

University of KwaZulu-Natal

**THE USE OF DIGITAL MEDIA IN ENHANCING TEACHING AND LEARNING IN
A SECONDARY SCHOOL IN THE PINETOWN DISTRICT**

U. RAJPAL

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UNIVERSITY OF KWAZULU-NATAL

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By

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DECLARATION

I the undersigned, Uvisha Rajpal, declare that this dissertation is my own work and has not been submitted previously for any degree at any university.

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Researcher

Date

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- To my creator, God Almighty. All the prayer and devotion paid off in the end.
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DEDICATION

The research study is lovingly dedicated to:

My mum and dad, Mr Devanand Rajpal and Mrs Shyama Rajpal.

Thank you for your loving support during my academic years. Your wisdom and encouragement have been a pillar of strength in my difficult times throughout my learning career. Your belief in my success is greatly appreciated. I could write another thesis on how grateful I am for all that you have done for me throughout my life and still continue to do. No amount of money or time can account for everything. I wish to become as humble as both of you are and serve as you do. Thank you for putting up with all my emotions, stressful days and nights. I hope to make the two of you proud always.

ABSTRACT

Technology is slowly but surely taking over the world and almost all of life's activities require technological intervention. Technological gadgets like cellular phones can be relatively small and mobile storing a host of information like emails, videos, photographs, etc. A cellular phone is primarily utilised to communicate via verbal conversations and with text messages. Almost every child utilises a cellular phone to facilitate their everyday life activities and they store and carry the device everywhere they go.

This study aimed to explore the enhancement of teaching and learning using digital media in a secondary school. The study was carried out at a South African secondary school in the Pinetown district in KwaZulu-Natal. A qualitative approach was the centre of the research methodology for this study. Six teachers and six learners participated in the study. The six teachers were given a questionnaire and were interviewed as well. The six learners were given a questionnaire. The theoretical framework that underpinned this study was John Dewey's Experiential Learning Theory.

The analysis of the data revealed that digital media devices in the classroom played a significant role in enhancing teaching and learning. Teachers utilised digital media devices in their lessons, which had a major influence on the learners as they related well. According to the study, learners' academic results also improved. Learners related well to the use of digital media devices, they had fun and enjoyed lessons. Furthermore, the data clearly revealed that the utilisation of digital media devices in the classroom was extremely essential due to the fast pace and technologically advanced world that we live in today.

The way forward for the future is definitely for digital media devices to be utilised in the classroom. Learners need to be exposed to these digital media devices from an early age as we live in the digital age. Digital media devices definitely enhance teaching and learning for both the teachers and learners. In this internet era they seem comfortable and enjoy the usage. There is enhancement and educational benefits of teaching and learning utilising digital media in the classroom.

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A Conceptual Model of Dewey's Philosophy of Experiential Education adapted from T. Grady Roberts (2003), An interpretation of Dewey's Experiential Learning Theory.

GLOSSARY

ICT	Information Communication Technology
MP3	MPEG Audio Layer 3
CD-ROM's	Compact Disc Read Only Memory
DVD's	Digital Versatile Disc
IT	Information Technology
NATE	National Association for the Teaching of English
DOE	Department of Education
DACST	Department of Arts Culture Science and Technology
HSRC	Human Sciences Research Council
NRF	National Research Foundation
UNINET	University Network
Etc.	Et Cetera
SWOT	Strengths, Weaknesses, Opportunities, Threats
U.S.A	United States of America
e-Learning	Electronic Mail
OHP	Overhead Projector
LMS	Learning Management Systems
TELI	Technology Enhanced Learning Initiative
CAL	Computer Assisted Learning
DoC	Department of Communications
LCD	Liquid Crystal Display
SRN	Service Request Number
e-mail	Electronic Mail
PS4	Play Station Four

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CHAPTER ONE

INTRODUCTION TO THE STUDY

1.1 Introduction

Digital media devices have taken over the world, from laptops to cellular phones, iPads, tablets and all the latest technologies. It has also dominated the classrooms of many schools throughout the world. We live in a digital world that is technologically advanced therefore learners have the ability to operate digital media devices both at home and at school. Digital media devices are provided at school for the learners and teachers. The advances that are taking place in the world today are rapid and we need to keep up with the increase as it is in every workplace. Young or old, people own digital media devices for personal use as well. Digital media devices are used in the classroom for enhancing teaching and learning so that learners are exposed to the most current information that is available worldwide. The internet is the most valuable source of information that gives us recent updates and also access to all social networks. These social networks allow communication throughout the world. Learners' senses are stimulated by the use of digital media devices in the classroom. There are many advantages for the utilisation of digital media devices, and the future lies in the hands of young leaders and the use of digital media devices.

1.2 Problem Statement

The use of digital media in schools is a recent introduction and whether it is helpful or not has to be researched and information has to be carefully gathered as to whether it has an impact. This impact hopefully should reflect positively as we are living in an information era that is fast growing and digital media is part of our everyday lives in all aspects.

1.3 Rationale

The usage of digital media devices in classrooms to enhance teaching and learning is becoming popular in many schools. Furthermore, digital media devices are easily available for purchase throughout the world. The popularity and dependency of teachers and learners

on digital media devices for current information and delivering of content is in demand. In my interaction with the teachers and learners I have discovered that both teachers and learners enjoy the use of digital media devices in their lessons. They preferred the modern way of teaching rather than the traditional chalk and talk method where learners' skills were neglected. This study therefore sought to highlight the usage of digital media devices in a secondary school. Secondary school learners are mature and can handle digital media devices with care and understand the importance of the maintenance of these technological tools. There are many reasons for the importance of the use of digital media devices discussed in this study.

1.4 Purpose and focus of the study

The purpose of this study was to examine the usage of digital media in enhancing teaching and learning. It sought to highlight the usage of digital media in the classroom in a secondary school. It also sought to identify these aspects with a view to addressing negative aspects and promoting positive usage of this technological tool. It also shows the role played by the teachers as well as the learners.

1.5 Location of the study

The research site was at a secondary school in the Pinetown district. The participants of this study were teachers as well as learners. As an introduction I introduced myself and explained to teachers and learners the purpose of my visitation and the reason for my study, giving them some details to help them understand the reason for my presence. The learners were given the questionnaires. They could answer these questionnaires in their spare time, which did not affect their academic space. Consent forms were also given to them, which they had to take home so that their parents could allow for participation as well as grant consent or permission. Parents could also view the information of the study so that they could understand the purpose of the research. All eleven questions were comfortably answered by learners.

Teachers were given questionnaires and interviewed. These were issued and conducted on the school premises, again not affecting their academic time as the questionnaires were handed to teachers to answer at their leisure. Teachers also had to fill in forms of permission for their

questionnaires and interviews. Interviews took place at the school of research during their available time when they were not due in the classroom. Each teacher was individually interviewed in the science office as this specialised room was not occupied by any other persons except for the interviewer and interviewee. All interview questions were comfortably answered by all educators without any hesitation.

1.6 Research questions

This study was situated within a qualitative research approach and data was generated through the use of questionnaires for teachers and learners and interviews for teachers.

The study was guided by the following research questions:

1. What are the educational benefits in using digital media in teaching and learning?
This question stems directly from the topic of the study and sought to explore the usage of digital media in enhancing teaching and learning.
2. How do teachers and learners use digital media to improve teaching and learning?
This question has a direct relation to the first one and sought to reveal how to improve teaching and learning with the usage of digital media.

1.7 Conclusion and overview of the thesis

Chapter One

Chapter one introduces the reader to the study and comprises of the rationale, focus and purpose of the study, research questions, methodology and an overview of the thesis. Each chapter is discussed so the reader knows what to expect.

Chapter Two

The comprehensive literature review is discussed in Chapter two. Chapter two starts off with the introduction and orientation to the chapter. It projects both the positive and negative aspects of the usage of digital media to enhance teaching and learning. Some of the themes that are discussed are definitions of various digital media devices, followed by the importance of digital media, educational benefits and stimulation. Various authors also mention both advantages as well as disadvantages of digital media devices being used in the classroom.

The review allows the reader to understand the numerous functions and significance of integrating digital media devices in lessons.

Chapter two also includes strengths and weaknesses of the utilisation of digital media devices in the secondary school. The literature review speaks of the evolution of technology over time and how digital media devices are becoming more advanced. The integration of digital media devices to the curriculum and how changes in education have taken place are also highlighted. Both the role of the teacher and the learner is discussed as these roles change due to the new style of teaching and learning.

The usage of digital media devices are not only limited to South Africa but throughout the world, and international research information is also mentioned in this chapter. Technological devices are also responsible for the printed out work, such as hand-outs, worksheets, textbooks, etc. This shows how important digital media devices are even in the traditional way of teaching. Sexuality is always a topic for discussion and debate in society today, and gender affects the usage of digital media devices in certain research studies. There is a difference, and some gender groups are more associated with the usage of digital media and Information Communication Technology (ICT) both at school level and at university level.

Some of the digital media devices that are used at the school are discussed such as white boards, data projectors, PowerPoint, videos and slides. Discussion around these devices includes the advantages and the reasons as to why they are used. Learning Management Systems (LMS) are defined and discussed as the school of research has their own LMS in place. The school has their own school blog, therefore blogs are defined, the use is discussed and an explanation of how the blog is controlled is mentioned. Funding of digital media is one of the most important aspects as without financial support these devices will not be present in the school.

Chapter Three

Chapter three entails the theoretical framework for the study. John Dewey's Experiential Learning Theory (1938) is discussed in detail. The theory is defined and explained relating to the use of digital media in the classroom. History of John Dewey, the theorist, starts off the chapter. A detailed diagram of John Dewey's Philosophy of The Experiential Learning

Theory (1938) is displayed and each aspect is discussed in detail. These aspects are the social environment, knowledge, content organisation, the teacher's role, learner readiness, experience and learning outcomes; as we view that teachers and learners are involved in this theory, just as in the case of the enhancement of digital media devices in teaching and learning.

Chapter Four

The study's research design and methodology is discussed in Chapter four. A qualitative data production approach was the centre of the study's methodology. The data production techniques are also discussed. The two ways that were used were questionnaires and interviews. Six teachers and six learners were the participants in this study. The six teachers were given a questionnaire and were also interviewed. The six learners were given a questionnaire. The data production process was also explained. The sampling that was used and discussed was purposive sampling. Reliability and validity were also explained as ethical issues were discussed.

Chapter Five

Chapter five provides the findings of the study and displays and discusses the findings in light of related literature and theoretical framework. The two key questions are also explained at the beginning of the chapter. The findings are subcategorised into different themes. All the participants' responses are presented. The learners' and teachers' questionnaires and the teacher interviews were all discussed and explained further. Each aspect is discussed in detail. Each question that was answered had a specific theme that was identified and mentioned. Responses were displayed for the eleven questions asked of the learners. The analysis comprised of the personal and academic feelings, opinions and definitions of teachers and learners.

Chapter Six

Chapter six includes the conclusion and recommendations. A summary of findings is presented in the chapter, followed by the three major themes identified in this study. These three themes are the importance of digital media, educational benefits of using digital media

and the role of the teacher and the learner. These three themes pertain to the study. Limitations that were experienced in this study were also explained and discussed. Chapter six also consists of recommendations, the final suggestions, conclusions and notes drawn from the research.

The following chapter provides a review of related literature around the use of digital media in enhancing learning in a secondary school.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Presently we live in the era of digital media devices which has changed the lifestyle of people globally. Digital media is part of the latest technology that is used in schools to make teaching and learning easier. The constant inventions result in the present wide range of digital media tools that are available for use in the classroom. Children generally being intuitive are growing up in a digital age and in some instances they understand the functionality and operation of new technological devices better than their parents.

According to Goldstein (2013), the world of iPods, mobile telephones, portable wireless computers and devices of every description including toys that contain computer chips, memory, voice recognition, and interactive connectivity, have changed the lives of all human beings and will remain a part of life. Goldstein (2013) refers to technology as electronic and digital gadgets where traditional toys that children received as presents in the past have been replaced with technologically inclined gadgets. Learners are exposed to digital media devices in every aspect of life, school, home and shopping malls. Children in this era are curious and want to explore and experiment with digital media devices and how to control and operate these devices.

Obtaining information from libraries, including text books (especially by school children) is slowly fading away with the simultaneous replacement of literature in the form of electronic books downloaded from the internet. The benefits of the digital media usage by learners are fairly vast where the internet is easily accessible from and information can be obtained promptly with sophisticated search engines. Due to websites constantly being updated, the most recent and current information and news is available. Children can access almost anything on the internet as there are not many restrictions and where there are age restrictions, fake information can easily be used. Another benefit is that the use of the internet contributes to learners upgrading their knowledge and having the most current information available.

2.2 Orientation to chapter

The literature reviews the utilisation of digital media in the classroom and impartially explores the advantages and disadvantages of digital media usage by teachers and learners in schools. It explores the different types of digital media tools that are used and for what purposes they are used. The literature review further discusses the reactions of learners to the use of digital media in the classrooms for their specific subjects. International research is also discussed and gender related issues are also pointed out. Lastly it also gives an indication of the role of the teacher as well as the learner.

2.3 What is digital media?

According to Shelly, Cashman, Gunter, Gunter (2008), digital media is defined as those technologies that allow users to create new forms of interaction, expression, communication and entertainment in a digital format. Ivers and Barron (2006) define multimedia as the use of several forms of media to present information. Digital media are different kinds of technological tools used in different spheres of life. Some examples of digital media are laptops, projectors, computers and even cellular phones.

2.3.1 What is a digital collection?

According to Bass, Puckett and Rockman (2008), a digital collection is any set of documents or multimedia pieces for example images, audio files and videos gathered and presented online for the purpose of exchanging resources and ideas. Digital collection was one way of seeing improvement in student learning. All these multimedia resources could be accessed from one place where it is convenient for student use.

2.3.2 Introduction of digital media

According to Wegerif (2013), the internet has changed everything, our lives have changed in many ways. It has become simpler and information throughout the world is now easily accessible. According to Williams (2014) the introduction of television into school curricula

in the 1960's saw forecasts of a cultural poisoning of young minds, just as the arrival of calculators in the 1970's produced predications that children's arithmetical abilities would forever be limited. Wegerif (2013) goes on to say that although it has been around for a while now we are only just beginning to explore the many ways in which it can enable us to do things differently. Not everyone is familiar with all the internet concepts and the advanced technological processes. Wegerif (2013) states that education for the Internet Age means induction into the global dialogue of humanity. This era is one of technological advances that will only grow and get bigger.

2.3.3 Importance of digital media

According to Holmes and Gardener (2006), advances in new technologies are making it simpler to meet the demands of every learner. According to Cole (2006) we live in a modern world, where even the most straightforward job involves the use of a digital media device. It is therefore necessary for learners to have basic knowledge of the use of digital media. Cole (2006) states some of those reasons. Firstly digital media and Information Communication Technology (ICT) help raise standards in areas such as literacy and numeracy, secondly it motivates the learner by putting the child in charge of his or her learning, offering a variety of new and interesting tasks and presenting information in more stimulating ways, and thirdly it brings a certain topic to life using digital media in the form of sound, video and images. Williams (2014) states that students today enjoy a near total use of and seemingly nature aptitude for social media, this means that almost all students come armed with at least basic intermediate and many with advanced online skills. Williams (2014) goes on to say that little class time is therefore needed to 'train' students on technologies that have become second nature in their after school lives. As mentioned by Cole (2006), digital media and ICT can aid pupils' learning in the classroom and beyond. It is said that pupils can interact on a higher level; learners can connect in ways which are not possible with other media such as books or television.

Cole (2006) provides a checklist for the use of ICT (digital media) inside the classroom. A few mentioned is to make sure that all equipment is in working order, that there is sufficient equipment for every learner or that they take turns equally and fairly. If equipment is not in working order then the person in charge should make sure that a technician repairs or sorts out whatever may be wrong. Each learner should use their own digital device, this way it

would not create problems where learners have to share if time is not sufficient during the lesson. An important aspect that is mentioned by Cole (2006) is to make sure that a back-up plan is available if the entire school network had to go down. One of the most common problems experienced these days is load shedding where there is no access to any electrical equipment, however there are generators that are available if the school can afford them. At the end of the lesson one has to make sure that all digital media are switched off correctly and packed away safely, if need be. If digital media devices are not switched off correctly they can get damaged and the next day the start-up process will take a very long time as they had not been shut down correctly.

Coles (2006) mentions three things in life that are inevitable, death, taxes and that ICT/digital media will let you down at some stage. Teachers need to make sure that they are fully prepared for these incidents. These things cannot be avoided; however when it does occur a back-up plan needs to be in place, where the teacher knows exactly what needs to be done.

Littlejohn and Pegler (2007) state that we live in a world that constantly needs the utilisation of digital communication devices. Littlejohn and Pegler (2007) go on to say that digital media is used socially for play, professionally and socially for work, and increasingly it is used to support learning. According to Littlejohn and Pegler (2007), as home, mobile and wireless technologies become widespread, many students have ready access to their own sets of e-tools, aside from hardware tools, such as mobile phones, MP3 players and the like and there is an array of ubiquitous software tools such as Microsoft Office Software.

2.3.4 Educational benefits in using digital media

According to Goldfarb (2002), digital media devices were perceived as a threat to literacy, but also touted as a potentially powerful tool for educators. Behind these variously phobic and euphoric reactions to communications technology was an increasingly undeniable apprehension that any stable conception of literacy was being eroded. Digital media devices used in classrooms only enhances literacy as once the teacher has done his/her work, as a human the teacher can only repeat the work a certain number of times, however with the digital media device it is recorded and played over and over until the child learns and understands the words or work. Williams (2014) mentions that social media becomes an

inexpensive classroom resource with an indefinite shelf-life, benefit is that even the most jaded teacher can expect a surge in interest from even disengaged students.

2.3.5 Interactive qualities of digital media

Digital media is considered as viewing images, text and hearing sound. Green et al. (2008) says that each of these media when made original can be used to create highly interactive learning spaces. Learners' minds can be stimulated and probed to make their own learning more fun and interesting. Digital media enhances and makes learning for better understanding. Learners and teachers should enjoy the use of digital media and use it to their advantage. They should make full use of opportunities whereby digital media is readily available for use. Green et al. (2008) goes on to say that using encyclopaedias, textbooks and almanacs to answer questions and complete research projects has been replaced with the use of CD-ROMS, DVDs and the internet. Libraries are seldom used due to access to the internet and the variety of information and sources that are available.

A myth that is mentioned by Green et al. (2008) is that if students use technology, they will spend too much time online and will fail to develop social skills outside of cyberspace. The use of technology and factors such as when, where and how long technology should be used, should be controlled. The use of technology and digital media is not straight forward. It has a lot of considerations/factors such as the access to the equipment as well as money related issues such as data and Wi-Fi. Most places in South Africa such as hotels, restaurants and shopping malls have free Wi-Fi available for customers; however the usage is sometimes limited such as half an hour of complimentary access thereafter charges are per hourly rate. A username and password is also required in certain hotspots so that browsing cannot be abused. In a school situation the entire cost will be the responsibility of the school or funded by some organisation that is related to the school. There are different types of packages that are available, the school will choose the best suited to what they require. Green et al. (2008) state that technology is rapidly changing. In the future there will be more inventions and faster working machines.

2.3.6 Disadvantages and solutions for the use of digital media

As much as there are many great opportunities and advantages regarding the use of digital media in classrooms, there are also many limitations such as digital media requiring electricity. Without the use of electricity these sources and digital media instruments cannot be accessed. As previously mentioned, in some cases there may be schools that have back-up plans such as generators. In many cases, this is not so. The teacher will then need to be prepared to go back to the traditional method of teaching where the teacher teaches by talking and explaining and the learners contribute by asking questions, listening, learning and recording information. An advantage of using digital media is learners who are away from school can easily access the work that was done instead of the teacher repeating an entire lesson. Alternatively if a teacher had to be absent from school, digital media would be greatly used at this time so as to make sure that learners do not miss out on work while the teacher is away. Both these are major contributing factors to the loss of time.

2.3.7 Implications of using digital media

Firstly Forsyth (1998) states that an implication is that the use of digital media in a classroom does not alter a teaching style in terms of preparation, planning and presentation. Secondly teaching will still require introduction, exposition, reiteration, feedback and evaluation. Thirdly teaching will still require remediation and testing. Lastly another implication will be on the expectation to be placed on the students; they will have to be active in their learning process. Forsyth (1998) mentions that considering all these factors it may be required that the scope for teaching and learning activities be broadened. The normal class lesson will go on as planned. The teacher will explain and make the children interested in the topic at hand. The digital media device will enhance the learning process, whereby the learner gets the opportunity not only to listen to the teacher but also be exposed to digital media.

2.3.8 Strengths and weaknesses in the use of digital media

According to Forsyth (1998), one of the barriers with translating face-to-face teaching into alternative methods is that the resources developed for face-to-face teaching actually lack content. The learner's workbook and the teacher's handbook is only a skeleton of information that is required and knowledge that is actually needed. The teacher has to flesh out more

information that is required. Digital media promotes learning in a meaningful manner. There are both strengths and weaknesses in the use of and access to digital media. However, according to Forsyth (1998), there are more strengths than weaknesses. I will now discuss some of the strengths and weaknesses that Forsyth (1998) has mentioned.

Seen as a major strength is the patience of the computer/digital media device. It can be replayed until the child understands unlike where a teacher is delivering the information they can only repeat the work two or three times. It becomes cumbersome and monotonous and somewhat of a frustration to the teacher. Instant feedback is given by the computer and results are given, whereas a teacher may not know all the answers to certain questions that the learners may pose to them. A major weakness is that inappropriate media is freely available and accessible to any person as there are no restrictions on the internet. This is a serious issue so teachers need to be fully aware of this and make sure that learners are monitored at all times. There are also technical aspects as mentioned before; a limitation and an addition is the screen size or ability of the operating system to cope.

According to Robinson (1993), people communicating with each other using computers to do so is a relatively recent phenomenon. Robinson (1993) states that not all projects using computer communications for educational purposes are successful, however these failures need to be overcome. In life nothing is guaranteed especially when it comes to technology; as much as it makes our lives easier it can also cause much disruption when technical problems occur (you become helpless).

2.3.9 Stimulation in learners by digital media

A stimulation, as defined by Forsyth (1998), is an event where a learner is presented with information and can input responses or information to achieve an outcome. Stimulation can be brought about by animation, audio and video clips. However in an educational setting virtual reality is not being used as it is another dimension of its own.

According to Unsworth (2001), digital media devices are not simply changing the way stories are told; they are changing the actual content of what we understand narratives to be. There are many children's story books that have been converted to digital media on CD-ROMS. In

this way the children can not only listen to the story but also watch what is actually happening. This provides a much better understanding.

According to Squire (2008), recently attention has been paid to computer and video games as a medium for learning. In this day and age children are not as focused as they used to be. They become restless in class and their attention span is very short. Learners cannot seem to concentrate therefore teaching and learning can become miserable for both the teacher and the learner. Teachers have to find creative and innovative ways to occupy learners and make the work done meaningful. This is where digital media becomes a highlight. Teachers need to make learning fun and enjoyable so that learners look forward to lessons as well as grasp important concepts that need to be learnt. A simple digital media device such as the projector that a video is played off excites learners. It creates imagination and hypes their senses. The thought of watching a movie in school becomes different instead of the norm of reading the novel. A movie creates visual, sound and audio effects whereas a book can only be read. Squire (2008) states that computer and video games as a new medium can be very interesting as they allow for the stimulation of learners.

Holmes and Gardner (2006) state that stimulations are also a major element in some e-learning systems, with relation to gaming as well. Holmes and Gardner (2006) go on to say that a stimulation can assist in turning information into knowledge as learners are given the opportunity to apply what they know and see the results. Their reaction is of a much more positive nature and this also helps with discipline as they become silent and wait for what is in store for them. Badia, Meneses, Sergi and Sigales (2015) state that the use of digital media could improve the quality of teaching, learning, outcomes, interest and creativity, collaborative work and learning strategies for the students.

Goodman (2003) states that digital media devices such as laptops, tablets, iPods etc. present children with a feast of sensory stimulation. Goodman (2003) states that children engage almost the full range of senses to tell their story through a complex combination of images, voices, music, sound effects, graphics and text. Goodman (2003) continues by saying that the stories are more likely to be retained by the child viewer than the child reader because of the rich range of visual and aural elements.

2.3.10 Usage of digital media in schools by learners

Adams and Angeles (2008) state that technology is so pervasive in the 21st century that we scarcely notice when it is used for information retrieval, communication and entertainment. However, Adams and Angeles (2008) go on to say that when it comes to teaching and learning each advance in technology brings new possibilities and new problems. Heitin (2016) states that in writing even the youngest students are asked to explore a variety of digital tools. Heitin (2016) reinforces by saying that third graders are asked to create engaging audio recordings of stories or poems and high school students are asked to make strategic use of digital media for example textual, graphical, audio, visual and interactive elements in presentations. The latest digital media that are used in schools are also owned by most learners these days. In some schools certain digital media devices are banned such as cellular phones and in other schools they are used as a very helpful resource. Certain schools do not allow cellular phones as it could cause a distraction due to social media on the phone; other reasons are the sharing of porn and even the usage and making of phone calls to outsiders during school hours. Those schools that do allow cellular phones have strict rules as to how they are used throughout the school day. Teachers have to monitor this usage. It is mentioned by Adams and Angeles (2008) that in certain schools there are metal detectors to pick up if digital devices are being brought to schools.

According to Scrimshaw (1993), word processors are one of the most popular kinds of computer packages for use in schools and discussions of their use figure prominently in publications for teachers on IT and language, such as the NATE book on the subject (NATE, 1990), as well as in more general introductions to the place of Information Technology (IT) in schools, e.g. Straker (1989).

2.4 What is the internet?

According to Forsyth (1998), the simplest way to describe the Internet is that it is an electronic mail system and library access facility. The internet is a facility that allows you to access information. It can reach across the world within a few pushes of buttons on a digital device. This however requires data, airtime, Wi-Fi or access to the internet in some form. The most commonly used search engine is Google, which is also linked to email accounts.

Another famous web page is Yahoo, which is also linked to email. Forsyth (1998) goes on to say that it is a mail system because it allows you to send messages.

2.4.1 The internet generation

According to Holmes and Gardner (2006), the youth of today are growing up as part of the internet generation and their ease with digital media devices and the access it gives them to almost unlimited opportunities for both broadly based and specialist learning, will undoubtedly result in them becoming a force for social transformation. Young people are more technologically advanced than the older generation as these new digital media devices were invented recently. Children guide and assist their parents, teachers and other adults on trying to figure out how these digital media devices work. This gives learners a sense of achievement as they are teaching elders instead of the other way around.

Buckley (2014) states that today's students need to be able to use a wide range of digital, networked technologies in order to succeed in our increasingly global community and economy. Buckley (2014) goes on to say that students current and future job prospects in nearly every fields and industry will not only require but expect proficiency and ease with digital media and networked technologies. Buckley (2014) says that as we move further into the 21st century, it is critical that we design and embrace more sophisticated and nuanced pedagogies for how we use digital technologies in school.

2.4.2 The evolution of computers and digital media

Shelly et al. (2008) state that the evolution of modern technological devices started over 100 years ago, first with the telegraph then telephones, radios, televisions, early computers, large and bulky mainframe computers and finally the development of the personal computer in the early 1980 s. Currently digital media devices are now laptops, tablets, iPads, iPhones etc. All these devices are easily accessible for sale and can then provide much more educational opportunities for both teachers and learners. According to Shelly et al. (2008), the 21st century is known as the age of convergence. Digital media devices have evolved over the ages. Ivers and Barron (2006) say that today's technology allows educators and students to integrate, combine and interact with digital media devices in ways that were not possible previously.

According to Ofiesh (2008), the technological society in which we live is creating a constantly changing environment. Technology is becoming more advanced, often a new device is on the market and new brands are also being advertised. Prices vary and range depending on the type of digital media device. People from all walks of life are attracted to digital devices. Digital media is used everywhere in homes, schools and offices, and are easily available from most retailers.

2.4.3 Integrating educational technology into the curriculum

According to Shelly, Cashman, Gunter and Gunter (2008), digital media devices play an essential role in how individuals work, live, play and more importantly, learn. The focus of digital media in this study is on how it is used for learning purposes. In this era almost all institutions rely heavily on technology in order for their work to progress. Shelly et al. (2008) state that computers make people work faster and more accurately at home, work and school. This tells us how advanced computers are and with the usage of internet you can be connected to anywhere in the world. In the classroom computer-related technologies (digital media) have a major influence on teaching by educators and learning by students.

According to Sweller (2008), educational technology continuously advances and is expected to continue advancing and being upgraded. Technology does not change cognitive processes but rather it develops our existing cognitive processes. New inventions will be introduced as time goes by. People have to keep updating their devices as they need to keep up with the latest technology.

Bialobrzaska and Cohen (2005) state that one reason for the focus on computers and the internet is the role that digital media devices play in enhancing learning. Shelly et al. (2008) describe our current world as a technology rich society. According to Goodman (2003), technology integration has historically occupied the instrumental wing of the media education field. Goodman (2003) goes on to say that from this perspective, technology has been promoted as a highly efficient instrument that can aid teachers in delivering information to students.

According to Howie, Muller and Paterson (2005), the integration of digital media devices into the curriculum can benefit learners in at least two important ways; firstly exposure to digital media devices will provide learners with valuable hands-on experience and the opportunity to learn skills that will be useful in an increasingly technology-saturated work environment. Secondly and very importantly, integrating digital media across the curriculum makes it possible for learners to become creators of knowledge in their own right, for example, through seeking information on the internet and then synthesizing this information in the form of a presentation or project. Students become actively involved in their own learning and become lifelong learners. South Africa faces many challenges so having technology-enhancing learning is a way forward as a solution.

Howie et al. (2005) state that the White Paper on Education and Training (D.O.E., 1995) focuses on educational skills that are most helpful to learners, developing problem solving skills and providing a creative environment in which new technologies are harnessed to produce knowledge products. Howie et al. (2005) mention that more government support is to be found in the White Paper in Science and Technology (Department of Arts, Culture, Science and Technology [DACST], 1996), which stresses that access to ICT is crucial to National competitiveness and popular empowerment. There are many companies that are promoting ICT projects. One such is Telkom which has many projects, including one known as The Thousand Schools Project that will introduce and support ICT in 1000 schools in South Africa. The Human Sciences Research Council (HSRC) is also involved in several research projects regarding computer-based education and IT in schools. Howie et al. (2005) also speak of the National Research Foundation (NRF) which is responsible for operating the UNINET, a computer-based information highway linking universities, campuses, colleges and some schools.

Howie et al. (2005) provide a list of the definite pressures in South Africa for the inclusion of technology in education and for changes in education:

- The workplace increasingly requires employees who are scientifically, technologically and information literate.
- Educating so-called 'knowledge employees' requires an emphasis on problem-solving, access to information, evaluation, analysis and decision-making.

- Learners need a flexible approach to education.
- Learners need to update their knowledge, therefore knowing how to access information is critical.
- There are financial pressures, as there is an increase in the number of learners and a decrease in funding; and
- There are not enough facilities (including classrooms) and there is substantial pressure on teacher-learner ratios.

Green, Brown and Robison (2008) state that the web has tremendous potential as a tool that can help students learn content, develop skills and meet standards. Green et al. (2008) go on to say that integrating the web into the teaching and learning process can actually become quite exciting if you spend some time exploring what the web is, how it works and what makes it an effective learning tool. Both the learners and teachers would find it different as compared to the chalk and talk method. Green et al. state that the use of the web can positively enhance and even transform instruction and affect student learning. Teachers and students must be willing to learn and adapt to new technology and accept challenges that they could be faced with. Teachers should also be prepared to find solutions to any problem that they may encounter.

2.4.4 Why use computer technology in education

According to Shelly et al. (2008), educators must embrace and accept the new challenges that they are faced with the introduction of digital media and the opportunities that come with it. Educators need to make learners feel comfortable with the use of digital media and they should train them to be confident individuals who are willing to explore all the various digital avenues. Technology and digital media are integrated into almost every aspect of one's life. Shelly et al. (2008) state that educators need to develop these technological skills in learners so that they can cope in today's world. Shelly et al. (2008) go on to say that when digital media is used appropriately, technology has the potential to enhance students' achievement and assist them in meeting learning outcomes. The use of technology in the classroom can become motivational and learners could pay more attention. Shelly et al. (2008) state that digital media can provide many unique, effective and powerful opportunities for teaching and learning in the classroom.

2.4.5 Incorporating the web into teaching

The web can be used for a range of purposes by teachers especially for expanding their knowledge. Herring (2011) states that the web can be a resource for the teachers to plan activities for students in the classroom. According to Herring (2011), the use of the web in today's schools by staff and students is now taken for granted and there is an assumption that all staff and students will be effective users of the web. Teachers and students have to be trained to use the web and also have access to the internet to make use of it. There are different types of web-related aspects that can be very useful in schools for teaching and learning. Some of these examples are blogs, wikis, social bookmarking, podcasting, photo sharing, voice thread and others. Ivers and Barron (2006) state that multimedia projects encourage students to work together in groups, co-operate as a team, express their knowledge in multiple ways, solve problems, revise their own work and construct knowledge.

2.4.6 The internet and computers in schools

Forsyth (1998) states that the internet is a changing entity, and that several years ago the internet was a computer-based text-driven communications system for scientists and academics. Currently the internet is used everywhere in the world and almost every person can have access to the internet. However the focal point is school and how the internet is used to support digital media. In some schools there are subjects that are offered to learners such as IT, where specifically only digital media such as computers or laptops are used by students and they are taught many technical aspects. These learners may have chosen this subject due to their future career choice related to computers, IT, lab assistants etc. However almost all professions require the knowledge and skills of computer literacy. A simple job will also relate to computer driven work. This shows the importance of digital media being used in schools so learners can be trained from an early age. The challenge however may be that all teachers may not be fully computer literate. This would mean that they need to be trained or go for courses that will help them use and be able to also teach the learners properly.

According to Forsyth (1998), the internet offers the potential to satisfy learners' demands for access to the information they need. It is mentioned by Forsyth (1998) that the use of the internet changes both the role of the teacher and the role of the learner. However it does not change the teachers' expertise but rather the way they operate and the skills needed. Through

the use of digital media teaching is now seen as an alternative mode of delivery. The normal chalk and talk method now changes to the smart board. The face-to-face approach then evolves to hands on methods where learner participation is more recognised. Learners become involved and in some cases they are also given the opportunity to explore and discover how digital media can be a more interesting and innovative method of learning. Forsyth (1998) describes this process as a paradigm shift. This paradigm shift is explained as having a greater emphasis on the learner, who is expected to take control of and focus on their learning. Forsyth (1998) explains this specific paradigm shift as the process of education which could be described as teachers emphasising that a change needs to be put in place, to a process of teachers facilitating access of information for the learner.

Digital media is seen as a structure to support teaching and learning. Forsyth (1998) continues by saying that this new paradigm places learning with the learner. Forsyth (1998) asserts that there is no need for gatekeepers or time to serve or conform to structures of knowledge built on information that could be out of date. As previously mentioned, Forsyth (1998) argues that teachers' failure to use technology is caused by a lack of training or funding shortfalls. However Forsyth (1998) states that the real failure of teachers to embrace technology is that technology threatens the primary role of the teacher as a source of knowledge. Teachers may feel a sense of worthlessness as technology is so advanced that any information required can be easily accessed by the touch of a few buttons. This information is strongly mentioned by Forsyth (1998) in saying that the old paradigm was that teachers must use the technology to teach the technology; the new paradigm of digital education involves learners using technology to learn.

2.4.7 Limitations in technology

According to Precis (2008), each technology offers its own specific limitations such as specialised infrastructure network instability and range; still there is the potential for these systems to work in collaboration. Every school's budget as well as buildings differs. A school receives funding from the Department of Education if the school belongs to a quintile that is of a disadvantaged nature. Other schools are run through their collection of school fees and other fund raising projects. In almost all schools a certain percentage is used for ICT, the purchase of digital media equipment and thereafter for the maintenance thereof.

According to Hopper and Hendricks (2008), new technology solutions inevitably come with new technology problems, and failures are to be expected. There are many ways to embrace these problems, however proper procedure needs to be followed. Digital media devices in the classroom however advanced or new they may be, can have technical difficulties. These problems need to be handled by professional technicians who are capable and know the job well. If anyone tries to figure out what is wrong with these devices this could worsen or damage the devices more. Hopper and Hendricks (2008) state that encouraging learners to become well trained in library and scholarly database research will provide them with lifelong learning skills. Learners will become technologically advanced and will improve as time goes and new concepts and digital media devices are introduced. Hopper and Hendricks (2008) reiterate that the focus on long-term goals is of particular importance with technology solutions that promise to make learning “fun”.

Cuban (2001) as cited in Hopper and Hendricks (2008) state that technology has frightened teachers into early retirement since the introduction of the commodore 64 microcomputer, but the overall impact of technology integration in teaching has been remarkably modest. Some teachers may feel that learners are more technologically savvy than them and this will be a threat to them. The teacher may feel that the learner needs to know less than them, however this is not the case as the new generation is most advanced. Their parents buy them these digital media devices; on the other hand teachers may not have the time to explore those digital media devices due to their hectic lifestyles.

2.4.8 Technology as a key strategy for achievement

All schools are always striving for excellence and to achieve good results. Secondary schools especially have the need to perform as they have to produce results that lead to university. Pressure is on schools to compete and excel in order for top achievers to be featured. Buckenmeyer and Freitas (2006) mention that although student achievement may be enhanced through various pedagogical approaches, technology is seen as the key strategy to increase student achievement.

There are both effective and ineffective ways to integrate technology in classrooms. Firstly Buckenmeyer and Freitas (2006) state that schools must implement a thoughtful and comprehensive technology plan, secondly it should include adequate resources and

professional development for teachers and administrators on how to use the technology and how to meaningfully integrate it into the curriculum, and thirdly plans for technical support, technology infrastructure and other support must also be incorporated. Lastly Buckenmeyer and Freitas (2006) state that raising student achievement through technology holds much promise, if implemented properly. Buckenmeyer and Freitas (2006) speak of teachers being apprehensive and naïve about technology, however they mention that teachers have competing demands for their time, and professional development related to technology integration is likely to be limited and superficial.

Bielaczyc and Collins (2006) mention that once the technology-based tool has been shown to be successful, we do not want the subsequent teachers who use the tool to have to go through the same extensive course of successes and failures that the developers/researchers went through in order to successfully implement the tool in their classrooms. Bielaczyc and Collins (2006) go on to say, however, that it must be recognised that teachers will still need to go through some type of development process in order to move from an initial state of tool use by their students to successful student use of the tool.

2.5 Changing role of the teacher and the learner

According to Forsyth (1998), with the advent of course material on the internet the role of the teacher must change. The teacher being used as the source of knowledge has now changed as all the information is now available on the internet. Forsyth (1998) goes on to say that there is still the role of the teacher that needs to be fulfilled such as the knowledge, skills and attitudes, and learners need assistance and guidance from teachers. The role of the teacher now becomes one of a monitor and mentor. Forsyth (1998) states that the teacher's role becomes less instructional and more supporting. A mentor, as described by Forsyth (1998), may need to provide high-level support for the learner. The learner will then gain confidence and become more comfortable. Fisher (1993) argues that the managerial role of the teacher which is normally task setting and explaining, changes to that of a counsellor, fellow pupil or resource.

According to Forsyth (1998), the role of the learner changes from being a recipient to one of being a participant. The learner now uses new tools and becomes familiar with new concepts

and becomes accustomed to digital media. The learning and process of being taught will now change and the learner needs to adapt to this new way of learning and observing.

The plan SWOT analysis is used to describe the strengths, weaknesses, opportunities and threats. Some of the strengths mentioned by Forsyth (1998) include that human ability is used to control computer programmes; a weakness is that there could be teachers who are reluctant to use technology. An opportunity is that you can use existing resources. A teacher having to alter their teaching style is seen as a threat. One of the key examinations is to determine a SWOT analysis.

Adams and Angeles (2008) state that teachers who are not trained will be overwhelmed by high-tech tools. They have problems in developing their lesson plans where digital media is used extensively. It is very important for teachers to relate digital media usage to curriculum standards. An important point that Adams and Angeles (2008) highlight is that although online and digital media devices are an excellent way to portray messages, face-to-face understanding is essential, hence the job of the teacher. This tells us that although digital media is effective, the need for the teacher is very important for giving feedback and prompting intellectual understanding. An example that is provided is that when you chat to someone online it is not the same as being in the presence of someone. Messages can be distorted and understanding of certain situations may be misinterpreted.

Just as everything in life has a limit, so too does the use of digital media. There are boundaries and times when certain digital media devices will not be used in the classroom. Adams and Angeles (2008) say that these digital media devices need to be turned off and put out of sight. Digital media devices are extremely useful and impact positively on lessons only when used appropriately and when the need arises. According to Adams and Angeles (2008), several teachers found that mobile computing devices actually helped improve the quality of student writing by enabling more of the peer editing process.

Howie et al. (2005) explain that for the average citizen, e-mail and the internet have probably been the most visible aspect of the technology revolution in the past decade. This is much the truth as almost every household, especially with the new generation, as the e-mail is one of the most common forms of communication. A challenge that is mentioned by Howie et al. (2005) is the qualification of teachers. There is however, a very simple solution - the training

courses that are available. Teachers who do not have any knowledge or experience using digital media and ICT can apply or go for workshops where they will be trained to ensure that they are fully prepared to handle digital media and ICT devices. According to Howie et al. school principals are important agents of change due to their position in schools and their attitude towards computers that play an important role in the successful implementation of ICT in education (Pelgrum & Plomp, 1991 as cited in Howie et al., 2005).

2.6 International research

According to international studies, Adams and Angeles (2008) mention that in March 2007 the US Department of Education reported high costs, student misuse and no demonstrated link between educational use of mobile computers and higher test scores. On the other hand Adams and Angeles (2008) speak about California school districts. In California there is a widespread use of digital media due to teachers' positive attitudes and reactions as well as students using mobile computers and cellular phones for controlled educational purposes.

According to Holmes and Gardner (2006), in Europe and North America the tutors in universities and teachers in many inner-city schools have truly multicultural communities of learners to accommodate, and experience would suggest that technology simply cannot be isolated from its social and environmental context. Holmes and Gardner (2006) state that many early studies which have examined the cultural aspects of educational technology in multicultural classrooms have suggested that the use of computers leads to positive changes particularly for minority groups.

As stated in Littlejohn and Pegler (2007), audio files have long been used to teach music, but they are also useful for teaching aural skills. In North Carolina Schools for the Arts use podcasts to help drama students learn accents and drama. Fisher (1993) states that in Britain, as probably in the US, teachers are strongly conditioned to believe that their classrooms should be well-ordered and that the difficulty of learning tasks should be matched to a pupil's ability. According to Mercer and Scrimshaw (1993), in almost every school in Britain and the United States we now expect to see children doing computer-based activities on a regular basis. Mercer and Scrimshaw (1993) continue by saying that the nature of educational software is also in a rapid, continuous process of development. There is a major difference when computers are being used in a classroom. In comparison to the traditional pen and paper

technique, computer-based lessons introduce learners to different skills that equip them technologically, however learners must not lose the essence of the basic reading and writing skills. Mercer and Scrimshaw (1993) mentioned there is a new approach called SLANT (Spoken Language and New Technology). This project is to ensure that long-term educational research continues and that there is a relationship between teachers and academic researchers.

Some concluding comments by Howie et al. (2005) include that from an examination of different countries' policies, it is clear that the majority of countries have developed policies for strengthening the role of ICT in education. In South Africa, many schools have policies in place, but in several cases these were reported as not being implemented. Howie et al. (2005) state that in most countries, there are programmes to improve the infrastructure of ICT in education.

The US Department of Education (2004) as cited in Green et al. (2008) states that students today value technology and want to use technology in the classroom. These students appreciate and acknowledge the great effect digital media has in the classroom. Forsyth (1998) mentions very important information regarding education; in the US 'Super Mario Brothers' will take over the major teaching role in mathematics and science within the cable networks. 'Carmen Maranda' has already done that for the geography of places on the computer. Similarly, programmes from the 'Sesame Street' stable exist for languages at elementary level, while the Grolier Encyclopaedia CD-ROM provides answers to everything in grade school assignments.

Internationally, laser printers, CD-ROM drives, scanners and colour printers were most commonly found in lower and upper secondary schools. In many countries, some peripherals (for example a laser printer, CD-ROM drive, colour printer and scanner) were available for almost all students at the targeted grade range in lower secondary education.

2.7 Learning with ubiquitous computing

Rosenhoek (2008) defines 'ubiquitous computing' as a vision of how people will interact with computers and how those computers will fit into the environment in the future. Weiser and Brown (1996) as cited in Rosenheck (2008) state ubiquitous computing is the next

logical step in the progression of computer use. Rosenheck (2008) states that ubicomps features need to fit into an educational environment, an example is that books, paper and black boards may be replaced by digital versions that serve the same purpose but with increased functionality. These devices are much more advanced; they are faster and more efficient.

McLellan (2008) mentions that digital media has become so ubiquitous in our lives, many analysts are concerned that popular applications such as social networking sites and video games are not conducive to reflection, effective social interaction and important skills that young people need to learn.

2.8 Interactive whiteboards – What is an interactive whiteboard?

Chin (2004) defines an interactive whiteboard as a computer technology to add texts, illustrations and other media as well. There are three types of interactive whiteboard technology that are available namely: electromagnetic, resistive membrane and infra-red scanners. An interactive whiteboard requires a computer, whiteboard, a data projector and specialised software for its full functionality.

One of the digital media devices that are commonly used in schools is the interactive whiteboard. According to Cole (2006), an interactive whiteboard is essentially a large touch-sensitive computer screen, it consists of a screen, computer and data projector (which puts the computer display on the screen). Touch sensitive screens can be used with the use of your finger or an inkless pen. Some interactive whiteboards even have small remote control systems for learners' inputs to be recorded or given by the touch of a button.

Chin (2004) states benefits of using interactive whiteboards:

- They enable teachers with only basic IT skills to deliver interactive presentations in the classroom. Interactive whiteboards make it easy for teachers to enhance presentation content by easily integrating video/animation, graphics, text and audio.

- The large projected image and special software cater more effectively for visually impaired students and other students with special needs.
- The same features as a traditional whiteboard are provided, such as writing directly on the board, circling things, highlighting or labelling elements on the screen and erasing errors.
- They enable teachers to present student work more publicly.
- They enable students to engage in group discussions by freeing them from individual note taking.
- Students can work collaboratively around a shared task/work area.
- Teachers can easily and rapidly create customised resources from a range of existing content and adapt this to the needs of the class in real time.
- When used for whole class interactive questioning, they can provide student feedback rapidly.
- They support the adoption of e-learning because they demonstrate the potential of alternative modes of content delivery and interaction.
- When fully integrated into a virtual learning environment or other shared content repository, there is potential for widespread sharing of resources.

2.8.1 Using an interactive whiteboard

A data projector is a less expensive digital media device that is also used in a classroom. According to Cole (2006), a data projector and screen is a cheaper alternative, and this will also result in a school investing in more data projectors. As a result this gives more teachers the opportunity to make use of digital media in their classrooms. A data projector screen is a portal so it can be moved around a school easily. A laptop or PC is required for the setup as well. A normal white screen is required for the projection and viewing.

However there are disadvantages that are also mentioned by Cole (2006):

- The display isn't interactive.
- Annotations cannot be saved.
- It may be harder to find appropriate third party software.
- Security can be an issue as these are very popular products with thieves.

Even though these disadvantages could be a hindrance, there are simple ways to overcome them such as making sure that they are safely locked away in a special room where there is an alarm; using the digital media device carefully so that it is in good working order and condition; making sure that only people who are able to use it properly should do so; only responsible learners are to take charge of the data projector.

With the use of the internet, Cole (2006) says that the rise of the internet means that literally a whole new world can come into the classroom and there are many fantastic opportunities for learning and communicating. The internet gives up to date, minute-by-minute news. E-learning (electronic learning) has been increasingly used over the years by more secondary schools. Learners have online access so that learning can take place anywhere and anytime.

2.8.2 Benefits of interactive whiteboards

Cole (2006) lists a number of benefits. They:

- Are great for displaying information to a large group.
- Can display a wide range of media, including texts, graphics, animations, videos and websites.
- Are more versatile than a conventional blackboard or whiteboard.
- Support collaborative learning - pupils can share ideas easily.
- Allow work to be saved, printed out or adapted for future use.
- Can increase pupil motivation.
- Are good for class demonstrations.
- Can help teachers explain difficult concepts.
- Have lots of useful tools for editing and manipulating texts and graphics.
- Allow pupils to use touch to operate the board and use their own handwriting to input data or information.

- Have lots of useful tools such as highlighters, different coloured pens and erasers.
- Can be enhanced by all the extra software available.
- Can be fun to use.

2.9 Data projectors

Chin (2004) defines a data projector as a display tool for projecting the display from a computer screen or a video programmer onto a large viewing surface for audiences. It is very simple to switch on a data projector, you just need to plug in the computer and the information is displayed on a large screen to be viewed by learners. Chin (2004) states that data projectors are relatively cheap and many institutions have them permanently available in lecture theatres or teaching rooms as standard audio-visual display equipment. Data projectors can be used to show videos or even display PowerPoint presentations.

2.10 PowerPoint Presentations

Chin (2004) states that PowerPoint was produced by Microsoft and is an example of a computer-based presentation software package. Although there are many other types of computer-based presentations, PowerPoint is the most familiar. According to Chin (2004), a PowerPoint presentation can be delivered just the same way you would present overhead transparencies; an addition is the benefit that there is an automated transition between each slide. A PowerPoint presentation is controlled by the click of the mouse on the computer. Chin (2004) mentions that an added advantage is that it has a range of interactive features whereas a traditional image is a static image.

2.10.1 Advantages of using PowerPoint

A great advantage of using PowerPoint is that the quality of presentation is much more improved than other traditional digital media devices. Chin (2004) goes on to say that the same content will be delivered to all classes as the information is stored. Important points that need to be mentioned are all on the PowerPoint. Another advantage that Chin (2004) speaks about is that if a learner misses out on work, e.g. is absent for the day due to illness or some other valid reason, the work is easily available as it is saved and can be used again.

According to Chin (2004), one of the strengths of PowerPoint is its ease of use and the ability to add text animations and sound effects.

2.10.2 Advantages of overhead projectors and PowerPoint

Chin (2004) states that the overhead projector (OHP) is probably the most common presentation tool available to the teacher in the classroom or lecture theatre. It is a good starting point and an easy to use device to use as a resource. An easy operation of just a switch is used for the OHP. Overhead transparencies are used on overhead projectors (acetates is a term that is commonly used). More discussion takes place in classes rather than delivering notes. Another advantage of using the OHP is that teachers can engage with learners better. Instead of turning away from them and writing on the chalkboard the notes are already provided and proper teaching and learning can take place without disruption. Teachers can have eye contact with learners and watch their body language more carefully.

Chin (2004) states advantages of using an OHP:

- Ease of use.
- Better prepared notes.
- Conveys information using visual prompts.
- Saves time having to write notes during class.
- You can interact with students more.

According to Cele (2006), information technology is increasingly becoming an integral part of our everyday lives. Cele (2006) states that educators' knowledge about IT also affects their perception of integration, which in turn affects their decision to use it.

2.11 Using technology to produce hand-outs

Although hand-outs may be in the form of paper, technology was the main point at which these hand-outs were produced. Chin (2004) speaks of an advantage that hand-outs create and that these have a professional look. Students will find these more attractive rather than a written hand-out. A proper digital record of hand-outs is kept and is available for updating and use at any time.

2.12 Videos and slides

According to Chin (2004), the use of video and television programmes in the classroom became relatively commonplace way back in the 1960s and 1970s. Chin (2004) states that there are many advantages of using video in the classroom. One of the reasons that motivates teachers to use video is that learners are exposed to real life situations and experiences. A video brings a topic to life; it stimulates a learner's senses. A video can also be used flexibly to suit the way of the teacher. They can control the video by rewinding, fast forwarding, pausing etc. Chin (2004) states that learners expand their vocabulary and grammatical comprehension by putting words into context. Chin (2004) goes on to say that by visualising this on video the students are also able to appreciate how language is expressed both verbally and non-verbally.

2.12.1 Using a slide projector in the classroom

As mentioned by Chin (2004) 'a picture can paint a thousand words.' Using slides to present images to a class can help enormously. Sometimes when a teacher talks a child may not listen to them however a picture may stimulate a learner's memory. Pictures are somewhat attractable and create excitement in a learner. A simple example is when people look at photographs; they enjoy them and are happy to view photographs as this gives them better understanding. Slides also have this effect on learners in class.

2.13 What is e-Learning?

According to Chin (2004), now that technology has enabled us to expand teaching and learning beyond the confines of the classroom, learners are able to access resources in different ways and at different times. Zhu (2008) describes e-Learning as the network-enabled transfer of skills and knowledge. Zhu (2008) goes on to say that in e-Learning, learners can build up their knowledge through assimilating, creating and sharing information. According to Beck (2006), ontologies and description logics are practical and are theoretical tools for the construction of e-Learning systems which provide a supportive architecture for the cognition of learning.

According to Holmes and Gardner (2006), teachers today are required to go beyond selecting a textbook for their students; now they must regularly evaluate new resources, searching, selecting, evaluating, planning for, implementing and managing them in order to promote best practice in learning. Holmes and Gardner (2006) define e-Learning as access to learning resources, anywhere and anytime. Littlejohn and Pegler (2007) state that although initially used in the corporate sector to describe computer-based or online training, the term ‘e-Learning’ is increasingly being taken up within education. Littlejohn and Pegler (2007) mention Alan Olsen, director of the Hong Kong-based think tank Strategy Policy and Research in Education; he suggests that e-learning is the way ahead and many universities are now engaged in ‘e-China’ projects to take that approach forward. Prensky (2001) as cited in Littlejohn and Pegler (2007) states that computer games, email, the internet, cellular phones and instant messaging are an integral part of learners’ lives. Littlejohn and Pegler (2007) go on to say that many children are confident users of technology from an early age, using online encyclopaedias such as Wikipedia to complete homework and assignments.

2.13.1 History of e-Learning

e-Learning has been around for the past 10 to 15 years, even though it may seem fairly new to us. According to Holmes and Gardner (2006), the story begins in the 1920s with Sydney Pressey’s testing machine. This simple machine was used for teaching, testing and scoring. Online learning was introduced many years ago in different forms. Holmes and Gardner (2006) state that although educational software is popular in its own right, it is the interconnectivity supplied by the internet and the huge resources made available through the World Wide Web, that are the primary underpinnings of e-Learning.

2.13.2 e-Learning technologies

According to Holmes and Gardner (2006), the ongoing ICT revolution has often been compared to the advent of the printing press for the sheer magnitude of its actual and potential impact on society. Holmes and Gardner (2006) mention that the internet represents a uniquely successful example of a massive sustained investment of creativity, innovation, time and money, which has revolutionized the individual’s and society’s ability to create, communicate and source information. According to Holmes and Gardner (2006), while deriving its underpinning theories from such notable scholars as Plato, Rosseau, Skinner,

Dewey, Vygotsky and Piaget to name but a few, e-Learning is arguably eclipsing their impacts as the most dynamic development in education ever.

Holmes and Gardner (2006) state that even with several decades already behind us, there seems to be no end to the innovation and development that stretches into the future for e-learning. Technology and the use of digital media in all aspects of life, especially classrooms, will only expand and become greater. It will soon become a need rather than a want in all places of work and study. Holmes and Gardner (2006) state that John Dewey argued soon after the twentieth century (1916) that learning is a building process.

2.13.3 e-Learning and the art of blending

According to Littlejohn and Pegler (2007) blending is an art that has been practised by inspirational teachers for centuries. Littlejohn and Pegler (2007) state that it centres on the integration of different types or resources and activities within a range of learning environments where learners can interact and build ideas. There is a recent blending of e-Learning with traditional methods that has the interest of many teachers. As mentioned by Littlejohn and Pegler (2007) electronic tools such as DVDs, iPods, digital cameras, mobile phones and computers are becoming ubiquitous and are very familiar to learners.

2.13.4 What is blended e-Learning and why do we need it?

Implementation of new learning methods cannot be effective without identifying and considering a range of compelling drivers for change. Littlejohn and Pegler (2007) mention that teachers across a range of institutions have said that one of the biggest challenges for them is to design learning activities that motivate students and capture their imagination. Littlejohn and Pegler (2007) speak of a CD-ROM being attached to a textbook; there is an element of blending of print and computer-based instruction. In most textbooks these days there are DVDs that are attached to them so that teacher and learners can also listen and see the written aspects of work that is displayed in their textbooks.

According to Light (1993), it has often been held that one of the main advantages of computers in education is that they make it possible to individualise the teaching-learning process. Light (1993) states that individualisation refers to a state of affairs in which

individual learners each had their own tailor-made curriculum, with content, level and style of learning all being geared to the particular characteristics of the individual.

2.14 Learning Management Systems

According to Holmes and Gardner (2006), online, internet-based learning management systems (LMSs, sometimes called, managed learning environments, MLEs or integrated learning systems - ILSs) are specifically designed to deliver teaching programmes. This provides learners with the opportunity to access resource materials. One of the benefits mentioned by Holmes and Gardner (2006) is that computer-based educational approaches and specifically e-Learning have the potential to impact positively on the entire spectrum of education.

2.15 Access to more knowledge than ever before

According to Holmes and Gardner (2006), increasingly powerful computers, combined with the development of the World Wide Web, have meant that much more information is much more accessible than ever before. All the information that is needed is available at the touch of a few buttons; this will give us access to as much knowledge as we require. Holmes and Gardner (2006) state that e-Learning environments can assist students to interact with the objects of their study, which might not normally be available to them. Holmes and Gardner (2006) go on to say that ancient manuscripts for example, are too valuable to be studied physically and copies may be difficult to reproduce.

According to November (2010), the impact of the internet on learners is already powerful and it is growing every day. Learners can find any answer that they require on any topic that they want. A few clicks of the button and many explanations are provided. This does not only help a learner in school but personally, in religious values as well as any medical issues. Children love when their parents have to ask them something and they find the answer by checking on Google. This makes them feel good and gives answers that they can explain on their own. November (2010) states that learners have access to more technology than anywhere in the world: home, computers, cellular phones, gaming machines, and plasma televisions. This is an extremely great advantage and students should therefore use these digital media devices wisely.

2.16 Relationship between culture and digital media

Holmes and Gardner (2006) state that from the beginning when computers were first introduced in classrooms and throughout the subsequent rapid developments of ICT around the globe, questions have been raised about the relationship between culture and computers. Holmes and Gardner (2006) go on to say that the new technology brings people - individuals, communities and nations - closer together and creates better possibilities for collaboration and exchange of ideas and knowledge; but it also risks the loss of richness and uniqueness of cultural identities.

2.17 Gender and digital media use

Evidence in US schools, as shown in the work of Celia Hoyles, states that while girls and boys might show a similar appreciation of the significance computers might have for their personal futures, boys tend to be more positively disposed than girls towards computers and tend more than girls to take optional computer courses in school, to report more frequent home use of computers and tend to dominate the limited computer resources that are available at school. Hoyles also states that very few girls take up employment using computer skills (other than data processing or word processing). However a study by Siann et al. (1988) as cited in Fisher (1993) says that the use of digital media sources is more favourable to females. In another study boys seemed more dedicated to computers compared to the girls. In some cases use is more favourable to girls while in most cases boys are more interested.

According to Baker, Lusk and Neuhauser (2012), gender affected perception of the use of technology in the classroom; male learners were more accepting compared to female learners with regard to the use of technology in the classroom environment. Currently we have the interest of both males and females in the use of digital media in schools today. In primary as well as secondary schools there is no option given to the use of digital media devices. The entire class has to use and participate in the lesson. There have been no major differences between the male and female behaviour towards the use of digital media devices, however the stereotype has always been that boys have a better liking for digital media tools than girls.

2.18 Blogs

According to Business Week (2005) as cited in Holmes and Gardner (2006) there are estimated to be about 10 million blogs in existence. All these blogs make the uploading of comments by users a very simple process within a fixed template. Holmes and Gardner (2006) describe a blog as looking more or less like a vertically scrolling web page, with individual users' comments ('their posts') presented separately and chronologically. Holmes and Gardner (2006) explain however that there is a degree of sophistication in their functionality; including for example the automatic 'pinging' of other post-senders, to alert them that a new post relating to theirs has been made, the 'tracking back' facility for showing who posted previous comments and the labelling of posts in specific topic categories. Only the blog owner/owners can set up the topic for discussion rather than having their own; this way discussions are controlled and are not open discussions for anyone to start on a certain issue or topic.

2.19 Hypertexts and hypermedia

According to Scrimshaw (1993), hypertexts and hypermedia are today being widely discussed by educators interested in IT. Scrimshaw (1993) describes a hypertext as a set of screen displays, linked together by buttons on the screen. Hypertexts are created by special computer systems. Bolten (1991, p.24) as cited in Scrimshaw (1993) describes a hypertext as a printed book that the author has attacked with a pair of scissors and cut into convenient verbal sizes. Hypertexts can be presented in many ways such as texts, pictures, diagrams, graphs, which are a passive form. Active forms are runnable computer programmes, animation sequences. Hypermedia is the term for more active elements. There are also three types of hypertext networks. Scrimshaw (1993) mentions that although group learning can take place around a single computer, hypertexts can in principle be shared across a network of machines. Scrimshaw concludes by saying that a hypertext is by contrast protean device that can be structured to be most things to most people.

2.20 Digital media in the classroom

Digital media use in the classroom is seen as a learner-centred approach to learning and teaching. Howie et al. (2005) state that in South Africa, the Technology Enhanced Learning

Initiative (TELI) planning document (DoE, 1996) presented a model of the upgrade paths implied in the developmental integration of technologies into the learning and teaching environment. Howie et al. (2005) point out that some argue that employers do not want schools to produce specifically-trained workers because applications and systems are so easily superseded. Due to this factor, schools will therefore produce an 'under-skilled' labour force because the fundamentals are missing.

Howie et al. (2005) state that educators will have to fulfil a pivotal role in ensuring that teaching and learning is geared to equipping learners to engage flexibly and adaptively in the creation, management and application of knowledge in an information-intensive world. Howie et al. (2005) explain that the meaning of curriculum integration can be widely interpreted when applied to ICT in schools. On one hand, the term could be taken to mean merely the use of drill and practice programmes in a learning area. For example, it has been observed that many schools have invested their entire software budget in buying computer-assisted learning (CAL) programmes that do nothing for ICT skills development other than indirectly teach keyboard skills. On the other hand, the integration of ICT in the curriculum is taken to mean the use of ICT as a resource and as a learning tool in part of, or across, the curriculum.

Howie et al. (2005) mention that on 19 November 2001 the DoE and the Department of Communications (DoC) published their joint policy document, Strategy for Information and Communication Technology in Education (DoE and DoC, 2001). According to Howie et al. (2005) the ICT policy document states that the widespread introduction of computers in schools should support Curriculum 2005 (DoE and DoC, 2001, p.15). Howie et al. (2005) state that computers were introduced into schools in South Africa during the 1980s primarily in private schools that had independent funds as well as in some well-resourced government schools. Howie et al. (2005) go on to say that initially, computers were used mainly for school administration - timetable, student records, examination marks and school reports. However, a change started to take place with the development of more appropriate and relevant software, an increase in computer-literate teachers, hardware development and the advent of the internet. According to the SRN Survey (DoE, 2001) there are 2 311 schools in South Africa with one or more computers. The implementation of ICT in schools is being facilitated by School Net, which also provides staff development and support to schools introducing ICT.

2.20.1 Using digital media for creativity

Cole (2006) justifies that digital video can bring subjects to life with the aid of moving pictures and sound. When it comes to creative writing, computers can help to inspire, enhance and improve the quality of work produced by learners.

According to Chin (2004), technology has been used to support teaching and learning since the 1960s, when OHPs allowed teachers to project their work to larger audiences in a more visually stimulating format. Chin (2004) gives us a number of advantages of why digital media (technology) should be used; firstly it saves time, secondly it enhances learning, thirdly it accommodates more students, fourthly it is cheaper and innovative and it is easy to use. Lastly and most important, students find it interesting. It is also mentioned by Chin (2004) that it is expected that people should have a basic level of IT literacy. If students are expected to have a basic knowledge of the use of digital media, it is unreasonable for teachers to be on the same level. Teachers need to be a step ahead of learners.

2.20.2 Funding of digital media in schools

Shelly et al. (2008) state that federal government, state government and school districts are providing massive funding for digital media in schools so that digital teaching and learning can be implemented. This also provides access to the internet and the World Wide Web. Teachers need to be prepared to use both current and emerging technologies.

Howie et al. (2005) point out that provincial education departments do budget for acquiring different technologies but simply cannot afford to purchase computers for all schools when so many still lack the basic amenities of running water, electricity and sanitary facilities. In certain schools the School Governing Body and parents raise funds for the installation of computers and other digital media devices in their schools so that learners have an advantage of making use of technology, a privilege that their parents never had due to various factors. The SRN 2000 reports that mainly rural schools in most provinces do not have access to computers due to their lack of water, electricity and sanitation. Howie et al. (2005) state that ICT is seen as having the potential to facilitate changes in education to allow future citizens

to be better prepared for the Information Society than is currently the case. An important point that Howie et al. (2005) mention is that teachers are an important part of any educational innovation; if they cannot apply new methods, an innovation will fail. It is also said that management and especially school principals play a vital role in initiation, encouragement and to steer the use in schools.

A very important point that Howie et al. (2005) consider and speak of is that one of the consequences of apartheid was that schools falling under the former white department received more resources than the schools under the former black departments, this obviously included the supply and support of ICT. Many schools were disadvantaged during the apartheid era. Multimedia facilities are essential in schools as basic computers seem to be a bore to most learners who are technologically advanced. Howie et al. (2005) state that computer-related equipment (peripherals) available for educational use is an important indicator of hardware accessibility and functionality in schools. Mentioned are some of the latest peripherals such as laser printers, CD-ROM drive, devices for students with disabilities, devices for digital images processing, colour printer, CD-writer, graphics tablet, video projector, scanner and LCD panel.

According to Howie et al. (2005) many governments had formulated explicit plans to equip schools with access to the internet before or shortly after the year 2000, although many - including South Africa - had not yet implemented such policies.

2.21 Conclusion

The above literature review highlighted that there are ample advantages as well as disadvantages of the utilisation of digital media in the classrooms by teachers for the learners. Once digital media is set up and made use of in the classroom it then makes the teaching and learning much easier provided that the teacher is well trained and knows how to properly use the digital media. Both internationally and nationally, research shows that for the future schools are in favour of digital media and it will only get more advanced and new tools will be invented and introduced. Digital media is definitely the answer and way forward for the future.

All aspects discussed in this literature review are important, however there are a few that need to be highlighted. The importance of digital media is discussed; we need to understand the role that these devices play in the classroom. There is a major difference without a classroom that uses digital media. Educational benefits of using digital media are pointed out. The use of digital media in the classroom has many advantages; one of the most important is a learner's academic performance. We also note that digital media utilisation is not just restricted to South Africa but worldwide, therefore international research information is also provided in this literature review. It is interesting to note that although there are many advantages, there are some disadvantages mentioned. Gender seems to be a universal topic for any debate, so to with digital media where in the past males seemed more in tune with digital media devices; however it is argued that there is a change in this generation. One of the most important aspects is if schools have funding to cater for digital media devices in their budgets.

The following chapter introduces the theoretical framework of the study, John Dewey's Theory of Experiential Learning.

CHAPTER THREE

THEORETICAL FRAMEWORK

3.1 Introduction

According to Govender (2009), a theoretical framework enables an individual to theorise about one's research. It is recognised as lenses through which one views the world. Govender (2009) further states that a theoretical framework provides the orientation to a study, researching the stance the researcher adopts in their research. The framework that was used in this study is John Dewey's Experiential Learning Theory. This chapter discusses firstly the history of John Dewey, secondly an explanation of what experiential learning is, thirdly the diagram of Dewey's Experiential Learning Theory and lastly the interpretation is discussed.

3.2 History of John Dewey

John Dewey (1859-1952) was an American psychologist, philosopher, educator, social critic and political activist. Dewey studied at the University of Vermont and Johns Hopkins University, University of Chicago. John Dewey had many theories, especially those relating to education, as he was a fond believer of the progress in education. A famous quote by John Dewey that shows his passion and dedication for education is: "Education is not preparation for life; education is life itself." This is an indeed a powerful statement that underpins his theory.

3.3 What is experiential learning?

Lai, Yang, Chen, Ho & Chan (2007) explain experiential learning as the process of creating knowledge through the transformation of experience and has been adopted in an increasing number of areas. Dewey's (1938) 'learning by doing' theory emphasizes the value of action while learning. Lai et. al (2007) further states that experiential learning utilizes experience in a unique context to facilitate knowledge and creation. According to Masuku (2010), experiential learning is defined as involving mental, emotional and physiological stimuli.

This involves the basic aspects of a learner. Masuku (2010) states that experience is placed at the centre of the educational endeavour. Learners observe the teachers and other learners in class, they also grasp concepts and all this now becomes an experience for them. Masuku (2010) goes on to say that each experience is influenced by the unique past experiences of the learner as well as the current context.

Ord (2012) states that Dewey elaborates on a 2 way process, suggesting that experience involves both trying and undergoing (Dewey, 1916: 104). Further Ord (2012) explains that trying refers to the outward expression of intention or action. Masuku (2010) points out that the educative experience must also be contextualised and note must be taken that experience does not happen outside the social context. Kraft (1995) as cited in Masuku (2010) states that experiential learning goes back as far as Dewey's *Experience and Education* published in 1938 which grappled in depth with the role of experiential learning.

Masuku (2010) mentions that cognitive theorists like Piaget (1965) placed emphasis on how intelligence is shaped by experience. He realised that intelligence is not an innate internal characteristic. Masuku (2010) says that experiential methods of learning encourage the learners to select learning strategies which suit their individual learning style compared with the traditional academic teaching and learning methods, which do not allow for whole-brain learning.

According to Adeo (2002), although *Experience and Education* is an analysis of "traditional" and "progressive" education, it is also a clear and concise statement of Dewey's basic criteria of experience. As the saying goes, experience is the best teacher; you cannot comment on anything in life unless you have experienced something to give you a view or opinion of what it feels like. Adeo (2002) agrees that experiential education tries to integrate the life experience of students into the curriculum. Learners encounter different experiences in classrooms. They interact with the teacher and other learners.

As cited in Adeo (2002), in Dewey's work, a key idea is that interaction and continuity are two core characteristics of effective teaching and learning through experiences. This clearly and directly relates to the research topic: the use of digital media in enhancing teaching and learning. The experiences of a child being taught with the use of digital media will clearly show as their interest and their responses to lessons will be shown. Adeo (2002) goes on to

say that one of Dewey's premises is that learner experience results from the interaction between the learner and the environment. The school and classroom now have digital media devices that are being utilised and more will be introduced as time goes on. Students need to adapt to this new environment, however they are already familiar and comfortable with the latest technology.

Schmidt (2010) declares that teachers often claim that they learn more from teaching experience than coursework. Any person can easily learn work, pass and transfer the work on to another person; however experience is the best teacher, as mentioned before. Only once you have experienced a certain situation can you comment or express your views on the particular situation at hand. Schmidt (2010) states that Dewey (1938/1963) decried the traditional education of his day, where learners memorised "pre-digested materials" dealing with subjects in which they had no interest so that many became physically truant or engaged in the mental truancy of mind-wandering and finally built up emotional reclusion against the subject (p.46). Schmidt (2010) asserts that Dewey (1938/1998) called this "collateral learning"; others have called it the "hidden curriculum" (Eisner, 1994; Krueger, 1985).

Dewey feels that everything the teacher does, as well as the manner in which he or she does it, encourages the learners to respond in some way or the other. The teacher's reaction towards the children creates the outcome in learners. The teacher is the leader in the classroom. He/she promotes teaching and learning. The learners are the ones that listen to what the teacher says and react accordingly.

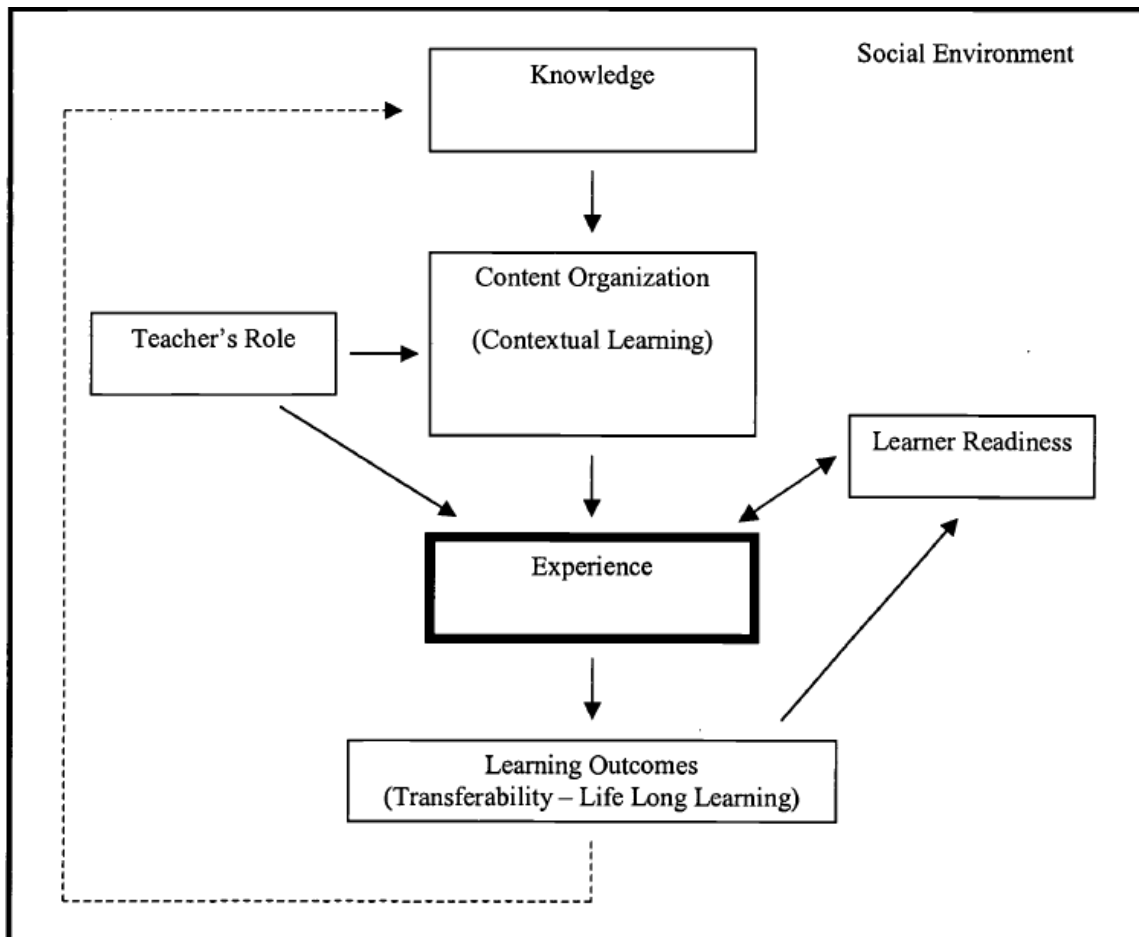
3.4 A conceptual model of Dewey's Philosophy of Experiential Education

To better understand John Dewey's Experiential Learning Theory, a model is displayed.

According to Roberts (2003), Dewey's philosophy is that everything occurs within a social environment. Roberts (2003) goes on to say that the model presented below is enclosed with a box that represents the social environment. A social environment is the immediate setting in which people live. It is an environment that links with other aspects to form a setting. Roberts (2003) states that with the box, the model begins with knowledge which is organised by the teacher into logical content pieces; the teacher also facilitates the learners' experience with the content based on learner readiness. Roberts (2003) postulates that the outcome of this

experience is learning which contributes to learner readiness and knowledge, thus allowing the process to begin again. I will now discuss each aspect.

Figure 1:
A Conceptual Model of Dewey’s Philosophy of Experiential Education adapted from T. Grady Roberts (2003), An interpretation of Dewey’s Experiential Learning Theory



3.4.1 Social environment

Robert (2003) mentions that Dewey asserts that all human experience is social and involves contact and communication, therefore, humans are social beings that only exist within a social environment. With regards to digital media being used in the classroom, even though the digital media devices are being used, there is contact between the teachers and learners while learners watch teachers explain and point out important aspects to the learners. Roberts (2003) is of the belief that living and interacting within a social environment has fostered the

development of mankind into the complex entity that it is today, this includes the present body of knowledge, which is the focus of the educational system.

3.4.2 Knowledge

Roberts (2003) believes that the nature of knowledge is critical to Dewey's experiential theory. Roberts (2003) saw significant discrepancies in how traditional education viewed knowledge and how it should be viewed in experiential learning. Knowledge is information that is gained through experience and from learning over time. Roberts (2003) stresses that the role of a school is to pass knowledge on to children. Teachers pass knowledge on to their learners during the different lessons where they interact with them. The passing on of knowledge is done in many ways such as talking, explaining, writing on the chalkboard, drawing pictures and even sharing video clips to enhance teaching. Roberts (2003) goes on to say that the goal is for students to accumulate as much knowledge as possible to prepare them for their future endeavours.

3.4.3 Content organisation

Roberts (2003) adds that Dewey was very critical of how content is organised in traditional education; he argued that organising content into isolated subjects gives students difficulties in integrating their knowledge into real life situations. Roberts (2003) goes on to say that traditional education often does not allow learners to grasp the relationship between the content and real life situations, therefore traditional education often does not allow learners to grasp the relationship between the content and real life situations. Teachers do not only use the chalk and talk methods in classrooms; they incorporate real life experiences such as demonstrations and experiments. They also make learners perform in class, such as practicals, depending on the content and subject being discussed in class.

Roberts (2003) mentions therefore, that traditional education often does not allow learners to grasp the relationship between the content and real life situations, however, placing students into real life situations allows them to learn from their experiences and gain knowledge that they can apply later in different situations. When learners are placed in certain situations, they have to figure out how to deal with, cope with and maintain certain aspects. Experience is of

utmost importance. Learners need to also find solutions to problems and make decisions on their own, thus Roberts (2003) continues that the basic skills necessary for being a productive citizen is reading, writing, and arithmetic. Arithmetic is what we commonly refer to as mathematics. These three basic subjects are essential for the foundation of learners. However as learners get to higher grades, their subjects increase as well as their workload. In addition to these three subjects Dewey also mentions science as an important subject where scientific information should be presented in everyday occurrences. Learners will therefore grasp a wider understanding of the world.

3.4.4 Teacher's role

According to Dewey, as stated in Roberts (2003), the role of the teacher is to facilitate appropriate experiences that engage students. Roberts (2003) reports that in experiential learning, “the teacher loses the position of external boss or dictator but takes on that of leader of group activities” (Dewey, 1938, p.59). Roberts (2003) speaks of a key component to the role of the teacher in experiential learning; the teacher is responsible for both knowledge of the subject matter and knowledge of the individual learners. Planning for experiential learning is much more difficult than planning for traditional education. Whenever you desire a good outcome, the work that leads up to the outcome is not an easy task. When a teacher uses digital media in their classroom, the initial set up is not easy. Digital media devices need to be set up properly and taken care of. If not connected properly, those digital media devices can get damaged. Teachers also mentioned that it is very time consuming when downloading information and videos for their learners, however when downloaded then the task becomes easy where it is readily available for the teachers to use at any time. It takes hard work and time but in the end it is beneficial.

Roberts (2003) claims that of critical importance, is that the teacher must recognise the surroundings that are conducive to experiences that lead to growth; the key to experiential learning is selecting the correct experiences for students. Traditional education was teacher led whereas in experiential learning the focus is more on the learner. This should be the case as the learner is the focus point in the classroom. The teacher needs to determine the amount of free time that learners are given in class to explore and then express themselves.

3.4.5 Learner readiness

According to Roberts (2003), Dewey's theory suggests that the experience must be within the ability of the learner and the learner must be prepared to learn. He argues that anything else that can be called a study must be developed from within the scope of ordinary life experiences. There needs to be mutual respect and understanding in a classroom between the teacher and the learner. Both the teacher and learner need to play a part in order for teaching and learning to be successful. It is the teacher's job to pass knowledge on to learners, however it is the learners' choice to obey and listen to teachers. The influence of learners' reactions stem from their homes, parental support and also personal choice.

Robert (2003) discusses the benefits of experiential education. Dewey states that, "it is a cardinal precept of the newer school of education that the beginning of instruction shall be made with the experience learners already have" (1938, p.74), thus all future instruction should be based on the prior experiences of the learners. From a young age learners should have basic knowledge from their parents or guardians at home; this therefore helps when learners have to interact with teachers at school. Teachers do not have to train learners in basic, simple aspects such as cleanliness and so on, so time can be used on other useful educational aspects such as learning the alphabet. However as learners get to higher grades teachers have to find out from learners what knowledge they have already gained up till that time. This will help to find out the experience they already have. Roberts (2003) indicates that Dewey asserts that failure to teach to the abilities of the learners makes learning accidental. Therefore, the teacher should be aware of the capacities, needs and past experiences of those under instruction.

According to Roberts (2003), Dewey also argues that education should correspond with the natural, mental and physical growth of the child; as such, he asserts that experiential education is in alignment with the principles of growth, as opposed to traditional education which is not. Roberts (2003) goes on to say that when preparing students for an experience, it is also important to know that some students come to school in a state of mind that inhibits learning. Each learner is different in many ways. These differences include religion, skin colour, race, background and many other aspects of life; however every learner should be treated equally, irrespective. A very difficult situation that teachers experience is that learners come to school every day in a different mood. Learners come from different homes with a

variety of problems. Some have parental support, while others may not; some may come to school without having breakfast; there are a host of different situations that could arise. Teachers need to be considerate and understanding and even go the extra mile to try and investigate the crisis and provide help and support.

Dewey recognised that learners are individuals with differing situations and needs. Roberts (2003) confirms that education by experience can facilitate individualised instruction that meets the needs of individual learners. Experiential education gives learners the opportunity for freedom and to interact with the content being learned. Dewey proposes that the amount of freedom required by learners varies. Roberts (2003) goes on to say that less freedom is needed as a learner matures; an added benefit of giving learners freedom is that this allows the teacher to gain insight into their readiness. As a learner grows, their freedom and rights allow them to perform certain legal actions, however when children are younger they feel the need to explore and they want to experience things that they are not allowed to. As they get older, they realise the difference and reasons as to why certain aspects of life have restrictions. Roberts (2003) mentions therefore that the readiness and previous experiences of the learners are important for experiential education.

3.4.6 Experience

Roberts (2003) explains that Dewey asserts that experience is the foundation for everything in life; accordingly he proposes that civilized people learn from their experiences, which allow them to shape future experiences. As a young child, in order to start walking you first have to crawl, once you start learning to walk you are going to stumble and fall many times until you are walking straight. Everything in life is a process. Roberts (2003) goes on to say that experiences also influence the condition under which future experiences are had, thus the prior experiences of a learner are directly related to their future capacity to learn. If children are not given the chance and opportunity to learn from their mistakes, they will never know the difference between right and wrong. Learners, especially with the use of digital media, love to experiment with these digital media devices. Learners seem to have experience with these gadgets as they are known as the internet generation. Therefore, Roberts (2003) stresses that care must be taken to extract the full meaning of each present experience; new experiences should be related to previous experiences, however they should be sufficiently unfamiliar to the learners to cause a conflict between what is currently known and what needs

to be learned. Learners love to operate digital media devices in the classroom, this makes them feel superior and that they are teaching their teachers something. At home the learners have the same experience with their parents, grandparents and other older family members. Dewey cautions that the starting point of experiential education is not the organised knowledge of the adults.

Roberts (2003) states that Dewey clearly advocates experiential learning, however, he argues that all experiences are not educative. He used the term mis-educative to describe an experience that actually arrests or distorts future learning. Roberts (2003) mentions that Dewey's position was that, "everything depends on the quality of the experience which is had" (Dewey, 1938, p.27). Roberts (2003) adds that for experiences to be educative they must lead out into the real world, thus experiences lead to the ability to transfer knowledge to new situations. In the classroom the knowledge and experience that is gained is educative. The purpose is to educate learners, make them more aware and have a better understanding. In the case of this study, digital media is used to enhance learning. Some learners may not have the opportunity or be exposed to certain types of digital media in their homes so this is a great experience for them; this in turn becomes something that they will always remember as it is a different experience. Roberts (2003) goes on to say that Dewey further delineates between good and bad experiences by proposing that an intelligent activity is differentiated from other activity in that it involves a selection of means and their arrangement to reach an intended aim; thus an educative aim is one that leads to an anticipated educational outcome. Even though there may be both good and bad experiences, school is a place where the outcome is solely for good experiences. There could be bad experiences that are not intentional. The aim is for learners to remember these good experiences.

Roberts (2003) postulates that the type of experience is critical for experiential learning to take place. Dewey states that, "no experience is educative that does not tend both to knowledge of more facts and entertaining of more ideas and to a better, a more orderly, arrangement of them" (Dewey, 1938, p.82). Roberts (2003) explains that the subject matter, methods of instructions, the discipline, available materials and social organisation of the school should be considered when planning experiences. Roberts (2003) elaborates that during an experience, the formation of purposes involves observing surrounding conditions, knowledge of what has happened in similar situations and judgement that puts together what is observed and what is recalled. Roberts (2003) emphasises that of major importance during

an experience is that there should be brief opportunities for reflection; this allows learners to make the connection between the actual experience and the knowledge they draw from the experience. In the classroom once a teacher has taught the lesson, he/she will then have a discussion and question learners about what they have viewed, heard, and experienced from the use of digital media. This shows the learners' understanding and what they have grasped from the lesson.

3.4.7 Learning outcomes

Roberts (2003) indicates that a key component of Dewey's theory is that memorisation of a set of facts does not constitute learning. In the traditional way of learning teachers provide information and notes to learners, in turn learners need to learn and memorize this work by heart. The work then gets transferred onto paper by passing their tests and examinations. This reveals that learners do not understand the work but can give all the information. They need to explain rather than give facts and they need to support the facts with reason. Roberts (2003) continues that a mere acquisition of knowledge from traditional education does not guarantee that learners will be able to apply those skills in dissimilar situations, thus, the ability to transfer that knowledge to new situations is critical. Furthermore Roberts (2003) writes that Dewey also proposes that learning from experiential education facilitates the ability to be a lifelong learner, as such; he asserts that extracting the full meaning from present experiences allows learners to do the same in future experiences. In order for children to be lifelong learners they need to understand what they learn so in turn they can remember what they have learnt. In the future the learners pass the knowledge onto other people in some way or the other. Roberts (2003) highlights that learning involves acquisition of knowledge and the ability to acquire more knowledge in new situations. To accomplish this, learner involvement in an experience is very important.

3.5 Conclusion

This chapter discussed John Dewey's Experiential Theory as the theoretical framework that underpinned this study. John Dewey's Experiential Theory has made a significant contribution to the field of education as educators and parents understand the significance of experiences and learning. Discussed is the history of John Dewey, the definition of the theory as well as a diagram with detailed explanation of every aspect in the model.

The following chapter outlines the research design and methodology that was utilised in this study.

CHAPTER FOUR

RESEARCH DESIGN AND METHODOLOGY

4.1 Introduction

This study explores the use of digital media in enhancing learning in a secondary school in the Pinetown district. This chapter presents a description of the research design and methodology used in this study. Firstly, the research approach together with the type of sampling utilised in this study are discussed. Secondly, the data production methods used in this study, questionnaires and interviews, are defined and how both these methods were used in this study is discussed. Thirdly, the teachers and learners who participated in this study are discussed. Finally, the ethical issues taken into consideration in this study are addressed.

4.2 Qualitative research

The type of approach that was used in this study was qualitative research. The qualitative method was used as this study focused on the enhancing of teaching and learning. According to Taylor (2013), qualitative research can be arranged into categories that are not numerical. Taylor (2013) states that these categories can be physical traits, gender, colours, or anything that does not have a number associated to it. In my study the teachers and learners that were selected participated on a volunteer basis as the entire school of research does use digital media, however in different ways and for different subjects. Participation was on a volunteer basis as I did not want to pressure any teacher or learner that would feel uncomfortable. The qualitative approach is also known as categorical. This type of research would provide insight into the enhancement of digital media use in classrooms. In this study the use of qualitative research provided in-depth data on the use of digital media to enhancing teaching and learning.

According to Slavnic (2013), in most advanced economies the digital archiving of quantitative research is as old as digital technology itself, but the idea of digital archiving of qualitative research is recent. There were many advantages noted by the utilisation of qualitative research. Some of the mentioned advantages are to improve the transparency of

the research process as well as make data available for other researchers. Slavnice (2013) states that many qualitative researchers are sceptical and explains one aspect of qualitative research as being derived from and dependent on the relationship between a researcher and their informant. Slavnice (2013) explains further that qualitative data is socially constructed through interpersonal relations between researcher and respondents (as information is never just “out there waiting to be collected”). In this study I had to find out which teachers and learners were exposed to the usage of digital media.

Slavnice (2013) states that the qualitative approach is unique and imposes limitations on individuals reusing another person’s data. Researchers who utilise data from a second source do not attain the true and real meaning of the data as opposed to utilising their research methods to obtain original data. Results will vary and every individual’s opinion will differ in many ways due to the constraints which they may encounter and challenges which they are faced with.

Myers (2013) states that qualitative research involves utilising data such as interviews, documents and data from participant observation. This study made use of questionnaires and interviews. Six learners and six teachers were selected to answer a questionnaire and the teachers were interviewed. The questionnaires were given at the first meeting and another meeting was called for the interview process. Each learner was given the questionnaire to answer. The interviews took place by one teacher being interviewed in a separate room at a time. I used an interview therefore supporting the qualitative research method.

There is a distinguishable difference between qualitative and quantitative research. Qualitative research methods were from social science roots where researchers were able to study social and cultural phenomena. Some of the examples of qualitative methods are mentioned by Myers (2013) and these include action research, case study research and ethnography. A great motivation of qualitative research is observation, which allows researchers to understand humans better by their behaviours, thought process and the way in which they speak. This study focused on the experiences of learners with the usage of digital media in the classroom for various subjects.

4.3 Data Production Techniques

4.3.1 Questionnaires

The six learners and six teachers chosen were provided with a questionnaire to complete. Cohen, Manion and Morrison (2011) discuss the different types of questionnaires which include structured, semi-structured and unstructured questionnaires. According to Sejane (2017) the basic objective of a questionnaire is to obtain facts and opinions about a phenomenon from people who are informed on the particular issue. Further Nehal (2017) states that a questionnaire provides the researcher with background information. There are different types of questions under each category and these questions are multiple choice questions, rating scales, open-ended questions and other. The research questionnaire that was utilised in this study consisted of open-ended questions so that both the learner and teacher could express themselves properly and be understood. The questionnaire provided to the learners and teachers was simple and easy to answer. However, the learners and teachers were given different questionnaires as the roles of both are different.

According to Boulton (2012), there are two basic kinds of questions, open- and close-ended. Boulton (2012) states that close-ended questions have limited answers and are usually in the form of multiple choice questions where options are provided to choose from. Open-ended questions require more detailed responses and it is appropriate to send out close-ended questions (as opposed to open-ended) to a large group of individuals for a survey. Data capturing for the individuals collating the data is actually easier when utilising close-ended questions. A check was carried out to ensure suitability on the integrity of data acquired, i.e. unanswered fields and unsuitable feedback to questions were further simplified such that the learners and teachers understood what was required of them, and they provided appropriate feedback. For this research physical hard copies of the questionnaire were provided to the learners and teachers. The questionnaire structure was an open-ended questionnaire consisting of a range of questions related to the use of digital media in the classroom. Questions varied from definition of digital media, to their feelings and understanding.

4.3.2 The interview

Sejane (2017) states that interviews play a vital role in information gathering. Further Sejane (2017) explains that the objective of interviews is to obtain information. Nehal (2017) mentions that the interview continues to be the most popular method in qualitative research and is frequently used. According to Eccles (2012), an interview is a conversation in which the interviewer questions the interviewee in order to gain information. Eccles (2012) states that interviews can be formal, informal, structured or unstructured. The different ways of conducting interviews are on a one-on-one approach or in groups face-to-face or also via telephone. Eccles (2012) further states that interviews are a very common research tool which lead to discussion of a very significant nature regarding the subject matter on hand. The interviews were formally structured on a one-on-one basis where a cellular phone served as proof of the interview, conversation and answers obtained. Interviews were conducted orally and recorded via means of a cellular phone to eliminate the possibility of losing information.

The interview questions were derived from the questions that need explanation and that were not asked in the questionnaire. The interview was verbal and the teachers that were interviewed were given a few minutes to browse through questions to make sure that they were comfortable and that they were ready to go ahead. The results of the interview were recorded on a cellular phone so that any valuable information was not missed or lost. According to Cohen et al. (2011) interviews are a widely utilised and flexible instrument for data collection. It enables multiple sensory channels such as verbal, non-verbal, spoken, heard, of which these aspects are part of the interview process. Researchers find an interview as a very powerful implementation and Cohen et al. (2011) state that interview responses should be as detailed as possible. An interview is not a normal and conventional conversation between two people, but it is a structured process between an interviewer and interviewee. An interview is also planned and both interviewer and interviewee are both aware of the proceedings that will follow.

There is a particular time and venue for the interview so that the interview will be carried out successfully as these factors are significant; without discussing these essential details there will be confusion and disruption. There has to be mutual respect and trust between the interviewer and interviewee before the interview occurs. Both parties should be comfortable and able to answer and ask questions to the best of their ability. Just like questionnaires, there

are also different types of interviews where some have strengths and weaknesses, and the participants also play a major role in determining whether the interview is successful or not. The two types of approaches with regards to interviews are quantitative and qualitative. This study was based on a qualitative approach. Some of the characteristics of a qualitative approach include an open-ended response, capturing uniqueness, informality and explanation. Prior to an interview being conducted, there has to be a planning (interview based) of research procedures that must take place and some of the procedures are thermalising and designing.

Cohen et al. (2011) state that the thermalising of an interview involves a preliminary stage of an interview study and this is the point where the purpose of the research is decided. Cohen et al. (2011) further state that the process begins by outlining the theoretical basis of the study, its broad aims, its practical value and reasons why the interview approach was chosen, as well as that there are also goals and objectives so that the satisfactory answers can be achieved. The proceeding step is designing and validating questions which will be raised closely to the research study. Cohen et al. (2011) mention factors that require consideration which are namely the objective of the interview, nature of the subject matter, respondent's level of education/attitude and whether the interviewer produces facts or opinions.

Cohen et al. (2011) further explain that the onus is on the interviewer to establish and maintain a good rapport with the interviewee and some of the aspects include being clear, polite, non-threatening and friendly. Respect is major and certain individuals prefer to be addressed by their title, name or surname so that they are comfortable during the interview. Since these were learners at a school they were addressed by their first names as they are always called by their first name at school. After the interview, the interviewee should not have changed in their emotions or feelings causing the interviewer to feel uncomfortable and thus the interviewer must maintain a continuous process with no disruptions and interruptions. There were no personal questions asked so that they would feel comfortable and answer the set interview questions without any problems.

The interviewer is required to ensure that the language medium is correct and that inappropriate, vulgar and slang speech is not utilised. Therefore the study and interview was conducted in English and the interviewees were provided with more than adequate time to answer the questions and thus they did not feel pressured. Children were interviewed so the

interviews were not very long. It was age-appropriate and kept them alert and open-minded throughout the interview process. Cohen et al. (2011) discusses how research benefits from shorter interviews and lengthy questions as opposed to the converse. The interviewer should be sensitive towards the interviewee at all times and hence ensure that all questions asked are appropriate and not offensive.

4.4 Data generation

The two research questions that were asked were: What are the educational benefits in using digital media?; and how do teachers and learners use digital media in teaching and learning? Written answers of the interviews were compiled after listening to the cellular phone recording. Cohen et al. (2011) mention that if the transcript is a videotape then the non-verbal communication such as body language which occurs can also be commented on. In this dissertation teachers were only audio taped and not video recorded. According to Cohen et al. (2011), qualitative data is analysed and a less completely accurate representation but more of a reflexive reaction interaction between the researcher and the decontextualized data (which are already interpretations of a second encounter) is given. The questionnaires and the interviews produced data on the use of digital media in enhancing teaching and learning. Learners and teachers were first provided with a questionnaire which was explained to them and all questions were required to be answered by all participants. After the hard copy questionnaire was complete, teachers were interviewed individually and interviews were carried out orally. The completing of the questionnaire and conducting of the interview were during the school day, however whenever the teacher was free and available to avoid any disruption. Each teacher was interviewed separately so that there would be no confusion.

4.5 Sampling

Purposive sampling also known as convenience sampling was used. Purposive sampling was used because learners and teachers were chosen according to choice. Cohen et al. (2011) explain purposive sampling as a feature of qualitative research. There are two types of sampling which could have been utilised, and research requires determining the correct sampling method for a study. According to Cohen et al. (2011), there is probability sampling (also known as random sampling) and non-probability sampling (also known as purposive sampling). Learners and teachers were selected on a volunteer basis. Cohen et al. (2011)

further discuss the difference between the two sampling methods. Probability sampling is where every member has an equal chance of participating in the study while non-probability sampling selects members to participate and the remainder are excluded. The members are selected according to the researchers of the study, and this study was based on purposive sampling. The sample size is chosen by particular characteristics of people regarding the purpose of the study. Purposive sampling is also known to be unique as it is not common for all or any member to be involved, and rather the participants are selected and chosen carefully according to a specific status.

According to Laerd's dissertation (2012), purposive sampling, also known as judgemental, selective or subjective sampling, is a type of non-probability sampling technique. Laerd's dissertation (2012) goes on to say that there are a number of different types of purposive sampling, each with different goals. Purposive sampling allowed participants who met the criterion to be happy and enthusiastic in participating. Purposive sampling was appropriate for this study as there was use of digital media.

4.6 Reliability

Sejane (2017) mentions that reliability refers to the consistency of the information one gets. Further Bollapragada (2017) describes reliability as the degree of consistency with which the instrument in the study measures a variable. According to Cohen, Manion and Morrison (2011), reliability is essentially a synonym for dependability over objects or groups of people. Reliability involves both precision and accuracy and Cohen et al. (2011) state that for research to be reliable and accurate the outcome of the results should be very similar to results from a similar group of people. With respect to the use of digital media in this study, learners and teachers from a secondary school selected should have the same or similar dynamics and characteristics (i.e. age, grade, intellect) so that the study would bring about accuracy. There are also many factors that are considered such as the learners being of a similar age and their behaviours and mind-sets should be of a common similar nature. Cohen et al. (2011) state that should the study be repeated on the same sample groups the results should be the same. Reliability also greatly leans towards trustworthiness as the sample is expected to provide honest answers and not construct and generate false information to compromise the results. It is very misleading when results are not accurate and do not reveal a true analysis. The learners and educators were asked whether they would be comfortable

being involved in the study prior to participating in the questionnaire and interview. The learner or teacher could provide dishonest and false information if they were uncomfortable and/or uneasy in participating. Cohen et al. (2011) also mention meaningfulness as one of the aspects of reliability to respondents. This study required students and educators to provide answers to personal questions as their opinions mattered. The answers that were received from all the learners and teachers were of a significant value and unique as all learners and teachers are from different backgrounds therefore providing different opinions.

4.7 Validity

According to Moodley (2013) validity in general refers to something that is sound or justifiable. Sejane (2017) states that validity refers to the accuracy of information. Further Bollapragada (2017) speaks of validity as the degree to which the instrument measures what it is intended to measure. With respect to questionnaires, Cohen et al. (2011) discuss two ways in which validity can apply to questionnaires. The first is whether respondents complete questionnaires accurately i.e. completing the questionnaire honestly and correctly. This applied to the study as there were twelve participants in the study and all twelve questionnaires were collected and analysed as a true reflection of the study. The second validity point is those that did not return questionnaires must not be considered the same as those who did. Cohen et al. (2011) mention that follow-up interviews should be carried out with the participant teachers involved. In the study, the teacher participants were all interviewed and both teachers and learners were given the questionnaires.

With respect to interviews, Cohen et al. (2011) state that to confirm whether answers are valid then those answers should be subject to a comparison, and in this study the questionnaire results were similar when compared to the content of the interviews. Participants were instructed to answer all questions to the best of their ability; if they did not understand then they should get clarity from the researcher. Cohen et al. (2011) discuss the principles of validity which include controllability, replicability and predictability. Cohen et al. (2011) mention that the natural setting is the appropriate environment for the principal source of data and this statement was justifiably true as the learners and teachers were interviewed in a school environment as opposed to being at home or in a restaurant where distraction and disturbance would be far greater. Furthermore, the learners would be more disciplined and possess a clearer vision in a school environment. The data was descriptive

(i.e. natural, unique and meaningful) and all questions were addressed in detail with rich information that answered both research questions.

4.8 Ethical issues

A pseudonym is defined as a fictitious name for an individual or organisation utilised in a study by an author to prevent defamation thereof. There were pseudonyms for the participants and the school involved in the study (to prevent any direct relation to the actual study). Participation was voluntary and learners and teachers were allowed to withdraw at any time. Consent was required and obtained from the parents or guardians of the participants and from the teachers. Participants and their parents or guardians were informed on the requirements of the study as well as provided with insight into the purpose of the study; this was also done for the teacher participants. Parents and guardians could willfully object to their children participating in the study after learning the purpose and objective of the study. Information obtained and utilised from the participants would be treated as private and confidential and hence would not be disclosed to external individuals including third parties. Firstly, ethical clearance and permission was obtained from the Department of Education and the principal of the school in which the study was carried out. The language of communication utilised was English due to it being universal and most widely utilised and recognised. Confidentiality is one of the most significant aspects that makes up part of the process. Slavnic (2013) claims that protecting the identity of respondents in qualitative research and securing their anonymity may be rather problematic if data is to be archived and available to others. In this dissertation the six grade seven learners were provided with pseudonyms. Their (real) names and identities will not be revealed and consent was required from the learner, their school and parents or guardians.

Informed consent was obtained and participants were clearly informed on all that was to be expected of them so that the participants could make an informed decision that was fully and properly thought through. While selecting the learners and teachers I made sure that they were firstly comfortable with participating in the study. Once the learner agreed then I handed them a consent form and explained to them that their parents also had to agree with them participating. The responses from all parents were favourable.

Ethical issues in interviews also require consideration and Cohen et al. (2011) state that interviews have an ethical dimension composing of interpersonal and interactive attributes, producing information of the human condition. In this dissertation consent was required from the parents of the participants as well as from the participants being interviewed. Since this study was carried out in a secondary school the Department of Education and the principal of the school were informed and their consent was also obtained. The parents of the participants as well as stakeholders involved were informed on the purpose of the study.

4.9 Conclusion

This chapter discussed all aspects of the methodology utilised in this study. It also discussed the techniques that were used to produce the data. The questionnaire and interview were the two ways in which data was produced for the study. The setting of the research site was also given reference to as the environment where these questionnaires and interviews took place had to be appropriate. Ethical concerns were also discussed as without approval and consent from all stakeholders this research study would not have been able to take place. In the following chapter the analysis and results are discussed, displayed and analysed. The questionnaire and interview questions will also be discussed and detailed responses will be provided.

CHAPTER FIVE

DATA PRESENTATION AND ANALYSIS

5.1 Introduction

In the previous chapter the research methodology utilised in this study was outlined. The research approach was discussed together with the research participants, data generation techniques, the method of analysis, ethical issues, validity and reliability. A questionnaire consisting of ten questions was completed by six teacher participants involved in this study. Following the completion of the questionnaire each of the participants was subject to an interview for in-depth information on the usage of digital media in enhancing teaching and learning in a secondary school in Pinetown*. Six learner participants were also given a questionnaire consisting of eleven questions. This chapter presents the findings of my study which examined the use of digital media to enhance teaching and learning in light of relevant literature and John Dewey's Theory of Experience which underpinned this study. The chapter opens with a presentation of the questionnaire responses which is then followed by a discussion of the themes that emerged from the interviews.

The key questions that guided this study were: What are the benefits of digital media in enhancing teaching and learning?; and How do teachers and learners use digital media to improve teaching and learning? In the sub-sections below, I discuss the themes and issues around the usage of digital media in enhancing teaching and learning in a secondary school which the study illuminated.

5.2 Questionnaires - Learners

A questionnaire consisting of eleven questions was completed by the six learner participants involved in this study. The questionnaire responses are presented in the form of their quotes. As all are underage, parents had to fill out consent forms granting permission to participate in the research study. Students answered questions to the best of their ability. Honesty was shown as answers were common in learners, only the language differed. Their train of thought was also similar as their opinions expressed more or less the same views. All questions were answered by all learners successfully and appropriately.

5.2.1 Meaning of digital media

Learners were asked to give the meaning of what they understood digital media to be. This question aimed to see if learners knew what the term meant, and also to see their interpretation of the meaning. The responses of the learners were more or less the same, describing digital media as access to the internet; some learners even provided examples of digital media devices. One of the major aspects in Dewey's Experiential Learning Theory is knowledge. The knowledge gained over the years helped these learners define what they understood digital media to be. Different people described digital media in different ways as illustrated below:

Participant A: Digital media is any form of information on digital objects such as computers, laptops, tablets, phones etc. It is in digital form such as presentations or videos.

Participant B: Digital media is all the photos, audio and videos that have been put on the internet for everyone to see and hear. You can access all of this on phones, tablets and computers.

Participant C: Digital media is information that is presented over the internet or computer networks.

Participant D: Digital media is electronic media content that can be transmitted or shared over internet or computer networks e.g. videos or graphics. It can be created, viewed and shared on digital electronic devices.

Participant E: Digital media is everything you do that involves you going onto the internet and being exposed to things that you usually aren't exposed to.

Participant F: Media that we get from technology such as phones and tablets.

Learners had a good knowledge of what digital media is. They mentioned examples such as laptops, computers, cellphones and tablets. These are the digital media devices that they are familiar with, have used or have been exposed to as they recognise these gadgets. Videos were also mentioned as a resource. Ncheke (2008) supports that video as a tool in teaching and learning has the capacity to advance teaching and learning by bringing into play senses

such as sight, hearing and touch, and is now widely employed in most classrooms. Kharsany (2004) defines the internet as an interactive medium allowing users to interact with the authors of the content with immediacy.

5.2.2 A variety of digital media tools used

The next question was what type of digital media the teacher uses. Learners stated the different types used in their classrooms. A digital media device that was mentioned was a cellular phone. In most schools cellular phones are banned. However in this school cellular phone usage in the classroom is allowed for research purposes and teachers monitor this. During breaks learners are allowed to use their phone. The school code of conduct is different as compared to others. In other schools cellular phones are banned and if learners are caught with cellular phones in their possession then different measures would be taken such as calling the parent to school to fetch the cellular phone. Ormiston (2012) argues that pens weren't banned from schools even though learners created crib notes and neither were pencils as a learner could poke another learner's eye, yet cellular phones are banned in most schools. Ormiston (2012) claims that a cellular phone utilised in a classroom can serve many purposes as many have them available (i.e. on hand). Participants' responses are listed below:

Participant A: The types used are:

- *Laptops*
- *Projectors*
- *Presentations*

Participant B: My teachers use computers and projectors.

Participant C: Computer – to research examples and show us PowerPoints with information.

Projector – to display the pictures, videos and work on the board for the whole class to see.

Participant D: Computers

- *School website (Intranet)*
- *Mobile devices (Tablets)*
- *Overhead projectors*

Participant E: Projector, phone, tablet and laptops.

Participant F:

- *A laptop*
- *A projector*
- *A phone*
- *A TV*

The learners gave a list of all the different types of digital media that their teachers use. Some learners even gave the reason for the use of certain digital media devices, and how their teachers use them. We also gather that the digital media devices are used by both teachers and learners as some indicate tablets and phones. This could be for the learners' use. One of the learners mentioned Intranet. According to Cicco, Farmer and Hargrave (2001), commercial companies and many educational institutions, particularly colleges of further education and universities, have built in whole internal networks based on internet technology; internal networks are called intranets. Murphy (2010) states that mobile phones are evolving at an alarming rate. While it would not be incorrect to term a mobile phone as a "mobile phone", users are aware this term encompasses a lot more than communication technology. Murphy (2010) defines a phone as an apparatus, system or process for transmission of sound or speech to a distant point, especially by an electric device. Murphy (2010) points out that mobile phones have become a feature of everyday society.

5.2.3 Learners' choice of digital media devices

The third question was for the children to express their feelings on what the teacher should use that they are not already using in the classroom. One of the answers that were mentioned by one of the learners was games. Games are a useful way of promoting teaching and learning in the classroom. Gee (2008) states that although video games are part of a popular culture, they are like literacy and computers, sites where we can study and exercise the human mind in ways that may give us deeper insights into human thinking and learning, as well as new ways to engage learners in deep and engaged learning. Gee (2008) goes on to say that there are many good principles of learning built into good computer and video games. Furthermore Gee (2008) points out that these are all principles that could and should be applied to school learning tomorrow, although this is unlikely given the current trend for

skill-and-drill, scripted instruction and standardised multiple choice testing. Another aspect that is mentioned in John Dewey's Experiential Learning Theory is experience. Learners become familiar with certain digital media devices throughout their lives and due to those experiences they prefer certain devices to also be included in their academic lives. The responses to question 3 are listed below:

Participant A: I would like them to use digital media in lessons such as:

- *Games*
- *Videos*
- *Presentations*
- *Slide shows*
- *Images*

Participant B: They could use apps that help connect with us in lessons, such as educational apps and not anything like Twitter or Instagram.

They could let us connect and share our thoughts on certain aspects during the lessons.

Participant C: Radio/CD player to play us listening comprehensions or something that could give us extra information or explain the section we are learning.

Participant D:

- *Interactive whiteboards*
- *Online study tools*
- *More educational videos*

Participant E: Making the Wi-Fi more available and usable in class. Using videos and colour pictures to show us. Making use of rhymes to remember things.

Participant F: A TV and Parrot boards.

We notice from the responses that learners like to have access to the internet; it is also surprisingly mentioned that they do not want the use of social networks. They want simple uses and do not demand or ask for anything that cannot be accessed. Murphy (2010) speaks of games, generally referred to as video games; they require the inclusion of a video screen

and electronic games console. Parrot boards are a type of interactive whiteboard that are also used in classrooms and the workplace.

5.2.4 Assistance with set up of digital media devices

Most of the learners help their teachers with setting up of the digital media devices, however they do mention that it is only when the teacher is having trouble and problems occur that they assist their teachers. One child even mentions that the digital media equipment is set up before the lesson so all that the teacher needs to do is switch on the digital media device. This also saves time in the lesson where it can be used for academic work. Again we notice that Dewey's theory of experience plays a vital role as learners already have a foundation and have experienced the use and know how to operate digital media devices. Participants' statements are listed below:

Participant A: Yes as sometimes there are problems that even teachers do not understand.

Participant B: Not usually as they know how the computers and projectors work and only occasionally ask for help when there is a problem with sound for example.

Participant C: Yes. Sometimes if the teacher is having trouble setting it up or having trouble getting something to play one of my classmates will help.

Participant D: Sometimes. Most of the time, the laptops are already set up beforehand and all that needs to be done is to switch on the projector, this is when we assist.

Participant E: Yes.

Participant F: Yes.

We gather that learners assist their teachers with the setup of the digital media devices only when the need arises. According to Grabe and Grabe (2001), some teachers are uncertain and anxious about computer hardware and software selection; it is mentioned that there are problems that are experienced and that teachers need help with this. One of the aspects that noted was sound. Sound is one of the most important components in a digital media device. Sound creates life and gives meaning to what is being viewed. Imagine watching a movie

without sound, curiosity will get the better of the person. In some cases certain people may not be able to watch any clip without sound as their attention span could be low. Speakers are the main instruments that provide digital media devices with sound. All digital media devices need to be connected correctly in order for proper utilisation.

5.2.5 Internet generation

All learners prefer the use of digital media devices in the classroom. The learners give various reasons as to why they prefer it. Mentioned are terms such as “the boring traditional ways,” also “black and white paper.” These are the feelings of the learners. As stated by Dewey, experiential learning involves learners’ mental, emotional and physiological stimuli. Some learners even prefer it so that they can make use of and understand topics; it is even mentioned that they can connect to the learners that are absent. This proves to us that to a certain extent, learners who are away from school may not miss out entirely if they do communicate with the learners during lessons while away. This will be also relevant if the learner is well enough to communicate via the internet. Participants’ responses are listed below:

Participant A: I prefer as you can search topics that you don't understand, share information with classmates that are absent and make notes with pictures relating to the subject.

Participant B: I prefer lessons with the use of digital media because it makes the lessons more interesting than looking at a black and white piece of paper all the time. We even learn new and interesting things. We get to see the things we're learning about and not just hear about them.

Participant C: I prefer them because I personally think it makes the lesson more interesting and exciting. It helps us understand the section when we see pictures and videos on the section. It helps our concentration when we have something new to look at.

Participant D: When our teacher is the one to use it and teach the class, then I prefer it as it is quicker and we get more done. When it's both students and teachers, it takes a lot longer because there are a select few who do their own things, don't follow and take advantage of

the opportunity, which makes the teacher draw away from their teachings to deal with the situation and disturbs the entire lesson.

Participant E: With the use. This is because it brings life to an already boring lesson.

Participant F: I prefer them with digital media because they make the lessons more interesting than the standard, traditional way of teaching and it helps us interact more in class.

It is noted that learners prefer the visual images from digital media devices. They feel that it enhances their learning, they understand concepts better and relate well. One learner prefers only the teacher to use the digital media devices rather than the learners as it saves time in the lesson. Time always seems to be a major factor as there are only a few hours in the school day.

5.2.6 Academic achievement

There were all positive responses to the use of digital media in the classroom thus resulting in better grades for the learners. According to Ormiston (2012), the outcome of the results showed that sedentary learners who utilised laptops to take notes scored higher marks as opposed to learners who utilised pen and paper. Notes are also posted so that learners have access to view more information on the related topics which are discussed in class. They could even give the lecturer their undivided attention concentrating on significant aspects being emphasised and read up on the notes later. The participants gave many reasons and examples as to how they achieve better grades due to the use of digital media being used in the classroom as illustrated below:

Participant A: Yes and no. Yes because it helps me find information about certain topics that I don't know. No as I can become distracted as there are apps such as social media.

Participant B: Yes it has. My average mark has increased because I got a visual idea of what was being taught to me, plus I remember things better if I see them and not just hear about them.

Participant C: Yes I feel the use of digital media improves my grades because when the lesson is more interesting our concentration span lasts longer and pictures and key points stick in our brain and help us remember.

Participant D: Definitely. Digital media is helpful in so many ways. I am able to easily look up things I don't know and when I do this, it seems that I am easily able to remember this and therefore it helps with my grades.

Participant E: Yes because the info gets stuck in your mind.

Participant F: Yes because the more interesting the class the more I focus and that will eventually lead to me getting better grades.

Although there are positive responses from learners, they are also honest, mentioning that social media apps do distract them. All learners also state that they get higher grades. They would have had to compare results with the use of digital media and without. According to Ncheke (2008), nearly all learners, whatever their age or ability, use computers and watch television with the aim of gathering information. Ncheke (2008) goes on to say that for this reason, educators cannot ignore the potential that technology has to assist in teaching and learning and must apply and integrate technology in their teaching methodology to enable learners to acquire the needed skills to improve their academic performance.

5.2.7 Describing digital media

Learners were asked to provide three adjectives that described digital media to them. All adjectives listed were positive and motivating. It seemed as though these learners really enjoy the use of digital media in their classrooms, used by either the educator or themselves. Here again Dewey's theory is important as it involves learners' feelings which are created from experiences that they have encountered. Participants' statements are listed below:

Participant A: Adjectives used to describe would be interesting, fun, relatable.

Participant B: You can see what's being taught to you. You learn new and interesting things.

You don't easily get bored.

Participant C:

- *Colourful*
- *Bold*
- *Interesting*

Participant D:

- *Efficient*
- *Easy*
- *Helpful/useful*

Participant E:

- *Informative*
- *Exciting*
- *Fun*

Participant F: New, innovative and modern.

Some of the adjectives mentioned were fun, informative, exciting, interesting and helpful. There are all comments telling us that learners enjoy the use of digital media tremendously. They also mentioned that it is easy, we assume that the notion is that using digital media makes their learning as students easier. Another comment was colourful; this helps with the visual aspect where colour is a stimulation for the learners. John Dewey's Experiential Learning Theory is clearly proven as the learners' stimuli is invoked. Their mental, emotional and physiological state is affected by this new method of teaching that has been introduced.

5.2.8 Advantages of digital media use in the classroom

Advantages were mentioned by the learners. Learners were happy that they did not have to use pen and paper to write, rather the notes were typed. The reasons were that there was less paper wastage and also that their notes were neatly typed out. Their usage of books was less and they also spoke of their bags being lighter as this created even a resolution to health

issues such as back/shoulder ache etc. The learners also pointed out that if a book had to be lost or stolen, the exact same information was irrecoverable whereas all the information that they required and was essential for their subjects was stored on laptops, tablets, external hard drives, flash disks or even the specific digital media device that was being made use of. The advantages are listed below:

Participant A: Advantages are that we could have our notes on our tablets instead, as it saves paper, searching the internet, type notes on our tablets instead of writing down. Different apps to help study and we don't have to carry many textbooks as notes would be on our tablets.

Participant B: We don't have to look at endless writing in books all day.

We don't have to carry such heavy bags because they aren't filled with books.

It helps students gain attention because we're always on our devices anyway.

It is easier to access all the work in one place.

Participant C: It gives us something to focus on.

Typed notes are neater and easier to read than handwritten ones.

Research is quicker to get because you don't have to look through books.

Participant D: We are able to get information easier. We can look up anything and get informed. We can communicate and share work with each other easily. We are able to access our booklets through the school website as well as our assignments.

Participant E: I have access to more info. I get to see things clearer. We don't have to waste as much ink and paper.

Participant F:

- *Less books to carry*
- *Helps makes the lesson more interesting*
- *Helps me focus*

Learners' advantages are valid and there are a variety of ways that they benefit. Their access to the internet for communication and information was much easier as it was readily available

for them at school. Their lessons become more interesting. The reasons for the different ways in which digital media is seen as a major advantage are valid.

5.2.9 Disadvantages of digital media use in the classroom

Although there are many advantages of digital media use in the classroom, there are also disadvantages. Learners were asked to point out a few that they have been exposed to and experienced. A common factor was Wi-Fi; if the Wi-Fi is disconnected or there is no signal then they cannot connect to the internet. Viruses are also a major problem. This could cause serious damage to the digital media device that would be attached or connected to it such as a flash disk. The consequences of this could be loss of work. Work can be deleted and not recovered. Systems may also not function properly if viruses are on a digital media device. It will not be able to be switched on and work at all in some cases. The disadvantages are listed below:

Participant A: The disadvantages are that we can be easily distracted; our digital media devices' battery power could run out while our information is on it. We cannot connect to internet if there is no Wi-Fi. Viruses could get on it and it could be stolen.

Participant B: Students tend to get distracted with other things such as games and social media. We sometimes take advantage of these devices being allowed in the classroom. We don't pay attention if we notice that our notifications are blowing up.

Participant C: If the electricity goes off you can't work or get research and information. If the Wi-Fi isn't working, you can't research on Google.

Participant D: Many spend a lot of time on it, not doing work. They take advantage of it. People often lose their social skills with each other in the classroom when having discussions.

If others are constantly on it, it affects the whole class because the teacher gets distracted. Our internet isn't always working. Only a few teachers use it.

Participant E: We could see things we aren't supposed to. We could get distracted with other things.

We would completely ignore the teacher and focus on what we see.

Participant F: You can get distracted.

- *Your possessions could get stolen*
- *Vision impairment*
- *Viruses*

A common comment by the learners is distraction. Learners feel that they can get easily distracted with the use of digital media; in turn their concentration on academic work gets neglected. However there are measures in place by teachers whereby they are monitored and watched throughout the lesson. Also there would be no time for distraction as work will be continuous and once you start researching information or doing work there are time limits.

5.2.10 Learners' views

As we notice throughout the study many aspects of Dewey's theory relate comfortably to the different themes discussed. We note that the aspect of a learners' experience lends itself to their views and opinions. When learners were asked for opinions of how digital media could be used differently the responses were that many learners want the use of digital media to be more frequent in the classroom and they want assignments and even textbooks to be online. The process the learners are referring to is e-Learning, where all work is submitted online. Participants' views are listed below:

Participant A: I think that it can be used to plan more lessons. Teachers can help us by finding out ways to learn and students can share information with one another.

Participant B: We could use it more often. Teachers don't like using them because more students get distracted and their marks drop or they just don't care about the lesson.

We could use them to get exercises done and do our tests on paper.

We could watch more educational videos.

Participant C: Students could maybe be asked to fill in answers on the board if there was a worksheet that was projected onto the board.

Students could make pages of information which could be shown to the whole class using the projector.

Participant D: Assignments can be done online.

Textbooks can be stored online.

Homework and schoolwork can be done online and submitted via e-mail.

There must be a better Wi-Fi connection in order for us to be able to use our devices to do these things.

Participant E: We could use it more often and have more things to do on our devices.

Participant F: We could use them more often and instead of traditional methods we could use a more innovative and modern approach.

Grabe and Grabe (2001) speak of access to people and putting people in touch with each other. This is referred to as communication between people. Grabe and Grabe (2001) assert that one of the most powerful uses of technology is putting people in touch with other people. Learners mention that they can share information with each other via digital media. Grabe and Grabe (2001) outline that learners and teachers can convey ideas and information nearly instantaneously over great distances, or the learners at the other end of the conversation can have the freedom to respond at a convenient time, when they feel prepared. Learners make a very important statement that they want to submit their work via e-mail. This shows that the learners already have e-mail addresses and make use of them. They prefer to communicate with their teachers via e-mail for submission of work such as assignments, projects, etc.

5.2.11 Learner access to digital media

All learners have access to digital media devices at home. They have various devices and they are used for different purposes such as personal and school-related work for research, projects, etc. Some even use them for enhancing their own general knowledge as stated below:

Participant A: Yes. As I have access to laptops, Wi-Fi router and tablets. I use them to connect to the internet for projects, essays about different topics and research.

Participant B: Yes.

We have phones, tablets, TVs and computers.

Mostly they're used for entertainment but I do use them to get school work done or do some personal research, just to enhance my knowledge.

Participant C: Yes I do have access to digital media. I have a computer, cellphone and tablet which I use for research for projects and orals. This helps me get the best possible information for my projects.

Participant D: Yes. We have digital media devices at home. We have computers, tablets and mobile phones. I use this to research and Google things I don't know. I also complete all my projects on these devices. I am also able to use them to communicate with others.

Participant E: Yes.

- *Phones, TV, PS4, computers, laptops, tablets and Wi-Fi*
- *Entertainment*
- *Homework*
- *Getting rid of boredom*
- *Research*

Participant F:

- *TV – entertainment*
- *Laptop – research*
- *Tablet – school*
- *Phone – personal*

According to Cicco, Farmer and Hargrave (2001), increasingly, secondary schools are moving towards having networked computers with internet access either across the whole school or at least in dedicated network rooms or laboratories. This will give all learners access to the internet. Learners can use the internet for different purposes, e.g. research, assignments, speeches, etc. Furthermore Grabe and Grabe (2001) report that the number of computers in schools is increasing rapidly and these computers are being interconnected so that students can communicate with each other and access information sources available from

the internet. Just as John Dewey's Experiential Learning Theory involves learners' emotions and how they react to certain actions, so too does their behavior towards digital media usage in the classroom.

5.3 Questionnaires - Teachers

Questionnaires were given to the teachers to answer at their leisure, therefore they had sufficient time to answer the questions. All teacher participants answered all questions. Consent forms were filled in by all teachers prior to both questionnaire and interview. Teachers answered questions to the best of their ability.

The first question that was posed to teachers was the definition of the term digital media. All teachers' answers were similar as the term is a general one that we all have the same understanding of. Teachers' responses are listed below:

Participant A: Use of internet, PowerPoint presentation, video clips.

Participant B: The use of technology to aid lessons, to create a more "in touch" way of getting information to learners.

Participant C: It is using media through technology to assist in teaching. Any form of media that can be accessed through technological media.

Participant D: Using digital media devices to allow for teaching and learning to take place in the class.

Participant E: Any electronic source that can be used to provide information.

Participant F: Use of cellphones, data projectors, laptops/computers, iPad, cameras, etc. as a learning/teaching tool or for entertainment purposes.

Ncheke (2009) states that online video is accessible on the internet. Ncheke (2009) mentions that this is a resource for Net-generation learners who have been surrounded by digital media

since they took their first breath. Ncheke (2009) goes on to define video clips as short extracts of video, usually a part of the longer piece, selected to present a specific part of the lesson. Ncheke (2009) adds that they might be used, for example, if the educator intends to present the introduction of the lesson only and teach the rest of the lesson later.

5.3.1 Variety of digital media used by teachers

The teacher always plays a vital role in the classroom as well as in the lives of learners. According to Dewey's theory, the teacher's role in the classroom is to facilitate learners, and see that they are engaged in their academic work. Teachers are responsible for the subject matter and knowledge. The next question was about the different types of digital media that teachers use in their classrooms. There are various different types and different teachers use a variety as they teach various subjects. There are also different purposes for why teachers use digital media and how they use it. Very interesting answers were provided by teachers such as that digital media is used as a tool to enhance the lesson. This statement relates directly to the topic of the research. This gives a clear indication that digital media tools are being used to enhance and motivate learners and encourage them. Another statement that stands out is that it allows for digital field trips. The use of digital media actually makes you feel different as if you are somewhere in another place. Research purposes and up to date statistics can be found by learners. This shows that teachers are dealing with the most current information available. Learners make use of the internet/research for different purposes. According to John and Wheeler (2008), the ability to download a movie clip or a piece of music from the internet, the capacity to load an image onto your computer and then send it to others and the ability to complete these tasks on even smaller and distributed networks of peripheral hardware (iPods, mobile phones, etc.) have been made possible by digitalisation. Participants' responses are listed below:

Participant A: Video clips from YouTube.

Participant B:

- *Laptop*
- *Projector*

- *Internet*
- *Learner tabs*
- *Cellphones*

Participant C: We use a projector to assist in showing experiments and educational videos on physical science themes. PowerPoint slides with notes and explanations as well as digital textbooks. Also laptops, cellphones and tablets used to research concepts, internet concepts provided at school.

Participant D: I use my laptop, cellphone, school internet, learners are on their tablets.

Participant E: Equipment: laptop, projector, cellphone, tablets.

Resources: PowerPoint

- *Simulations*
- *Videos*
- *Sound clips*

Participant F: Cellphones, data projector, computers.

John and Wheeler (2008) state that whenever one looks at resources in a school, there are computers, digital cameras, electronic whiteboards and of course the internet. YouTube was founded in 2005. Ramnarain (2011) points out that YouTube's primary social features include ratings, comments and the choice to subscribe to the channels of a user's preferred videos. Ramnarain (2011) highlights that with approximately 3.5 million individuals visiting this site every day, it is likely that the type of video users view and interact with has a great impact on their cognitive state which invariably has the ability to influence their purchasing preferences and behaviour. According to Blewett, Blewett, Ford and Gibson (2002), Microsoft PowerPoint is a presentation application package and forms part of the Microsoft Office Suite. Blewett et al. (2002) state that it is used specifically to create presentations, which may take the form of overhead transparencies, slides, handouts or an electronic presentation on a computer.

5.3.2 Use of digital media in the classroom

Teachers were asked when they use digital media in the classroom and for what purposes. Teachers gave different responses as they teach different subjects as well. One of the mentioned uses is simulations. According to Poole (1995), simulations are powerful tools for learning. Grabe and Grabe (2001) indicate that simulations provide controlled learning environments that replicate key elements of real-world environments. Grabe and Grabe (2001) explain that a simulation focuses on a limited number of key elements that provide a simplified version of the real world. This allows the learner to learn a topic or skill very efficiently. Teachers need to consider the ability of the learner when preparing tasks. One of the major themes in Dewey's Experiential Learning Theory is learner readiness, so teachers have to take this aspect into consideration when planning lessons and assessments. Participants' responses are listed below:

Participant A: During the lesson when something needs to be clarified further - show a clip or a cartoon clip of a certain topic, e.g.: Newton's 2/3 law.

Participant B:

- *Research purposes*
- *Up to date statistics can be found by the learner*
- *PowerPoints*
- *Videos that are content related*

Participant C: Incorporated in lessons are the digital notes, PowerPoint presentations, videos and simulations. This lends itself to explanations and descriptions of concepts.

Participant D: To aid internet research.

Participant E:

- *It is used as a tool to enhance the lesson*
- *Can be used to demonstrate abstract concepts*
- *Allows for digital "field trips"*

- *Used for consolidation and revision*

Participant F: Cellphones/computers, iPad - to do research, documentary, review newspaper articles, etc.

Data projector/laptop - explaining work, memorandums, worksheets, notes, presentations, etc.

Digital field trips are an experience that some learners may not be exposed to. It brings the lesson to life. This basically means that learners are given an opportunity to explore different ways in which to learn and remember their work. Cicco et al. (2001) point out that the internet has also introduced into the classroom a wealth of new materials and ideas previously unobtainable. In effect, not only has the world been brought to the classroom through digital media, the classroom is being taken out into the world. Finally ICT has liberated teachers from a variety of mundane and repetitive activities so that they are able to concentrate more fully on the fundamental task of learning and teaching.

5.3.3 Electricity crisis

In the case of power failures, all teachers, with the exception of one, state that they will go back to the normal, traditional way of teaching. Chalkboard, textbooks and paper were some of the resources that were mentioned. One of the teachers stated that he would make use of laptops and tablets. This would be because these devices are fully charged and can be made use of until the battery becomes low, which should last the lesson. We also note that this school may not have a generator as no teacher has mentioned that the use of a generator kicks in. See participants' responses below:

Participant A: Yes. My lesson is always well planned, if no electricity - then the lesson is done theoretically with whatever equipment I have in the laboratory.

Participant B: Yes. There are worksheets/workbooks and textbooks with activities.

Participant C: No. The digital part of the lesson will be moved to the next lesson. Also everything else will be taught as normal.

Participant D: Lesson is hampered however I always have printed copies of notes and the chalkboard.

Participant E: Digital media is used to add to the lesson. Every lesson has a backup plan. No electricity: use tablets/laptops.

Participant F: Yes. Textbooks, worksheets, chalkboard, whiteboard etc. Normal lessons can continue.

Teachers also mentioned that their lessons are well planned so that they are always prepared for any mishaps that may occur. Another teacher points out that there are already printed copies of notes if the need arises for electricity cuts, etc. It is also revealed by teachers' answers that the use of digital media can be moved to the next lesson.

5.3.4 School owned digital media devices

The question that was asked was what digital media devices are made available at the school. This question was asked because even though a school may provide digital media for the teachers to use, teachers can also use their own personal digital media devices such as cellular phones as the school cellular phone may be kept in the office for the usage of phone calls, sms and communication with parents. However the similar answers were given:

Participant A:

- *Data projector*
- *Internet*

Participant B:

- *Interactive whiteboards*
- *Digital projectors*
- *Laptops*
- *Internet with Wi-Fi*

Participant C: LMS - website where teachers upload notes, videos, resources for learners to access and use.

Participant D: Videos, presentations and PDFs.

Participant E: Tablets, laptops, projectors, computer, cellphones.

Participant F: Interactive boards, computers, data projector, cameras, iPads.

According to Grabe and Grabe (2001), computers can play a variety of roles in schools. Grabe and Grabe (2001) point out that they can be used to teach, facilitate the study of traditional content-area topics, provide opportunities for learners to learn how to use technology or give learners general-purpose tools for performing academic tasks more efficiently.

5.3.5 Time management

Time and how it is managed is an essential part of every individual's life. Our lives are governed by time. The watch and clock are extremely important gadgets that we continue to rely on throughout the day. Only once we have planned and experienced either the loss or gain of time then only will we be able to determine if changes need to be made in the classroom. Every human wants to always save time or be on time, however this is not always possible as we need to have patience. Digital media devices can vary on different occasions; after all it is a machine. The lesson times in a school day are limited. There is work to be completed in each lesson. The amount of time that teachers spend using digital media in their classroom is therefore important; too much and too little can be damaging. Some of the responses from teachers were that it was a very important point that the school policy states that 25% of the lesson should be used for digital media. This gives the teachers a clear indication and they can easily follow this policy. However, not all teachers responded that they use digital media in most of their lessons, but as often as possible, as illustrated by participants' responses below:

Participant A: Whenever the demand requires it - maybe twice a week for senior classes and once for junior classes.

Participant B: Possibly once a week for research, and 3 to 4 times to project notes, PowerPoints etc.

Participant C: As often as possible as long as it lends itself to the lesson and is current and appropriate.

Participant D: Possibly 3 times a week.

Participant E: School policy states that 25% of lesson must involve digital learning.

Participant F: 70 to 80 percent of the lessons.

We also note that one teacher uses digital media more often for the senior classes as compared to the junior classes. This could be because the younger learners need to adapt to and become familiar with reading and writing skills. The older learners are mature and can handle the lower content of written work.

5.3.6 Integration of digital media

The integration of digital media in the lesson is an important aspect. Teachers gave the various ways in which they integrate digital media into their lessons. Some use it for their specific subject while some even get the learners to make use of digital media. The integration of digital media in the classroom is an important aspect as there needs to be a connection between the knowledge that is gained and the experience. Learning outcomes is one aspect that is mentioned in Dewey's theory. This relates to the learners' present experiences and the future knowledge that they will gain. Participants' responses are listed below:

Participant A: When a certain part of the topic requires a clip - then I will show learners the clip at that point. Sometimes I start a lesson with a clip.

Participant B: Research aspects like currency rates, credit acts, laws pertaining to business. Learners to present lessons using adverts/PowerPoints.

Participant C: It is either used to introduce a lesson or explain certain concepts or experiments. Mostly for experiments where resources are not available. It assists as a visual explanation for learners as well.

Participant D: I use it as quizzes, audio books, pictures, presentation and video.

Participant E: Used to enhance the lesson.

Forms part of the planning process and is designed with the lesson. It is not used as an add on.

Participant F:

- *To do PowerPoint presentations*
- *To distribute notes*
- *To mark work (memos)*
- *To research work (assignments, etc.)*
- *To watch important news (budget speech, etc.)*
- *Watch films, documentary*
- *YouTube, etc.*

It is mentioned that some teachers use digital media only when the need arises while others have planned lessons. From this it can be assumed that digital media is easily accessible and ready for quick set up as it is used often in the classroom. Learners are exposed to the most current information via digital media devices used by their teachers.

5.3.7 Learners' behaviour towards digital media

Dewey's Experiential Learning Theory (1938) relates itself to the social environment and the experiences that shape people's futures. The social environment is how people interact with others and react to the different situations that they are placed in. The reactions of learners, reported by teachers were all positive comments. The learners look forward to the use of digital media. It was mentioned that even though the children enjoy the use of digital media,

there must be a balance. Too much can also be damaging to the learner, as well as the lesson. See participants' statements below:

Participant A: Very enthusiastic. They remember more by observing the clip. Something different than the teacher.

Participant B: They enjoy it immensely as it is their mechanism of communication, they are familiar with it, it allows for instant verification of information, empowering them.

Participant C: They get excited and pay attention to what is being shown. They seem to prefer it over conventional teaching because they are mostly technologically inclined.

Participant D: They are excited to use them as it is what they are used to using (their devices). It's fun for them.

Participant E: There seems to be more focus when digital media is used, however there is always a risk that learners become too passive, therefore a balance must be struck.

Participant F: Learners are very excited about digital media. They get enthusiastic. Can be useful but also disruptive if not controlled properly.

It is noticed that both the learners and teachers reported that the use of digital media devices in the classroom is fun for learners. This shows that learning can be fun. Learners adapt better when they enjoy work and respond positively towards academic work. A teacher also says that it is different for learners to experience the exposure to digital media devices instead of teachers all the time which can become monotonous. Excitement is another stimulation that is created in the learners.

5.3.8 Setup of digital media devices

According to Dewey, experience is knowledge that is gained. It also involves basic skills such as the setup of digital media devices by teachers. Teachers were asked if they set up digital media on their own or if they got assistance from learners or anyone else. All teachers set up digital media in their classrooms on their own, however it was pointed out that the

learners do know how to use digital media very well and they would definitely assist if teachers required their help. Participants' statements are listed below:

Participant A: Own.

Participant B: I set up.

Participant C: Set up is done by myself, not difficult.

Participant D: By myself.

Participant E: Own.

Participant F: Mostly on my own. Learners are also very clued up.

Teachers can learn a lot from them in this area.

It is essential that teachers know how to set up digital media devices and they should not rely on learners for help with this. Teachers need to show that they are the leaders in the class and that learners need to observe them. However, we all are human and it is not a crime to ask for help if in need and in cases of emergency.

5.3.9 Teacher knowledge and training

Teachers in this era need to be technologically advanced even though new teachers may be trained and have done the latest courses with regards to digital media especially. Ford and Botha (2010) argue that pedagogical practice is defined as an educator being comfortable with technology before displaying and making use of it in his or her classroom environment. Older teachers now need to be trained; they need to go for workshops, get help and be trained by the teachers that are exposed to use of digital media, or even go for courses. The questions posed to teachers were how technologically advanced they were. Some of the responses noted that the teachers who had been teaching for many years were the ones who were not so technologically inclined. They have a basic knowledge and ask for assistance when required. They have also not attended any workshops or done any courses. However they are prepared to be trained and upgrade their qualifications with regards to digital media. One specific

teacher has attended courses and is still attending workshops to be more technologically savvy. Participants' responses are listed below:

Participant A: Did Microsoft Word - competent in Word, Excel and PowerPoint.

Participant B: Basic knowledge that enables me to prepare and conduct lessons adequately.

Participant C: Not very. Have basic knowledge.

Participant D: I did a computer course in my graduate studies.

Participant E: Attended many courses on digital learning (in excess of 15) and currently run digital learning at school.

Participant F: Did not attend courses. Much of my learning has come from trial and error and asking for assistance. Need to upgrade myself.

According to Lennex and Nettleton (2010), teachers are being trained in educational applications of new technologies with very little time spent on mastering how to use the technology. Lennex and Nettleton (2010) state that in the 1970s many American public schools created elite squads of learners who were trained in audio-visual media repair. Lennex and Nettleton (2010) go on to say that these students were expected to be able to jump up and fix a film strip projector or movie reel at a moment's notice for their teachers. Lennex and Nettleton (2010) assert that the overall assumption was that the technology was too complicated for the teachers to master and the trained learners would provide those teachers with the tech support they needed. Thirty five years later, many teachers still turn to their learners when they have questions about navigating the computer or working with new technology. Teachers expect their learners to know more, merely because they are learners and popular literature assures them that this is so. Poole (1995) highlights that multitudes of teachers have attended seminars, workshops, conferences, even semester-long courses, where they have had the opportunity to learn how to use computer technology as a tool for teaching.

According to Lennex and Nettleton (2010), it is a fallacy to believe that teachers do not know how to use technology. From iPods, e-mail, texting, blogs, internet searches, calculators, GPS

units and video games, many forms of technology have become pervasive in society. Students demonstrate good use of technology through sheer curiosity.

5.4 Interviews - Teachers

All six teachers stated that the school provides the digital media equipment to them. However some teachers also use their own tools. Some of the mentioned tools that are provided by the school are digital projectors, laptops, the school portal - which is an internal system - computers and printers. Use of the personal cellular phone and laptop is also mentioned. Participants' responses are listed below:

Participant A: School did provide. I do have my own at home. At school I use the school one, school definitely.

Participant B: The school does provide us with our tools. We've got our digital projectors, laptops; we've got access to the internet so we're quite lucky in that sense where the school does provide us with whatever we need.

Participant C: Well basically the school gives us funds and we buy what we need to teach the learners and we also use most of our own as well.

Participant D: Here we are fortunate because the school does provide us with tools. I have the drama department laptop so in that sense that digital media tool is provided. Portal - internal system. There is a programme where you upload courses onto the school portal and let the learners access it so we do that in drama. We haven't been very vigorous about it but we're hoping to do that from next year for all our grades so it's easier.

Participant E: A bit of both. I have my own laptop and other tools like my cellular phone. The school also provides us with a projector, a computer center that we can use.

Participant F: Most of it is provided by the school itself, our school is quite well resourced but I do have some of my own as well.

Teachers mentioned that there are funds provided for digital media devices that can be purchased if the need arises. One teacher pointed out that the school is well resourced so that gives a good indication; where teachers do not have to share digital media devices, they either use their own or the school provides a sufficient number of devices.

5.4.1 Electronic mail users

All teachers have e-mail addresses. Most of the teachers created them on their own while about two got help and assistance from other people, although they can now create their own e-mails as they have watched and learnt how to subscribe to an e-mail. According to John and Wheeler (2008), internet electronic mail (e-mail) is a way of sending a message to either an individual or to a group of individuals. John and Wheeler (2008) describe the process as much like sending a letter via the postal service to a specific address; you can send e-mail to anyone on the internet who has an internet e-mail address. Furthermore John and Wheeler (2009) state that you don't need to be using the same internet service provider as the recipient. Participants' statements are listed below:

Participant A: I do have an email address, initially I was a bit skeptical however I did get help from someone, but I am sure I can do that myself now.

Participant B: I do have an e-mail address and I did create it myself.

Participant C: Yes I do have an e-mail address and I created it on my own.

Participant D: I do have an e-mail address. I got help from somebody else, a long time ago when e-mails came out. You had to have an attached account, so in order for you to create your current account you need somebody who already had an account to look at. Somebody did help me.

Participant E: I have an e-mail address. I have a school e-mail address and I have a personal e-mail address. The school e-mail address was created by our contact or the service provider. I created mine on my own.

Participant F: I do have an e-mail address. I didn't create it myself. Another person assisted me.

Murphy (2010) describes e-mail as the name suggests electronic mail from one computer to another via a selected network. Teachers can easily communicate with other teachers or the school easily if they find it a better option to personally contact rather than waiting for feedback from the school mailing system. Almost everyone in today's society has an e-mail address for work and personal purposes. A person can have more than one e-mail address; also there are different websites that e-mail addresses can be subscribed from. Knowledge has been gained from other people as some teachers got assistance in setting up their e-mail. These basic skills, as Dewey speaks of, will be passed onto others.

5.4.2 Access to internet by teachers

The school of study has internet provided for teachers' use. Every teacher also has access to internet at home. The school pays for the internet usage at school as teachers use the internet for academic purposes. Responses on this theme is listed below:

Participant A: I do have the internet at home. It is accessible at school as well.

Participant B: I do have access both at school and at home.

Participant C: Yes. We have access to the internet at school and at home as well.

Participant D: At both places.

Participant E: Both. I've got access at home and at school.

Participant F: I do. At home and in school.

At home teachers have access to the internet and use it for personal purposes and some may even use it for academic purposes if need be, or if they need to plan work or may have deadlines, etc.

5.4.3 Issues with digital media devices

Some teachers had not experienced any problems with digital media as yet, while others claimed that they did not have any training so they try their best. One of the problems that was mentioned was that the teacher does not have control over what the learner could be using their phones for while the lesson is going on. This is when they are given work from the portal, the school site or the internal site. The school has its own Wi-Fi system where one teacher experiences several problems. He even demonstrated by using the laptop, showing me that as soon as he moves into the next room, the signal goes down and the internet cannot be accessed. See participants' statements below:

Participant A: So far I haven't had any problems because before I came to this school I was quite prepared. I don't have any problems as such.

Participant B: I think the only problem with digital media is that not all the kids have access to it but because of the limited access to the children and their devices, we can't really have that one-on-one interaction with digital media, the learner and myself, so that's where the problem comes in and every child needs to have a device in order to connect. Every child has to be able to connect to the Wi-Fi or the internet, be it by themselves or with us.

Participant C: I think the main problem I found with the learners especially if they are not interested in what you are doing is they don't seem to pay attention but if it's interesting to them then they all fall for it. Also not all kids have the capacity to remain still or to concentrate while we are using digital media so it does have its advantages I feel, as well as its disadvantages for the kids that are not interested as much.

Participant D: Yes of course I do experience digital problems in the school or in the classroom because when you get the learner to access work from the portal or to get it from the site of the school or the internal site, you don't have control as to what they are on so if they have their data for themselves, if a message comes up they could quickly read, reply done and then reconnect with my lesson. So in those small moments I feel like while I am teaching maybe it is not 100 percent learning taking place because the learner is distracted. Phones are so distracting or tablets or other social media devices.

Participant E: At school we have our own Wi-Fi system. There are several problems with that. One is poor network connectivity. We only run a 4mg line which is designed to cover the entire school. So on average we get intermittent internet supply. In terms of laptops and projectors, those work fine. The main problem is internet connectivity, so if I need to show a YouTube video based on a lesson it's very difficult to get that.

Participant F: Generally most of them I try to handle myself but there are issues that I do encounter, getting into certain information. Basically utilising the media itself is a challenge to me. I did not have any training with regards to that.

There are different ways in which teachers overcome these problems. They find solutions that are most suited to their problem and the best possible way that they can overcome it. According to Cicco, Framer and Hargrave (2001), downloading files can be time consuming but thankfully most web browsers giving some indication of the progress of the download and how much longer it should take to complete the task. Cicco et al. (2001) continue that often downloads progress smoothly without any problems but sometimes you may have some difficulties. Cicco et al. (2001) go on to say that if you lose your connection to the internet in the middle of a download then sadly you will have to start again from scratch. Cicco et al. (2001) assert that this is the case even if 99 percent of the file has been downloaded.

5.4.4 Simple solutions to minor issues

In life we all have to face challenges no matter what the situation or circumstance. In the most well prepared aspects of life there will always be minor problems that need to be overcome. Nothing and no person is perfect. In this study the problems noted above that teachers experienced have simple solutions that they deal with on their own. These problems should be seen as growth as they experience these issues and find ways to adjust or change as the Experiential Learning Theory explains. See participants' statements below:

Participant A: No problems.

Participant B: Basically what would happen is that at most times I would have to do it on my own projector so instead of the kids doing it on their own, I am doing it for them on the projector. They literally just watch me doing something. Both my subjects don't lend

themselves to digital media because one is accounting and the other is business so I use digital media more for business studies than I do accounting.

Participant C: Well basically we punish them when they talk or we try to get them to settle down or to break it down in the lesson. Maybe show a short clip and then explain it and continue. Then at the end if they are behaving we continue with the rest of the video.

Participant D: I have to be walking around, it's like I become a guard. It becomes strenuous on you as the teacher; you have to give them time. For example I will say you have exactly three minutes. I have a timer; they have to work within the three minutes and must be done. You cannot go back to complete it, whatever is done is done at that point.

Participant E: In terms of YouTube videos, our school has built up an LMS - Learning Management System - so we've created our own KloofTube, where we store all our videos, YouTube or any other educational videos on that. So when we need it, we log onto the intranet and we get the videos directly from there. In terms of projectors etc. we have IT assistants and they are usually available. Problems are usually sorted out within five minutes.

Participant F: I seek assistance from students, my own children. The youngsters are quite good at that so I do seek assistance.

John and Wheeler (2008) explain that in schools, new technologies pose a number of challenges to educators, prompting them to rethink accepted verities and to deploy ICT in new and innovative ways.

5.4.5 Social media sites

Teachers were asked if the school has any social media sites such as Facebook, a school blog or a school website and whether they contribute to these sites. The school has all three social media sites. If teachers want to contribute to these, they hand the information to the IT person who is in charge of the media pages and they in turn post or advertise the information. Dewey's Experiential Learning Theory (1938) lends itself to the social environment. This social environment is the people that you have contact with and communicate with on a

social level hence the social media sites that the school lends itself to. Responses on this theme are listed below:

Participant A: I am new here. I do think they have a website however I don't contribute anything to it. I am just here for about three months. I am new.

Participant B: We do have all three I think but no we don't contribute. There's somebody that runs it, if we want stuff to go onto it we communicate that to the person and they would put it up for us.

Participant C: I do think we have a school website; we do as well as a Facebook page. We contribute by giving our stuff to the IT department and they in turn run the pages and they upload information for us.

Participant D: The school has a website, it has a school blog and it has a Facebook page. I do not contribute to any of those in any way. I'm new to this school so I need to get access, speak to the digital learning person to get me through with it but the internal drive of the school or the D6 communicator is where I am able to communicate.

Participant E: We've got all three. In terms of my contribution, we contribute mainly to the LMS which is based on the intranet and it's going to be online soon. More in terms of educational resources but also in terms of sports.

Participant F: We do have a website, a school blog, not much contribution to it. Not too technologically inclined.

Murphy (2010) defines Facebook as a free access social networking website that is operated and privately owned by Facebook, Inc. Murphy (2010) adds that users can join networks joined by city, workplace, school and region to connect and interact with other people. Murphy (2010) points out that people can also add friends, send them messages and update their personal profiles to notify friends about themselves.

Murphy (2010) explains that a weblog, more commonly referred to as a blog, is an online journal that consists of links and entries, with the latest entry at the top of the page. Murphy

(2010) indicates that one of the key elements of a blog are these entries, which are made by its author or authors. Murphy (2010) claims that the blog sphere is constantly changing and growing. Lastly Murphy (2010) found that there are more than 70 million active bloggers in existence, according to The Blog Herald, as people clearly see the need for blogs and some have identified appropriate uses for such a platform. According to Cicco et al. (2001), blogs are an interactive platform that allow consumers to comment, respond to comments and message each other and it is this interactivity which differentiates blogs from statistic websites, which makes blogs a perfect communication tool to engage with and understand consumers better. Facebook allows its users to create personal profiles, upload photos, videos, send out invitations to events, update status messages and personal information in addition to allowing instant messaging, private messaging and taking ‘online’ quizzes and competitions.

5.4.6 Time saving

In order to save time you first have to spend time to prepare certain lessons so that in the long run it is beneficial. Digital media saves all the teachers time; however when they need to prepare the digital media for the lessons, it is very time consuming. Once that is done though, time is saved in all lessons as they are used in all classes, as illustrated by participants’ responses below:

Participant A: Not too clear in terms of that, however I must say that I do enjoy using digital media in the classroom.

Participant B: Saves time, naturally saves time.

Participant C: I feel it saves time in a way, it cuts down our explanation. As a physical science teacher we use it to show experiments which are easier for the kids especially if we don’t have the resources we need for the experiments.

Participant D: It depends on what course you are using. The portal system takes a while to upload. You have to upload a video then link it to your course that you are uploading, so those things do take time. However in the lesson it does save time because everything is done so rapidly and fast.

Participant E: It depends when. In terms of lessons it takes a lot of time to prepare but the good thing is, in the long run it's much easier because all your work is planned. All the work is set for the next lesson. All you have to do is modify it when you use it again.

Participant F: It depends on how you use it. It can be very, very useful but if abused it can be a problem. Of course it can take up much of your time as well. I use it for the sake of work or importance, not otherwise.

Digital media helps teachers prepare for their lessons in advance. Instead of them explaining certain concepts, it is easier for the teacher to show the experiment to the learners for better understanding. Even though certain pieces of work may be time consuming to initially upload onto the school portal, in the long run it is beneficial and helps the teacher save much time in their lessons.

5.4.7 Teachers support digital media

Teachers support the use of digital media devices in their classrooms as they have experienced good results. All teachers agree strongly towards the use of digital media in schools even though some say that the traditional method has to be used in some lessons. They are all happy about the change, as illustrated by their statements below:

Participant A: Definitely yes. You know the kids that we have today get very bored very quickly so instead of sitting there and listening to me for a whole lesson I do show them some clips during the course of the lesson. I don't use the entire lesson though but I do use clips like maybe 10, 15 minutes just to get a break away and to make things more meaningful. Something that they don't see, they will see it using the clip.

Participant B: It is necessary to change it, not to use it completely because you lose out. The kids are losing out a lot but if you look at the way things are moving now the kids are so much more technologically advanced. They know things more than we do so it makes for interactive learning and it also allows the kids to realise that there's an easier way of doing something so that's how it helps us basically.

Participant C: Yes I do because in the age that we are living in we are technologically inclined and most of the kids have access to technology. We do have privileged students that can access it as well as we have computers at school where they can access it so there is no reason for it not to be included in the teaching.

Participant D: I would definitely think that this change is necessary because now in education it seems that people are moving away from the traditional values of books and reading stuff, where everything is now so accessible at the touch of your fingers. So I would think that if they are using that on a daily basis why can't education be accessed from that very quick medium.

Participant E: Definitely because teaching using digital media is designed to prepare pupils for a life outside school and teaching the traditional way prepares pupils for what we call factory work because you basically sit in rows and do a set amount of work and you have to finish in a certain amount of time. Use digital media and that type of teaching prepares pupils for more critical thinking and basically get ready for the real world out there. Also most universities use Learning Management Systems and for pupils straight out of school to get into something like that will be very difficult if they haven't been exposed to it before.

Participant F: There is a need for digital media. Traditionally – I am an old school teacher. I feel the traditional ways are very important but also in today's day and age technology does play a very, very important part and I think if utilised properly and correctly, it is a very useful tool.

There is now a need for digital media devices in this school as teachers mention how well it works with their learners. It prepares learners to become critical thinkers and helps them with the outside world, the adult world, which is in their near future. One of the teacher participants also mentions that it breaks the ice in the lesson. Instead of teaching and explaining throughout the lesson, video clips are shown to enhance the work being taught or the current topic being discussed.

5.4.8 Where are the digital media devices in a school?

At this school there are many facilities that contribute towards digital media. These places/specialised rooms are the computer room, media centre and IT department, as illustrated below:

Participant A: I do believe they have a computer room.

Participant B: We've got. We've got a computer room, a media centre, and have access to the internet. There is also Wi-Fi, intranet as well so they have full access to everything except that they cannot get it on each device because of the capacity that exists.

Participant C: Yes. We actually have two media centres. We have a computer room as well as a library. The library computers are used for the junior learners where they go get training and the computer room is for the IT and CAT students as well as kids that want to know how to use technology in a more detailed way. They go up to the computer room.

Participant D: They do. They have a computer room, they have an IT department. They also have a digital learning department.

Participant E: Yes. We've got a computer room and a media centre. In addition to that almost every teacher has a laptop and a projector in the room. Pupils have access to the computer centre and they also have access to the media centre. Access to the internet in the media centre and computer centre is free so they can go and do research and make use of the computers whenever they want. In addition to that we also have a homework centre which we started this year and pupils can take the devices and do research after school so that they can get onto the internet and do research there.

Participant F: Yes. Definitely a computer room, media centre, etc.

Cicco et al. (2001) found that one of the main choices you have to make is between placing computers at locations all over the school or in dedicated computer rooms or laboratories. Cicco et al. (2001) support that often a combination of these two approaches is the best solution. Cicco et al. (2002) urge that in a secondary school you will almost certainly need to

have a number of computers in computer laboratories for teaching purposes, however, your school might also benefit from locating computers in classrooms, the library and staffroom.

5.4.9 Homework requiring the internet

All learners are given homework, however some teachers do give homework that requires the use of the internet while some teachers do not. See participants' responses below:

Participant A: I have not reached that stage as yet, however I would like to do that in the future provided everyone has access to the media, digital media at home. It's no use me giving it to the pupils if they don't have access to digital media at home. I think that I would have to be trained first.

Participant B: Yes. Lots of internet research, especially with business studies, so lots of internet research plus class activities as well.

Participant C: Yes we do because our school has the LMS programme. We are inclined to give them projects that use the internet for research. Recently they had a project where they had to use the internet and upload a link to show us proof that they are using the school internet for their projects.

Participant D: Yes sure definitely. If I wanted them to research something or give them websites that they could go look up certain reading. I do make them do those things.

Participant E: Yes. For Grade 8s one of their big projects involves using digital media and generally it is easier for pupils to research by using Google etc. than to go find a book and find information. So usually when we have to do definitions and when I ask them to go read up on a section, it is easier for them to just use the internet to do it. All projects have to be typed so they have to use their computers, laptops to get their projects done. Pictures have to be taken from the internet (online).

Participant F: I do. Not too much in my subject area. I do in terms of research, in terms of obtaining information.

Cicco et al. (2001) point out that problems arise for children of families that are not connected to the internet. This is a sad but true reality. Luckily in the case of the learners' part of the study they all have access to internet. Green (2010) discusses the use of the internet in a family household and that it is primarily utilised by parents and their children for research and homework respectively. Obtaining information from libraries including text books (especially by school children) is slowly fading away and is being replaced by the literature from the internet and electronic books and downloads thereof. The use of the internet is easily accessible from cellular phones, personal computers, laptops, tablets to iPads, and information can be obtained promptly with sophisticated search engines. Due to websites constantly being updated, new material and literature is always readily available as opposed to books in libraries.

5.4.10 Way forward for the future

Teachers were asked if they had additional comments or may want to view or express their opinions, and these were the responses. Some teachers did not have anything further to say while others gave good points. Teachers were happy using digital media and they felt that this was the way to move in the future. They encouraged the use, and some who were not so clued up were willing to learn in whichever way necessary. See participants' responses below:

Participant A: I think we need to move towards it, it is relatively new to me because at the school I came from I never had my own data projector, laptop and all those things but in this new setup I do have that and I am enjoying it, it is a change. I think it's good for the pupils.

Participate E: I think using digital media and using ICT in teaching is very, very valuable. It is the way to go in the future.

We also note that this is a much more well-resourced school as a teacher mentioned that in the previous school teachers did not have their own digital media devices. The teachers are happy and enjoy having access to their own digital media devices. Another teacher pointed out that digital media is the way forward in the future and feels it is extremely valuable.

5.4 Conclusion

This chapter presented the findings of this study and discussed the data in light of relevant literature and Dewey's Theory of Experiential Learning. The chapter illuminated a broad theme which was the use of digital media to enhance teaching and learning. This chapter also answered the two critical questions of the study: "What are the educational benefits in using digital media in teaching and learning?" and "How do teachers and learners use digital media to improve teaching and learning?" In the following chapter a summary of findings and recommendations will be discussed.

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

In this chapter a summary of the use of digital media in enhancing teaching and learning in a secondary school in the Pinetown district is presented. It will include the conclusions drawn from the study. Recommendations pertaining to the study will be provided together with the limitations of the study. The research situated itself within the interpretivist paradigm. The research therefore adopted a qualitative research approach with the data production techniques including questionnaires and interviews. The sample consisted of six teachers and six learners. The results were categorised into three broad themes for analysis which projected the use of digital media devices in enhancing teaching and learning in the classroom, including both positive and negative effects.

This chapter opens up with a summary of findings, followed by recommendations and limitations with respect to the study.

6.2 Summary of findings

The study examined the use of digital media in enhancing teaching and learning in a secondary school in the Pinetown district.

The key questions that guided this study were:

1. What are the educational benefits in using digital media in teaching and learning?
2. How do teachers and learners use digital media to improve teaching and learning?

In the sub-sections below, I summarise the three broad themes and issues around the use of digital media in enhancing teaching and learning in the classroom that the study illuminated, together with the implications.

6.2.1 Importance of digital media

Digital media plays an important role in the lives of every human being from watching television, to listening to the radio and especially the use of the internet and other devices that are on the market. There are also many more advanced devices that will be available in the future. In the classroom, digital media is important as it reveals that it adds entertainment to the lessons. It also adds a different experience for the learners. This experience relates itself to John Dewey's Experiential Learning Theory. New situations that learners are involved in is their present experience that will be the outcome of their future knowledge. All learners gave positive responses towards the use of digital media. Findings also show that learners want more digital media devices to be made use of in their classrooms. Learners learn better with the utilisation of digital media in their lessons. Academic results have also increased according to the learners' feedback. Junco and Chickering (2010) argue that it is significant for higher education professionals to familiarise themselves with the positive influence of technology on students to support usage (which lead to positive outcomes), and also intervene by assisting students that may experience or have experienced negative outcomes.

Digital media brings life into the lesson, it adds colour and makes it much more interesting and exciting. Learners become stimulated by digital media inclusion. In schools that already use digital media, it is now seen as a necessity rather than a desire as the difference that it makes is tremendous. As technology advances in today's world and digital media devices become more utilised in schools, companies and people for personal use, sales pick up enormously. Digital media is extremely important in today's society. Almost every household, school and company has some type of digital media device. Prices of digital media devices vary, however once purchased the maintenance and future use costs are very low if taken care of properly. If a school purchases a good product then they will make use of the digital media device for years to come. Investment in digital media devices is a must. Both teachers and learners prefer the utilisation of digital media devices in the classroom as there are many benefits and advantages as compared to the traditional chalk and talk method. Digital media is essential and should definitely be utilised.

6.2.2 Educational benefits of using digital media

According to Valk, Rashid, Elder (2010), it is believed that Information Communication Technology can empower educators and learners by facilitating communication and interaction, offering new modes of delivery and generally transforming teaching and the learning process. Digital media exposes learners to knowledge that teachers may not be able to provide to them. Digital media also answers any question that a learner may have which could be research related for a teacher; instead the internet provides the answers immediately. The information that is available is worldwide. Learners' academic results improve as they not only memorise the work but also visualise the work that was taught to them. Learners do not just acquire knowledge but skills, values and attitudes from the use of digital media. There are also certain experiments or demonstrations that teachers may not be able to perform in classrooms, and this is where digital media plays a vital role. Digital media helps learners develop and progress not just in the classroom but outside the classroom as well. This is important as learners spend the rest of their lives outside the classroom once they have matriculated.

Both teachers and learners are satisfied with the results and outcome of digital media use, if not they would have gone back to the teaching methods of the past. Learning outcomes is one of the aspects of Dewey's Experiential Learning Theory. These outcomes create actual experiences as well as knowledge that is gained from these experiences. Although there is a shift from teaching methods and extreme change, the change for the future is better. Teachers guide learners in the educational process and help learners to think critically and grasp concepts easily through the use of digital media.

6.2.3 The role of the teacher and the learner in the classroom

In John Dewey's Experiential Learning Theory (1938) the role of the teachers and learner readiness are two important aspects that are mentioned and discussed. As mentioned previously, the role of the teacher is to facilitate learning and make sure that learners are engaged in learning. Teachers are responsible for subject matter and knowledge. The teacher is the leader in the class. Learner readiness is the ability of the learner; it is the experience that learners have already gained. Digital media devices are devices that are lifeless unless put to proper use. Without the teachers and the learners there would be no point in the utilisation of

digital media devices. The presence of a teacher and learners in the classroom is vital in order to conduct a proper lesson. The teacher is the person that controls the actions that take place in the classroom. A classroom would not be an educationally sound place if the teacher was not present. The attitudes of the teachers towards the use of digital media devices create the response in learners.

All teachers in this study have basic knowledge of how to operate digital media devices. Even though some are not trained properly they are willing to attend workshops. All teachers support the use of digital media devices and feel that it enhances their lessons. It creates better learning opportunities for the learners. Learners on the other hand also show a positive attitude to the use of digital media devices being used in classrooms for their lessons. They enjoy the use of digital media devices and support that it gives them better results as they can remember work better; their memories are enhanced by the digital media devices. In this study both teachers and learners fully supported the use of digital media devices for the various reasons mentioned in their answers. Teachers and learners need to show interest so that stakeholders such as the school principal can see that having digital media in the classroom is beneficial and that there are many advantages.

Yiga (2012) argues that cellular phones have almost become essential gadgets in our lives as technology constantly advances. A learner also needs to be responsible for the digital media devices in the class especially the cellular phone as it is a personal device as well. Their responsibility is twofold. One is the actual usage of their cellular phone in the classroom where they should use it only for academic purposes and the other is when they are in the classroom, they should keep their cellular phone safe and not lend it to other learners to view as there could be many problems that could occur. Ferriter (2010) identifies digitally speaking (cellphones) as teaching tools and although most schools have banned cellular phones, the majority of learners around ages twelve to seventeen own cellular phones.

According to Collins (2009), mobile telephones are part of modern technology which assists people to communicate easily. Collins (2009) mentions that people often use their mobile telephones in inappropriate places including classrooms, libraries and lecture halls. She states that learners must invest their time in school or university to learn and not use their mobile phones. Ormiston's (2012) aim is to prove that the use of cellular phones can be a success in a classroom even though there may be problems of which simple solutions can be

implemented. Cellular phone utilisation in the class would be monitored by educators every day to ensure that the given task is carried out appropriately and successfully. If all educators and learners work together as a team the utilisation of cellular phones in a classroom would be pleasing as opposed to wanting to ban them.

6.3 Recommendations

In light of the findings of this study the following recommendations are made to ensure that digital media use in the classroom plays a positive role in both the lives of learners and teachers. Cellular phones should not be discouraged from being utilised considering that the data in this study intimates that cellular phones play a positive role in the lives of the learners in this study. It is clearly evident that a digital media device's most valuable academic tool is the internet where a countless number of benefits can be derived from the utilisation thereof. Learners can spontaneously obtain a wide and vast amount of beneficial information complementing the era of the 'information age.' The various basic academic-related associations includes Wikipedia, You Tube, Google Scholar, Science Direct, and Engineering Toolbox, all of which can be recommended to provide vast amounts of data on a particular subject matter including anything from first principles and baseline readings to advanced theory and in-depth case studies.

Digital media devices should not be discouraged from being utilised considering that there are many advantages. Other academically inclined knowledge that digital media devices provide are videos and short clips of demonstrations, experiments, music, dance and much more. Learners love the fact that with the use of digital media devices, factors such as carrying books and heavy bags to school become a less stressful situation. It is also noted that certain projects in one of the teacher's subjects need to be typed out. This helps learners who do not have good hand writing and also have a problem with spelling, grammar and vocabulary. These learners will not be marked down on those aspects, rather teachers and learners can concentrate on the content of the work. Learners look forward to using digital media devices in class and in the future they hope for more work to be done online. Physical books can also get damaged, become untidy, get lost or stolen but when it comes to digital media all work is stored and saved; even if a problem arises there is always a backup plan that should be in place such as work being stored on a hard drive, flash disk etc.

Descriptions and explanations of concepts as mentioned by a teacher are also readily available on the internet, displayed off digital media devices. Many learners do not have the opportunity and are not exposed to certain materials, even though they may have digital media devices, it requires data which needs to be purchased. Learners get this opportunity at school since data is not so cheap and easily available at their age due to having no income. A great point to note is that all teachers in this study are enthusiastic and ready to become more technologically advanced.

Digital media devices open substantial channels of communication as children can text message their friends and family country wide and internationally at a very cost effective means. There is no misdemeanour in maintaining a healthy relationship with friends and family however such activities must not become excessively time consuming smothering a child's lifestyle and thereby significantly affecting their time distributed on other positive activities. These activities can include outdoor sports, visiting the gym, reading and spending time with family. It is recommended that a cellular phone be utilised to maintain healthy relationships with friends and family.

6.4 Limitations

The study was confined to one school and a limited number of participants and the data that was collected cannot be generalised to other teachers and learners from other schools. Another limitation was that I am employed on a full time basis therefore had to obtain permission from the department of basic education and principal to conduct my fieldwork at the research site. A limitation that I experienced was converting the verbal data from the cell phone voice recording into transcripts as this was time consuming.

6.5 Conclusion

This study provides insight into the use of digital media in enhancing teaching and learning in a secondary school in the Pinetown district. From the data that emerged it is evident that both teachers and learners enjoy the use of digital media in their classroom and for their academic work. Their positive attitude towards the digital media devices in the classroom is evident by continued use, comments and their academic results.

Learners also mentioned that if their classmates are absent they can communicate with them and they do not miss out on work. This is an extremely important aspect where usually a learner is disadvantaged terribly. Even though they may not be present in the classroom, all the information is being communicated to them via digital media devices. The school policy regarding cellular phones is that they can only be used in the classroom when instructed to by the teacher. The teacher monitors the usage of the cellular phone. However during breaks the learners are allowed to use their cellular phones freely. This shows the responsibility of the learners as there are many dangers due to having cellular phones in school. The school code of conduct also places very strict measures on learners who infringe and abuse these rights such as disciplinary hearings and tribunals.

Contrary to popular belief, as much as paper is one of the most important ways for reading and is related to academics, learners believe that there is less paper wastage if digital media devices are being utilised. The data also revealed that John Dewey's Theory of Experiential Learning is the theory that best relates to this both for teachers and learners. The school has a fully functional blog, Facebook page as well as website. Junco and Chickering (2010) discuss the development of Facebook since late 2002 where online communication and socialising took a huge leap forward. Students are the most popular and regular users of social networking to interact with friends and maintain contact. These are operational and all stakeholders (parents, learners, ex-learners and other related parties) can all make contributions, comment on or add to these social media pages. It is also mentioned that learners are familiar with the usage of digital media devices as they are already exposed to digital media devices outside school.

Learners truly enjoy the use of digital media devices as they reveal that their teachers should utilise digital media devices more often in class. When teachers spoke of the electricity crisis, as load shedding is an issue in the country, they seemed to be calm and had a backup plan. It is also expected that learners not only utilised digital media for written work but for presentations as well. Learners are exposed to up-to-date information by their teachers such as the budget speech and others, for example documentaries. Both teachers and learners can easily set up digital media devices in the classroom, and if there are any serious problems

there are IT personnel available to help. It is fortunate that both teachers and learners have access to digital media devices as well as the internet.

The school of research is well resourced with the digital media devices and has the funds to upgrade or add more if need be. All teachers have email addresses and can therefore communicate easily with other teachers or schools and also for their own personal use. The school has their own Learning Management System (LMS) which learners are exposed to and this is a great advantage as universities require learners who have been exposed to LMS. Teachers want learners to become critical thinkers. The school also has specialised rooms such as the computer room, media centre and even the library where there are digital media devices that are available for learners' use.

The overall assessment of this study reveals both the positive and negative use of digital media in enhancing teaching and learning in a secondary school in the Pinetown district. However there are more advantages, and the way forward for the future is the use of digital media devices.

REFERENCES

- Aedo, C. (2002). The value of experience in education: John Dewey.
- Badia, A., Meneses, J., Sergi, F., & Sigalés, C. (2015). Factors affecting school teachers' perceptions of the instructional benefits of educational digital media. *Electronic Journal of Educational Research, Assessment & Evaluation, 21*(2).
- Baker, W. M., Lusk, E. J., & Neuhauser, K. L. (2012). On the use of cell phones and other electronic devices in the classroom: Evidence from a survey of faculty and students. *Journal of Education for Business, 87*(5), 275-289.
- Bass, K. M., Hopper, K.B., Hendricks, R., McLellan, H., Ofiesh, G.D., Preis, K., Puckett, C., Rockman, S., Roshenheck, L., Squire, K.D. & Zhu, C. (2008). Models of digital collection use in a university community. *Educational Technology, 48*(1), 44.
- Blewett, C. (2003). *Driving your computer : a learner's handbook*. [Place of publication not identified]: [publisher not identified].
- Bollapragada, M. K. (2012). *The Use of Facebook as a Communication Tool Between Universities and Students*. University of KwaZulu-Natal, Durban.
- Botha, A., & Ford, M. (2010). *A Pragmatic Framework for Integrating ICT into Education in South Africa*. Paper presented at the IST-Africa Conference Proceedings. Cunningham, P. & Cunningham, M.(Eds).
- Boulton, E. (2012). *Using questionnaires for design research*. Retrieved from <http://www.24ways.org>.

- Buckenmeyer, J., Freitas, D., Bielaczyc, K. & Collins, A. (2006). Educational Technology, Vol.46.
- Buckley, M. (2014) Turning the Digital Corner: Re-envisioning Literacy Learning in the Digital Era. *Journal of English Language Arts*. 54(2)
- Cashman, T., Gunter, R., Gunter, G., Shelly, G., & Hall, M. P. EDU 2022/Grissom/Spring 2008.
- Cele, S. S. (2006). The application of computer technology in teaching technical subjects: a case study comprising of educators at a Further Education and Training (FET) College in Durban.
- Chin, P. (2004). *Using C&IT to support teaching*: Routledge.
- Cohen, L., Manion, L., & Morrison, K. (2011). Surveys, longitudinal, cross-sectional and trend studies. *Research Methods in Education, 7th edition*. Abingdon: Routledge, 261-264.
- Cole, G. (2006). *101 essential lists for using ICT in the classroom*: Bloomsbury Academic.
- Collins, M.C. (2009). *Why cell phones should be banned in the classroom?* Retrieved from <http://www.helium.com>.
- De Cicco, E., Farmer, M., & Hargrave, J. (2001). *Using the Internet in secondary schools*. London; Sterling, VA: Kogan Page ; Stylus Pub.
- Eccles, K. (2012). Interviews: *What are interviews?* Retrieved from <http://www.microsites.oii-ox.ac.uk>.

- Ferriter, W. M. (2010). Plug Us In, Please: Using Digital Tools for Data Collection. *The Principal as Assessment Leader*.
- Forsyth, I., Jolliffe, A., & Stevens, D. (1999). *Preparing a course*: Routledge.
- Goldfarb, B. (2002). *Visual pedagogy: Media cultures in and beyond the classroom*: Duke University Press.
- Goldstein, J. H. (2013). Technology and play. *Scholarpedia*, 8(2), 30434.
- Goodman, S. (2003). *Teaching youth media: A critical guide to literacy, video production & social change* (Vol. 36): Teachers College Press.
- Govender, K. (2009). *An exploration of the reading choices of grade 4 learners in a public primary school in KwaZulu-Natal*. Available from [http://worldcat.org /z-wcorg/ database](http://worldcat.org/z-wcorg/database).
- Grabe, M., & Grabe, C. (2001). *Integrating technology for meaningful learning*. Boston: Houghton Mifflin.
- Green, T. D., Brown, A., & Robinson, L. (2008). *Making the most of the web in your classroom: A teacher's guide to blogs, podcasts, wikis, pages, and sites*: Corwin Press.
- Heitin, L. (2016). *A Small Nod for Digital Skills*. Retrieved from <http://www.edweek.org>
- Herring, J. E. (2011). *Improving students' web use and information literacy: A guide for teachers and teacher librarians*: Facet Publishing.

- Holmes, B., & Gardner, J. (2006). *E-learning: Concepts and practice*: Sage.
- Howie, S. J., Muller, A., & Paterson, A. (2005). *Information and communication technologies in South African secondary schools*: HSRC Press.
- Ivers, K., & Barron, A. (2010). *Multimedia Projects in Education: Designing, Producing and Assessing*, Santa Barbara, California: Libraries Unlimited. *An Imprint of ABC-CLIO, LLC*.
- John, P., & Wheeler, S. (2012). *The digital classroom: Harnessing technology for the future of learning and teaching*: Routledge.
- Junco, R., & Chickering, A. W. (2010). Civil discourse in the age of social media. *About Campus*, 15(4), 12-18.
- Kharsany, K. (2004). To evaluate the impact of internet technology on the print media and to recommend strategies to independent newspapers on the road going forward.
- Laerd, A.B. (2012). Dissertation - Purposive Sampling. Lund Research Ltd.
- Lai, C. H., Yang, J. C., Chen, F. C., Ho, C. W., & Chan, T. W. (2007). Affordances of mobile technologies for experiential learning: the interplay of technology and pedagogical practices. *Journal of Computer Assisted Learning*, 23(4), 326-337.
- Lennox, L., & Nettleton, K. F. (2010). *The Golden Apple*.
- Littlejohn, A., & Pegler, C. (2007). *Preparing for blended e-learning*: Routledge.

Masuku, B. T. (2010). *THE POTENTIAL OF INTERGRATING STRUCTURED EXPERIENTIAL LEARNING INTO THE CURRICULUM AS A MEANS OF IMPROVING THE AGRICULTURAL EXTENSION CURRICULUM: A COMPARATIVE STUDY OF TWO PROGRAMS IN KWAZULU-NATAL*. Citeseer.

Miettinen, R. (2000). The concept of experiential learning and John Dewey's theory of reflective thought and action. *International Journal of Lifelong Education*, 19(1), 54-72. doi: 10.1080/026013700293458

Moodley, N. (2013). *A Parent Behind Bars: Investigating the Scholastic Experiences of Learners Whose Parents are Incarcerated*. University of KwaZulu-Natal, Durban.

Murphy, C.D. (2010). *Mobile Convergence and Mobile Adoption – Mobile Phones as Culturally Prominent Features of Contemporary Society and Their Impact on Users in 2010* (Masters thesis, University of KwaZulu-Natal). Retrieved from <http://www.researchspace.ukzn.ac.za>.

Myers, M. D. (2013). *Qualitative research in business and management*: Sage.

Ncheke, M. S. (2008). *The use of educational video (EV) to facilitate learning of mathematics education in grade ten : a case study of two secondary schools in Durban, KwaZulu-Natal province in South Africa*. Available from <http://worldcat.org/z-wcorg/> database.

Nehal, M. (2017). *Parental involvement in the development of reading among Grade R children in an Indian community*. Available from <http://worldcat.org/z-wcorg/> database.

- November, A. (2010). Technology rich, information poor. *21st century skills: Rethinking how students learn*, 275-283.
- Ord, J. (2012). John Dewey and experiential learning: Developing the theory of youth work. *Youth & Policy*, 108, 55-72.
- Ormiston, M. (2012). How to Use Cell Phones as Learning Tools. *Teachhub.com*.
- Poole, J. (1995). Education for an Information Age, Iowa: A Division of Wm. C. Brown Communications: Inc.
- Prensky, M. (2001). Digital natives, digital immigrants part 1. *On the horizon*, 9(5), 1-6.
- Ramnarain, Y. (2011). *The impact of social media browsing on purchasing behaviour in the youth market*. Available from <http://worldcat.org/z-wcorg/> database.
- Roberts, T. G. (2003). An Interpretation of Dewey's Experiential Learning Theory.
- Sejane, L. (2017). *Access to and use of electronic information resources in the academic libraries of Lesotho Library Consortium*. University of KwaZulu Natal.
- Schmidt, M. (2010). Learning from teaching experience: Dewey's theory and preservice teachers' learning. *Journal of Research in Music Education*, 58(2), 131-146.
- Scrimshaw, P. (1993). *Language, classrooms and computers*. London; New York: Routledge.

Shohel, M. M., & Power, T. (2010). Introducing mobile technology for enhancing teaching and learning in Bangladesh: teacher perspectives. *Open Learning: The Journal of Open and Distance Learning*, 25(3), 201-215. doi: 10.1080/02680513.2010.511953

Slavnic, Z. (2013). *Towards qualitative data preservation and re-use—Policy trends and academic controversies in UK and Sweden*. Paper presented at the Forum Qualitative Sozialforschung/Forum: Qualitative Social Research.

Sweller, J. (2008). Cognitive load theory and the use of educational technology. *Educational Technology*, 48(1), 32-35.

Taylor, C. (2013). *Qualitative data*. Retrieved from <http://www.statistics.about.com>.

Unsworth, L. (2001). Teaching multiliteracies across the curriculum. *Buckingham-Philadelphia: Open University Press*. Retrieved September, 26, 2005.

Valk, J.-H., Rashid, A. T., & Elder, L. (2010). Using mobile phones to improve educational outcomes: An analysis of evidence from Asia. *The International Review of Research in Open and Distributed Learning*, 11(1), 117-140.

Wegerif, R. (2013). *Dialogic: Education for the Internet age*: Routledge.

Williams, P. (2014). *Digital media: assets, liabilities and cautions*. Principal Matters

Willoughby, T., & Wood, E. (2008). *Children's learning in a digital world*: John Wiley & Sons.

Yiga, P. (2012). *Use of Technology: Modern Technology Advantages and Disadvantages*. Retrieved from <http://www.useoftechnology.com>.

4. What happens if load shedding occurs/no electricity? Do you have a backup system/plan/measures in place?

5. What digital media is available at your school for use?

6. How often do you use digital media in your lessons?

7. How do you integrate digital media in your lessons?

Questionnaire – Learners

1. What is digital media?

2. What type of digital media does your teacher use?

3. What other types of digital media would you like your teachers to use to make your lessons more interesting?

4. Do you or other learners assist your teachers with the setting up of the digital media in the classroom?

5. Do you prefer lessons with or without the use of digital media? Why?

6. Do you think that the use of digital media helps you get better grades?

7. Give me three adjectives describing digital media in your classroom?

8. What are the advantages to you as a student of using digital media in the classroom?

9. What are the disadvantages of using digital media in the classroom?

10. How do you think digital media could be used differently in the classroom?

11. Do you have access to digital media devices at home? If so what are the digital media devices? What do you use them for?

Interview Questions - Teachers

1. Does the school/Department of Education provide you with digital media tools or do you have your own?
2. Do you have an email address? Did you create it yourself or did you get help from another person?
3. Do you have access to the internet? If so, where? Home or school?
4. Do you experience any problems using digital media in your classroom? If so, what are these problems?
5. How do you overcome these problems?
6. Does your school have a website/school blog/Facebook page? If so, do you contribute to it? How?
7. Does digital media take up your time or does it save you time?
8. Do you think it is necessary for this change in teaching from the traditional way of teaching? Explain.
9. Does the school have any media or technology centre such as a computer room etc.?
10. Do you give homework which requires the learner to use any form of digital media?

LETTER OF REQUEST

University of KwaZulu Natal
Edgewood Campus
Private Bag x03
Ashwood
3605

2016

The Principal
Stanville Secondary [Pseudonym]
Pinetown
3605

Re: Letter of Request

I, U. Rajpal [206508803], student at the abovementioned institution, record my request to conduct research among six learners and six teachers at your institution. I am a Master of Education student under the guidance of Dr. Linda Jairam, tasked to research the use of digital media in enhancing/facilitating teaching and learning in a secondary school.

I shall do my best to conduct my research as efficiently and discreetly as possible, with the express understanding that the general functioning of the school will not be compromised.

Learners who are selected to participate will be required to obtain consent from their parents. Kindly find attached a consent letter to parents of learners and please note that interviews conducted would have to be recorded solely as proof of work conducted.

It would be highly appreciated if you could kindly afford me the opportunity to conduct my research at your school.

I thank you in anticipation of a favourable response. Kindly contact me for further clarity.

Miss U.Rajpal

206508803 [C] 073 493 9214

[H] 031 706 5205

[W] 031 706

270917 Grassmere Drive, Nagina, Mariannhill.

You may contact the research office through:

P. Mohun

HSSREC Research Office

Tel: 031 260 4557 or Email: mohunp@ukzn.ac.za

LETTER OF CONSENT

Miss U. RAJPAL [Researcher]

I hereby agree for my school to be used as a site for your research study. I understand that the participation of the learners is voluntary and that they can withdraw at any time. I also understand that privacy, anonymity and confidentiality will be assured at all times and that the dignity of all participants would be respected at all times. I am assured by your commitment to ensure that the general functionality of the school will not be compromised. Permission has been granted.

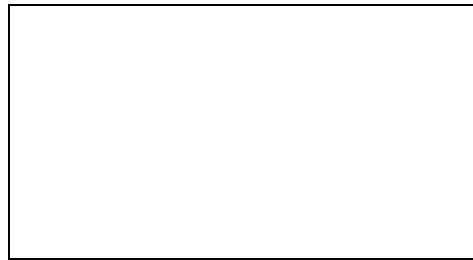
Name of School: _____

Name of Principal: _____

Signature: _____

Date: _____

School Stamp:



Chairman of the Governing Board: _____

Topic: **The use of digital media in enhancing/facilitating teaching and learning in a secondary school.**

**PERMISSION TO CONDUCT QUESTIONNAIRES WITH LEARNERS
INFORMED CONSENT**

Dear Parent/Guardian

I am a Master of Education student currently collecting data for my dissertation at the University of KwaZulu Natal, under the guidance of Dr Linda Jairam. My research study will focus on the use of digital media in enhancing/facilitating teaching and learning. The study entails a questionnaire that the learner will be provided with.

Your child/ward _____ [name] has been selected to participate in my study. It would be highly appreciated if you would grant permission for your child/ward to participate in this research project.

I assure you that:

The confidentiality of the study with your child will be respected. The learner will be referred to as a “respondent” in the research.

All information will not be divulged to anyone except Dr L. Jairam [supervisor]. The information gathering process will not disrupt the teaching and learning process at school.

The questionnaire will be given at school. Kindly find attached a letter of consent to be signed by you, the parent/guardian. Once you have confirmed that your child/ward is willing to participate I will go ahead with my research study.

Should you require further clarity, please don't hesitate to contact me. Thanking you in anticipation of a favourable response.

Yours faithfully

Miss U.Rajpal [Researcher]
206508803
University of KwaZulu-Natal

Supervisor:

Dr L. Jairam
[W] 031 260 1438

You may contact the research office through:

P. Mohun
HSSREC Research Office
Tel: 031 260 4557 or Email: mohunp@ukzn.ac.za

Topic: **The use of digital media in enhancing/facilitating teaching and learning in a secondary school.**

University of KwaZulu Natal
Edgewood Campus
Private Bag x03
Ashwood
3605

LETTER OF CONSENT

Miss U. Rajpal

I hereby agree for my child/ward _____ to participate in the above research project. I understand that his/her participation is voluntary and that he/she may change his/her mind and refuse to participate or withdraw at any time. He/she may refuse to answer any question/s or change the answers/responses after reading. He/she understands that some of the answers/responses may be directly quoted in the text of the final dissertation and subsequent publications.

With the understanding of the above, I hereby agree for my child/ward to participate in the above research.

Parents' Names: (Block letters) _____

Parents' Signatures: _____

Date: _____

Researcher: Miss U.Rajpal

Date: _____

17 Grassmere Drive

Nagina, 3604

[C] 073 493 9214

[H] 031 706 5205

[W] 031 706 2709

Supervisor:

Dr L.Jairam

[W] 031 260 1438

You may contact the research office through:

P. Mohun

HSSREC Research Office

Tel: 031 260 4557 or Email: mohunp@ukzn.ac.za

INFORMED CONSENT FOR TEACHERS

1. Nature of the research project

Researcher	Name: UVISHA RAJPAL Qualification: MASTERS IN EDUCATION (EDUCATIONAL PSYCHOLOGY) Telephone No.: 073 493 9214 E-mail: rajpaluvisha@gmail.com
Supervisor	Name: DR JAIRAM Qualification: PHD (EDUCATIONAL PSYCHOLOGY) Telephone No.: 031 260 1438 E-mail: JAIRAM@UKZN.AC.ZA
Purpose	Examining the use of digital media in education in a secondary school.

2. What is required of participants

I understand that:

- The research is about digital media in education.
- My participation in the research is voluntary and subject to informed consent.
- I can withdraw from the research process at any time without any negative consequences.
- My participation in the research will not affect my position as a teacher/learner or my relationship with other teachers/learners at school.
- Participants' rights will be respected.
- The information obtained will be used with the strictest of confidentiality.
- I can refuse to answer any questions asked of me.
- The researcher will use information from me in a way that will assure my continued respect among other learners, colleagues and the wider fraternity.
- My identity will not be disclosed in the thesis.
- Photographs/videos of me will not be used in this thesis or any display related to the research.
- The research interview will not impact on my working time.

3. Declaration

I _____ (name of participant)

have been approached to participate in the research entitled: **The use of digital media in enhancing/facilitating teaching and learning in a secondary school.** I 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, so I should desire.

I **agree** to participate in a study that Uvisha Rajpal is conducting.

Name (of participant):

Signature: _____

Date: _____

LAUREN WALFORD PROOFREADING SERVICE

08/03/2017

11 Mc Bean Road
Cowies Hill
3610

To whom it may concern

This is to certify that I have proofread the paper by Uvisha Rajpal entitled: “The use of digital media in enhancing teaching and learning in a secondary school in the Pinetown district.”

I have made any corrections to grammar and spelling which I felt necessary.

Regards,

Lauren Walford
084 240 9326
laurenb@dbn.caxton.co.za