecommunication policies and national e-strategy. It is the responsibility of the government to ensure that the benefits of e-learning are enjoyed by everyone and it should be the focal activity of every educational institution. The e-education policy provides a strategic framework for national co-ordination for all South Africans to implement e-education. Annual reports on the status of e-education in South Africa are delivered by the Advisory Council to advise the Department of Education on implementation. An e-education inter-departmental team is responsible for monitoring and managing the e-education policy. Regular evaluations should be carried out and the information aggregated at district, provincial and national levels.

Curriculum and Assessment Policy Statements (CAPS)

In 2009 a Ministerial Task Team was appointed to identify the challenges and areas that impacted negatively on the quality of education at schools and find means and ways to address these areas (Department of Basic Education, 2011). They made several recommendations to improve the curriculum. The Minister of Basic Education decided to implement the recommendations of the Task Teams Report. A Ministerial Project Committee was appointed to oversee the changes and development of the Curriculum and Assessment Policy Statement (CAPS). The Department of Basic Education (2011) asserts that the National Curriculum Statement Grades R-12 serves the purposes of:

- equipping learners, irrespective of their socio-economic background, race, gender, physical ability or;
- intellectual ability, with the knowledge, skills and values necessary for self-fulfilment and meaningful participation in society as citizens of a free country;
- providing access to higher education;
- facilitating the transition of learners from education institutions to the workplace; and
- providing employers with a sufficient profile of a learner's competences.

The Department of Education does not want to waste time and wants to implement these new strategies as soon as possible so that the learners and teachers can reap the rewards quicker (Department of Basic Education, 2011). The implementation of CAPS is as follows:

- 2012 : grades R – 3 and grade 10
- 2013 : grades 4 – 9 and grade 11
- 2014 : grade 12

The changes also include the weighting of school-based assessments (SBA) and end of year examinations as indicated in the table below.

Phase	Examinations (%)	SBA (%)
Foundation Phase	0	100
Intermediate Phase	25	75
Senior Phase	60	40
FET Phase	75	25

Source: The Department of Basic Education (2011)
Table 3: Mark Allocation to be used at schools

A rating scale will be used in all phases as indicated in the table below.

Achievement Description	Marks (%)	Achievement Level
Outstanding Achievement	80 – 100	7
Meritorious Achievement	70 – 79	6
Substantial Achievement	60 – 69	5
Adequate Achievement	50 – 59	4
Moderate Achievement	40 – 49	3
Elementary Achievement	30 – 39	2
Not Achieved	0 – 29	1

Source: The Department of Basic Education (2011)
Table 4: Rating Scale to be used at schools

Time allocation also changes in the foundation and intermediate phases, new timetables have been already issued and are being used by schools. The implementation of CAPS brings about new changes including:

- New textbooks and resource materials for grades R – 12.

- Training of all personnel.

- Communication between parents and learners.

There are also changes with regard to the learning areas. A second language will be introduced from grade 1. The number of learning areas in the intermediate phase (grades 4 – 6) has been reduced from 8 to 6 areas. Science and Technology will be combined. Economic Management Sciences will be removed from the curriculum but incorporated in Life Skills. CAPS have also made provision for learners who experience barriers to learning (Department of Basic Education, 2011). Although many schools in South Africa offer basic computer classes to public primary and secondary schools, little emphasis is being made on the content taught. With the introduction of CAPS, they have included Computer Applications Technology (CAT) as a learning area option for grades 10 – 12. CAT involves the study of the integrated components of a computer system and practical techniques which can be used on a daily basis. The diagrams below indicate the topic areas and weighting of CAT at secondary schools.
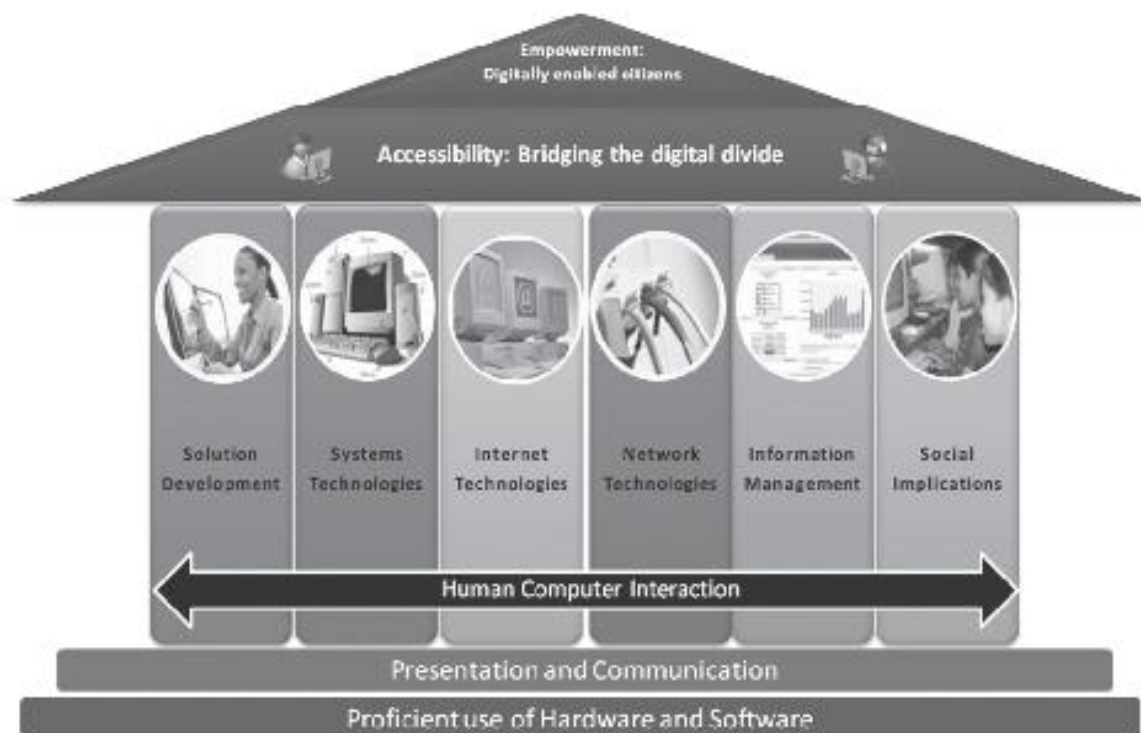
Source: The Department of Basic Education (2011)
Figure 5: Topic Areas of CAT

Computers are incorporated into Technology at public schools but due to the lack of infrastructure, limited resources and expertise, it is not a prerequisite to complete computers at school. Therefore government and the Department of Basic Education need to focus on education for the 21st century. The Department of Basic Education (2011) suggests that many learners at public schools prefer not to select Computer Applications Technology as a subject because they have little knowledge and training on the computer and find it difficult. Therefore schools need to implement computers on a professional level from an early age instead of making learners share computers and just play around with the same old programmes. Schools need to use interesting methodologies to get learners involved. That is where learners attending private schools have an added advantage. They are usually computer literate from a young age, whilst majority of children at public schools know very little about computers even in high school. So is there really equity after all. ICTs need to be one of the main areas at schools not just a subject option at secondary school (Department of Basic Education, 2011).

Annual National Assessment (ANA)

Government insists that education is the number one priority as the quality of education has been a major concern. For many years South Africans had only one object measure of learners' performance which is the National Senior Certificate Exams in Grade 12. From grades 1 – 11 assessments and tests are internally set and marked. Educators judged learners and felt majority of learners could move to the next grade. Yet the grade 12 results tell a different story as many fail to pass knowing the basics. Since 2001 many evaluations and tests were conducted indicating that many South African schools are not performing as expected (Department of Basic Education, 2011). A vital introduction into the schooling system in order to improve the quality of learner attainment was the Annual National Assessment (ANA). ANA tests two core areas of learning which is literacy and numeracy. All children across South Africa in grades 1 – 6 have to write this assessment. The Department of Education (2011) mentions that the primary purposes of these tests are to:

- Provide each school with an objective picture of their learners' competency levels with respect to these two areas using nationally benchmarked tests that are aligned to the curriculum;
- Provide them with an analysis of the areas of difficulty experienced by their learners;
- Assist them to design teaching programmes that are targeted to improving actual learning in the classroom;

- Set realistic improvement targets for individual learners and for the school and
- Help parents understand better how their children are performing and how they can help them do better.

For educators ANA is a 'diagnostic tool' as it allows educators to identify problem areas and difficulties learners are experiencing. Remediation of those areas can take place and educators can focus on those areas. It also provides model assessments showing educators various types of questioning techniques and levels of difficulty. Assessments need to cater for all learners. Educators should use ANA as an opportunity to improve learning (Department of Basic Education, 2011). Think of using ICTs to enhance and exaggerate lessons to benefit the learners. All schools must have a plan of action. Once assessments are written, it must be marked, analysed and sent out to parents by the end of February. Schools which underperform will be visited by district officers to discuss performance and improvement plans. At the end of April the national results will be released. All grades participating should aim for 60% and above as that is the target for 2014.

Curriculum Planning

Zuma (2011) emphasised to his administration team how important resources for learners are in his 2011 State of the Nation address by saying "ensure that every child has a textbook on time". Educators are being prepared on all levels for the implementation of CAPS. All phases will be given a detailed breakdown of the structure and content for the relevant learning areas. All foundation phase educators began training last year during the April holidays. The Department of Education (2011) reports that training sessions conducted were underpinned by the following principles:

- A mix of interactive activity-based and discursive
- Presentations; modelling of participatory, collaborative and cooperative learning practices;
- A focus on strengthening participants' content and conceptual knowledge of the Curriculum and Assessment Policy Statements (CAPS);
- An emphasis on classroom practice, pedagogy and teaching methodology; and
- Lesson planning and school based assessment practices.

Training for CAPS in the other phases will begin this year. The Department of Education wants to ensure only 'high quality material' is offered to schools and learners having adequate support resources they need. The process of selecting quality material involved the Department of Education electing a specialist committee for each learning area. This

committee filters and selects materials aligned to the curriculum. Selected material is rated and only the best is shortlisted. Nationally schools are given the catalogue and they select the resources they require. Schools then forward the requisition to the Department of education so books can be delivered on time.

The implementation of CAPS has also assisted to ease the added pressure and stress on educators by providing a step-by-step guide in each learning area. Curriculum planning is vital for educators to provide quality education. Lesson plans are provided in detail with yearly and quarterly plans. Educators' files need to be in order as they do not have any excuses now and regular audits will be conducted. Educators must prepare and know the content of each lesson before entering a class to ensure quality education. Management is responsible for conducting workshops and staff development programmes to ensure educators are updated regularly. This will allow our education system to get back on track and move slowly into the 21st century (Department of Basic Education, 2011).

Chapter Summary

This chapter provided an insight to the changes expected to take place at all public schools. Some schools have already begun implementing these changes successfully. Department of Basic Education Minister, Angie Motshekga announced that CAPS was becoming the new education policy (The Department of Education, 2011). The implementation of CAPS hopes to bring about the transition that South Africa desperately needs. Educators need to manipulate the situation by using the content of the curriculum to stimulate the young minds of learners. All personnel need to utilise the resources given and go beyond what is expected by using technology to access information that is readily available. Educators must set improvement targets and must not settle for second best. The youth of South Africa deserve the best; therefore we need to strive for the best. The Annual National Assessment will give a clear indication and true reflection whether or not the changes taking place has a positive effect on the education system. Therefore schools need to be strict in reinforcing the policy and procedures expected of them. The following chapter will explore Augmented Reality applications.

Chapter 7

Augmented Reality Learning applications

Introduction

The previous chapter highlighted the new policies and transitions taking place at public schools. This chapter focuses on how Augmented Reality (AR) combines the real world content with virtual world and can be efficiently used in pedagogics. Hopkins (2010) asserts that augmented reality has the goal of enhancing a person's perception of the surrounding world, being partly virtual and real, and the new interface technology of AR which is able to display relevant information at the appropriate time and location and offers many potential applications. AR learning allows people to perceive the real world and adds an extra learning layer to it. It provides more information and is portable because it can be linked to mobile devices. Learning does not have to be confined to a desk and chair. The learning environment should cater for learning in a variety of ways using a range of technologies to provide the relevant information.

Augmented Reality

The Educause Learning Initiative (2005) states that the goal of augmented reality is to add information and meaning to a real object or place. Unlike virtual reality, augmented reality does not create a simulation of reality. Instead, it takes a real object or space as the foundation and incorporates technologies that add contextual data to deepen a person's understanding of the subject.

Martin (2011) suggests that AR brings users information that exists in the digital world and presents it in tight association with things in the real, or physical world, automatically and intuitively and can be seen as the latest stage in information search, viewing and ultimately its easy manipulation by the user. Martin (2011) further suggests that the AR experience is produced in three stages:

- Sensors in the user's device (such as camera, GPS and/or compass, microphone, even a thermometer) detect a "condition" in the local environment—the visual image of a recognizable geographic feature like a mountain or famous building, for instance. The same sensors detect the user's pose relative to the scene or objects.

- The application or "system" finds the digital data (any text, image, 3-D model, video, URL, sound, etc.) that has previously been associated with the specific condition in the local environment identified by the sensor.
- The digital information is presented visually (or aurally) to the user in such a way that it is synchronized with the real world. It is only presented as long as the condition remains the same. When the user's condition changes (for example, he moves away from the object), the digital information disappears or is replaced with new information if the sensors are triggered by another condition.

Inash (2012) avers that AR can be used as a tool by educators since it provides the opportunity for discovery and experiential practices creating more opportunities for students. Augmented Reality provides students with the opportunity to create or utilise connections between real objects or places with virtual contextual information (Inash, 2012). AR can easily transform boring lessons into fun filled learning experiences.

Dolz (2012) asserts that in mathematics and geometry the main advantage of using an AR system is that students actually see three dimensional objects which previously they had to calculate and construct with traditional methods.
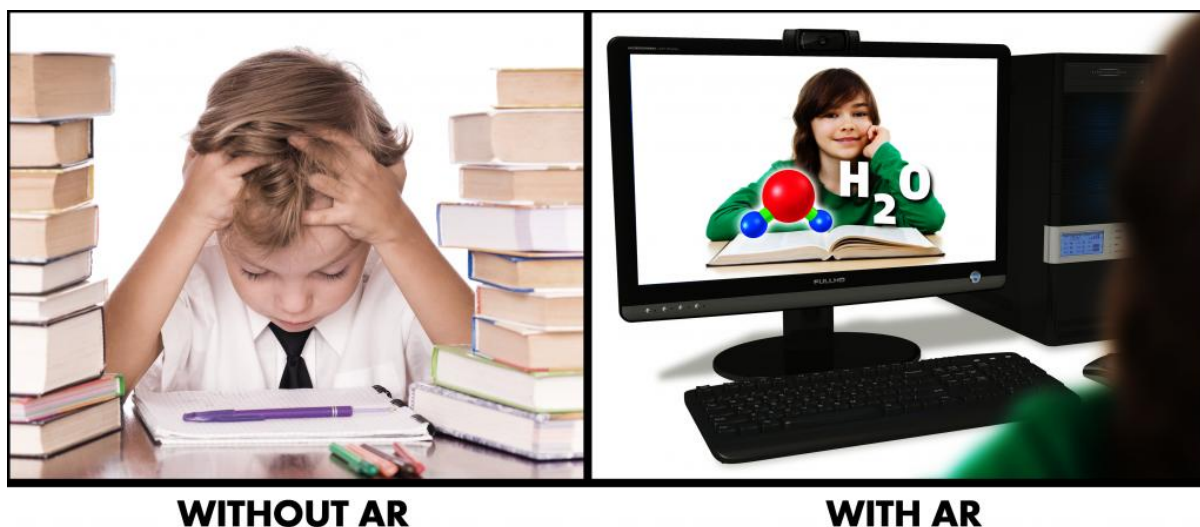
Source: Dolz (2012)
Figure 6: Learning with and without AR

How to use AR:
- In Life Science to explain the human body and its main components becomes a breeze.
- Identifying word types in English is now simpler and easier to grasp.
- For experiments in Chemistry allows students to comprehend much quicker.

To begin implementing AR in the classroom requires some programming skills. The most common use of AR experimentation is open-source software that can be downloaded from the web such as the AR Toolworks Toolkit. The AR Toolworks utilises visual recognition to track and locate objects in the user's environment and enhances it with still or moving digital data (Inglobe Technologies, 2011).

The diagram below illustrates an example of AR Toolworks.

Source: Inglobe Technologies (2011)
Figure 7: An example of AR Toolworks

Android and iPhones utilise web-based platforms of information layers detecting and matching the user's environment with digital data and overlays a digital file on the smartphone screen (Martin, 2011).

The diagram below illustrates an example of AR layers.

Source: Belic, D. (2011)
Figure 8: An example of AR layers

Hopkins (2010) discusses the following benefits and drawbacks of using AR:

Benefits

• Augmented Reality is set to revolutionize the mobile user experience as did gesture and touch (multi-modal interaction) in mobile phones. This will redefine the mobile user experience for the next generation making mobile search invisible and reduce search effort for users.

• Augmented Reality, like multi-modal interaction (gestural interfaces) has a long history of usability research, analysis and experimentation and therefore has a solid history as an interface technique.

• Augmented Reality improves mobile usability by acting as the interface itself, requiring little interaction (this Interaction Design technique is known as Direct Manipulation). Imagine turning on your phone or pressing a button where the space, people, objects around you are "sensed" by your mobile device- giving you location based or context sensitive information on the fly.

Drawbacks

• Content may obscure or narrow a user's interests or tastes. For example, knowing where McDonald's or Starbucks is in Paris or Rome might not interest users as much as "off the beaten track information" that you might seek out in travel experiences.

• Privacy control will become a bigger issue than with today's information saturation levels. Walking up to a stranger or a group of people might reveal status, thoughts (Tweets), or other information that usually comes with an introduction, might cause unwarranted breaches of privacy.

AR has been shown to accelerate comprehension and increase engagement with learners of all ages and in numerous disciplines (Martin, 2011). Science and physics, cultural heritage and kinesthetic learning are some of the disciplines that have been made more interesting using AR.

AR Learning Applications

Google

Google offers a range of classroom tools for the education sector. Google Sky Map is a free AR application which is making astronomy exciting. The Google Sky Map can be used on a smartphone to identify stars and constellations by facing the camera and holding it in the direction of the sky to automatically receive identification of stars and constellations (Watters, 2011).

Figure 9: Sample of Google Sky Map

Google applications can also provide free email and collaboration for schools and access to educator guides and lesson plan curricula. Laptops and smartphones can be used to showcase videos and use AR applications to discuss and engage in lessons. Google also assists in professional development of staff by training and providing tutorials on AR applications and usage in and out of the classroom.

YouTube

YouTube can also aid the learning process by accessing the YouTube Teachers or YouTube EDU homepage. Students can learn by watching and using AR lessons from educational institutions. Educators and students can create educational AR videos and uploading them onto the YouTube channel. Educators can incorporate AR videos into lessons. YouTube (2012) states that a team of teachers around the country scour the site to uncover the latest and greatest educational videos to add to YouTube EDU, ensuring that there are videos on everything from Astrophysics to Zoology.

GeoGoggle

GeoGoggle is a free and great learning AR application. It assists with geography skills and judging distance (Juguru, n.d.). GeoGoggle does this by calculating the latitude and longitude or the altitude and distance by using a 3D compass. It uses overlay graphics together with the real world surrounding.

Source: Jugaru (n.d)
Figure 10: Sample of Geogoggle app

Word Lens

Word Lens AR can definitely be used in the education sector. This AR application uses optical character recognition (OCR) technology to translate text. Take a picture of something written in English and the application will translate it to French even vice versa. But it is good to remember that technology is not perfect hence one cannot rely too much on this application as the only translation device. iTunes (2012) asserts that World Lens allows you to see the world in your language and instantly translates printed words using your built-in video camera, in real time

Source: ARlab (2012)
Figure 11: Sample of World Lens app

ZooBurst

This AR application is a digital storytelling instrument that allows you to build your own 3D pop-up book. Children at primary school will definitely enjoy this application as you can add anything from narration to animations. The book can be inserted and viewed online, the webcam can even place one in the story. Carr (2010) explains that pop-up books have gone digital at last and you don't even need 3-D glasses, ZooBurst is an augmented reality program that creates dynamic pop-up books on your computer screen using just a Webcam and an Internet connection
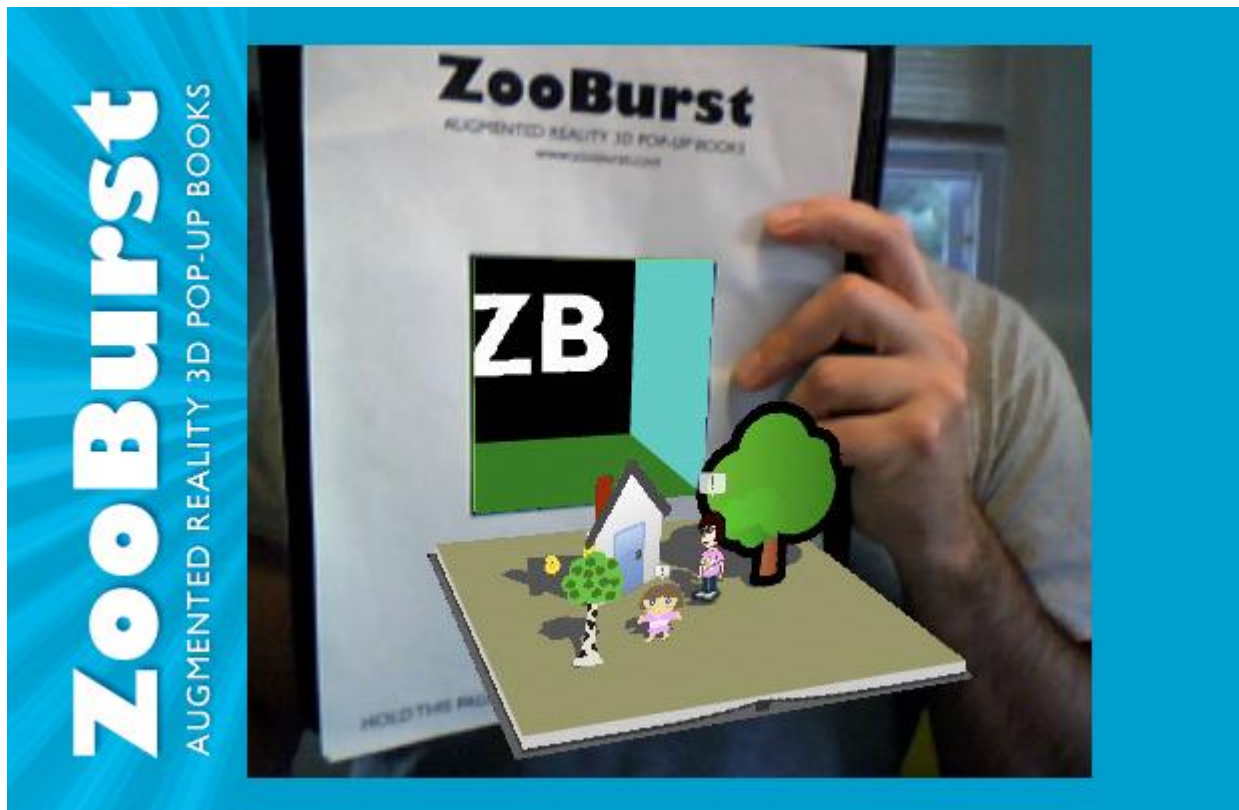
Source: Carr (2010)
Figure 12: Sample of ZooBurst app

Fetch! Lunch Rush

This free AR application assist children at primary school with maths skills through the use of visualisation, the application is designed in 3D and students can add, subtract, multiply or divide using real life situations whilst solving a maths problem. This application can be downloaded free from the iStore. Byrne (2010a) points out that the purpose of the app is to get kids moving about a room in search of numbers that are the correct answer to the questions posed to them on the app, students read the arithmetic problem on the app then search out the correct answer.

Source: Jugaru (n.d)
Figure 13: Sample of Fetch! Lunch Rush app

Aurasma

Aurasma allows us to integrate the real world with virtual content, such as videos, animations and webpages and understanding them. Aurasma is a free application that can be downloaded and assists the learning process by allowing educators and student to discover and share content using AR. Aurasma (2012) discusses that this application is a radical piece of technology that represents the future of how people use their mobile devices by bringing the physical and virtual worlds together for the first time, available on smart devices, Aurasma was created out of technology that is capable of recognizing images, symbols and objects in the real world and understanding them.

Source: Arellano (2012)
Figure 14: Sample of Aurasma app

Skype Education

Skype Education is an application that allows users to make calls over the Internet. This opens up a global classroom for educators and students. Ideas and programme content can be shared. Guidelines and sample questions can be discussed assisting and finding the easiest solutions for students who are struggling. Rural areas can now be accessed and given the opportunity to learn using technology. Byrne (2010b) avows that Skype Education is a fantastic free resource that enables teachers around the world to connect their classrooms and to virtually bring expert visitors to their classrooms. Daccord (2008) states that Skype Education's ease-of-use and video conferencing capability make it a hugely beneficial tool in helping our students connect with others outside our classroom walls.

Preparing for Generation Z

With the constant developments and rapid growth of the use of technology, this has seen the rise of Generation Z, which represents a generation of techno savvy children. Fudin (2012) asserts that:

Generation Z, the Internet Generation, Digital Natives — these are a few of the names used to describe children born between the mid-1990s and the present. They grew up with computers and the World Wide Web, and they are comfortable with all kinds of technology, from smart phones to MP3 players to iPads. Most of them conduct their social lives via texting and social media, and spend more time watching YouTube then network television.

With the use of technological devices daily it is believed that visual learning is the preferable type of learning style. Generation Z will learn more effectively if they are left to solve problems and find solutions and when a student notes progress they become addicted to success (Teachers Training, 2011). This should ultimately aid in elevating pass rates and bring in innovative learning techniques.

Fudin (2012) provides the following suggestions to aid learning for Generation Z:

- Use technology's immediate feedback to motivate students and increase their learning confidence. Computer-based educational games and independent projects can give a broad range of student's feelings of empowerment and accomplishment.

- Engage students by planning projects and activities that allow them to collaborate online. Blogging, podcasting and digital media are some of the new tools that allow students to connect with each other and with other students around the world.

- Take advantage of Gen Z's increased visual learning ability by enhancing lectures with film, PowerPoint presentations and digital images.

- Help students develop critical thinking and problem solving skills, especially in their use of technology. Provide instruction on how to find reliable and reputable sources when searching online.

- Train students to focus their attention on a single task that has depth and complexity. Present challenges that require concentrated effort for success.

- Encourage students to set aside time for outdoor physical activity. Instead of just talking about nature and looking at pictures, plan field trips that allow students to experience nature first hand.

Chapter Summary

This chapter focused on how Augmented Reality supplements both the virtual and real world making learning innovative, fun and interesting. Dolz (2012) states that Augmented Reality has the goal of improving the user's perception of the surrounding world, complementing reality, rather than completely replacing it and be a helpful tool for teachers and students. Educause (2005) suggests that Augmented Reality has the potential to move learning out of the classrooms and into the spaces where students live. Let us embrace the new technological advances that can assist and enhance learning at public schools in South Africa. This chapter discussed the benefits of Augmented Reality that adapt and suit the Generation Z demands which will only aid in the learning process. Now that various aspects contributing to this

research has been discussed, a conceptual framework can be drawn up, which will be discussed in the next chapter.

Chapter 8

Conceptual Framework

Introduction

When one mentions the word communication, one would assume a simple explanation will do but there are several communication theories. There are so many factors we consider in our conscious or unconscious mind in order to communicate and convey our message. John. and Finnegan (2002) state that communication is the production and exchange of information and meaning by use of signs and symbols. It involves encoding and sending messages, receiving and decoding them, and synthesizing information and meaning. Communication permeates all levels of human experience and it is central to understanding human behaviour. Theories of communication is actually not something new that came into picture in the twentieth century, It began in the 1950's and has since continued developing. This chapter will be using the "Shannon and Weaver" theory alongside the "Uses and Gratification" theory to explain and create a conceptual framework for this research.

Shannon and Weaver Theory

Shannon and Weaver produced a general model of communication in 1949 and named it after them as the Shannon-Weaver Model. This model was specially designed to develop the effective communication between the sender and the receiver. It involved breaking down an information system into sub-systems so as to assess the efficiency of various communications channels and codes (Verdü and McLaughlin, 2000). They propose that all communication must include six elements: Source, Encoder, Channel, Message, Decoder and Receiver.
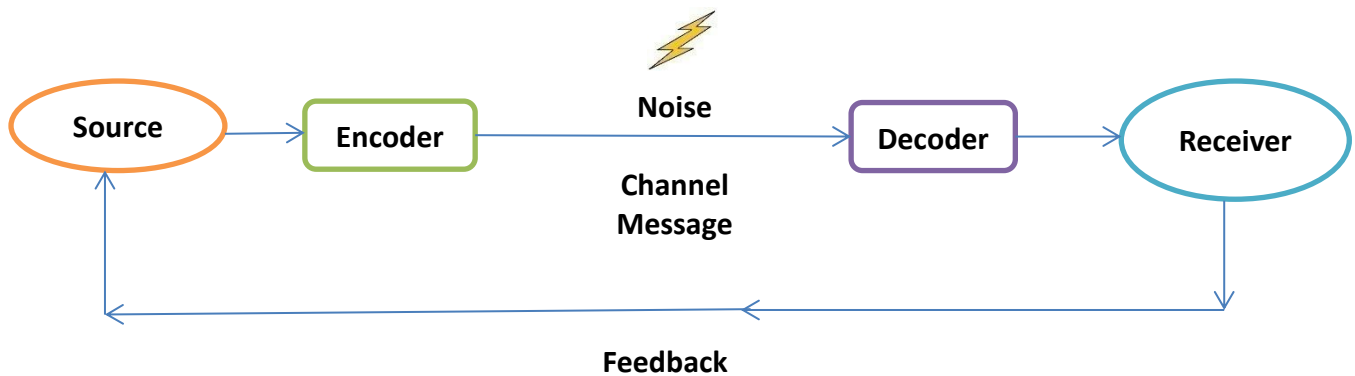
Source: Volkman (2011)
Figure 15: The Shannon-Weaver Model

- Source – is the sender of the message.
- Encoder – responsible for transmitting the message and converts the message into signals.
- Channel – the medium through which the message is carried.
- Message - information
- Decoder – responsible for converting the signals into a message.
- Receiver – the recipient of the message.

This model is often referred to as an "information model" of communication. A shortcoming is that the model looks at communication as a one-way process. That is remedied by the addition of the feedback loop. Noise indicates those factors that disturb or otherwise influence messages as they are being transmitted. Hollnagel and Wood (2005:12) add that Shannon and Weaver make a distinction between source and transmitter, and receiver and destination. There are two functions at the transmitting end and two at the receiving end.

This model is criticized for suggesting a definite start and finish to the communication process, which in fact is often endless.

Uses and Gratification Theory

This theory is a popular approach to understanding mass communication. Much emphasis is placed on the audience instead of the actual message. The theory suggests that people use the media to fulfil specific gratifications outcomes (Elliot and Lester, 2002). This is an audience centred approach. When someone actively seeks out the media, that person is seeking out to gratify a need. The need for media is motivated by social situations and psychological characteristics. There are several needs and gratification for people which are categorised into five groups.

- Cognitive needs - media is often used to acquire knowledge. Each person has their own need for knowledge or information. It could be to conduct research for a project, watching a game show on television or get the latest news update.

- Affective needs – the use of media to satisfy an emotional need. People can watch funny videos on the Internet to make them laugh, watch a sad movie on television to cry or even read a heart-warming story to make them smile.

- Personal Integrative needs – people use media to boost their self-esteem. Living in today's society people have to constantly reassure themselves or try to improve their social status. They do this by buying the latest trends that are being advertised and trying to constantly upgrade their social standing.

- Social Integrative needs – this is the need to socialise with family, friends and others in the society using media. Many people all over the world are using social networking sites for social interaction. Sites like Facebook, Twitter and Myspace are used as social networking by families, friends, businesses and many other organisations.

- Tension free needs – people also use media for relaxation and escapism. They do this by listening to music, watching a movie or reading an online magazine.

Combining both the theories is the best way to explain this research. ICTs at schools are the information source which wants to convey a message to learners and personnel. Learners and personnel are the recipients of the message. The recipient can select the use of ICT depending on which need they wish to gratify. The needs of each individual will differ. Any challenge that ICTs face could pose as a disturbance. For example: thunder and lightning affects the Internet signal while learners are conducting research, so they cannot retrieve the information they need. It affects the communication flow. ICTs provide unlimited access to information and resources to satisfy any need. By using ICTs and implementing it at schools does not

only have to satisfy one need, but satisfying different needs all at once. By combing both the theories it will help to create a conceptual framework for this research.

Conceptual Framework

A collection of interrelated concepts is called a conceptual framework. A conceptual framework guides and assists in a research project by determining things that will be measured and looking at various statistical relationships outcomes (Elliot and Lester, 2002). Cases and Variables form part of a conceptual framework. Cases are the objects whose behaviour or characteristics people study. Variables are characteristics of cases. Figure 6 illustrates a conceptual framework for this research. The variation in the dependent variable is trying to be explained. ICT at schools is the dependent variable. The independent variables are those factors that explain the variation in the dependent variable as shown below. A moderator variable is one that modifies the relationship between two other variables.
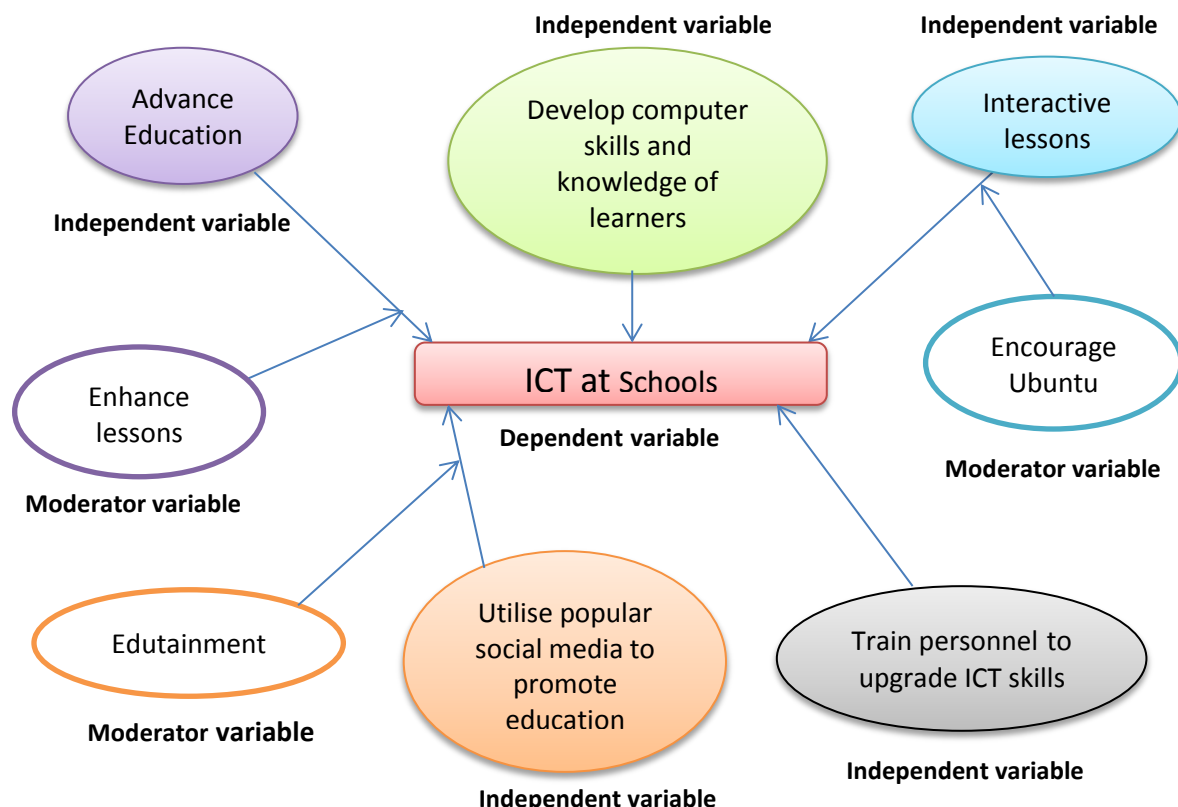
Figure 16: Conceptual Framework

The conceptual framework indicates ICTs as the information source. Various elements are affected by the information source. By using ICTs to create interactive lessons cross cultural relationships are formed. This encourages unity in diversity. Soon learners can discuss issues on the school networking site or social networking sites. This satisfies the social integrative need. ICTs have been found to increase progress results. Therefore utilising ICTs appropriately can advance education and allows educators to enhance the lesson. Learners become more interested and excited in the learning process. This satisfies cognitive needs. Educator and personnel have to be on top of their game when using ICTs in the classroom. Therefore they need to ensure they are regularly trained and updated with the latest programmes to equip them with the relevant skills. This gratifies cognitive and personal integrative needs. One of the main focuses of using ICTs at schools is to develop the computer skills and knowledge of learners so that they exit the schooling system with adequate computer skill to enter the job market. By achieving this it satisfies cognitive and personal integrative needs. Lastly educators have an added advantage of using social media that is commonly used by learners, which they can use to promote the learning process. This allows learners to view learning as fun and entertaining. Education and entertainment combined results in edutainment. This can gratify cognitive, social integrative and tension release needs. All the variables discussed follow a clear communication process. Feedback can be given during the process and the use of the information source (ICTs) gratifies a range of needs.

Chapter Summary

Communication is deeply rooted in society and their behavioural norms. A glimpse of society shows that various disciplines such as psychology, philosophy and sociology integrate with the various communication theories and processes discussed. Every living organism has to communicate primarily as a means of survival. It is also imperative to remember that no communication theory explains or predicts all communication outcomes (Elliot and Lester, 2002). As discussed in this chapter, two theories were used to examine this research and to develop a conceptual framework, which gives a clear guide to this research. The following chapter will provide an overview of the research procedures that will be used in this research project.

Chapter 9

Research Methodology

Introduction

The conceptual framework provided an insight to this research but the processes and techniques to be used are also important. This chapter deals with the research design and methodology. It provides a brief indication of what methods and designs were used to conduct and analyse the research. It will also stipulate the ethical requirements towards the respondents that were used in the research.

Research Methodology

This project utilised both qualitative and quantitative approaches. Taylor (2005: 252) asserts that combining qualitative and quantitative methods can give support and validation to the research findings by using both deductive and inductive methods. Data collection consisted of descriptive surveys and interviews. Burns and Burns (2008: 485) states that surveys and interviews provide accurate and usable information which is valuable for making effective and sensible deductions. A survey instrument to measure the attitudes and beliefs regarding social media was administered to a broad spectrum of respondents comprising of students, educators and personnel from schools across Richards Bay and surrounding areas. As Bertrand and Hughes (2005:70) note that surveys are systematic collection of data, which can then be used for:

- Collecting descriptive information;
- Making comparisons between groups of people;
- Exploring relationships between variables.

Interviews were also conducted with selected educators and personnel in order to provide more in depth data collection and opportunities for follow up.

Ethical Requirements

It is important that the research is conducted in an ethical manner in order to maintain credibility. A letter of consent was sent from the researcher to prospective respondents explaining the focus of the research project. This letter was accompanied by a statement to be signed by each participant indicating that they understand the nature of the research. Respondents were informed that participation is voluntary, and that they can withdraw from the project at any time. Participants were not discriminated against and all relevant parties

were given an opportunity to participate in the research. Anonymity and privacy was observed.

Research Sample

Research sample includes the sample size, composition of the sample and sampling techniques:

- The sample size: 300 respondents (representing the total sample population of approximately 5000). Sekaran and Bougie (2010: 296) express that sample sizes more than 30 but less than 500 are appropriate for a research to assist in meeting the objectives of the study.

- Composition: Learners, educators and personnel from schools in Richards Bay and surrounding areas.

- Sampling technique: Random sampling was used so that all members in the area had an equal opportunity and chance of being selected. Kumar (2011: 43) avers that random sampling gives each element in the population an equal probability of getting into the sample; and all choices are independent of one another.

Instrumentation

The instrument utilised was a questionnaire: A questionnaire provided the appropriate information required for the research, as questions were asked to personnel and learners at schools in Richards Bay. According to Hannan (2007), questionnaires are employed as devices to gather information about people's opinions, often asking respondents to indicate how strongly they agree or disagree with a statement given, but sometimes posing a question and giving respondents space in which to formulate their own replies.

The researcher pre-tested the questionnaire on six respondents at Bay Primary School, three students and three educators. All answered the questions and no changes were made to the questionnaire following the pre-test. Welman *et al*. (2005:148) explain that the purpose of a pilot study or pre-test can be summarised as follows:

- To detect flaws in the measurement procedures.
- To identify unclear or ambiguously formulated items.
- An opportunity for researchers and assistants to notice non-verbal behaviour.

All respondents were given a letter of informed consent (Appendix B), discussing the nature and objectives of the research. Permission was requested from the Department of Education to conduct this research project at schools in Richards Bay. Dr. V.E. Sikhosana, the Richards

Bay Education Ward Manager granted permission to conduct this research at various schools in Richards Bay. A list of schools was selected by him to conduct this research project. These schools are:

- Sinaye Primary School
- Lizwe High School
- Bay Primary School
- Brackenham Primary School
- Richards Bay Secondary School
- Floratan Primary School
- Kati Primary School
- Sitholinhlanhla Primary School

The respondent statement (Appendix C) followed giving signed consent to participate in the research. The questionnaire (Appendix D) was administered to personnel and learners. Therefore two separate questionnaires were issued respectively. It consisted of closed ended "yes/no" questions and Likert scale type of questions. It is made up of 3 sections as follows:

Section A: Information about the respondent such as demographics, gender, age and racial grouping. This assisted the researcher with indicating possible reasons why the selected public schools have problems with implementing ICT's such as lack of money or restricted resources.

Section B: Information technology at schools regarding the facilities available and the challenges experienced at schools. This gave the researcher a clear insight of what technological devices these public schools possess and the challenges experienced. This made it easier for the researcher to draw up possible solutions.

Section C: Technological skills and learning methods concerning lesson plans, social networking, perceptions, access and proficiency of using computers. The researcher was able to determine the opinions, level of knowledge and usage of social media by students, educators and personnel and find ways to incorporate ICT pedagogy at these schools.

Collection of Data

The type of questionnaire survey used was face-to-face survey interviews. The questionnaires were personally distributed by the researcher. Face-to-face interviews allowed instantaneous responses to the questions. It was the most convenient way to collect data with regards to this research. Conducting surveys allowed the researcher to explore the responses of the respondents to gather more and deeper information (Sincero, 2012). It also gave the

researcher an opportunity to clarify any misunderstood questions. The data was collected over a period of two months by visiting and administering the questionnaire and interviews at various schools in Richards Bay and surrounding areas. The researcher contacted the various schools and set up appointments in advance to avoid any disturbances of instruction time to learners and staff at the selected schools.

Analysis of Data

Once the data was collected, it was organised and analysed. A statistical computer programme called Moonstats was used for the analysis. Frequency tables were extracted from Moonstats and used to create graphs using Microsoft Excel. The researcher will provide an interpretation of selected questions using the frequency table along with its corresponding graph.

- An example of a frequency table using Moonstats.

```
Frequency table for TYPE OF COMMUNITY
-------------------------------------
Value            N          %     Cum. %
-------------------------------------
URBAN           16      53.33      53.33
SEMI URBAN      10      33.33      86.67
RURAL            4      13.33     100.00
-------------------------------------
TOTAL           30     100.00
-------------------------------------
```

Chapter Summary

This chapter deals with the tools that are going to be used to conduct the research. Once the research was complete, the data was analysed and findings were recorded. The data analysis and interpretation will follow in the next chapter.

Chapter 10

Analysis and Interpretation of data

Introduction

This section displays the results of the findings and analyses the data using graphs and tables. Microsoft Excel and Moonstats© were used for statistical analysis of data with regard to the respondents' information and graphical analysis of data, to generate tables and graphs. An explanation of each table and its corresponding graph will be given to discuss and provide an interpretation of the results.

Data Analysis

Information about the respondent such as demographics, gender, age and racial grouping are captured in Section A as outlined below:

Demographics
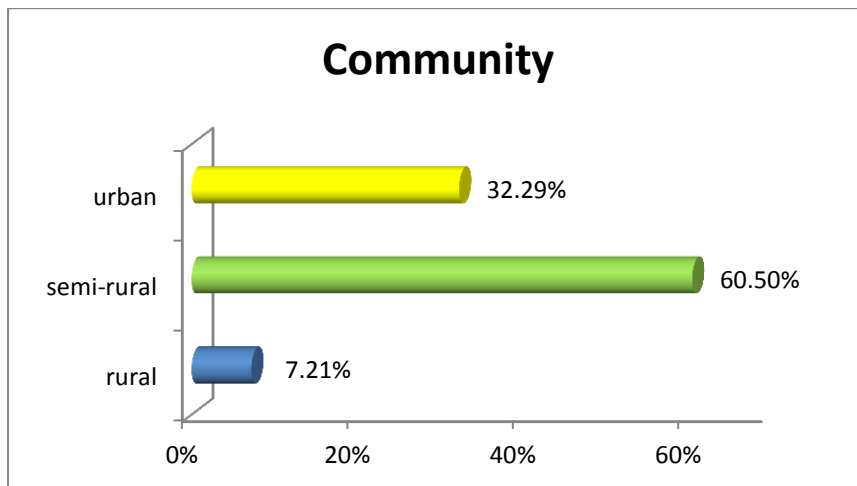
Figure 17: Communities students live in.

Figure 17 shows that majority of the students hailed from semi-rural areas, 193 respondents representing 61% of the total sample. A total number of 103 respondents representing 32% of the total sample were from urban areas and the remaining 23 respondents representing 7% of the total sample were from rural areas.

Figure 18: Age group of students

The respondents comprised of students at public schools in Richards Bay attending both primary and high school. A total number of 242 respondents representing 76% of the total sample were aged between 10 – 15 years old and 77 respondents representing 24% of the total sample were aged between 16 – 21 years old.

Gender of students

Gender	Frequency	Percentage
male	128	40.13
female	191	59.87
Total	319	100

Table 5: Gender of students

Table 5 indicates that 128 respondents representing 40% of the total sample were male. A total number of 191 respondents representing 60% of the total sample were female.
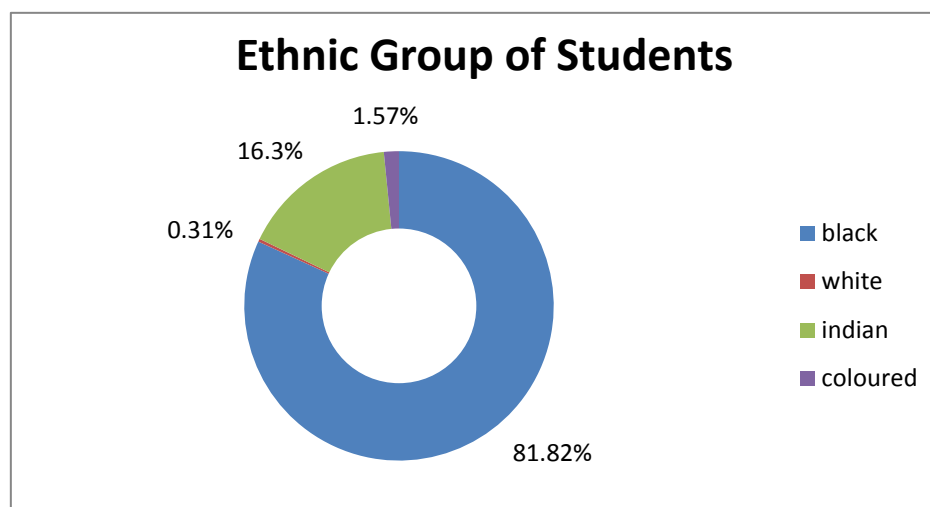
Figure 19: Ethnic groups of students

Figure 19 represents the ethnic groups respondents belong to. A total number of 261 respondents representing 82% of the total sample were blacks. Only 1 respondent representing 0.31% of the total sample was white. A total of 52 respondents representing 16% of the total sample were indian and 5 respondents representing 2% of the total sample were coloured.

Section B: Information technology at schools regarding the facilities available and the challenges experienced at schools.

FACILITIES AVAILABLE AT PUBLIC SCHOOLS

percentage	computer	TV	radio	projector	Telephone	Internet	video camera	dvd player
true	27.27	33.54	33.23	22.88	45.45	25.08	21.00	30.41
false	65.52	58.31	57.68	65.83	48.9	69.28	73.04	62.38
not sure	7.21	8.15	9.09	11.29	5.65	5.64	5.96	7.21
total	100	100	100	100	100	100	100	100

Table 6: Facilities available at public schools

Table 6 explains that public schools in Richards Bay do have technological gadgets such as a television, computer, radio, telephone, Internet, video camera and a dvd player. This is an indicator that public schools do have the basic technological facilities available but access to respondents is limited or respondents are unaware of the services offered to them.

FACILITIES AVAILABLE AT PUBLIC SCHOOLS
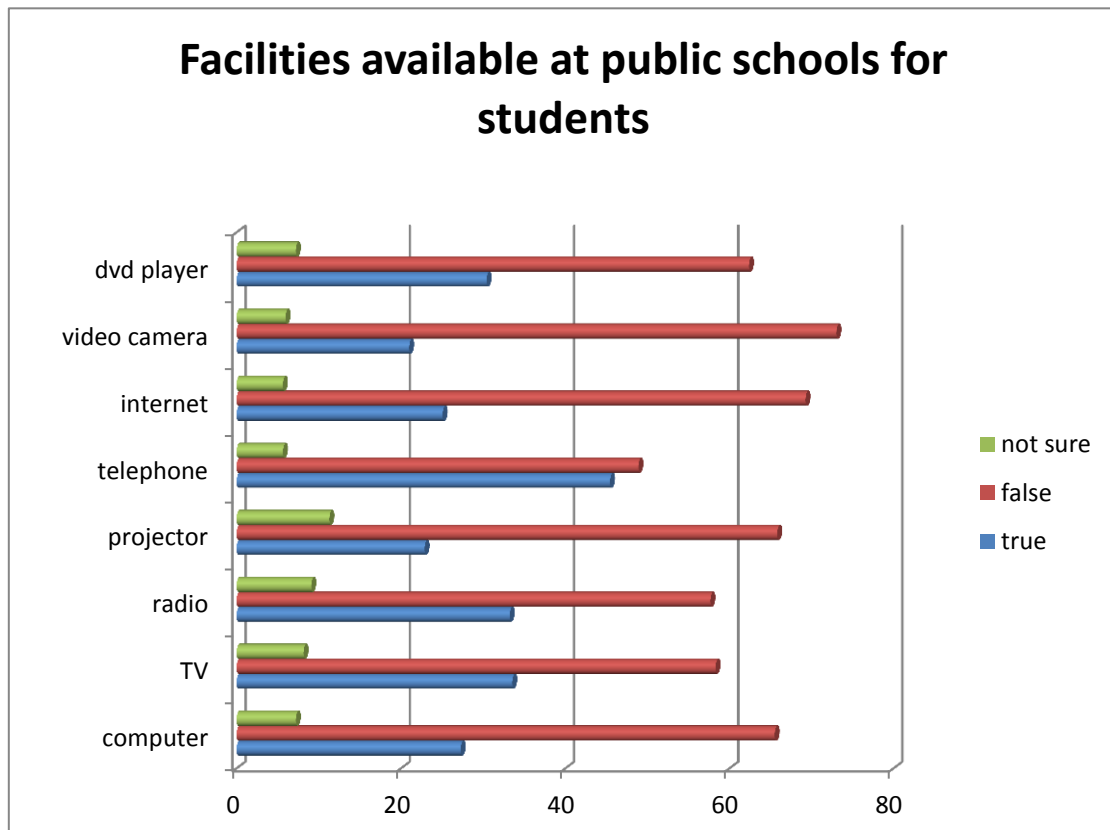
Figure 20: Facilities available at public schools

Figure 20 shows that 107 respondents representing 34% of the total sample acknowledge that a television is available for them to use, 186 respondents representing 58% of the total sample state that there is no television is available for them to use and 26 respondents representing 8% of the total sample state that they are not sure if a television is available or not for them to use. A total number of 87 respondents representing 27% of the total sample state that there is a computer which the respondent can use, 209 respondents representing 66% of the total sample claims that there is no computer for the respondent to use and 23 respondents

representing 7% of the total sample are not sure of the availability of a computer that can be used. A total number of 80 respondents representing 25% of the total sample points out that they have access to the Internet via a computer, 221 respondents representing 69% of the total sample reveals that they have no Internet access and 18 respondents representing 6% of the total sample are not sure of the availability of Internet access available.

Challenges faced at public schools
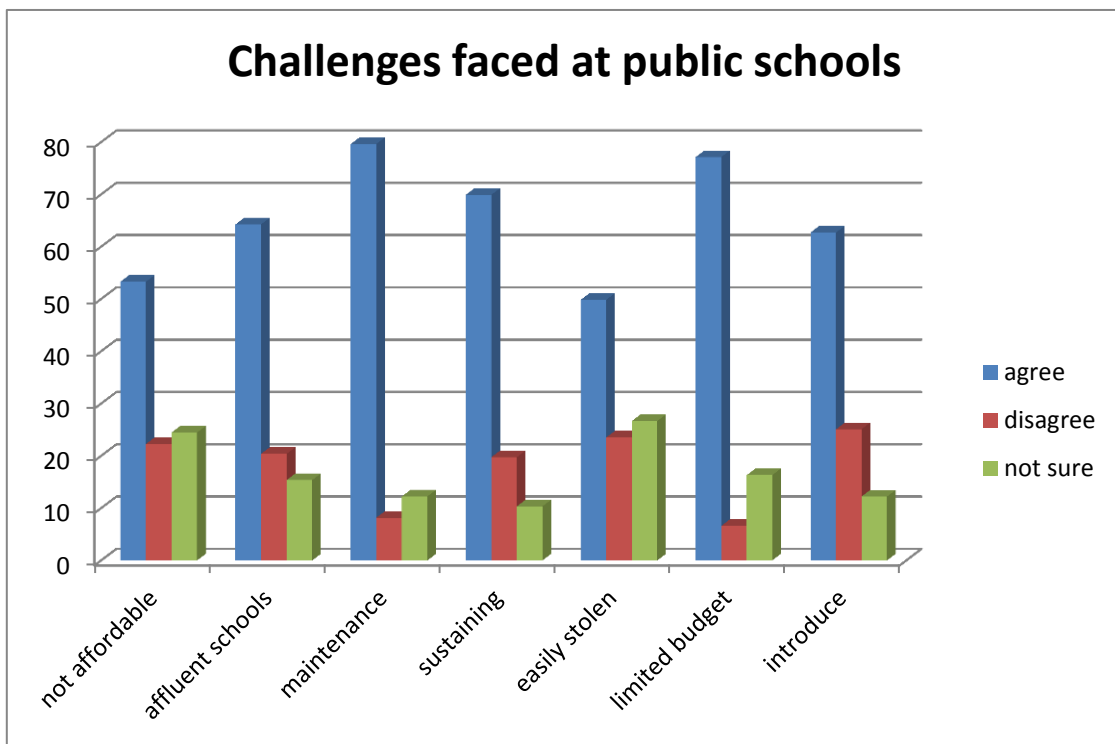
Figure 21: Challenges faced at public schools

When it comes to educational technology, there are many challenges that public schools face. The main areas of concern according to the respondents were the cost of maintaining educational technology is expensive and that public schools have a limited budget to constantly update new technologies. Other areas of concern included affordability of new technology at public schools, sustaining new technologies at public schools, the difficulty of introducing new technology at schools and only affluent schools were able to access good educational technology. The majority of respondents representing 80% of the total sample

agreed that the cost of maintain educational technology is expensive. Respondents representing 77% of the total sample state that public schools have a limited budget to constantly update new technologies.

Section C: Technological skills and learning methods concerning lesson plans, social networking, perceptions, access and proficiency of using computers.

Are lessons enjoyable at public schools?
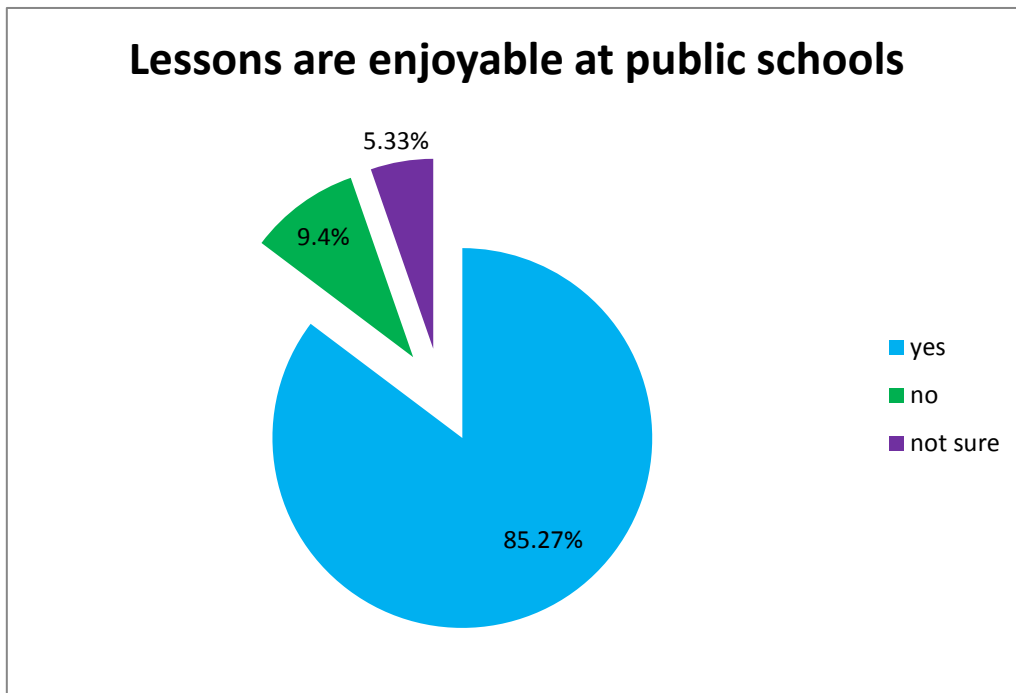
Figure 22: Do students enjoy the way lessons are taught at school?

Figure 22 indicates that 85% of the total sample of respondents enjoys the way lessons are currently taught at public schools. Respondents representing 10% of the total sample does not enjoy the way lessons are taught. Respondents representing 5% of the total sample are not sure whether or not they enjoy the way lessons are taught at public schools.

Figure 23: Would students like to learn with more multimedia presentations?

Most respondents were keen to learn with multimedia presentations. A total of 297 respondents representing 93% of the total sample admit that they would like to learn with more multimedia presentations. The total of 9 respondents representing 3% of the total sample opposed learning with multimedia presentations. The remaining 13 respondents representing 4% of the total sample were not sure whether or not they would like to learn using multimedia presentations.

LEARNING AIDS USED BY EDUCATORS

percentage	textbooks/worksheets	computer presentations	TV programmes	radio/musical recordings
yes	91.85	9.72	3.13	23.2
no	2.51	84.01	90.91	69.28
not sure	5.64	6.27	5.96	7.52
total	100	100	100	100

Table 7: What learning aids are used by educators?

Many educators at public schools continue to utilise mainly textbooks and worksheets as learning aids in the classroom. Respondents representing 92% of the total sample acknowledge the use of textbooks and worksheets as learning aids, 2% of the total sample did not utilise and textbooks and worksheets whilst 6% of the total sample indicated that they were not sure if textbooks and worksheets were used or not. Only 10% of the total sample claimed that computers were used as learning aids in the classroom, 2% of the total sample suggested television programmes were used and 23% of the total sample indicated that radio and musical recordings were used in the classroom.

Social media utilised by students
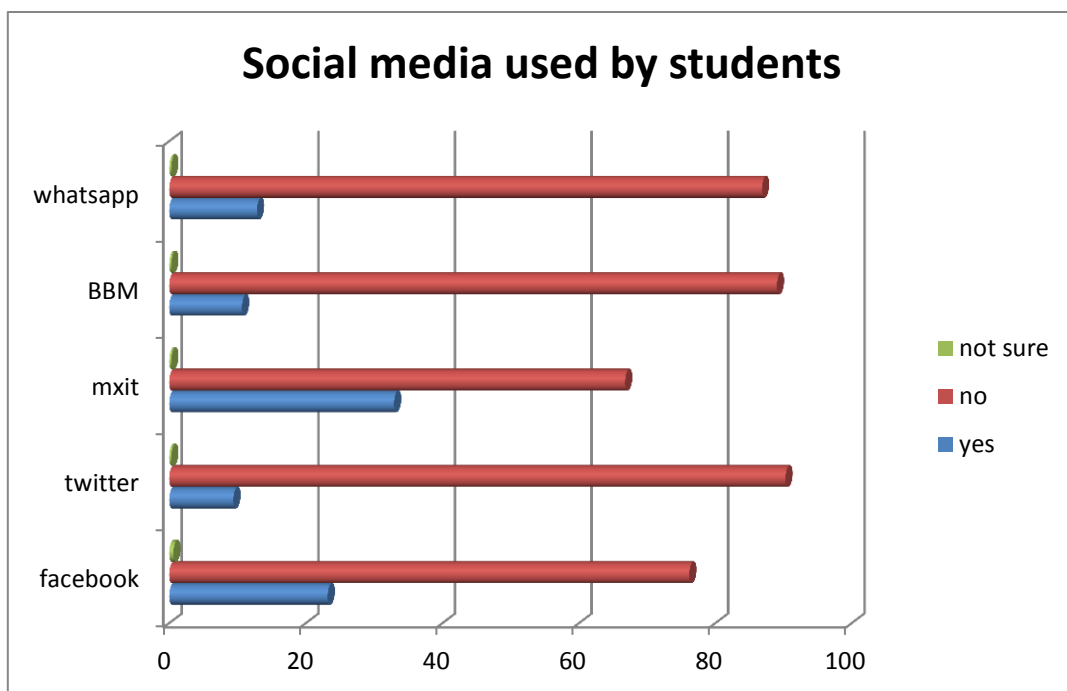
Figure 24: Social media being utilised by students

Facebook and Mxit were found to be the predominantly used social media although many respondents were currently not using social media. A total of 74 respondents representing 23% of the total sample used Facebook. It was found that 105 respondents representing 33% of the total sample used Mxit. By identifying which social media is utilised by students, it can aid educators in gratifying students' social integrative need (Uses and Gratification Theory) but adding education and learning as the fundamental element.

Figure 25: Student access and efficiency of the computer

Figure 25 illustrates that 52% of the total sample have access to a computer but only 45% of the total sample are able to work on a computer. Respondents representing 44% of the total sample has access to the Internet but only 37% of the total sample is good at surfing the net. This indicates that more training and development is needed to guide and assist the respondents.

STUDENTS PERCEPTION ON CLASSROOM TECHNOLOGY

percentage	updated/latest technology	newer teaching methods	waste time in class	takes up too much time
yes	84.33	78.68	4.08	6.27
no	7.21	8.78	91.84	89.03
not sure	8.46	12.54	4.08	4.7
total	100	100	100	100

Table 8: Students perception on classroom technology

Respondents were keen to engage in learning using the latest updated technologies in the classroom and also felt that newer methods of teaching works better than the older methods of teaching. A total number of 269 respondents representing 84% of the total sample indicated that everyone should be updated and use the latest technologies in the classroom, 23 respondents representing 7% of the total sample opposed being updated using latest technologies in the classroom and 27 respondents representing 8% of the total sample were not sure if the latest technologies should be used in the classroom or not. A total number of 251 respondents representing 79% of the total sample assert that newer methods of teaching work better than older methods. A total number of 28 respondents representing 9% of the total sample believed that the older methods are still better and 40 respondents representing 13% of the total sample were not sure which method works better.

Students' perception on classroom technology
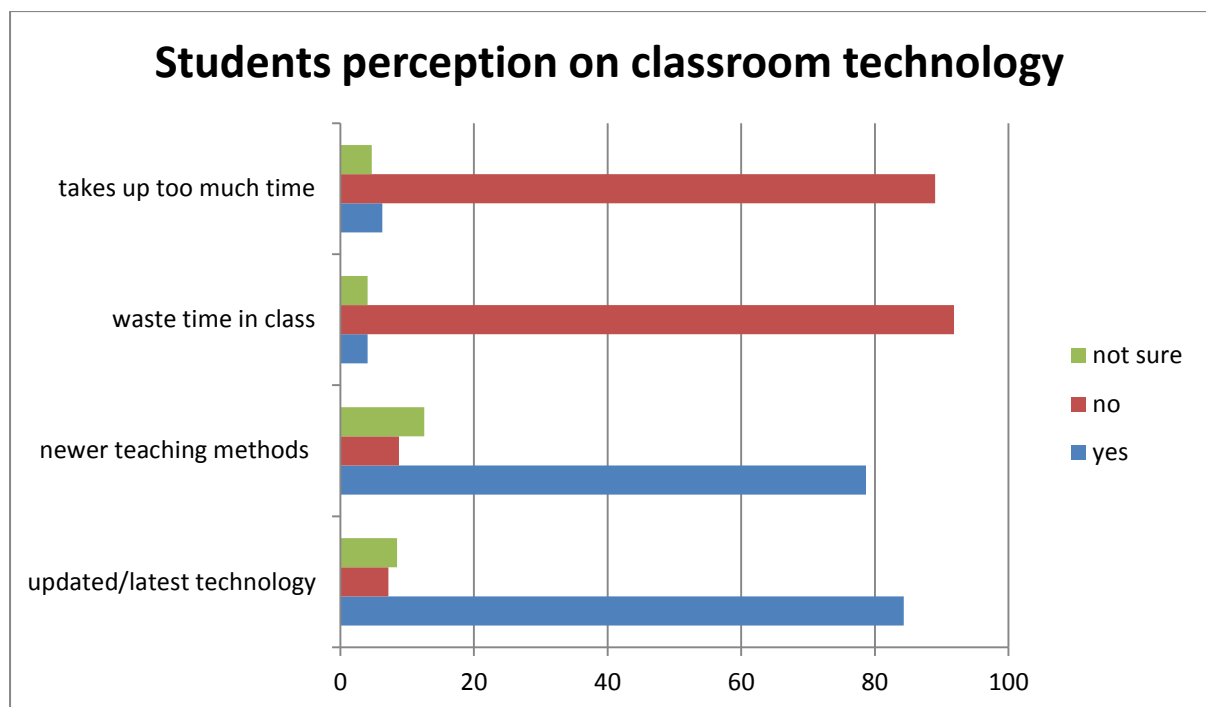
Figure 26: Students perception on classroom technology

Majority of the respondents disagreed with the statements that technology in the classroom is a waste of time and that using technology takes up too much time. A total of 13 respondents

representing 4% of the total sample felt that using technology in the classroom is a waste of time. A total number of 293 respondents representing 92% of the total sample adds that using technology in the classroom is not a waste of time and the remaining 13 respondents representing 4% of the total sample were not sure whether or not technology in the classroom is a waste of time. A small quantity comprising of 20 respondents representing 6% of the total sample feel that using technology takes up too much time. A total number of 284 respondents representing 89% of the total sample assert that using technology does not take up too much time whilst 15 respondents representing 5% of the total sample where not sure if technology does or does not take up too much time.

Social media used by educators in the classroom

percentage	facebook	twitter	mxit	BBM	whatsapp
yes	23.2	9.4	32.92	10.66	12.85
no	76.17	90.29	66.77	89.03	86.84
not sure	0.63	0.31	0.31	0.31	0.31
total	100	100	100	100	100

Table 9: Social media used by educators in the classroom

Majority of public schools are limited with resources hence utilising social media in the classroom is usually restricted. Facebook and Mxit were the predominant social media used. Respondents representing 23% of the total sample allege that educators used Facebook in the classroom and 33% of the total sample claims that educators utilised Mxit in the classroom.
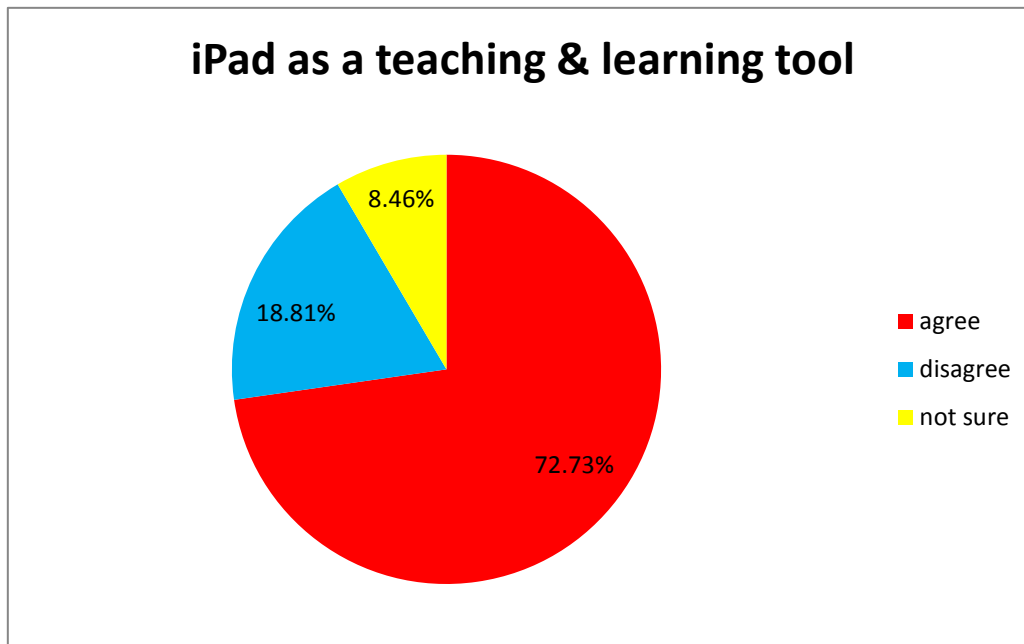
Figure 27: iPad as a teaching and learning tool in the classroom

Figure 27 is a presentation of how respondents felt about the iPad as a teaching and learning tool in the classroom. A vast number of 232 respondents representing 72% of the total sample agreed that the iPad should be used as a teaching and learning tool. A total number of 60 respondents representing 19% of the total sample disagreed with the use of the iPad as a teaching and learning tool. The remaining 27 respondents representing 8% of the total sample were not sure whether or not the iPad should be used in the classroom for teaching and learning. The iPad can easily be used to gratify cognitive needs (Uses and Gratification Theory) and will benefit both educators and students in the teaching and learning process.

Figure 28: New technology should be used to create global classrooms

The graph indicates that 233 respondents representing 73% of the total sample agree that new technology should be used to create global classrooms. A total of 26 respondents representing 8% of the total sample opposed the use of new technology to create global classrooms. The remaining 60 respondents representing 19% of the total sample were not sure whether or not new technology should be used to create global classrooms.

Figure 29: Blackberry's "BBM" can be used to send summarised notes to students

Figure 29 reveals that 149 respondents representing 47% of the total sample agreed with the use of Blackberry's 'BBM' to send summarised notes to students. A total number of 73 respondents representing 23% of the total sample disagreed with the use of Blackberry's 'BBM' to send summarised notes to students. The remaining 97 respondents representing 30% of the total sample were not sure whether or not to use Blackberry's 'BBM' to send summarised notes to students.

Students should be taught to read current news via twitter

READ TWITTER	Frequency	Percentage
agree	186	58.31
disagree	93	29.15
not sure	40	12.54
Total	319	100

Table 10: Students should be taught to read current news via twitter

Table 10 shows that 6 respondents representing 58% of the total sample agreed with the statement that students should be taught to read current news via twitter. A total of 93 respondents representing 29% of the total sample opposed the use of twitter as a source of news reading for students. The remaining 40 respondents representing 13% of the total sample were not sure whether or not students should be taught to read current news via twitter.

THE INTERACTIVE NATURE OF FACEBOOK ALLOWS STUDENTS TO MAKE COMMENTS AND TEACH EACH OTHER
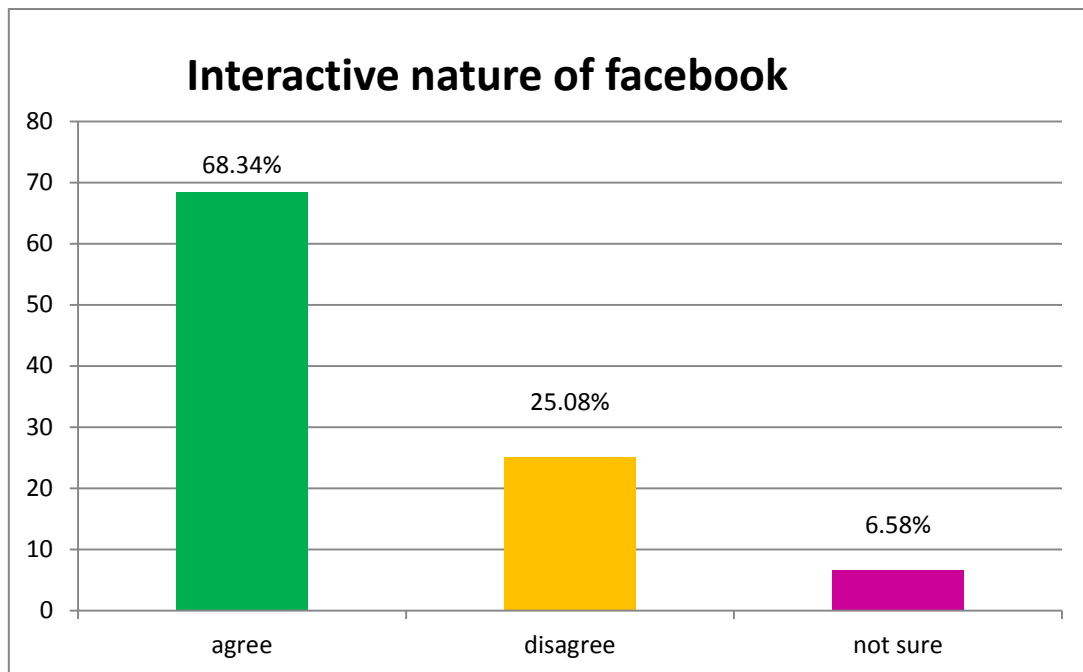
Figure 30: The interactive nature of Facebook allows students to make comments and teach each other

Figure 30 reveals that 218 respondents representing 68% of the total sample agree that the interactive nature of Facebook allows students to make comments and teach each other. A total number of 80 respondents representing 25% of the total sample disagree that the interactive nature of Facebook allows students to make comments and teach each other. The remaining 21 respondents representing 7% of the total sample were not sure whether or not the interactive nature of Facebook allows students to make comments and teach each other.
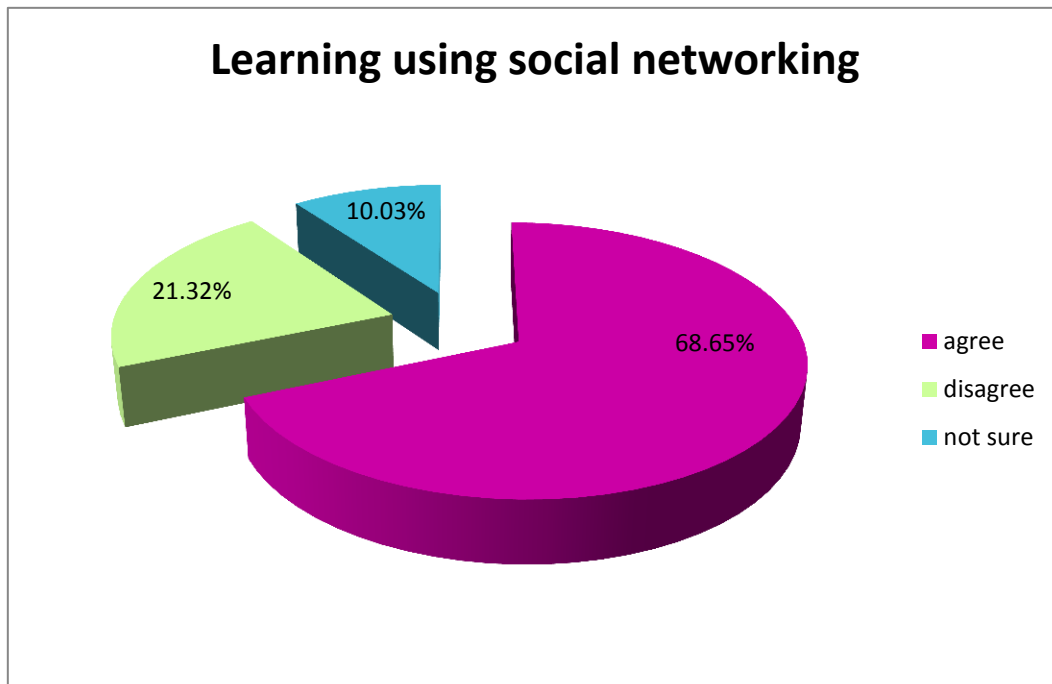
Figure 31: Learning using social networking

The graph indicates that 219 respondents representing 69% of the total sample support the idea that learning can be enjoyable if teachers use social networks to explain concepts. A total number of 68 respondents representing 21% of the total sample disagree with learning using social networking. The remaining 32 respondents representing 10% of the total sample were not sure whether or not to support the idea of learning using social networking. By utilising social networking in the teaching and learning process, feedback can be almost instantaneous assisting students quicker. It is not a one way process as highlighted by Shannon and Weaver but a dynamic process equally involving both parties with the feedback loop.

Figure 32: New technologies will disrupt lessons

Figure 32 illustrates that 169 respondents representing 53% of the total sample agree that the use of new technology will disrupt lessons and cause chaos in class. A total of 52 respondents representing 16% of the total sample disagreed that new technology will disrupt lessons and cause chaos in the classroom. A total number of 98 respondents representing 31% of the total sample were not sure if new technology will disrupt lessons or not.

GOVBUILD	Frequency	Percentage
agree	210	65.83
disagree	24	7.52
not sure	85	26.65
Total	319	100

Table 11: Government must build high tech schools

Table11 shows that 210 respondents representing 66% of the total sample agreed that government must build high technology schools which can allow educators to implement technology. A total number of 24 respondents representing 8% of the total sample opposed government building high technology schools so that educators can implement technology. The remaining 85 respondents representing 27% of the total sample were undecided if government must build high technology schools or not.
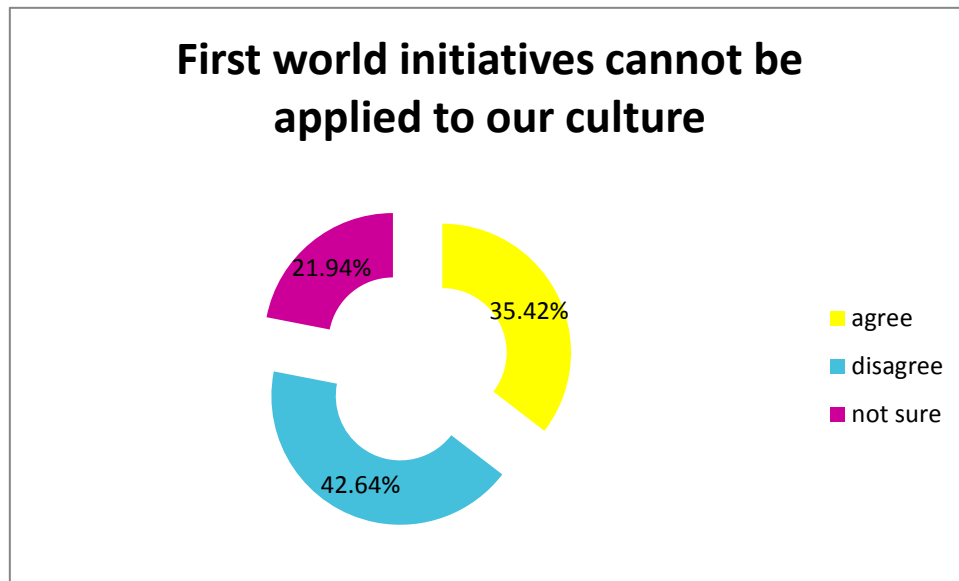
Figure 33: First world initiatives cannot be applied to our culture

Figure 33 illustrates those 113 respondents representing 35% of the total sample agrees that first world initiatives cannot be applied to our culture. A total of 136 respondents representing 43% of the total sample disagrees with the statement that first world initiatives cannot be applied to our culture. A total number of 70 respondents representing 22% of the total sample were not sure whether first world initiatives can or cannot be applied to our culture.

Chapter Summary

This was an informative chapter as data was analysed and interpreted using Moonstats and Microsoft Excel. The results of the research varied as the respondents had diverse views and responses but it was quite evident that the respondents were enthusiastic and eager to learn using new technology. The respondents acknowledged that the use of social media can help enhance education and learning at public schools. Although there are many challenges with regard to e-learning at public schools if government steps up to assist they will lay the

foundation of an incredible road that will help develop and mould children at public schools for the future. Public schools in South Africa will slowly be able to align themselves with the ever changing digital age. The next chapter will elaborate on the conclusion and recommendations drawn up from this research.

Chapter 10

Conclusion and Recommendations

Introduction

This chapter deals with the recommendations and conclusion of this research project. The aim of this study was to investigate the relevance of social media in public schools.

The problem statement of the study addresses the feasibility of using social media to optimise the benefits of teaching and learning.

Social media to optimise teaching and learning

The results received from respondents in this research indicate that social media will assist and benefit the teaching and learning process. Many students at public schools are at a disadvantage due to the lack of ICT facilities. But the government has begun to roll out the initiatives at schools. The GautengOnline (GoL) Schools programme has begun initiating and implementing ICT in the province of Gauteng. A statement issued by the Provincial Government acknowledges that the GoL ICT project was designed not only to provide computer literacy, but to support the implementation of one of the key strategic outcomes of the province, the delivery of "Quality Basic Education" (Department of Education, 2011). Learners will therefore be able to maximise their potential in a sustainable e-learning environment.

Edutainment to create innovative, interactive and exciting classrooms

Social media has the power to transform a boring classroom into a dynamic interactive lesson. Dlamini (2012) asserts that social media platforms can inform every step of the research process: providing feedback during research and then assisting in the promotion of the published work. Teaching and learning at schools can be spread beyond just academic circles.

ELearning using social media

Social media can be used as an educational tool to send summarised notes to students, notify parents of important academic dates and educators can update information and latest lesson materials. Divol et al. (2012) adds that once social media platforms came into being, sites including Facebook and Twitter began to permeate every facet of life. Even SABC education has embraced the advancement of education through social media using the sites Facebook, Twitter, Youtube and Educational Blog.

Development of ICT Skills

Many South African educators graduate and once placed in schools, they are confined to the classroom and are rarely kept informed of the latest teaching and learning trends. This impacts negatively on the students who are inadequately prepared for higher education. By using and incorporating ICT's in the classroom both students and educators have an added advantage of limitless access to information. In order for educators to go into the classroom and confidently implement the use of ICT's they require adequate practical application (Dlamini, 2012).

Challenge of Financing Educational Technology

The Department of Education (2011) mentions two of the main targets for e-education:

- All schools connected and using ICT for teaching and learning.
- All provinces have budget allocated for e-education.

Conclusion

This section gives concluding remarks that are drawn from the findings and the analysis of data in the study.

The following conclusions, based on the findings of this study are drawn:

- The majority of the respondents were from semi – rural areas.
- Most of the respondents were adolescents between the ages of 10 – 15 years old.
- Females were the dominant respondents.
- Majority of the respondents were Black Africans.
- Most schools were equipped with the basic technological devices.
- Although schools were equipped with the technological devices, students were not aware or were unable efficiently use them.
- The main challenge schools faced was the cost of maintaining educational technology.
- Affordability, sustenance and introduction of technology were other challenges schools faced.
- Majority of the students enjoy the way lessons are taught at school.
- Many students would like to learn using multimedia presentations.
- Most educators are still utilising conventional teaching aids such as textbooks and worksheets.
- A small percentage of educators are using computers to enhance classroom presentations.

- Facebook and Mxit were found to be the most utilised social media amongst respondents.
- Respondents stated that they require adequate training to utilise computers.
- Majority of the respondents are enthusiastic to use technology to learn.
- Respondents do not feel technology takes up too much time.
- Many respondents agreed that technology is not a waste of time.
- Majority of the respondents agree that the iPad should be used as a teaching and learning tool.
- Respondents asserted that the use of technology will help create global classrooms.
- Most respondents agreed that BBM can be used effectively to send summarised notes to students.
- Majority of the respondents agreed that Twitter can be used to read the latest news.
- Many respondents stated that interactive nature of Facebook allows quick feedback in the teaching and learning process.
- The majority of respondents agree that social networking can be used for learning.
- Many respondents suggest that new technology will not disrupt lessons.
- Most respondents agree that the government should build high technology schools to implement ICT learning.
- Many respondents disagreed that first world initiative cannot be applied to our culture.

Recommendations

This section provides recommendations that are made, based on the findings, in order to enhance pedagogy.

From the findings of this study the following recommendations are suggested:

- The Provincial Department of KZN should also use the GoL approach as it will allow network cover across the province and computer facilities at every public school.
- By using social media students can now interact and share thought and ideas with each other on homework and educators can discuss lesson plans or research topics.
- Social media allows parents to add their input; new audiences can come in and join the learning process.
- Once adequate ICT access is given to public schools in rural areas they can then network and link with other public schools which can help fast track the learning process.

- By using social media public schools can encourage school spirit, make class announcements, conducts discussions, share learning materials, offer virtual classrooms and provide interactive projects.
- Social media allows students to feel involved and this will maintain their interest and keep them engaged in an entertaining manner even in rural areas.
- The use of social media allows educators to connect with students on a different level and rise to new expectations but still allowing educators to keep a close eye on student conduct online and maintain appropriate channels of communication.
- Staff at public schools should use the services offered by the Intel Teach Program and SchoolNet South Africa, who will workshop and provide hands-on introduction to ICT's and access to a variety of social media.
- Several schools in an area, such as Richards Bay can even arrange an ICT workshop for all the educators who are located in the area and can meet at a central location point.
- Groups can be formed and the teams can participate, share content knowledge and become proficient in using social media.
- Principals or government officials can also conduct social media audits. This process could entail reviewing the use of the schools ICT and social networking.
- Once the analysis is completed, recommendations can be given so that social media can grow in the right direction.
- Educators can then begin training and assisting learners to develop their ICT skills.
- The fact is that the public funding of e-education is a challenge in South Africa. Intel Corporation (2007:05) suggests that the following measures can be used to support government funding:
  - Combining education funding sources: the costs of educators' electronic equipment can be funded using both salary budgets and treasury funds, where teachers help to offset technology costs by sacrificing a small portion of their salaries.
  - Public-private partnerships (PPP): private financing and risk management can be incorporated into the funding mix for e-learning. However, this model mainly applies to infrastructure components and is not a traditional PPP where the private sector gets a financial return.

- o Forming consortia: schools can pool their purchasing power in order to get favourable prices from the suppliers.

- o Philanthropy and grants from development agencies: grants can contribute to funding e-learning.

- Abrahams and Sibanda (2012:65) further concluded that the Financial and Fiscal Commission recommends that:

  - o The e-education policy should be funded as a part of government's operating budget for the programme, just like teacher salaries, school buildings and other teaching aids.

  - o A well-structured, inter-governmental financing mechanism should be established with explicit guidelines to provincial departments of education regarding the budget line items that must be prioritised in their annual budget allocations, as well as those budget line items that will be contained in the national budget allocation.

  - o The national and provincial education sector requires firm and expert guidance on designing e-education, and such expertise should relate to e-education, not merely to information technology. In order to promote advances in e-education, it may be necessary to consider the establishment of an e-Education Commission, constituted of government officials and e-education specialists to act as an advisory body.

  - o Limited data is available on e-education expenditure and specifically on e-learning expenditure, despite clear policy goals adopted in 2004 and targets established for 2013. This should be remedied through reporting on e-learning budget allocations and expenditure and, more broadly, on e-education in the annual reporting process. Such data can inform national and provincial planning, curriculum design and the development of education human resources. It can also inform the work of an e-Education Commission, enabling such a structure to advise government effectively. Furthermore, explicit reporting on financial data will enable a better analysis of the strengths and weaknesses relevant to achieving the policy goals of the White Paper on e-Education.

Chapter Summary

This research study has been quite enlightening and has provided positive feedback regarding the relevance of social media at public schools. It has also assisted in finding possible solutions to help introduce and implement ICT's at public schools. This research project found that educators at public schools in Richards Bay are willing to implement ICT's in the classroom but they lack the expertise and there is a shortage of infrastructure.

This study proposes that staffs at public schools are to be given adequate training to equip them with the skills to utilise ICT's. Students are keen and excited about learning with more multimedia presentations and social media. Social media creates a learning environment using edutainment. This can help with yielding higher pass rates and better academic results. This research suggests that once educators are equipped they can assist the students or have an in-house specialist educator in ICT who will be responsible for computer skills development. There needs to be budget allocations for e-education at both national and provincial levels.

Whilst public schools wait for the funding of e-education from government, they can try and acquire sponsors from businesses and the local community to Develop functional ICT centres. Resources can also be pooled with neighbouring schools to maximise ICT learning. Technology is rapidly developing across the globe and South Africa needs to try and align itself with the technology of first world countries. No better place to start than within the education sector. Students and educators in first world countries are singing the positive praises of using social media to maximize learning. Private schools in South Africa have already begun implementing ICT's as part of the curriculum; learners at public schools are therefore at a disadvantage and this needs to be remedied so that we can prepare our youth to succeed both nationally and internationally on completion of their schooling career.

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test-bring-your-own-technology-programs/#ixzz2DPJ3LB9c. [Accessed on 27

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7985. [Accessed on 21 September 2011].

Appendix A: Concept Matrix

References \\ Concepts	Advancement of education using new technology	Edutainment in education using ICTs	Curriculum content using ICTs	Developing skills and knowledge of learners and personnel	Interactive lessons using ICTs	Social media used to enhance education	Challenges faced in implementing ICT in education
Abrahams, L. and Sibanda, D. (2012).	✓			✓		✓	✓
Addison, J. (2010).	✓		✓	✓			✓
Aho, K. (2005).		✓		✓		✓	
Archbold, R. (1995).				✓			
Arellano, N.E. (2012).				✓			
ARlab, (2012).				✓			
Attri, A.K.(2010).		✓	✓	✓			
Aurasma, (2012).		✓		✓			
Bacal, R. (2012).				✓			
Bagozzi, R. P. and Warshaw, P. R. (1992).	✓			✓	✓	✓	
Belic, D. (2011).	✓			✓	✓		
Bennett, F. (1999).	✓	✓		✓	✓		
Benson, R. (n.d.).	✓				✓		

Bertrand, I and Hughes, P. (2005).			✓				✓
Blackhurst, A. E. and Edyburn, D. L. (2000).	✓			✓			
Blurton, C. (1999).	✓			✓			
BuaNews, (2012).			✓				
Byrne, R. (2010a).	✓	✓			✓		
Byrne, R. (2010b).	✓	✓			✓		
Carr, A. (2010).	✓	✓			✓		
Casey, B. (2010).		✓	✓	✓	✓		
Cia, D. (2010).	✓				✓		
Cisco, (2008).	✓			✓			
Cohn, M. (2010).						✓	
Cole, R and Crawford, T. (2007).	✓						
Coley, R.J., Cradler, J. and Engel, PK., (1997).	✓	✓					
Cordes, C., Monke, L. and Talbott, S., (n.d.).	✓	✓					
Crawley, A. (n.d.).	✓				✓	✓	
Crosbie, V. (2002).						✓	✓
Curriculum News, (2011).	✓	✓	✓	✓	✓		
Daccord, T. (2008).	✓						
Daily Industry News, (2012).					✓		
Davis, F. D. Bagozzi, R. P. and Warshaw, P. R. (1989).					✓		

Declude, (2012).	✓						
Dede, C. (2010).							✓
Demetriadis, S., Barbas, A., Molohides, A. et al. (2002).	✓		✓		✓		
Department of Basic Education, (2011).		✓	✓	✓	✓		
Department of Education, (2003).	✓		✓	✓	✓		✓
DeSantis, N. (2012).	✓		✓	✓			
Devries, K. (2007).	✓						
Dillon, A. and Morris, M. (1996).						✓	
Divol, R., Edelman, D. and Sarrazin, H., (2012).					✓		
Dlamini, S. (2012).					✓		
Dolz, J. (2012).	✓						
Drier, H. S. (2001).	✓					✓	
Educause Learning Initiative, (2005).	✓						
Edward-Blackhurst, A. (2001).	✓	✓					
Ehrmann, S.C. (n.d.).	✓						
Elliot, D. and Lester, P.M. (2002).	✓						
Engineering Tips, (2012).	✓						
Flew, T. (2002).	✓				✓		
Fudin, S. (2012)	✓						
Gagen, M. (2004)	✓			✓			

Gahala, J. (2001).		✓		✓	✓	✓	
Galinovsky		✓		✓	✓	✓	
Garthwait, A. and Weller, H. (2005).			✓	✓	✓		
Gauteng Provincial Government, (2012).	✓	✓	✓	✓	✓		✓
Globalization 101, (2012).	✓						
Government Gazette, (2004).	✓	✓	✓	✓	✓		✓
Green, H. and Hannon, C. (2007).		✓	✓	✓			
Griffin, E.A. (2005).		✓	✓	✓			
Guerrero, S. Walker, N. and Dugdale, S. (2004).	✓						
Gulley, K.P. (2003).			✓	✓			
Hanson, R. (2012).	✓	✓		✓			
Hess, A.L. (2011).	✓						
Hoffner, H. (2007).	✓	✓	✓	✓	✓		
Hollnagel, E. and Wood, D.D. (2005).	✓						
Honey, M., Mcmillan, K. and Spielvogel, R. (2005).	✓	✓	✓				
Hopkins, D. (2010).	✓						
Inash, (2012).	✓						
Indosoft Inc., (2012).	✓				✓		
Infosec, (2012).	✓						
Inglobe Technologies, (2011).	✓	✓	✓				

Intec College, (2012).	✓	✓	✓	✓			
Intel Corporation, (2007).	✓	✓					
Intel Education, (2011).	✓	✓	✓	✓	✓		
iTunes, (2012).	✓						
John, R. and Finnegan, J.R. (2002).	✓						
Jonassen, D., Howland, R.M. and Crismond, D (2012).	✓	✓					
Jugaru, G. (n.d.).	✓	✓					
Kimmel, A.J. (ed) (2005).		✓			✓	✓	
Knowledge way, (2011).		✓		✓	✓		
Kozma, R. (2010).	✓	✓			✓		
Levine, S.J. (1998).	✓				✓		
Looper, L. (n.d.).	✓				✓		
Mailchimp, (n.d.).	✓	✓			✓		
Martin, T. (2011)	✓	✓					
Merriam-Webster, (n.d.)	✓						
Mersham, G and Skinner, C. (1999).	✓				✓		
Morton, R. and Ross, J. (2012)	✓		✓				✓
Muzata, B. (2011).	✓	✓		✓			
Nash, R. (2011).			✓				
Nazzaro, J. N. (1977).			✓				
Neolane, (2011).	✓						

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Reference							
Nepad, (2008).	✓		✓	✓		✓	✓
News24, (2011).			✓				
Ng, W. and Gunstone, R. (2002).		✓			✓	✓	
Oblinger, D.G. and Oblinger, J.L. (2005).	✓	✓		✓	✓	✓	
Offord, P. (2008).	✓	✓		✓	✓	✓	
Omer, S. (2011).			✓	✓			
Ontario College of Teachers, (2011).	✓	✓		✓	✓	✓	
Open Culture, (2012).	✓	✓		✓			
Oriko, S. (2011).			✓	✓			✓
Pagliaro, S. and Klindera, K. (2001).	✓	✓		✓			
Pandor, N. (2007).	✓	✓		✓	✓		✓
Pedretti, E., Mayer-Smith, J., and Woodrow, J. (1998).	✓	✓		✓	✓	✓	
Pempek, T.A., Yevdokiya, A. and Calvert, S.L. (2009).						✓	
Raizada, V. (2012).	✓						✓
Reuben, R. (2008).	✓					✓	
Richardson, J. (2000).	✓			✓	✓		
Richmond, R. (n.d.)	✓	✓		✓	✓		
Ridivi consulting, (2012).	✓					✓	
Rollag, K. and Billsberry, J. (2010).	✓	✓		✓			
Rosen, L. and Weil, M. (1995).				✓	✓		

Rusten, E. and Hudson, H.E. (n.d.).	✓						✓
SABC, (2012).					✓	✓	
Sabornie. E.J. (2009).	✓	✓					
Santally, M.I. and Senteni, A. (2005).	✓	✓					
Sassen, S. (2002).	✓	✓			✓		
SchoolNet South Africa, (2010).	✓	✓	✓	✓	✓		
Scott, C. (2011).	✓					✓	✓
Serim, F. (2001).	✓	✓	✓	✓	✓		
Siemens, G. (2004).	✓	✓					
Silverstone, S., Phadungtin, J and Buchanan, J. (2009).	✓	✓		✓			
Singer, S. (2011).	✓	✓	✓	✓	✓		
Soares, L. (2012).	✓	✓			✓		
Sociology guide, (2011).	✓	✓		✓			
Sowder, J.T. (2003).	✓	✓	✓	✓			
Srinivasan, M.R.(2007).	✓	✓	✓	✓			
Statistics South Africa, (2010).			✓				
Stempel, A. and Stellar, J. (2009).	✓				✓	✓	
Suttor, M. (2012).	✓						
Szucs, E.U. (2009).	✓	✓	✓	✓	✓		
Tabe, B.T. (2005).	✓				✓		
Teachers Training, (2011).	✓	✓	✓	✓	✓	✓	

The Presidency, (2011).	✓		✓	✓			
Toyama, K. (2011).	✓	✓	✓	✓	✓		
UNESCO, (2010).	✓		✓	✓	✓		
Venkatesh, V. et al. (2003).						✓	
Verdü, S. (2000).	✓					✓	
Volkman, E. (2011).	✓						
Waxman, O.B. (2012).	✓	✓			✓		
Watkins, S.C. (2009).		✓				✓	
Watters, A. (2011).	✓	✓					
Wikibooks, (2012).	✓	✓	✓	✓	✓		
Williams, F. (1992).	✓						
Wingfield, N. (2012).	✓	✓		✓			
Wixom, B. H., and Todd, P. A. (2005).	✓						
YouTube, (2012).	✓	✓	✓	✓	✓		
Yuen, A. and Ma, W. (2002).				✓			

Appendix B: Letter granting Permission

Letter of Informed Consent

UNIVERSITY OF ZULULAND

Department of Communication Science

Dear Respondent,

B.A. Communication Science Masters Research Project

Researcher: Avashni Reddy (073 411 4341)

Supervisor: Professor H. Rugbeer (035-9026210)

Co-supervisor: Dr. G. M. Naidoo (035-9026164)

My name is Avashni Reddy. I am a Masters student at the Department of Communication Science at the University of Zululand. You are invited to participate in a research project entitled: **The Relevance of Social Media at Public Schools.**

Through your participation I hope to understand: Ways in which new technology can advance education at schools. Ways in which educators can create exciting and innovative lessons using new technologies that can be used in the classroom. The level of computer knowledge and skills of educators and learners. New technologies that are commonly used by learners to encourage the use of those technologies for productive learning. The results of this survey are intended to contribute to the advancement of education at schools.

The following schools have been identified to conduct my research: Bay Primary, Richards Bay Secondary, Floratan Primary, Brackenham Primary, Lizwi High, Sinaye Primary, Kati Primary, Sitholinhlanhla Primary.

Your participation in this project is voluntary. You may refuse to participate or withdraw from the project at any time with no negative consequence. There will be no monetary gain from participating in this research project. Confidentiality and anonymity of records identifying you as a participant will be maintained by the researcher.

If you have any questions or concerns about participating in this study, please contact me or my supervisors at the numbers listed above. It should take you about 10 minutes to complete the questionnaire. I hope you will take the time to complete the questionnaire.

Sincerely

Investigator's signature _Reddy_   01 /11 /11
                                                        Date

Permission granted / ~~not granted~~

Dr. V.E. Sikhosana   1/11/11
                                                        Date

Appendix C: Letter of Consent

Letter of Informed Consent

UNIVERSITY OF ZULULAND

Department of Communication Science

Dear Respondent,

B.A. Communication Science Masters Research Project
Researcher: Avashni Reddy (073 411 4341)
Supervisor: Professor H. Rugbeer (035-9026210)
Co-supervisor: Dr. G. M. Naidoo (035-9026164)

My name is Avashni Reddy (student number: 206000010). I am a Masters student at the Department of Communication Science at the University of Zululand. You are invited to participate in a research project entitled: **The Relevance of Social Media in Public Schools in the Richards Bay area.**

Through your participation I hope to understand: Ways in which new technology can advance education at schools. Ways in which educators can create exciting and innovative lessons using new technologies that can be used in the classroom. The level of computer knowledge and skills of educators and learners. New technologies that are commonly used by learners to encourage the use of those technologies for productive learning. The results of this survey are intended to contribute to the advancement of education at schools.

Your participation in this project is voluntary. You may refuse to participate or withdraw from the project at any time with no negative consequence. There will be no monetary gain from participating in this research project. Confidentiality and anonymity of records identifying you as a participant will be maintained by the researcher. If you have any questions or concerns about participating in this study, please contact me or my supervisors at the numbers listed above. It should take you about 10 minutes to complete the questionnaire. I hope you will take the time to complete the questionnaire.

Sincerely

Investigator's signature_____ Date_____

Appendix D: Respondent Statement

Respondent Statement

University Of Zululand

Department of Communication Science

B.A. Communication Science Masters Research Project

Researcher: Avashni Reddy (073 411 4341)

Supervisor: Professor H. Rugbeer (035-9026210)

Co- supervisor: Dr. G. M. Naidoo (035-9026164)

CONSENT

I _____ (full name of participant) hereby confirm that I understand the contents of this document and the nature of the research project, and I consent to participating in the research project. I understand that I am at liberty to withdraw from the project at any time, should I so desire.

_____   _____

Signature of Participant   **Date**

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VOLUNTARY QUESTIONAIRE FOR SCHOLARS

The Relevance of Social Media in Public Schools in the Richards Bay area

Researcher: AVASHNI REDDY

Supervisor: PROF. H. RUGBEER

Co-supervisor: DR. G. M. NAIDOO

Faculty of Arts

Department of Communication Science

University of Zululand

Please complete this voluntary questionnaire on the Relevance of Social Media in Public Schools.

- Complete the questionnaire by pen and please do not revise your initial answers.
- Please sign the letter of informed consent, giving me permission to use your responses for this research project.
- Tick or cross in the box where required.

SECTION A: INFORMATION ABOUT YOURSELF

Please indicate the type of community you live in: Place ONE tick (✓) or a cross (X) in the appropriate block:

Question 1	Tick (✓) or a cross (X)	Office use
Rural		1
Semi-rural		2
Urban		3

Please indicate your gender. Place ONE tick (✓) or a cross (X) in the appropriate block:

Question 2	Tick (✓) or a cross (X)	Office use
Male		1
Female		2

Please indicate your age group: Place ONE tick (✓) or a cross (X) in the appropriate block:

Question 3	Tick (✓) or a cross (X)	Office use
10 – 15 years old		1
16 – 21 years old		2
22 and older		3

Please indicate your ethnic group. Place ONE tick (✓) or a cross (X) in the appropriate block:

Question 4	Tick (✓) or a cross (X)	Office use
Black		1
White		2
Indian		3
Coloured		4
If other specify		5

SECTION B: INFORMATION ABOUT TECHNOLOGY AT SCHOOL

Indicate whether each statement is TRUE or FALSE. Tick (✓) or cross (X) in the appropriate block:

Question 5	True	False	Not Sure	Office use
My school has a computer which I am allowed to use				1
My school has at least one television which I am allowed to use				2
My school has at least one radio which students listen to.				3
My school has at least one Overhead projector which is used in our classroom				4
My school has at least one telephone which I am allowed to use				5
My school has at least one computer which is connected to the Internet (which I am allowed to use)				6
My school has at least one (video) camera which I am allowed to use				7
My school has at least one DVD player which I am allowed to use				8

Please indicate what challenges you think educational technology faces. Tick (✓) or cross (X) in the appropriate block:

Question 6	Agree	Disagree	Not Sure	Office use
Current educational technology is not affordable to children at my school				1
Good educational technology is only affordable at affluent schools.				2
The cost of maintaining educational technology is expensive				3
It is difficult to sustain new technologies at public schools				4
New technology cannot be used at public schools because it is easily stolen				5
Public schools have a limited budget to constantly update new technologies.				6
Public schools find it difficult to introduce new technology at schools				7

SECTION C: TECHNOLOGICAL SKILLS AND LEARNING METHODS

Tick (✓) or cross (X) in EACH row:

Question 7	Yes	No	Not Sure	Office use
I enjoy the way lessons are taught at school				1
I would like to learn with more multimedia presentations				2

Tick (✓) or cross (X) in EACH row:

Question 8	Yes	No	Not Sure	Office use
Educators use textbooks and worksheets to teach and learn in the classroom				1
Educators use computer presentations with overhead projectors to teach and learn in the classroom				2
Educators use television programmes or presentations to teach and learn in the classroom				3
Educators use radio / musical recordings to teach and learn in the classroom				4
If other, specify				5

Please indicate which social networking you utilise. Tick (✓) or cross (X) in the appropriate block:

Question 9	Yes	No	Not Sure	Office use
I use Facebook				1
I use Twitter				2
I use Mxit				3
I use Blackberry messenger (BBM)				4
I use Wats app				5
If other specify				6

Tick (✓) or cross (X) in EACH row:

Access and Proficiency of the computer

Question 9	Yes	No	Not Sure	Office use
I have access to a computer				1
I have access to Internet				2

Tick (✓) or cross (X) in EACH row:

Efficiency

Question 10	Yes	No	Not Sure	Office use
I can work well on a computer				1
I am good at surfing the Internet				2

Tick (✓) or cross (X) in EACH row:

General Perception

Question 11	Yes	No	Not Sure	Office use
Everyone should be updated and use the latest technologies in the classroom				1
Newer methods of teaching works better than the older methods				2
Using technology in the classroom is a waste of time				3
Using technology takes up too much of my time.				4

Please indicate which social networking your teacher uses to teach some lessons. Tick (✓) or cross (X) in the appropriate block:

Question 9	Yes	No	Not Sure	Office use
Facebook				1
Twitter				2
Mxit				3
Blackberry messenger (BBM)				4
Wats app				5
If other, specify				6

Tick (✓) or cross (X) in EACH row:

Question 12	Agree	Disagree	Not Sure	Office use
The iPad should be used as a teaching and learning tool in the classroom				1
The iPad should be used to replace all textbooks and worksheets.				2
Facebook and twitter are excellent teaching and learning tools				3
Mxit can be effectively used to teach and learn in the classroom				4
New technology should be used to create global classrooms				5
Blackberry's "BBM" can be usefully applied to send summarised notes to students.				6
Students should be taught to read current news via twitter				7
Facebook should be used to give notes and explain concepts to students.				8
I like the interactive nature of Facebook because we can make comments and teach each other.				9
I support the following idea: "Learning can be enjoyable if teachers use social networks to explain concepts".				10
The use of new technology, such as the iPad and iPhone in class will disrupt lessons and cause chaos in class.				11
New technology is a waste of time.				12
New technology is a waste of good time in the classroom.				13
South African schools are not yet ready for new technology.				14
The state of South African schools is getting worse and the use of new technology in our schools will further ruin the situation.				15
If we have to use new technology in our schools then the government must build high tech schools which can allow educators to implement such technology.				16
First world initiatives cannot be applied to our culture.				17

Thank you for completing this questionnaire

Appendix F: Research Instrument 2

VOLUNTARY QUESTIONAIRE FOR EDUCATORS / PERSONNEL

The Relevance of Social Media in Public Schools in the Richards Bay area

Researcher: AVASHNI REDDY

Supervisor: PROF. H. RUGBEER

Co-supervisor: DR. G. M. NAIDOO

Faculty of Arts

Department of Communication Science

University of Zululand

Please complete this voluntary questionnaire on the Relevance of Social Media in Public Schools.

- Complete the questionnaire by pen and please do not revise your initial answers.
- Please sign the letter of informed consent, giving me permission to use your responses for this research project.
- Tick or cross in the box where required.

SECTION A: INFORMATION ABOUT YOURSELF

Please indicate the type of community you live in: Place ONE tick (✓) or a cross (X) in the appropriate block:

Question 1	Tick (✓) or a cross (X)	Office use
Rural		1
Semi rural		2
Urban		3

Please indicate your gender. Place ONE tick (✓) or a cross (X) in the appropriate block:

Question 2	Tick (✓) or a cross (X)	Office use
Male		1
Female		2

Please indicate your age group: Place ONE tick (✓) or a cross (X) in the appropriate block:

Question 3	Tick (✓) or a cross (X)	Office use
Below 20 years old		1
21 to 30 years old		2
31 to 40 years old		3
41 to 55 years old		4
55 years and older		5

Please indicate your ethnic group. Place ONE tick (✓) or a cross (X) in the appropriate block:

Question 4	Tick (✓) or a cross (X)	Office use
Black		1
White		2
Indian		3
Coloured		4
If other specify		5

SECTION B: INFORMATION ABOUT TECHNOLOGY AT SCHOOL

Indicate whether each statement is TRUE or FALSE. Tick (✓) or cross (X) in the appropriate block:

Question 5	True	False	Not Sure	Office use
My school has a computer which I am allowed to use				1
My school has at least one television which I am allowed to use				2
My school has at least one radio which I am allowed to use				3
My school has at least one overhead projector which I am allowed to use				4
My school has at least one telephone which I am allowed to use				5
My school has at least one computer which is connected to the Internet (which I am allowed to use)				6
My school has at least one (video) camera which I am allowed to use				7
My school has at least one DVD player which I am allowed to use				8

Please indicate what challenges you think educational technology faces. Tick (✓) or cross (X) in the appropriate block:

Question 6	Agree	Disagree	Not Sure	Office use
Current educational technology is not affordable to children at my school				1
Good educational technology is only affordable at affluent schools.				2
The cost of maintaining educational technology is expensive				3
It is difficult to sustain new technologies at public schools				4
New technology cannot be used at public schools because it is easily stolen				5
Public schools have a limited budget to update their existing technology.				6
Public schools find it difficult to introduce new technology at schools				7

SECTION C: TECHNOLOGICAL SKILLS AND LEARNING METHODS

Tick (✓) or cross (X) in EACH row:

Question 7	Yes	No	Not Sure	Office use
The resources I use to prepare my work is adequate				1
I would like to utilise new technology to enhance my lesson				2
The implementation of CAPS[1] is going to have a positive effect on the education system of S.A.				3

Please indicate which social networking you utilise. Tick (✓) or cross (X) in the appropriate block:

Question 8	Yes	No	Not Sure	Office use
I use Facebook				1
I use Twitter				2
I use Mxit				3
I use Blackberry messenger (BBM)				4
I use Whats app				5
If other specify				6

---

[1] CAPS: Curriculum and Assessment Policy Statement

Tick (✓) or cross (X) in EACH row:

Access and Proficiency of the computer

Question 9	Yes	No	Not Sure	Office use
I have access to a computer				1
I have access to Internet				2

Tick (✓) or cross (X) in EACH row:

Efficiency

Question 10	Yes	No	Not Sure	Office use
I can work well on a computer				1
I am good at surfing the Internet				2

Tick (✓) or cross (X) in EACH row:

General Perception

Question 11	Yes	No	Not Sure	Office use
Everyone should be taught to use the latest technology in the classroom				1
Newer methods of teaching works better than the older methods				2
Using technology in the classroom is a waste of time				3
Using technology takes up too much of my time.				4

Tick (✓) or cross (X) in EACH row:

Question 12	Agree	Disagree	Not Sure	Office use
The iPad should be used as a teaching and learning tool in the classroom				1
The iPad should be used to replace all textbooks and worksheets.				2
Facebook and twitter are excellent teaching and learning tools				3
Mxit can be effectively used to teach and learn in the classroom				4
New technology should be used to create global classrooms				5
Blackberry's "BBM" can be usefully applied to send summarised notes to students.				6
Students should be taught to read current news via twitter				7
Facebook should be used to give notes and explain				8

concepts to children.				
I like the interactive nature of Facebook because children can make comments and teach each other.				9
I support the following idea: "Teaching and learning can be optimised if educators make use of the technology which children enjoy playing with".				10
The use of new technology, such as the iPad and iPhone in class will disrupt lessons and cause chaos in class.				11
I am too old to keep up with new technology and to use it in class – it's a waste of time.				12
New technology is a waste of good time in the classroom.				13
South African schools are not yet ready for new technology.				14
The state of South African schools is getting worse and the use of new technology in our schools will further ruin the situation.				15
If we have to use new technology in our schools then the government must build high tech schools which can allow educators to implement such technology.				16
First world initiatives cannot be applied to our culture.				17

Thank you for completing this questionnaire