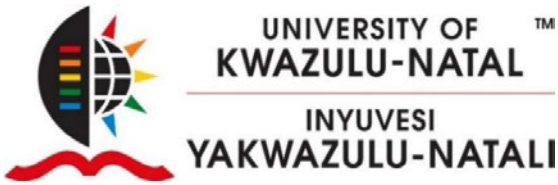

DEVS8SSH2, DEVELOPMENT STUDIES MASTERS COURSEWORK DISSERTATION

Exploring Teacher attitudes towards the official use of social networks in well performing historically disadvantaged secondary schools: A case study in Pinetown and uMgungundlovu District.

Sanele Clive Chonco

Student Number, 212 536 876

Supervisor: Dr. Gerard Boyce

Dissertation submitted in partial requirement for the
Degree of Master of Arts in Development Studies
in the School of Built Environment and Development Studies
College of Humanities Howard College Campus

DECLARATION

I, **Sanele Clive Chonco** (student number: 212 536 876), hereby declare that this dissertation is my own unaided work except where otherwise acknowledged in the text and that it has not been submitted in whole or part, for any examination or degree at any University. This dissertation is submitted to the School of Built Environment and Development Studies, University of Kwa-Zulu Natal (Howard College Campus) in partial fulfilment of the requirements towards the Degree of Masters of Development Studies.

Signature **……..……**

Supervisor: Dr Gerard Boyce

ABSTRACT

This study explored teachers' openness and acceptability to using social media for teaching and learning in two previously disadvantaged secondary schools in the township of Clermont and the peri-urban area of Mbhava Swayimane. These schools suffer from poor infrastructure, lack of political and technical support yet show resilience through adopting unique strategies of conducting teaching and learning by using social networks.

The study used a purposive sampling method to select suitable schools for inclusion in the study. The selection of appropriate candidates within schools was guided by literature and took into account key personal characteristics (*e.g.* gender, age) that previous studies had found to influence the adoption of ICTs by teachers in secondary schools.

Data was collected from respondents via the administration of a questionnaire during a one-on-one interview. Topics covered related to knowledge of information and communication technologies (ICTs) and social networks and whether they used them for educational purposes. Thereafter, respondents were asked to suggest ways to improve the uptake and use of ICTs in schools. Ten respondents were interviewed in total, four at the management level and six teaching staff.

It was found that teachers in the sample schools had already incorporated social networks into their teaching and learning. Teachers mainly used the Whatsapp social network application and had adopted three unique ways of using it. In the first model, the teacher identifies and selects a learner to act as group admin and gives the selected learner school work to distribute among their fellow classmates. In the second, the teacher creates a temporary group when learners are about to write exams to discuss academic challenges and in the last one the group is active for the whole year but only consists of learners who are keen to learn.

In light of these findings and the success sample schools have achieved with ICTs, it is recommended that the models identified above be adapted and rolled out across more schools in South Africa and other developing countries where the education sector is beset by great challenges.

TABLE OF CONTENTS

LIST OF APPENDICES

LIST OF ACRONYMS

Acronym	Full word
ICT	Information and communication technology
SDG	Sustainable Development Goals
NDP	National Development Plan
TDP	Teacher Professional Development
TPACK	Teacher Pedagogy and Content Knowledge
DBE	Department of Basic Education
SNS	Social Network Sites
TA	Thematic analysis
NSC	National Senior Certificate
SASAMS	South African School and Administration Management System

CHAPTER 1:
BACKGROUND

At the time of transition from the apartheid regime to democracy, the new government of South Africa was faced with the challenge of improving and restructuring the national educational curriculum for schools that were previously disadvantaged. This was done to cover or reduce the educational backlog created by the apartheid government between ethnic groups in the country, where white schools acquired the best quality education and others received poorer education specifically Bantu Education.

Noticeable differences along racial lines still exist in the South African educational system and are made more prominent by factors such as history, geographical location and economic status (Department of Education, 2014). The majority of schools that serve economically deprived communities are located in townships and rural areas which creates one system for the poor. The other system draws on previously advantaged group and an emerging class of individuals who are considered as rich among the formerly disadvantaged community, even though that is not necessarily the case compared with their previously advantaged rich counterpart (Silors, Hoffman & Matthee, 2007).

Schools that are located in low income communities like townships and rural areas tend to perform poorly academically compared with schools that are located in urban areas. Research shows that education in South Africa and globally has been proven to be greatly affected by background and school based factors rather than individual effort alone (Christie, Butler & Potterton, 2007). This explains the poor academic achievements by schools located in low income communities.

Historically advantaged schools have the best facilities and learning equipment that are conducive to learning. They have up to date and enough teaching and learning amenities like computers, projectors, access to the internet and other similar technologies. They also have extra non educational amenities that are in good conditions like well-kept playing fields, well-maintained buildings and spacious lawns etc. of which formerly disadvantaged schools do not have access to. The African child was born and raised in a society which designated him as an

inferior human being and that he must be taught in a manner to fit him to take his position in a society as an inferior (Msila, 2007).

This greatly influenced historically disadvantaged schools to carry a serious learning backlog of up to two years compared with white schools; they show low proficiency in reading, writing and numeracy, while schools that used to serve white children produce standards closer to those of developed countries (Van der Berg, Taylor, Gustafsson, Spaull, & Armstrong , 2011).

However, there are historically disadvantaged schools that succeed against the odds despite their history, economic status, geographic location and the racial composition of the school. They manage to perform well in unfavourable conditions and produce individuals or learners as capable as those who come from historically advantaged schools (Christie, Butler & Potterton, 2011). Research shows that those schools have common characteristics among them. Those characteristics are: (1) they focus on their central role of teaching and learning, (2) encourage academic success, (3) have strong leadership (4) employ qualified teaching staff who are hardworking and competent (5) properly manage their curriculum and have a clear vision, (6) they use Information and Communication Technologies (ICTs). The focus of this study will be on the last point; the use of ICTs amongst successful schools (DA, 2013).

1.2 Introduction

Previously ICTs and social networks were often seen as disruptive in schools (Macupe, 2017). However recent studies by the national education evaluation development unit suggest that schools that work have successfully integrated the use of ICTs to enhance teaching and learning (Macupe, 2017). Studies show that ICT has more versatility in facilitating teaching and learning than the traditional way of teaching. Using the internet has farther reaching effects than using the old way of teaching where the teacher is the fountain of knowledge (Mireku, 2016). It develops skills of searching, interpreting and organizing information often referred to as network literacy (Mireku, 2016). For instance communication through email improves a student's writing skills like being more cautious about grammar when writing, spelling, punctuation and the way one conveys meaning in liaison with other people (Mireku, 2016). Since many learners use social networks, their educators and lecturers have adjusted themselves into this pattern by using social networks (Shembilu, 2013). They create chat rooms, online groups, posts assignments, tests and quizzes as well as assisting with homework (Shembilu, 2013).

Furthermore, social networks offer certain advantages to education; they enrich teaching and learning with text, videos, and audio materials and they stimulate collaboration, knowledge constructions and thinking skills (Devi, Eragamreddy & Lakshmi, 2019). They also help learners with reading difficulties to find different ways in to the curriculum and it also improves the status of visual and aural literacies to be in the same level as literacy acquisition through text (Mireku, 2016). It is also in line with the Sustainable Development Goals (SGDs) as well as the National Development Plan (NDP) of 2030; which aims to achieve the goal of Inclusive and Equitable Quality Education and Lifelong Learning by 2030 (United Nations Educational, Scientific and Cultural Organization, 2018).

The South African government has already made attempts to encourage the use of ICTs in South African schools. The Department of Education passed a policy that state that, 'every South African learner in the general and further education and training bands will be ICT capable by the year 2013' (Department of Education, 2004). Furthermore, one of the National Development Plan's goals is to provide quality education through providing basic education with proper ICT infrastructure and training (National Planning Commission, 2011). There are also several development initiatives projects which promote the use of ICTs in schools especially for disadvantaged schools. These projects included the learning English audio project (LEAP), which seeks to help teachers from remote and under resourced schools (DOE, 2016). Then there are satellite broadcasting programmes which are aimed at broadcasting mathematics for grades eight and nine directly to priority high schools during lesson time so that teachers can integrate the broadcasts with their teaching time (DOE, 2016). Broadcasts are automatically recorded for revision or afternoon lessons.

In 2015 the South African government launched a paperless education system which is meant to give learners access to learning material, workbooks and other subject matter through the use of ICTs/ tablets (Brand South Africa, 2015). Pilot research was carried out in Boitumelo Secondary School in Sedibeng A Section in Tembisa in Gauteng (Brand South Africa, 2015). The government shows interest in using tablets for teaching and learning. This is also part of the National Development Plan to explore the use of cell phones and tablets (National Planning commission, 2011). It is worthwhile that schools harness and exploit the power of social networks to strengthen education systems, knowledge dissemination, information access, quality and effective learning, and more efficient service provision.

Studies show that mobile phone distribution in terms of access and use have increased in South Africa over the recent past, even though it continues to lag in computer and stationary internet ownership and use (Berger & Sinha, 2012). Between 2005 and 2009, the number of South Africans owning or having access to a mobile phone grew by 20%. In 2012 the country experienced a 100.48% of mobile penetration among its total population of 50 million (Berger & Sinha, 2012). South Africa is also the leading innovator in Africa, in terms of social networking, microblogging and content creation (Berger & Sinha, 2012). A study done in 2009 on a sample of 401 South Africans aged 16 years and older found that 74% of reported users use social network sites (Berger & Sinha, 2012).

Since a large number of South Africans own cell phones, the majority of first-time owners are young adolescents and the government is intent on introducing tablets/ICT as a new way of teaching and learning, it is worth looking into this innovation and identifying what successful schools are doing to benefit from the smartphones that are at learners' disposal. The study specifically talks about the use of social networks in schools that has been harnessed to the advantage of children and has produced good result amongst learners (Macupe, 2017). The study outlines advantages of social networks especially as learning does not end in school but continues outside of school as well. This is where social networks can play a role.

The aim of this research is to explore teacher's openness and acceptability of using social media for teaching and learning in two previously disadvantaged secondary schools that are performing well academically.

The research will be guided by three objectives;

i) To identify whether the schools used ICTs for the purpose of teaching and learning,
ii) To investigate how ICTs are used in the schools that used them and
iii) To explore teachers' attitude towards the use of ICTs, social media in particular, for teaching and learning.

These three objectives can be translated into three research questions as follows:

a) Do schools use ICTs for the purpose of teaching and learning?
b) How are ICTs used in the schools that use them?

c) What are teachers' attitudes towards the use of ICTs for the purpose of teaching and learning?

1.2 Chapter summary

The opening chapter provided a background on the quality of education since 1994 in South Africa in relation to the preceding period. It described the previous and current status of information and communication technology in the schools located in townships and rural areas. Thereafter it provided details on some of the existing initiatives made by the government to try and deal with the ICT infrastructure challenges faced by the lower quintile schools. The chapter concluded by outlining the research study's objectives.

CHAPTER 2:
LITERATURE REVIEW

2.1 Introduction

The use of ICTs has become an important building block in contemporary society. Globalization and innovations in technology have led to an increased use of ICTs in all sectors. Education is no exception. The use of ICTs in education are widespread and are continually growing worldwide (Meenakshi, 2013). However, there are some challenges that governments around the world face that constrains the full capabilities or use of ICTs in education. These range from personal to institutional challenges.

Studies generally show that even in the most advanced schools in industrialized countries, ICTs are generally not considered central to the teaching and learning process (Meenakshi, 2013). South Africa as well has not yet mastered the use of ICTs in education. Implementation is slow and the capacity is limited (Meyer & Gent, 2016). This however has not stopped educators from using information and communication technology. A study by Mwapwele, Marais, Dlamini and Biljon (2019) in rural schools in 7 provinces of South Africa found that the vast majority of the teachers surveyed were optimistic about the use of ICTs for teaching and learning. This suggests teachers' readiness to use ICTs despite the existing financial, technical and digital skills challenges at their schools. Furthermore there are studies that show that there are schools that use social networks to conduct teaching and learning.

The following chapter reviews relevant literature that explains what is ICTs and e-education, discusses the sustainable development goals (SDGs), National Development Plan (NDP) and the Action Plan of South Africa. The literature will describe the current status of ICTs in South African schools and the impact of ICTs in education. It will also describe factors that influence the adoption of ICTs in education. It will also discuss what a social network is and discuss the positive and negative impact of social networks in education in South Africa.

2.2 What is Information and Communication Technology (ICT)?

According to the Department of Education's White Paper of 2004 (Department of Education, 2004), information and communication technology can be broken down into two categories. The first is information technology and the other communication technology. The former refers

to the hardware components such as computers and their software that allow people to access, retrieve, store, organise, manipulate and present information by electronic means. The latter refers to telecommunication equipment that is used to access and send information like phones, faxes, modems and computers.

Information and communication technology encompasses all technical equipment and facilities that convert, process, save and transfer various types of information in digital form (BMZ, 2013). It includes voice telephony, data communication and computer, radio, television and similar technologies (BMZ, 2013). It also includes the internet, media broadcasting, libraries, documentation centres, commercial information providers, network-based information services and other related information and communication activities (Noor- Ul-Amin, 2013).

2.3 E-Education

The term 'e-education' refers to the application technological equipment/devices that use the internet to deliver learning experiences (Grimes & Whitmyer, 2009). E-education or e-learning can also be explained as using electronic technology to access educational curriculum outside of a traditional classroom. Usually it refers to a course program or degree delivered completely online (e-learningnc, 2020). The course is interactive. It is not delivered in a form of DVD, CD-rom, video tape or over television. A student is able to communicate with their teacher and classmates. The lecture can take place live or can be pre-recorded (elearningnc, 2020). E-learning takes place in a formal electronic classroom, on corporate intranet, audio and video teleconferencing and in a variety of other technology mediated learning spaces (Grimes & Whitmyer, 2009).

According to the Department of Education (2004), e-education in a South African context revolves around the use of ICTs to accelerate the achievement of national education goals. E-education is about connecting learners and teachers to each other and to professional support services and providing platforms for learning. It supports a wider and systematic pedagogical curricular as well as assessment reforms that facilitate improved education and use of educational resources such as ICTs.

2.4 The global Sustainable Development Goals (SDG) and the South African National Development Plan (NDP) on the use of ICTs in schools

2.4.1 Sustainable Development Goals (SDGs) in Education

After the Millennium Development Goals were phased out the Sustainable Development Goals were adopted by the United Nations. This is a list of 17 main goals that are supposed to be achieved by the year 2030. Goal number 4 of the SDGs talks about Inclusive and Equitable Quality Education and Lifelong Learning for all (UNESCO, 2018). Under this goal, there are targets and strategies that are put into place in order to reach those targets. To list a few targets, by 2030 the UN wants to ensure that all youth and a substantial proportion of adult men and women achieve literacy and numeracy. The strategy to achieve this is to promote the use of ICT, particularly mobile technology, for literacy and numeracy programmes (UNESCO, 2018).

To promote ICTs, facilities that accommodate all types of children and gender, provide safe and effective learning environment must be built and upgraded. The strategy to achieve this is to make learning spaces and environments for non-formal and adult learning and education widely available, including networks of community learning centres and spaces and provision for access to ICT resources as essential elements of lifelong learning (UNESCO, 2018).

A large number of qualified teachers must also be produced by ensuring they are provided with adequate technological skills to manage ICT and social networks. They should also be equipped with sufficient media literacy and source criticism skills and provided training on how to address challenges of pupils with special education needs (UNESCO, 2018).

Differences in education between genders should also be reduced and governments must make sure that education is equally available. Vocational training must also be provided for the vulnerable. This can be achieved through providing distance learning, ICT training, access to appropriate technology and necessary infrastructure to facilitate a learning environment at home and in conflict zones and remote areas, particularly for girls, women, vulnerable boys and youth, and other marginalized groups (UNESCO, 2018).

2.4.2 NDP in Education

The aim of the NDP is that by 2030 South Africans should have access to high quality education and training which will lead to significantly improved learning outcomes. Government must ensure that all schools meet minimum standards for infrastructure and commit to progressively upgrading each school's infrastructure to meet optimum standards (National Planning Commission, 2011). The government should also target no-fee schools when planning

infrastructure to compensate for resource deficits in communities. There should be well-equipped libraries, laboratories, computer and media centres to ensure that learners in no-fee schools have access to similar learning resources to their counterparts in less poor communities (National Planning Commission, 2011).

In addition to increasing the use of ICT into wide range of media such as computers, the use of mobile devices in education such as cell phone and tablets should be explored (DBE, 2015). Also the use and access of digital resources by educators should be accelerated. A priority programme in this regard continues to be the Teacher Laptop Initiative for teachers to use them when teaching as well as for administration processes (DBE, 2015).

High speed internet connectivity should be included in the school's infrastructure as an educational facility. This will enable greater use of technology in education and enhance the classroom experience for both teachers and students (DBE, 2015). Furthermore parents and the community should be included in governing of the school. This will lead to greater access of information through the use of e-education (DBE, 2015).

The targets of both the SDG and NDP have not been met. Studies show that the country is still experiencing problems with regards to integration of ICT with teaching and learning.

2.5 Current status of ICTs in South African schools

South Africa has not yet mastered the use of ICTs for teaching and learning. A strategy and policy on the use of ICTs exists. However implementation is slow and the capacity is limited (Meyer & Gent, 2016). The policy and strategy of ICTs are defined at a high level and do not extend across all levels of the education system. Furthermore they are not differentiated for context specific solutions (Meyer & Gent, 2016).

Access to technology is limited and unequal across provinces and quintiles (Meyer & Gent, 2016). As is evident in Nkula and Krauss (2014), there are schools that do not use ICTs because there is shortage in supply/access to ICTs and lack of technical support to use ICTs (Nkula & Krauss, 2014). The objectives and strategy that is integrated across the system of ICTs is lacking (Meyer & Gent, 2016). Objectives are defined in general terms and do not translate into practical pathways towards an achievable goal. A number of initiatives are unclear about what they want to achieve (Meyer & Gent, 2016). The majority of initiatives focus mainly on

improving learner marks but they are unable to define a clear pathway of moving forward from the current status of ICTs to a future success (Meyer & Gent, 2016).

2.5.1 National Teacher Professional Development towards the use of ICTs

There is no evidence that the Department of Education has implemented ICTs into Teacher Professional Development (TPD). However a regulatory framework that allows for integration of ICTs in TPD does exist (Meyer & Gent, 2016). There is no national curriculum for TPD. It is driven by individual educational institutions and solution providers (Meyer & Gent, 2016).

2.5.2 Lack of ICT Pedagogy

Training and awareness is required to make sure that ICTs are integrated in support of pedagogy in a phased manner (Meyer & Gent, 2016). The progress from the introduction of ICT to its impact in terms of capacity to teach and learn with ICT (and the eventual impact on learner performance) is not clearly understood and managed (Meyer & Gent, 2016).

Incorporating ICT with teaching and learning is not always clear to teachers and it is not well addressed by the programmes (Meyer & Gent, 2016). Teachers have a slower uptake of ICTs than learners; they fear the change that is brought about by ICTs. It has been found that teachers have different knowledge of ICTs and they lack confidence in using them (Meyer & Gent, 2016).

The current status of ICTs in South African education shows that there is a problem with properly implementing ICTs for conducive learning. Studies show that the problem exists at different levels, from the Department of Education to individual educators. However despite all these problems, when ICTs are operational they do have positive impact on education along with some negatives.

2.6 The role and benefits of ICT in Education

Miller, Naidoo and Van Bell (2006) argue that there are four main umbrella benefits of using ICTs at high school level in particular. Firstly, it increases the school's ability to prepare learners and teachers for the technology and knowledge-based society. Secondly, it increases learners' access to education. Thirdly, it supports new pedagogy practices and fourthly, it improves school and classroom administration.

2.6.1 Technology and knowledge-based society

ICTs assist in creating a knowledge based society. When learners leave school and join the society it helps them by developing skills such as "higher order thinking skills, life-long learning habits, and the ability to think critically, communicate and collaborate, access, evaluate and synthesise information" (Miller, Naidoo & Van Belle, 2006).

Using ICTs also helps with internet access. Teachers can access more teaching content therefore developing a better understanding of their teaching material (Mwapwele, Marais, Dlamini and Biljon, 2019). ICTs also help with improving communication and information sharing between colleagues when seeking support. They also help with participating in online courses which helps teachers and learners become more knowledgeable (Mwapwele, Marais, Dlamini and Biljon, 2019). Furthermore having ICTs helps teachers and learners to be up to date with the ongoing political, social, economic and financial developments in the world.

Tinio (2003) categorised the different types of knowledge ICTs give to students as functional literacy, scientific literacy, technological literacy, information literacy and global awareness. Functional literacy can be described as the ability to interpret and express ideas or information in a wide range format (Tinio, 2002). The type of presentation includes the use of images, graphics, video, charts and graphs or visual literacy. Scientific literacy refers to understanding - both the theoretical part of science and mathematics as well as the practical aspect of it (Tinio, 2002). Technological literacy is the competence in the use of ICT (Tinio, 2002). Information literacy refers to ability to search and find relevant information, evaluate it and then make proper use of it (Tinio, 2002). Global awareness refers to an individual, or learners in this instance, learning to understand how nations, corporations, and communities all over the world are interrelated (Tinio, 2002).

Using ICTs trains students to be adaptable and not to get left behind in the increasingly digital environment (Tinio, 2002). ICTs also triggers curiosity in students as well as creativity. Creativity refers to the ability to use their imagination to create new things or information (Tinio, 2002).

2.6.2 Increases learners' access to education

ICTs have eliminated the geographical barriers of teaching and learning at a minimal cost. They have eliminated distance as a learning barrier because through the internet, whether by emailing

or sending instant messages, students can easily access school work on their computers or cell phones (Mireku, 2016). ICTs have minimized costs through minimizing hard copy documents for learners and make it easy for information to be stored and organized (Mireku, 2016)

They have radically changed the orthodox way of teaching and learning which requires classroom attendance (Miller, Naidoo & Van Belle, 2006). Teacher and learner can communicate anytime and anywhere (Miller, Naidoo & Van Belle, 2006). This is important in education because resources barely reach schools that are located in remote areas (Miller, Naidoo & Van Belle, 2006). Furthermore teacher expertise can be spread easily across schools especially where there is a shortage of qualified teachers (Miller, Naidoo & Van Belle, 2006). ICTs provides inexpensive printing, cell phone plans, internet connection, free dial-up, technology equipment, rentals classroom media stations, etc. Lecturers and students get relevant materials needed through the Internet. Such quality materials are used in equipping the students and upgrading their knowledge in their field of study (Olaore, 2014).

2.6.3 Support of new pedagogy practices

ICT tools, especially the computer and internet, promote constructivist educational goals by empowering learners with the means to experiment with and explore information resources from around the globe and by providing teachers with better tools to facilitate learner-centred learning (Miller, Naidoo & Van Belle, 2006). The constructivist model "emphasises the learner's need to organise information and construct meaning" by actively seeking for and engaging in learning material.

In a constructivist model, ICTs support a different approach to education than the traditional model of teaching, where the teacher is the fountain of knowledge and the student the receiver of information. ICTs shift the role of a teacher from a fountain of knowledge to a facilitator and mentor that nurtures and understands the creativity within the learner (Miller, Naidoo & Van Belle, 2006). It develops skills of searching, interpreting and organizing information often referred to as network literacy (Mireku, 2016).

Communication through email improves a student's writing skills like being more cautious about grammar when writing, spelling, punctuation and the way one conveys meaning in liaison with other people (Mireku 2016). It helps people with reading difficulties to find

different ways in to the curriculum and it also improves the status of visual and aural literacies to be in the same level as literacy acquisition through text (Mireku, 2016).

It allows independent learning, facilitate repetition, can improve teacher and learner interaction (Mireku, 2016). It can enhance thinking and problem solving skills which can help in the student's sense of competency. Through using ICTs students can learn to develop skills such as being systematic, logical and deductive through engaging with carefully selected computer based tasks and scenarios (Mireku, 2016).

2.6.4 School and classroom administration

ICTs provide effective tools to administer school and classroom information by providing a means for central data storage and easy data transfer and sharing. Using ICTs, teachers are able to track and analyse learner performance on an ongoing basis, while reducing the time spent on class administration by using templates and automated assessments and reporting facilities. From the class to the school, information is reliable and timely, enabling decision makers to plan with greater confidence, at a heightened level of accountability (Miller, Naidoo & Van Belle, 2006).

A study by Nyawoka (2014) states that using ICTs for class management is an advantage because they can use preformatted documents to do class administration. Those tasks include recording student marks, produce all required data for school administration, maintain their subject content (lesson plans, exercises, evaluation) in digital format and it is also easy to keep their work up to date.

2.6.5 Negative impact of ICTs

The positive impact of ICTs in education seems to outweigh the negative impact. It is argued that they only have negative impact when it comes to using social networks such as Facebook, Twitter, Youtube, Instagram,whatsapp and other social media networking sites which can cause distraction to living and learning in the real world (Olaore, 2014).

Raut and Patil (2016) state that social media had become a major distraction to students, causing the overall performance of students to decline, especially the ones who tend to check their Facebook and twitter while studying. Their ability to concentrate on the task at hand is

significantly reduced by the distractions that are brought about by YouTube, Facebook or Twitter (Raut and Patil, 2016).

2.7 Factors that influence adoption of ICTs

Despite the increasing investments in ICTs in education by governments around the world, the level of adoption of ICTs is not on satisfactory levels (Mayor & Gent, 2016). There are underlying factors that influence the adoption of ICTs. In this paper, they are going to be separated into two categories: individual characteristics and institutional.

Individual characteristics refer to personal attributes of an individual that shapes character of a person. Institutional support and leadership characteristics refers to an institution's organisational context encompassing its entire educational setting and pedagogic model (Neyland, 2011). The individual characteristics can be further broken down into smaller specific segments to gain further insight on the root cause of rejection or adoption of ICTs. The smaller segments are demographic characteristics, education levels, attitude, ICT competence, teacher experience and workload.

2.7.1 Education level and teacher beliefs

Neyland (2011) states that there is direct correlation between teacher knowledge and teacher development. The level of teacher understanding depends on the training and professional development he/she received. Research has found out that teachers' pedagogical beliefs had direct impact on the use of ICTs in school 'unless they fit with the teacher's beliefs' (Neyland, 2011).

Mishra and Koehler (2009) developed an important framework for teacher knowledge which separated teacher knowledge into 3 overlapping components: content knowledge, pedagogical knowledge and technology knowledge. The framework states that one cannot separate the three components of knowledge. They need to be looked at as a unit for full comprehension of adoption and use of technology in education (Mishra and Koehler, 2009). If a teacher exhibits the ability to simultaneously view content, pedagogy and technology as a unit, the teacher would have achieved what is called the Teacher Pedagogy and Content Knowledge (TPACK).

2.7.2 Teacher attitude

To successfully initiate and implement educational technology in school's program depends strongly on teachers' support and attitudes (Buabeng-Andoh, 2012). If the teacher's attitude towards using technology for teaching and learning is positive, then they can promote a positive environment for the use of that technology (Buabeng-Andoh, 2012).

A good experience with using ICTs can contribute to a positive attitude towards implementing them in class (Buabeng-Andoh, 2012). Furthermore Buabeng-Andoh (2012) states that for successful implementation of ICTs teachers need to be prepared mentally as well as physically for the innovation. A study conducted by Mwapwele, Marais, Dlamini and Biljon (2019) on the adoption of ICTs in South African rural schools showed that teacher optimism had positive influence on the adoption of ICTs. The study found that the vast majority of the teachers surveyed were optimistic about the use of ICTs for teaching and learning. This suggests teachers' readiness to use ICTs despite the existing financial, technical and digital skills challenges at their schools

2.7.3 ICT Competence and computer self-efficacy

Computer competence is defined as the ability to use a wide variety of ICT devices, application or programs for different purposes (Buabeng-Andoh, 2012). Computer self-efficacy can be explained as one's belief in his/her own abilities to perform a task or an activity necessary to achieve a goal in a computer (Buabeng-Andoh, 2012). It can also be explained as being able to judge how far the educator is able to use a computer. Confidence is closely associated with computer self-efficacy because it determines the likelihood of success in the adoption of ICTs for teaching and learning and how far the teacher can successfully take the class under his or her control (Buabeng-Andoh, 2012).

Research shows that teachers who lacked knowledge and skills that would help them make informed decisions are the ones who are likely to report negative or neutral experience with integrating ICTs with teaching and learning (Buabeng-Andoh, 2012). Computer self-efficacy results from past computer or technological experience and beliefs and is based on four sources of self-efficacy; performance accomplishments, vicarious experiences, verbal persuasion, and emotional arousal (Nyawoka, 2014). A study among Namibian secondary school teachers and learners found out that teachers and learners who owned mobile cell phones were accessing the internet, social media/networks. The study showed that they have mastered digital skills and

were already participating in informal education outside of the school premises or settings. Therefore using ICTs in school settings would not be too problematic (Mwapwele, Marais, Dlamini and Biljon, 2019).

2.7.4 Teaching experience

Buabeng-Andoh (2012) show that a teacher's experience has impact on the adoption of ICTs in class, the more the teacher has experience the easier it is for him/her to integrate technology with teaching and learning. However on the contrary it also mentions that new teachers with little experience are more reluctant to adopting technology for teaching and learning.

2.7.5 Demographic characteristics

Buabeng-Andoh (2012) further reveal that gender has a role to play in influencing the adoption of ICT. He found that male teachers are more likely to adopt the use of ICTs than their female counterparts. The study further hypothesises that the reason for female teachers' low levels of computer use is due to their limited technology access, skill, and interest.

2.7.6 Time

Differentiated and timely staff development was a factor that contributed to the successful adoption of online learning. This means that more time needs to be allocated to these activities (Neyland, 2011).

2.7.7 Institutional and leadership characteristics

Nyakowa (2014) found that for teachers to successfully adopt the use of ICTs in teaching, the institution or organization needs to be prepared physically and mentally for the innovation. E-learning readiness assessment helps an organization to design e-learning strategies comprehensively and to implement its ICT goals effectively. Learners should also be ready for the adoption of ICTs so that they can successfully embrace the innovation's coherent achievable strategy and have it tailored to meet their needs (Nyakowa, 2014)

The entire school community's involvement and commitment in the adoption of an innovation from the executive team and all teaching staff, including beginning teachers is crucial for successful technology integration (Neyland, 2011). According to Neyland (2011) when the school is led by an executive team that supports fundamental change, the school is more likely to experience success by growing new beliefs and practices.

This is also supported by Mwapwele, Marais, Dlamini and Biljon (2019) who undertook a study on the adoption of ICTs in South African rural schools. They found that the innovativeness of the school to provide technical support to its educators played an important role in the adoption of ICTs. They also mentioned colleagues who are innovative play an important role in adoption of ICTs because they can collaborate with each other in the quest to transform classroom interactions for learners.

The Department of Basic Education (DBE) Rural Education Draft Policy of 2017, cited in (Mwapwele, Marais, Dlamini & Biljon, 2019) states that it is difficult to recruit, retain and develop qualified teachers in a rural setting due to the distances of schools from towns, poor infrastructure and limited service delivery. Furthermore challenges like unstable electricity, high dropout rates, poor classroom infrastructure and security problems all have a negative impact in the adoption of ICTs in South African schools (Mwapwele, Marais, Dlamini & Biljon 2019).

2.8 Social networks in education

2.8.1 What are social networks?

There are different types of social networks. One exists in social based activities through literal communication or interacting with other people an individual already knows or interacting with new people. The other type of social networks refers to social network sites, where an individual writes oneself into being in a web-based service.

The former type of social network referred to provides a simplified geometrical representation of a complex magma of social relationships (De Marti & Zenou, 2009).There are two different types of explanations of social networks, one done by sociologists and the other by economist. The sociologist explanation of Social network is an unintended outcome of other kinds of activities that individuals engage in (De Marti & Zenou, 2009). Economists explain social networks as intended outcome stemming from strategic interaction, the principle virtue lies in maximizing utility (De Marti & Zenou, 2009).

The latter type of social networks refers to web-based services that allow individuals to construct a public or semi-public profile within a bounded system, articulate a list of people

they share connection with and show a list of connection of other people who are in the same connection from the list of connections one has. The user has to create a profile containing age, location, interests, an "about me" section, and most sites also encourage users to upload a profile photo (Boyd & Ellison, 2007).

Since the introduction of social network sites such as Facebook and MySpace; many users have integrated social networks sites into their daily activities or practices. Individuals choose to join different types of SNS because of the type of interests and practices (Boyed & Ellison, 2007). The majority of social networks help to maintain an already existing relationship or social network or relationship beyond social network sites (Boyed & Ellison, 2007). However some SNS networks help strangers meet, according to similar interest such as political views, or based on sharing a common language, age, religion and more. However some do cater for a diverse audience.

2.8.2 Factors that influence the adoption of social media in education

Studies show that there are four main components that influence the adoption of social networks in schools. These are performance expectancy, effort expectancy, social influence and facilitating conditions (Cilliers & Murire, 2017). Performance expectancy can be explained as the adopter's belief that adopting a particular innovation would yield positive results. For instance a businessman adopting social media as a platform to promote his or her business for advertisement with the hope that it will be good for him and his customers. According to Salloum, Mhamdi, Al Kurdi and Shaala (2018), effort expectancy refers to the degree of challenges or easiness the adopter of social media will face when he/she wants to carry out a task. Social influence refers to the role other colleagues and the management teams play in influencing an individual to adopt social media (Cilliers & Murire, 2017). Facilitating conditions refer to the existence of organizational and technical infrastructure to support the adoption of social media (Cillier & Murire, 2017).

Furthermore there are other components that are believed to play a role in the adoption of social networks. These are referred to as the socio-demographic characteristics, while the former are referred to as utilitarian characteristics. Socio-demographic characteristics include age, experience and education level of an individual and are also believed to play a role in the adoption of social networks in school (Akman & Turhan, 2016).

2.8.3 Positive impact of social networks

Research shows that social networks have a noticeable positive impact in education. Raut and Patil (2016) find that the use of social networks provides a better learning platform or technique than the traditional method of teaching and learning. They state that the use of social networks provides opportunities for learners to take control of their learning by developing and maintaining their own learning activities.

Making social media tools a part of traditional learning is attractive to students and can motivate their participation in the learning process (Raut & Patil, 2016). The strength of social networks is that it gives learners the freedom to learn in a manner they wish that suits their individual style and increases their academic success (Raut & Patil, 2016). Social networks have introduced an interactive side in teaching and learning with ICTs. This has helped attract more learners to social networks and it has increased their academic success (Raut & Patil, 2016). Social networks have helped give confidence or a platform for those learners who are shy to express their opinions in class. This can help include them in a class discussion (Raut & Patil, 2016). They also help learners to do their group work over the phone without having to travel. This saves time and costs and reduces the dangers of travelling (Raut & Patil, 2016)

Social networks have also made it easy to access information through the fact that they make the world a smaller place, meaning people can interact instantly wherever they are geographically located at that time (Raut & Patil, 2016). The quick accessibility of information has also made students knowledgeable (Raut and Patil, 2016). When students socialize on social networks they end up collaborating on their school work. This is because there is transparency between students (Raut & Patil, 2016). Rambe and Ng'ambi (2014) in their study on learning with and from facebook, find that using social networks such as facebook helps learners develop their digital skills. Furthermore social network sites like facebook and whatsapp can help parents to keep track on their children's school work (Raut & Patil, 2016).

Social networks also help give students the experience of the working class (Raut & Patil, 2016). ICTs helped with discovering talents. Students who were good at programming got their name out to the market easily. Students who were talented in music, got their videos out and shared leading them to realise their dreams (Raut & Patil, 2016).

Using social media helped students to form awareness about the problems they go through by posting about them. Furthermore teachers can help to clarify any doubts or problems regarding school work by posting a message through the social media (Raut & Patil, 2016). The process or task of designing a profile on a social media account has helped learners to be aware of basic aspects of design and layout that are not often taught in schools (Raul & Patil, 2016). The ease and speed in which learners can upload and share pictures, videos or stories and other content has resulted in great amount of sharing creative work. Being able to get instant feedback from peers and family helps students to refine their work faster therefore quickly honing their artistic abilities (Raut & Patil, 2016). This can help students to choose the career path they wish to pursue early (Raut & Patil, 2016). Furthermore using ICTs teaches learners to be accountable and learn to use ICTs responsibility for the public good (Tinio, 2003).

2.8.4 Negative impact of social networks

Social networks can cause destruction to learners as they focus on social networks instead of doing their schoolwork or interacting with people in person (Raut & Patil, 2016). Students who like to multi task and attempt to do their school work while they are on social networks tend to have reduced academic performance (Raut % Patil, 2016). Often students spend hours chatting on social networks with friends rather than using that time to do their school work. A study by Talaue, Al Saad, Al Rushaidan, Al Hugail and Al Fahhad (2018) on the impact of social media on academic performance shows that learners can spend as long as up to 7 hours per day on social networks.

The long use of social networks by students can lead to detachment from the society therefore losing their ability to engage in face to face communication (Raut & Patil, 2016). Furthermore the constant use of social media has led to poor spelling and grammar. Students rely on the computer spell check for corrections as well as grammar (Raut & Patil, 2016). Should students rely on social networks/media and the web for answers, they will lose concentration during lessons and study less (Raut & Patil, 2016). Relying on social media/networks and the web for information has caused learners to lose their ability to retain information, as well as blunted their eagerness to look for quality reliable information (Raut & Patil, 2016). The degree to which private information is available online and the anonymity the internet seems to provide has made students forget the need to filter the information they post.

Students who post content that is not suitable for public viewing may have their chances of getting future employment jeopardized, due to the fact that some companies check their candidates social network profiles before employing them (Raut & Patil, 2016). Students are losing interpersonal skills because they are used to talking with people on their cell phones (Raut and Patil, 2016).

2.9 Phone distribution, penetration and usage in South Africa

Africa has the second largest mobile market in the world. South Africa houses one of the largest subscribers in the continent after Nigeria and Egypt. Studies show that mobile phone distribution in terms of access and use have increased in South Africa over the past years even though SA continues to lag in computer and stationary internet ownership and use (Beger & Sinha, 2012). South Africa is the leading innovator in Africa, in terms of social networking, microblogging and content creation (Beger & Sinha, 2012). Research showed that the most commonly used or popular activity of communication is firstly adopted by adolescents and young people. South Africa's adolescent and youth are also the first adopters of mobile technology, with 72% of 15 to 24 year olds having cell phones.

From 2005 to 2009, the number of South Africans owning or having access to a mobile phone grew by 20%. In 2012 the country experienced a 100.48% of mobile penetration among its total population of 50 million (Beger & Sinha, 2012). A study done in 2009 on a sample of 401 South Africans aged 16 years and older found that 74% of reported users uses social network sites (Beger & Sinha, 2012). Another study was done by Kreutzer in 2009 on a sample of 441 grade 11 learners (Kreutzer, 2009). The schools were chosen as a random cluster sample from all public secondary schools located in Cape Town's 50% most deprived area. The study revealed that 47% of students used Mxit on a typical day, while only 20% of students reported having Facebook and Myspace profiles sites (Beger & Sinha, 2012). Recent studies show that the current leading application on social networks is whatsapp, which mainly focuses on instant messaging (Deloitte, 2016).

Two other leading social network applications are more popular in South Africa than whatsapp. These are Facebook followed by YouTube. Whatsapp is the third most popular. Kreutzer found that 84% of students access the internet on a typical day. The study also found that profile holders in social media were strong users of both computers and mobile phones and they used the internet more frequently and intensely than non-profile holders (Beger & Sinha, 2012).

In South Africa very little is known about the communication expenditure and patterns of mobile phones by rural dwellers (Rey-Moreno, Blignaut, Tucker & Ma, 2016). However studies suggest that smartphones are currently widely spread and will continue to grow in South Africa both in rural and urban areas. When looking at South Africa's population, the majority heavily relies on mobile phones (Digital Statistics SA, 2017). This is because it is the only device that is usually available to them. Mobile phones are responsible for ¾ of all web traffic in South Africa. Mobile phones are responsible for almost 78% of web trafficking, followed by laptops/desktops, tablets and then other devices (Digital Statistics SA, 2017).

2.10 Chapter summary

This chapter explained what information and communication technology (ICTs) and e-education is. It then discussed Sustainable Development Goals and the National Development Plan in education. Thereafter it gave the status of ICTs in South African schools in terms of the extent of implementation.

Relevant literature on the role played by ICTs in education as well as the benefit or impact of using them was then reviewed. The researcher then discussed the factors that led to the adoption of ICTs beginning with a broader scope of ICT before narrowing it down to looking at social networks in education.

The researcher then gave explanations of what social network sites are and described factors that influenced the adoption of social media in education. The chapter then identified and discussed the impact of social media usage on users in terms of positive and negative impacts. In addition, the researcher added literature about cell phone distribution, penetration and use, to gain further insight on the popularity of social media amongst South Africans.

CHAPTER 3:
THEORETICAL FRAMEWORK

3.1 Introduction

The theory of diffusion of innovation has been used in a number of fields to understand why an innovation is adopted and accepted by members of a community (Sahin, 2006). For this particular study it will be used in the field of education where the research will be exploring teacher attitudes and investigating why they choose to adopt or reject the use of ICTs in general and social networks in particular in schools.

The following chapter briefly describes the different components of the theory and explains why it was chosen in for use in this study.

3.2 Theory of diffusion of innovations

The theory of diffusion of innovation aims to explain how change occurs within a system, organization, or community over a period of time (Thayer, 2013). Surry (1997) explains it as the process by which an innovation is adopted and gains acceptance by members of a certain community. Rogers in Sahin (2006) defines diffusion as "the process in which an innovation is communicated thorough certain channels over time among the members of a social system."

There are four main components of diffusion theory; the Innovation Decision Process, Individual Innovativeness, Rate of Adoption and Perceived Attributes. These components can be further broken down into small elements to gain further insight into how the theory works and why it is ideal for this type of study.

3.2.1 Innovation Decision process

The innovation decision process is where an individual reduces uncertainty about the advantages and disadvantages of an innovation before adopting it. This is done through information seeking and processing (Sahin, 2006). There are five steps involved in the decision making process; (1) knowledge, (2) persuasion, (3) decision, (4) implementation, and (5) confirmation.

The first step an individual must take when making a decision is to learn about a particular innovation. They must know why the innovation was created, learn how to use it and the reasons why the innovation is working (Sahin, 2006). Secondly adopters must be persuaded by the innovation's merit (Surry, 1997). Third, the decision stage; this is where an individual chooses to adopt or reject an innovation (Surry, 1997). Fourth, is the implementation stage where an innovation is put into practice. Re-invention by the user is common in this stage (Sahin, 2006). Lastly there is confirmation. This is the stage where an individual looks to reaffirm or rejects his/her decision (Surry, 1997).

3.2.2 Individual Innovativeness

Sahin (2006) describes individual innovativeness as categories of adopters; the classification of members of a social system on the basis of their innovativeness or willingness to change his or her familiar practices. Surry (1997) states that individuals who are susceptible to change will adopt the innovation earlier than those who are less susceptible. There are five categories of individual innovativeness: (1) innovators, (2) early adopters, (3) early majority, (4) late majority and (5) laggards.

Innovators are people who are willing to try new things, they are risk takers because the innovation can be unsuccessful (Sahin, 2006). Early adopters are those who "help trigger the critical mass when they adopt an innovation" at the local level (Thayer, 2013). Early majority are those that deliberately follow adopting an innovation but they rarely lead in adapting to new innovations (Thayer, 2013). Late majority are those that adapt late to innovations usually because most of their peers have adapted to it or any other external force (Sahin, 2006). Laggards' innovation decision period is long and are the last ones to adopt an innovation (Thayer, 2013).

3.2.3 Rate of Adoption

The Rate of Adoption theorizes that an innovation goes through a period of slow, gradual growth before experiencing a period of relatively dramatic and rapid growth (Surry, 1997). This is usually represented through an S shaped line graph. The theory states that after the period of rapid growth the innovation growth rate gradually stabilizes and then eventually declines (Surry, 1997).

3.2.4 Perceived attributes

Potential adopters of an innovation decides whether to adopt an innovation or not based on five characteristics viz. (1) relative advantage, (2) compatibility, (3) complexity, (4) trialability, and (5) observability (Parisot,1995). Relative advantage refers to the degree in which an innovation is perceived as being better than the idea it supersedes (Parisot, 1995). Compatibility is the degree to which an innovation is aligned with the potential adopter's needs (Sahin, 2006). Complexity is the degree to which the possible adopter finds an innovation easy or difficult to understand and use (Parisot, 1995). Trialability is the ability of the innovation to be tried and tested prior to adoption (Parisot,1995). Observability is the degree to which an innovation has observable results from its adopters (Sahin, 2006).

3.3 Chapter summary

This chapter described the theory that will be used to analyse results. Diffusion theory describes how a particular innovation is theorized to be adopted and spread across society. This was done through the structure theory of diffusion of innovations. This theory has four phases, three of which are further sub-divided into smaller elements.

CHAPTER 4:
METHODOLOGY

4.1 Introduction

This chapter will describe the method that was used to collect data and discuss how data was collected for a study titled exploring teacher attitude towards the official use of social networks in well performing historically disadvantaged secondary schools. The study used a qualitative approach and the researcher used thematic data analysis to identify, analyse and interpret data.

Thematic data analysis can be explained as a method used to identify, analyse and create themes or patterns within data (Braun & Clarke, 2006). It also can be explained from the essentialist and realists approach in trying to derive meaning from participants experience and realties. Thematic analysis allows the researcher to see and make sense of collective or shared meanings and experiences (Braun & Clarke, 2012). Thematic analysis (TA) can be separated into two categories, the first one stems from a theoretical position (Braun & Clarke, 2006), meaning there is only one way to analyse data. The other is flexible which can potentially provide a rich and detailed, yet complex account of data (Braun & Clarke, 2006). This research used the latter technique of analysing data collected through interviews guided by a questionnaire.

4.2 Research Design

The researcher used a two tier questionnaire (available on request from Boyce@ukzn.ac.za) to conduct in-depth one on one interviews with 4 officials who are at the management level and conducted 6 interviews with general educators at classroom level. The mixture of participants from the executive team to general educators was made to meet the objectives of the research. The objectives of the research were to investigate whether Sithengile and Masijabule secondary schools use ICTs, how they used them and what their teaching staff's attitude towards officially using social networks for teaching and learning purposes was. This approach was ideal because the researcher wanted to get a variety of in-depth responses, so that the reader can weigh the result more accurately of whether teachers and executive team support or are against the idea of using social networks.

To obtain study reliability the researcher performed a pilot research on 3 participants. This helped with improving the research questionnaire by removing and adding certain questions. It further helped the researcher to gain experience on how to interact with research participants.

To obtain research validity the researcher used a double barrel questionnaire that addressed officials at management level as well as ordinary educators on their knowledge about the policy, their use in schools as well as personally. For personnel's at management level, they were asked about the department's policy in schools as well as how their schools use ICTs. Ordinary educators were asked about their understanding of social networks and how they use them for academic purposes.

4.2.1 Urban Profile of study area: The area of Clermont where Sthengile secondary school is located is a low income township, houses are clustered, it is mainly occupied by immigrants since it is located next to an industrial area of New Germany, there is fair development within the area as there are well known restaurants such as Kentucky Fried Chicken (KFC), there are hostels, government offices like sassa, Ethekwini Municipality offices, petrol station and other small businesses scattered all over the township. However the place does not look appealing to the eye because most of the infrastructure is not well maintained.

4.2.2 Rural profile of study area: Masijabule Secondary school is located in a semi deep rural area as there are few houses surrounding the school. Houses are dispersed, there is only one tar road that passes near the school and fortunately they have access to electricity and water. The school is far from basic social services offices like clinics, police stations, post office and alike. The usual activities going on around the area is farming, cattle heading and fishing.

4.2.3 Reason for selecting Rural and Urban area

The reason why schools located in these areas were selected is because they have common characteristics that most previously disadvantaged people are familiar with and are still mostly living under, moreover these are the areas that consist the majority of South African population.

Therefore since the aim was to help previously disadvantaged schools improve their academic performance while reducing the digital divide between them and the previously advantaged schools. It made sense to select schools located in these areas so that the study can yield relevant results because the students who attend to these schools are same students who live in these areas, therefore the researcher can be able identify their competency compared with the standards of SDG, NDP and previously advantaged schools.

4.3 Sampling method

The study used purposive sampling technique so that suitable candidates for the interview can be selected. The selection of schools was based on the criteria that the school has been doing well academically for the past five years. The past mark rate was subjective and was decided to be 70% matric pass rate, even though the desirable pass mark is 100%. The school must have been consistent in obtaining an NSC matric pass rate of 70% and above for five years and the school must be located in a township and rural area. An acquaintance who had worked at the Department of Education for 35 years as an educator was asked to assist with identifying schools that meet the criteria.

These schools did meet most of the requirements, with Sithengile Secondary schools located in a township of Clermont under the Pinetown education district having obtained more than 70% pass rate from 2015 to 2019 (DBE, 2020). Masijabule is located in a rural area under Umgungundlovu district and unfortunately has not been consistent with the pass rate. However, it is still worth using in the research as in 2019 the school obtained a 90% matric pass rate.

Once the schools were selected participants were selected guided by literature through identifying themes or prominent factors from previous literature on similar field of study such as a study by Buabeng-Andoh, 2012 on a study titled Factors influencing teacher's adoption and integration of information and communication technology into teaching; a study by Nyawoka, 2012 on a study titled Factors influencing ICT adoption among public secondary school teachers and lastly a study by Neyland, 2011 on a study titled Integrating online learning in NSW secondary schools: Three schools' perspectives on ICT adoption.

According to Buabeng-Andoh 2012; demographic characteristics have an influence in the adoption of ICTs. Male teachers are more likely to adopt ICTs than female teachers. Furthermore according to Nyawoka 2012 institutional leadership plays an important role in the adoption of ICTs, the institution has to be physically and mentally prepared for the adoption of ICTs.
Then according to Neyland 2011 teacher knowledge, teacher development and teacher's pedagogical belief affects the adoption of ICTs. This therefore influenced the features included in the researcher's criteria.

4.4 Study population

The target population for this research is educators/teachers, since they are the ones who are at ground level of implementing new teaching strategies and are directly responsible for teaching and learning. Therefore they will have more informed judgements as to whether using social networks through phones will be viable or not with learners.

The following is the table of attributes for candidates that participated in the research. Participants were given code names for confidentiality.

Table 1: Details of study participants' personal characteristics

Participant Code	**Position**	**Qualification**	**Gender**	**Age**	**Experience**
C1 MK	SGB	N/A	Female	49 years	N/A
C2 MM	HOD	FDE	Female	53 years	24 years
C3 MN1	Teacher	Bachelor of Education	Male	32 years	10 years
C4 MN2	Teacher	Bachelor of Education	Male	32 years	7 years
C5 MN3	Teacher	B.Ed & Honours	Male	40 years	15 years
C6 NM1	HOD	Bachelor of Education	Female	46 years	20 years
C7 NM2	HOD	B.Ed & Honours	Male	38 years	16 years
C8 NT	Teacher	B.com Accounting & PGCE	Male	37 years	10 years
C9 NK	Teacher	Bss GEM & PGCE	Male	26 years	4 years
C10 NN	Teacher	Sptd, Abet & Ace	Male	45	13 years

Details of the participants who participated in the pilot study can be found in Table 2 below.

Table 2: Details of pilot research participants' characteristics

Participant code	Position	Qualification	Gender	Age	Experience
C11 MN	HOD	Auxiliary nurse & B. Ed	Female	43	16 years
C12 SK	Teacher	B.Ed Honours degree	Female	26	2 years

4.5 Data Collection

Data was collected through one on one in-depth interviews. Five suitable candidates were chosen to do the interviews from each school i.e. two individuals from management level and three from classroom level. The reason why two candidates were selected from management level is because the researcher wanted to cover as much information as possible. Even though the two candidates were interviewed about the same thing but there might be important information which one person might not be able to remember to cover during the interview. Therefore two candidates will suffice to maximise the possibilities of getting full answers.

Then the other three candidates at ground level was three educators preferably from different age groups. One educator from millennial or generation Y aged 18-34 years, then generation X aged 35-50 years and baby boomers aged 50-70 years (Pitt-Catsouphes, Matz-Costa & Besen, 2009). The reason why there is specification in difference in age groups is because the researcher wanted to get result based on different age perception as well as experience.

4.6 Limitations of the study

During the course of data collection, I experienced a number of obstructions that nearly deterred me from pursuing the proposed research topic. The first one was failing to secure access to the desired school of choice. As a result I ended up being forced to choose another school.

Furthermore after getting access to do research in the participating schools, I experienced problems with teacher availability. Teachers were reluctant to participate and some indicated

they were too busy. I was also employed full time during this period. Therefore in one school we decided to do a group discussion instead of one on one interviews. All participants were encouraged to answer questions. The executive team was interviewed separately from general educators. This means the two management members were interviewed at the same time and general educators were interviewed at the same time as a group. It appears that this did not affect the variety of my responses that much. However, variety in responses might have been impeded compared to the other school where respondents were interviewed individually and did not have influence from their colleagues' answers.

4.7 Chapter summary

This chapter has described the method or strategy the researcher used to gather information, how the area of research was chosen as well as the participants. Criteria were put into place for selection of the area and participants. A table of with participants details in terms of age, gender, position and qualification was provided. Lastly the researcher discussed potential limitations of the study.

CHAPTER 5:
DATA ANALYSIS

5.1 Introduction

This chapter deals with the analysis and interpretation of the data that emerged from transcribed interviews. The study used an inductive data analysis approach to analyse and interpret data. The purpose of using inductive data analysis was (1) to condense extensive and varied raw text data into a brief, summary format; (2) to establish clear links between the research objectives and the summary findings derived from the raw data and (3) to develop a model or theory about the underlying structure of experiences or processes which are evident in the raw data.

The following are the main themes that emerged during the interviews.

5.2 Theme 1: School practices on ICT

In this theme the researcher looked at the factors that promote the use of ICTs. When candidates were interviewed the researcher found that there are a number of different elements that emerged from using ICTs in the schools. The first was the existence of school-based ICT, the second was practices surrounding how teachers use school-based ICT, the third learners' ICT and fourth, factors that led to adoption of learner based ICTs and how teachers use learners' ICT. Together they constitute a model.

5.2.1 Sub-theme 1: School-based ICTs and practice

School-based ICTs refers to the infrastructure available at both schools that promotes the use of ICTs by teachers and learners in the school. School-based ICTs include the use of projectors, computers/laptops, television sets and printing machine. The practice refers to how educators use the school based ICTs to conduct teaching and learning.

When asked about how the school uses ICT, participant **C5 MN3** responded that,

"The school passed a policy that states that all test questions/question papers that are to be written by learners should be typed and the department provided us with projectors for us to use when teaching, power point is one example we use projectors for teaching".

- Participant **C3 MN1** responded,

"Every stream has designated laptop and projector. We do have computers even though they are outdated but every grade 12 learner here in the school, by the time they leave for university they know the basics of operating a computer".

- Participant C9 NK mentioned that,

the departments sends them text books with DVDs and then he takes learners to the media centre to watch video clips of the same topic they were learning about in class and then he asks questions after, to find out how much they learned.

- C2 MM mentioned that,

The school once had computers with internet, learners were allowed to use the computer lab anytime, but under the supervision of a teacher. Furthermore they still use them but without internet access.

- C8 NT mentioned that,

The school has one mobile projector that they can take to any class whenever the teacher wants to use it and the school has laptops but they are only used by educators.

- C5 MN3 mentioned that

"*We do use ICTs, the very most we use ICTs is for storing information on computers and then we frequently use projectors to show learners videos that we have stored. We also use ICT's to get information from groups such as Sub D group, and we also get and share information from and within clusters".*

5.2.2 Sub theme 2: Learner based ICTs and how teachers use learner based ICTs

The learner based ICTs refers to ICTs gadgets available to learners that make it possible for learners to participate in learning. Here the learner based ICT that is mostly available to learners is cell phones. Educators have identified an opportunity to use them for educational purposes. There are several aspects the researcher looked at, that might have led to the use of learner based ICTs. The first one is why learner based ICTs were adopted and how are they useful. A second is the type of strategies teachers use to conduct teaching and learning.

5.2.2.1 Factors that lead to adoption of learner based ICTs,

Several problems were listed as impediments that made educators use learner based ICTs. The first one was time. Several educators mentioned that they do not have enough time to teach in class. Others mentioned that it is expensive to print paper and books have outdated information.

5.2.2.2 Not enough teaching time in class

Educators mentioned that the time allocated to them for lessons was not enough and the time it took for them to write down notes on the board for learners was too long.

Participant **C9 NK** mentioned that

"I like/prefer to send teaching notes through whatsapp because writing notes down on the board takes too much time".

- Participant **C3 MN 1** mentioned that,

"I will start by saying the amount of time we get to teach in the classroom is not enough, so having contact after hours would be very helpful but for now we do not have clear permission that we can have private communication with learners but we do need other form of communication for academic reasons".

- **C10 NN** mentioned that,

"It happens that sometimes teachers are not able to cover everything during their period, then learners can use information and communication technology to do further studying or research and then come back to confirm with the teacher".

5.2.2.3 Costs

Educators mentioned that it is expensive to print school work for every learner.

- **C4 MN2** mentioned that, *"Learners are not allowed to bring cell phones to school without a teachers concern because teacher's have that privilege to request learners to bring cell phones to the school, because they want for instance to share past exam question papers because printing too many copies demands a lot of paper".*
- **C12 SK** mentioned that, *"Yes social networks could be used, for instance the subject that I teach which is English, sometimes we have poetry it is costly to make copies, it is costly to have work sheet and to have text books".*

5.2.2.4 Benefits of learner-based ICT

Learner based ICTs are useful in different ways. They are useful when retrieving, storing, display and sharing information. They are also useful for liaising between teachers and learners with regards to change of plans in meetings, home works or school attendance.

5.2.2.5 Material/content shared with learners

Learners used their gadget to share, receive, store, display or access the information sent by the educator.

- **C2 MM** mentioned that,

  "I sometimes look for educational apps and then share them with learners to help them get past papers and guidelines on how to tackle questions".
- Participant **C8 NT** mentioned that,

  "Yes both my learners and myself as a teacher benefited a lot from using Whatsapp through ease of communication. I send my learners past question papers for revision, information on careers, general information that relates to my subject, and any other educational material".

In a separate response he also mentioned that, *"I usually use a whatsapp group with grade 12 learners; I send them past exam question papers and I usually encourage my students to use educational apps for my subject such as 'Grade 12 Economics Mobile App' and another one which is popular for all subjects called 'Khan Academy".*

- **C10 NN** mentioned that, *"Another benefit of whatsapp is that whenever it happens that a learner is absent he/she can use the information shared on whatsapp to catch up on the school work that was done on the day the learner was absent".*

5.2.2.6 Liaising

Educators and learners use ICTs such as cell phones to communicate and discuss problems they face when given homework and assignments. They also use it for updates amongst each other to academic arrangements they have made.

- **C9 NK** mentioned that,

"Through whatsapp you can be able to send a message informing your learners that you will not be able to make it at a certain time for the class or you will not be coming at all. Even after cancelling the class that doesn't mean the work will not be done, I can still send them work through whatsapp to do the work as homework then I can collect the work on Monday".

- **C3 MN 1** mentioned that,

"Having connection with learners can even help with updates, let's say I was supposed to have an extra class with my students and then something happens, I can then use whatsapp to update them what is going on. Even parents can use whatsapp to check upon their learners school work because they can communicate directly with their educators".

- **C2 MM** mentioned that, *"On whatsapp learners get the platform or opportunity to ask about their school work immediately after they are done doing it as homework. Leaners usually ask whether they did the school work they were given correctly or not".*
- **C8 NT Mentioned that,** *"even now there's a project for stats SA that we are busy with, we are using whatsapp to communicate".*

5.2.2.7 Models Adopted

Teachers have adopted different models for using learner based ICTs. There are reasons behind the specific adoption of ICTs. These may be based on personal experience or predicted outcomes of certain behaviour.

- Candidate **C9 NK** mentioned that, "*We usually select a few class representatives as group admins who will be responsible for distributing school work to other learners".*
- **C5 MN3** mentioned that, *"This question reminds me of what I usually do when learners are about to write exams, I create a whatsapp group and those who have cell phones join the group and then we arrange a day and time when they can post their academic challenges on the group then we share opinions/solutions".*

- **C3 MN1** mentioned that, *"learners are allowed to bring cell phones to school but when the teacher has requested them, because they want for instance to share past exam question papers because printing too many copies demands a lot of paper".*
- **C6 MN1** mentioned that, *"We allow them to bring their cellphones in school but not to use them in class unless there is something they have to refer to. If we want to show them something we usually take them to a media center then we connect the cellphone on a TV or a projector. For those learners who do not have cellphones learners usually share cellphones".*
- **C8 NT** mentioned that, *"I myself have a whatsapp group with some of the students in grades I teach; but only with learners that I can see are eager to learn".*

Over and above the considerations mentioned by participants and highlighted above, there are other important features that play an important part in the success of the adoption of ICTs in these schools and should be taken into consideration for school based ICT practice. These factors include a stable electricity supply, access to the internet, facilities to house ICTs and teacher knowledge on how to use these ICTs.

5.3 Theme 2: Impact of ICTs

This theme highlights the positive and negative impact ICTs had on its adopters. However since there are policies guiding and restricting the adoption of these ICTs, the researcher also looked at potential positive and negative impact of ICTs.

5.3.1 Sub theme 1: Potential negative and positive impact of ICTs

When interviewing candidates the researcher detected that there are two sides that were prominent from the participants' responses. These sides represented the positive and negative sides of using ICTs.

In terms of potential negative impacts, some respondents felt that learners can become lazy to think.

- C12 SK relayed that, *"sometimes when you teaching certain subjects like language, learners have access to memos and such, so you cannot test their knowledge because there is so much or an influx of information from the internet".*

Another potential negative impact identified was abuse of the privilege of bringing cell phones to school.

- **C9 NK stated that,** *"Since we allow students to bring cell phones to school, the bad thing about it is that; they might use cell phones to send each other files or documents that are not school related".*
- **C8 NT** mentioned that**, "***Students can end up using cell phones for other reasons that are outside of school work like watching and listening to music, chatting about non-educational things and taking pictures and shooting videos".*

5.3.2 Sub-theme 2: Potential positive impact

Although there may be negative impacts from using social networks, they do however play a major role in enhancing learners' academic performance. Participants could identify several potential positive benefits - such as equipping learners with ICT skills.

The first of these is that ICTs could equip learners with lifelong skills.

- Participant **C4 MN2** mentioned that, "Y*es, they are good because they can be useful to learners in the near future when they go to universities where they will use ICTs most likely for everything. ICTs are not only good for academic reasons only but for personal development as well, they can use that skill to adapt/fit in the present social life"*.

ICTs also afforded learners access to unlimited and updated information.

- **C4 MN2** mentioned that, "*if there is internet in the school a learner can access more information on like Google or any other search engine to gain deeper knowledge or understanding than the one that we present to them".*
- **C1 MK** mentioned that, *"ICTs also help to find more reading material that has been referenced on a particular subjects' text book".*

5.4 Theme 3: Existing negative and positive impacts

This section lists the existing positive and negative impact of using ICT that the schools currently experience.

5.4.1 Existing negative impacts

a) Promote lack of discipline

C2MM mentioned that, *"We haven't taught learners on how to be fully responsible with using technology specifically cellphones, we are afraid that children will misuse them. For instance*

this other day I saw some students taking pictures with a cellphone and it can promote recording inappropriate videos which can go viral".

b) Encourages theft

C1 MK mentioned that, *"During a cancer intervention, we had a stolen laptop that was brought by the students to be used in the cancer awareness intervention that was held in the school".*

- **C11 MN** mentioned that, *"Another problem is that laptops get stolen, as we know that favourably a school with laptops should be a well secured school, unfortunately for most African schools are not as safe".*
- **C8 NT** mentioned that, *"there is a shortage of resources and some laptops have just been stolen recently".*

5.4.2 Existing Positive impact

a) Reduces expenses

ICTs were argued to save time and money.

C9 NK mentioned that, *"It is not expensive and the fact that whatsapp is one of the easiest and quickest method of communication".*

b) Versatility

Teachers and learners were regarded as having been given access to a variety in format of academic content.

C9 NK mentioned that, *"it is versatile; one can send educational videos, documents and voice notes".*

c) Ability to liaise with learners and other staff

Educators and staff members can communicate to update each other about their academic or any other school related plans, such as extra lessons held on weekends.

- Participant **C9 NK** mentioned that, "*As educators we sometimes dedicate our time to come to school even on weekends, however it is not always guaranteed that you will be present on the day as planned. It can happen that for some unforeseen circumstances you end up not being able to come to school that day".*
- **C5 MN3** mentioned that, "*when learners are about to write exams, I create a whatsapp group and those who have cell phones join the group and then we arrange a day and*

time when they can post their academic challenges on the group then we share opinions/solutions".

- **C1 MK** mentioned that, *"We communicate via written letters but as SGB we do have a whatsapp group of our own and we do communicate via calls or sms".*

d) Facilitates independent studying

Learners can no longer depend on the educator as the source of information, they can look for their own information but with the guidance of the educator.

- **C8 NT mentioned,** *"Makes learning to be learner centred. It provides an opportunity for learners to have access to information in varied ways. Videos can help learners visualize what they learn in class. Platforms like Youtube are very useful in this regard. It makes learners not to depend only on prescribed textbooks for information".*
- **C10NN mentioned that,** *"They have given us laptops, which has helped learners a lot because once learners have learned how to use laptops to search for information they can be able to look for information anywhere else besides the school".*
- Participant **C3 MN1** mentioned that, *"If well used enables learners to study well on their own because the time we get to teach in class is not enough, the examples used by teachers may not be enough, furthermore the information on text book may sometimes be outdated whereas if a learner constantly has access to the internet can always have up to date information".*
- He also said, *"learners no longer depend on a teacher to learn. It makes a learner to look at a teacher like an overseer of his/her school work but not as a source of information".*

e) Enables ability to catch up should they fall behind

C10 NN mentioned that, *"When the learner is absent he/she can use the information shared on whatsapp to catch up on the school work that was done on the day the learner was absent".*

- **C5 MN3** mentioned that, *"Using ICTs makes teaching faster, a teacher can type and print school work, transfer information via USBs, they can play videos and show pictures on projectors for further explanation".*

f) ICTs make storing and retrieving information efficient

Using ICTs was said to allow teachers and learners to store and access their information quicker and easily.

- **C5 MN3** mentioned that, *"We now have SASAMs (South African School and Administration Management System) where you can store a learner's information, for instance marks. You can store and retrieve a learners coursework marks no matter where you are or wherever the learner goes; you can transfer that information from one school to another".*
- **C9 NK** mentioned that,

"Learners are allowed to use the media room for viewing educational clips and they are allowed to bring their cell phones so that they can send each other important school related documents/files".

- **C1 MK** mentioned that, *"ICTs have all the information in one device, but with African schools if a learner loses a book it becomes an issue because he or she has to pay for the textbook he/she lost for the sake of the upcoming learners".*

g) Promotion of indirect learning

Using ICTs can promote indirect learning of the English language.

- **C11 MN** mentioned that, *"Since the language of command that is used on ICT's is English, children quickly get accustomed with the language".*
- **C11 MN mentioned that,** *"The strengths of using ICT's is that learners get introduced early into using computers so that it grows with them, up to the extent that they can be able to go look for information in libraries and internet cafés and manage to find information on their own".*

Based on the two respective lists above, it appears as if respondents believe that the potential positive impacts outweigh the drawbacks associated with ICTs.

5.5 Theme 4: School policy on ICTs

When the researcher conducted interviews about the school policy from management and general educator level, there were two prominent categories that emerged. The first one was staff that had knowledge about the policy and the other was not familiar with the policy. Responses of management and teaching staff were separated and discussed separately.

5.5.1 Sub theme 1: Management teams' knowledge about the department's policy

This theme will cover the executive's team's knowledge about the Department of Education's policy on ICTs.

The executive team of one school showed that they were aware and familiar with the school policy on ICT issued by the Department of Education.

- Participant **C6 NM1** mentioned that, "*The policy talks about assessing education outcome objectively on time, it talks about giving educators and learners in the 21st century skills to use information and communication technology".*
- **C6 NM1** also mentioned that, *"It talks about making learners more focused on learning and it brings fun in teaching and learning because once you use technology for teaching learners become excited about using technology. Learners these days are more exposed to technology, so when things become digital it makes learners excited".*
- **C6 NM1** further mentioned that, "*It also enables self-teaching and self-discovery, it talks about reducing administrative burden for teachers. Its easy to use and you can use it wherever you are to capture and access the information stored".*
- Participant **C7 NM2** mentioned that, *"Yes, to assist learners to learn more efficiently by providing teachers with access to a wide range of new pedagogy. Also enable teachers to do administrative tasks more efficiently".*

It was a different case at the other site, where respondents intimated that that they were aware that there was a policy but were not familiar with it.

Participant **C2 MM** mentioned that, *"There is no official policy that I know of, but the newly recruited educators have been trained to use computers. Therefore, there might be a school policy on ICTs that I am not aware off".*

C1MK mentioned that, *"I do not know of such a policy but what I do know is that we do not allow cellphones within the school premises, but sometimes we do allow learners to bring phones to school because some learners, especially science students share information with teachers on whatsapp groups".*

Participant **C11 MN** when asked about the DOE policy on ICTs mentioned that, *"I do not have full information so I prefer not answering the questions".*

5.5.2 Sub theme 2: Ordinary teacher's knowledge about the school's policy

This theme will highlight teachers' awareness and knowledge about the school policy. A sizeable minority (4 out of 12 participants) showed that they are not familiar with the schools policy on ICT.

- Participant **C10 NN** mentioned that, *"The school does not have a school policy on ICT's but however I feel that we need to formulate one".*
- **C8 NT** mentioned that, *"The school does not have a policy on ICTs"*

Most teachers, however, were familiar with the school policy on ICTs.

- Participant **C4 MN2** mentioned that, *"Learners are not allowed to bring cell phones to school without a teachers consent. Teachers have a privilege to request learners to bring cell phones to the school, for instance to share past exam question papers because printing too many copies demands a lot of paper".*
- **C5 MN3** mentioned that, *"The school passed a policy that states that all test questions/question papers that are to be written by learners should be typed and the department provided us with projectors for us to use when teaching, power point is one example we use projectors for teaching".*
- **C3 MN1** mentioned that, *Every stream has designated laptop and projector. We do have computers even though they are outdated but every grade 12 learner here in the school, by the time they leave for university they know the basics of operating a computer.*
- **C9 NK** mentioned that, *"The school does have a policy on the use of ICTs, learners are allowed to use the media room for viewing educational clips and they are allowed to bring their cell phones so that they can send each other important school related documents/files".*

5.5.2.A Policy evaluations

Some educators who were familiar with the policy expressed that they were not satisfied with the current school policy and wished for further amendments. The main sources of dissatisfaction were that the policy was unclear in places, did not make provision for resources to enable student access and did not account for the characteristics of the contexts in which teaching took place.

C3 MN1 mentioned that, *"It happens that educators can ask learners to bring their cell phones to school even though that does not appear or clear on the school policy. So the*

changes that can be made to the policy is for it to put it in plain black and white that cell phones are allowed in the school premises but with a teachers concern".

C5 MN3 mentioned that, *"Another thing is that our school policy does not focus on providing accessible internet facilities, for instance providing wifi so that educators and learners can access more information".*

C5 MN3 also mentioned that, *"What I wish for to happen is that the policy be changed so that it can cater for the type of learning era and the community that we live in".*

C5 MN3 mentioned that, "*What I can say about our policy is that it fails to realise present reality that we live in and also the future, with regards to ICTs".*

5.6 Theme 5: Attitudes towards ICT

This theme highlights the main attitudes that emerged from participants during the interviews. The common mind-set amongst participants was that they see the need to adapt to the modern digital world. Therefore, they wish to improve their level of ICT competency.

5.6.1 Need to adapt to modern digital world

Teachers' responses showed that they strongly supported the notion of adapting to the modern world.

- Participant **C9 NK** mentioned that, *"I support the use of information and communication technology because that is what the world is gravitating towards nowadays and it also helps learners to adapt early to the use of technological devices which would be a necessary skill to have.*

- **C9 NK** also mentioned that, *"it makes teaching easier because I can explain something in class and then take learners to the media centre to watch a clip of the topic we were discussing in class".*
- **C9 NK** further mentioned that, "*Since we are living in a civilized and interconnected era, I think it is best if we are at the same level of thinking/functioning/capabilities so that distance does not become a barrier if we want to communicate with each other. This can help with solving problems more doable and it makes the information more accessible to people.*
- **C8 NT mentioned that,** *"it is very good, it makes teaching and learning simple, quicker especially nowadays since we are moving towards the fourth industrial*

revolution, where everything is going to be integrated. We are moving away from paper work; people are gravitating towards doing things online".

5.6.2 Desire to improve level of competence

Teachers also expressed the wish for learners and themselves to be competent with the demands of the modern world.

- **C9 NK** mentioned that, *"My wish is that in the time we live in; every person should be able to use computers or smart phones up until there is no difference between a learner that studied in rural schools and a learner that attended Model C schools".*
- **C10 NN** mentioned that, *"I think it is a beautiful idea or program because if you look at how things are changing, ICT's are in demand nowadays so it would be nice if schools do not fall behind rather keep up with the changing times".*

5.7 Theme 6: Evaluation of Teachers' ICT competency

According to respondents, teachers knew how to use basic ICTs like projectors and computers but there was a need for advanced training on how to use ICTs. For instance, advanced training in the use of Microsoft products could be provided. This need can be seen in statements such as:

- Participant **C5 MN3**, who mentioned that, *"some educators when they are formulating a question paper and maybe need to add a diagram in the paper, you find them copying and pasting from previous question papers or you find them using ink eraser to remove parts of the question paper they don't need. Teachers should be able to edit and create their own diagrams".*

There are two points that emerge from the above quote. First, the lack of knowledge amongst teachers. Secondly, the already mentioned need for training to improve competency.

5.8 Theme 7: Ideas to improve uptake of ICT in teaching and learning

Participants put forward a number of suggestions and recommendations to improve the uptake of ICTs in teaching and learning. Two strong sub-themes emerged, suggestions to improve infrastructure and policies and service delivery.

5.8.1 Sub theme 1: Improve infrastructure

Educators suggested that there is a great need to improve infrastructure in the schools so that they can expand in variety and quantity on their use of ICTs, in particular the need for Wi-Fi,

5.8.1.1 Insufficient infrastructure

Lack of updated infrastructure was identified as a disadvantage to learners.

- **C4 MN2** mentioned that, *"We teach in a rural school there are no libraries in the area and in the school yet we give learners the same school work as those learners who go to model C schools who have suitable learning facilities".*

5.8.1.2 Address inefficiency of service delivery

Participant **C5 MN3** mentioned that "*because of corruption yet if the department provides us with Wi-Fi it would be better because it can't be stolen and would be cheaper than trying to build and buy computer labs and libraries".*

C2 MM mentioned that, "*Parents usually complain that they receive their children's report marks late, the problem is that the school has a shortage of computers so they can't access SA sams at the same time".*

5.8.1.3 Possible Wi-Fi advantages

The provision of wifi was commonly identified as a key resource which the school/department should provide.

- **C4 MN2** mentioned that, *"The school needs to realise the present time that we live in and support learners by at least providing Wi-Fi".*
- **C5 MN3** mentioned that, *"The department of education needs to provide Wi-Fi. This can open new doors because learners can now come back/stay after school to do their school work and access the Wi-Fi in the school, which means high school will now operate longer than usual to allow learners to have more time in the school".*

- **C10 NN** mentioned that, *"As much as we have laptops but we cannot use them to their full capacity, the amount of information we can share is limited. If we have computers connected to the internet, we would have a lot of information".*
- C12 SK mentioned that, *"some Wi-Fi connection needs to be allowed because at some point or sometimes learners do not have access to any kind of technology when they go home, so the school can become a place or ground where they get to interact with technological resources".*

5.8.2 Sub theme 2: Improve ICT policies

One participant mentioned that there is a need for school-based policies that promote the use of ICTs by learners. Other needs identified are listed below.

5.8.2.1 Policies that promote the use of mobile cell phones,

- Participant C3 MN1 mentioned that, *"yes, there is a policy that clearly states that phones are not allowed within the school premises, yet it happens that educators can ask learners to bring their cell phones to school even though that does not appear or clear on the school policy."*

5.8.2.2 School based policies that promote the use of Wi-Fi

- Participant **C5 MN3** mentioned that**,** "*Another thing is that our school policy does not focus on providing accessible internet facilities, for instance providing Wi-Fi so that educators and learners can access more information".*

5.8.3 Sub-theme 3: Computer Training

At a more basic level, participants felt that there is a need for teacher training on how to use computers.

- Participant **C5MN3** mentioned that, "*I can add that even though we can use computers but we do need a computer skill development for teachers because some educators when they are formulating a question paper and maybe need to add a diagram in the paper, you find them copying and pasting from previous question papers or you find them using paper ink eraser to remove parts of the question paper they don't need".*
- He further mentioned that, *"Teachers should be able to edit and create their own diagrams, so I think going forward educators need to be trained on how to properly use computers".*

5.9 Chapter summary

In this chapter, the researcher has laid out the most prominent and important points that emerged from the interviews. They were grouped into themes according to how close they are related to the criteria for that particular theme. This helps with easy identification of ideas. For each theme and sub-theme there is a short piece of literature that serves to give insight on what the theme or sub-theme is talking about. Directly quoted responses have been given labels to

further classify responses. The six main themes that emerged and form the basis of the discussion that follows in Chapter Six are:

1. Theme 1: School based practices
2. Theme 2: Impact of ICTs
3. Theme 3: School policy on ICTs
4. Theme 4: Attitude towards ICTs
5. Theme 5: Evaluation of Teachers' ICT competency
6. Theme 6: Ideas to improve uptake of ICT in teaching and learning.

The preceding chapter gave insight on the schools state of ICT's usefulness within the school by investigating how school-based and learner-based ICTs are provided by the school and used for teaching and learning.

CHAPTER 6
DISCUSSION

6.1 Introduction

Briefly, the aim of the study was to explore teachers' openness and acceptability of using social media for teaching and learning. It was guided by three research objectives. The first objective was identifying whether the schools used ICTs. The second was investigating how they used them. These two objectives characterize the status of ICTs as well as their impact within the school. The third objective was to explore teachers' attitudes towards the use of social media for teaching and learning.

Results suggest that teachers from well performing previously disadvantaged secondary schools have adopted social media for teaching and learning to a certain degree. There is evidence from the study findings that teachers from well performing historically disadvantaged secondary schools are already practising the use of social media for teaching and learning such as whatsapp and Facebook.

This accords with the National Development Plan (NDP), which emphasizes the use and practice of a wide range of media or resources (DOBE, 2015). The study further shows that there are different factors that influence the use of ICTs within the schools. These factors range from personal to institutional. The institutional factors are mainly related to policy and infrastructure. Personal factors include the attitude of teachers towards the use of ICTs.

The following chapter will discuss study results using the theory of diffusion of innovation and compare responses with findings discussed in Chapter 2 to determine whether teachers are for or against the idea of using social media for teaching and learning. The research will further highlight opinions raised by educators about technical support they wish to have.

6.2 Interpretation of study findings linked with theory

There are four main components of diffusion theory viz.

- The Innovation Decision Process,
- Individual Innovativeness,
- Rate of Adoption and

- Perceived Attributes.

These components can be further broken down into smaller segments to gain further insight on the steps one must go through to decide whether to adopt or reject the innovation. Furthermore, the theory also shows how the adoption of an innovations spreads across the people. Under the innovation decision process there is knowledge, persuasion, decision, implementation, and confirmation. Then under individual innovativeness there is innovators, early adopters, early majority, late majority and laggards. There is rate of growth and lastly there are perceived attributes. Perceived attributes comprises of relative advantage, compatibility, complexity, triability and observability. For further explanation of the above components see Sahin (2006).

6.2.1 ICT innovation status in secondary schools

Study findings in relation to the first component of diffusion of innovation which is the innovation decision process seems to show that teachers have not yet acquired all the necessary steps in the innovation decision process stage. The prominent deficit that emerged from the data collected during the study related to knowledge and implementation steps.

This is similar to with results drawn from a study by Meyer and Gent (2016) on the use of ICT in South African schools which shows that teachers had not yet mastered the use of ICTs for teaching and learning. The strategy and policy on the use of ICTs does exist. However, implementation is slow and the capacity is limited (Meyer & Gent, 2016). The policy and strategy of ICTs are defined at a high level and do not extend across all levels of the education system (Meyer & Gent, 2016). Furthermore, the objectives and strategy that is integrated across the system of ICTs is lacking (Meyer & Gent, 2016). Objectives are defined in general terms and do not translate into practical pathways towards an achievable goal while initiatives are unclear about what they want to achieve (Meyer & Gent, 2016).

Research revealed that the majority of participants including teachers and the executive team members lacked knowledge about the policy on ICT in schools. However, all of them have at least implemented the use of either school based and learner based ICT successfully in their teaching and learning; to an extent of using projectors, computers, printing machines, TVs' and cell phones. Although most of the teachers reported only using school based ICTs, a few (five) reported using both learner based and school based ICTs. Only one participant was using learner based ICT gadgets without knowledge of the school's policy on ICT, the other four

were using learner based ICT despite being aware of the school policy, which states that learners are not allowed to bring cell phones to school.

The participants who have adopted learner based ICTs also know where to access relevant material and advised learners to download educational apps that the teacher recommended such as Grade 12 Economics Mobile App and Khan academy. They also emphasise the importance of following educational pages on Facebook, YouTube and they use whatsapp to share information with learners.

6.2.2 Resource constraints and individual innovativeness

Existing literature talks about the lack of infrastructure in South African schools. Meyer and Gent (2016) report that access to technology is limited and unequal across provinces and quintiles. Nkula and Krauss (2014) report that there are schools that do not use ICTs because of a shortage in supply/access to ICTs and lack of technical support to use ICTs.

This study found that the selected schools for research have inadequate infrastructure and technical support such as libraries, computers and projectors. Due to these resource constraints learners and teachers cannot use ICTs as they wish. For instance participant C8 NT (under sub theme 5.2.1) reported that their school had one mobile projector that teachers could take to any class along with an electric board. Having only one projector impedes the ideal use of projectors because no more than teacher can use the projector at the same time. Therefore, the majority of lesson plans have to be arranged in a way that will not involve frequent use of ICTs. Participants at the other site mentioned that their school has projectors allocated to each stream, instead of the whole school using one projector. This makes the inclusion of ICT into lesson plans slightly better than the school that has one mobile projector even though this situation is far from ideal.

This is in contrast with the goals of contemporary education. According to the Department of Education's 2004 White Paper 2004, education should revolve around the use of ICTs to accelerate the achievement of national education goals (Department of Education, 2004). Furthermore, the SDGs and NDP promote the integration of ICTs with education. Yet the study schools are short with technological devices and the ones that are available are in poor condition.

The shortage of ICT resources in schools has made teachers adopt the use of learner based ICTs such as cell phones for teaching and learning. The high availability of smart phones amongst the South African youth has led to the integration of cell phones as an e-education gadget. Literature shows that the world is becoming more digital, especially through the use of cell phones. Studies show that South Africa's adolescent and youth are the first adopters of mobile technology, with 72% of 15 to 24 year olds having cell phones. A study done in 2009 on a sample of 401 South Africans aged 16 years and older found that 74% of reported users use social network sites (Beger & Sinha, 2012). Looking at the age and percentage of people who are first adopters and users of smart phones and social media; high school learners are amongst the mentioned population group. This has made it possible for innovative teachers to integrate the availability of this mobile technology with teaching and learning.

It can however happen that the teachers who have not adopted to alternative ways of using ICTs other than the school based ones, have not been persuaded by the alternative ways of using ICTs, in this case mobile learner based ICTs. This is where personal attributes count the most because the innovation is not institutionally imposed but rather relies on the individual's innovativeness. There are certain key features that an innovation must possess for an individual to consider it to be suitable for adoption. These features must offer more advantages than disadvantages to the adopter.

6.2.3 Perceived attributes that influence the adoption of learner based ICTs

There are numerous ways one can use a cell phone to communicate, e.g. calls, text messages and social media. Some innovative educators noticed that there were benefits in using social media such as whatsapp for educational purposes. Whatsapp was the most frequently used social media application for communication in this study. They also used facebook for following educational pages.

Based on the analysis of the data collected, there are different factors that influence teachers to adopt unique ways of teaching and learning. It was found that the limited amount of time allocated to classroom lessons made some respondents look for alternative options that they could utilize to teach in order to cover enough workload. Other participants put emphasis on the matter of not being able to cover everything in class. This led them to resort to using cell phones and whatsapp.

Participants also raised a point of saving money. They mentioned that it is expensive to print too much paper. Therefore they prefer to share the schoolwork and educational material digitally via cell phones to avoid incurring the costs of buying too much paper and ink. Participants also recommended learning apps to their learners.

The aforementioned reasons for adopting learner based ICTs are in contrast with the existing literature. According to existing literature, the driving forces for the adoption of learner based ICTs are more utilitarian than institutional. However the former driving force do have a major influence on the adoption of social media because whatsapp is the most commonly used instant messaging application in the school. Existing literature on the factors that influence the adoption of social media for teaching and learning shows that there are four main characteristics that influence the adoption of social media in education viz., performance expectancy, effort expectancy, social influence and facilitating conditions. These reasons are consistent with the ones identified using the Theory of diffusion of innovations. Specifically, the last aspect of the theory which is perceived attributes. They share similar traits in that for an innovation to be adopted it must offer certain advantages, be easy to use and suited for the job.

Prior research also shows that demographic characteristics play an important role in the adoption of social media for educational purposes. These characteristics include characteristics such as age, experience and education level. Buabeng-Andoh (2012) states that experience plays a role in the adoption of ICTs. The more experienced the teacher, the easier for them to integrate ICT with teaching and learning. Neyland (2011) reports that there is direct correlation between teacher knowledge and teacher development because the level of teacher understanding depends on the training and professional development he/she received.

Results suggest that the innovativeness of the teacher also lies in his/her age. This assertion is based on the fact that all the educators who have adopted the use of ICTs fall within the youth or young adult category. The oldest teacher in the sample who reported that they used ICTs was 40 years old. The rest were older and were not using social networks with learners for educational purposes.

Teachers who were using mobile ICTs/social networks are also relatively better educated. For instance, most teachers that were using whatsapp had two certificates. Two of these

respondents held an undergraduate degree and a post graduate certificate in education. One had a Bachelor of Education degree and an Honours degree in Education and the second a Bachelor of Education certificate.

Nevertheless, even though the underlying reasons that cause teachers to adopt ICTs might be the same, it should be noted that the way they react to them may be different based on certain circumstances.

6.2.4 ICT models adopted in schools

It appears that the adoption of school based ICTs is different from learner based ICT. The difference is that the school based ICTs are driven by the Department of Education as part of the teaching tools to be included in the teachers lesson plan. The department provides training for the use of computers for administration as well as teaching. The government has programme initiatives such as the Teacher Laptop initiative that was launched for educators to use laptops for teaching and administration purposes (DOBE, 2015). However, learner based ICTs relies on the teachers' innovativeness since they are not yet official but the government has allowed educators to explore their use.

There are three different models of using social media that emerged from the study findings. The first one was learner based. In this mode, the teacher or class selected a group admin who the teacher communicated with. Group admins are responsible for sharing the work they get from the teacher with other learners. Teachers reportedly did this because they wanted to restrict teacher and learner contact. Another model is where the teacher creates whatsapp groups only when the learners are about to write exams so that learners can post questions about problems they come across when studying. This also minimizes teacher and learner contact. A third model was where a whatsapp group was active throughout the year. The group consisted of learners that the teacher identified as keen to learn and learners in that group are only allowed to post school related content.

The reason given for why some teachers restricted teacher and learner contact via social media is because of the preconceived idea that society has, that a male teacher is not supposed to have private communication with students, female students especially or vice versa even if it was for students' academic benefit. For instance a male teacher having private communication with a female learner may not seem ideal in society. However denying private communication

between teacher and learner does not guarantee full prevention of mischievous behavior. This then requires one to look at the advantages and disadvantages of using ICTs in academia. This, therefore, limits the full exploration of the concept. However the NDP vision for 2030 states that parent and community participation should be improved in governing the school, by improving access to information via e-education (DBE, 2015).

6.2.5 Advantages and disadvantages of using ICTs in Education

According to the theory of diffusion of innovation there are key attributes that are taken into consideration when an individual elects to adopt a new innovation. These attributes include relative advantage, compatibility, complexity, trialability, and observability (Parisot,1995). These attributes mean that the innovation must be better than the one prior to it, in terms of being user friendly, compatible and produce observable results.

Current use of ICTs in study schools and existing literature shows that there are positive impact as well as negative impact of using ICTs in education, both school based and learner based ICTs. According to Miller, Naidoo and Van Bell (2006) there are four main umbrella benefits of using ICTs at high school level. These are:

1) ICTs increase the school's ability to prepare learners and teachers for the technology and knowledge-based society
2) ICTs increase learners' access to education
3) ICTs supports new pedagogy practices; and
4) ICTs improve school and classroom administration.

6.2.5.1 Advantages

Literature shows that there are vast positive impact on education when using ICTs. To list a few, ICTs help with developing skills such as "higher order thinking skills, life-long learning habits, and the ability to think critically, communicate and collaborate, access, evaluate and synthesise information" (Miller, Naidoo & Van Belle, 2006). Using ICTs helps with internet access, teachers can access more teaching content and hence develop a better understanding of their teaching material (Mwapwele, Marais, Dlamini & Biljon, 2019).

Furthermore having ICTs helps teachers and learners get up to date with the ongoing political, social, economic and financial developments in the world. ICTs help with functional, scientific, technological and information literacy and can raise global awareness. ICTs trigger curiosity

and creativity, can eliminate geographical barriers, minimize costs and develop network literacy skills. ICTs allow independent learning, facilitate repetition, and provide means for central data storage, easy data transfer and sharing. Using ICTs, teachers are able to track and analyse learner performance on an ongoing basis, while reducing the time spent on class administration by using templates and automated assessments and reporting facilities. From the class to the school, information is reliable and timely, enabling decision makers to plan with greater confidence, at a heightened level of accountability (Miller, Naidoo & Van Belle, 2006).

Study findings on the positive impacts brought by ICTs accorded with the existing literature. Teachers at study schools were using projectors, TVs, computers, printing machines and cell phones. These gadgets are well-suited with the NDP and the Department of Education's policy goals of using a wide range of media for teaching and learning (DBE, 2015) to stimulate functional, technological and information literacy rather than using chalk to write on the board (Tinio, 2002).

Teachers mentioned that using whatsapp as learner based ICT in school had a positive impact on educators because it saved them time. Now they do not have to write long notes on the black board and have enough time to teach in class. The use of ICTs that save time and make the work more efficient can help to free up time for educators to devote to other important parts of learning like doing revision every week or two weeks to quickly assess whether learners understood the section they have been teaching.

It was also found that teachers can help their learners with school work after school hours. This extends learning time. They can update learners on plans they have made such as extra lessons over the weekend. Using gadgets like projectors, TVs and cell phones that are common in the school and are user friendly; makes them ideal gadgets to be used or adopted for educational purposes.

Teachers reported that the adoption of learner based ICTs have helped them to share educational documents and discuss home work and assignments through the use of programs like whatsapp. This has helped save natural resources like paper and has broken geographical boundaries by eliminating the need for learners to be transported to school, so saving money. It also makes it easier to share updates whenever teachers and learner have made plans. For

instance planned extra lessons on weekends. Teachers also felt that software like the South African School and Administration Management System (SASAMS) made their administration work easier.

6.2.5.2 Disadvantages

According to Raut and Patil (2016), social networks cause can be destructive to learners as they could focus on social networks instead of doing their schoolwork or interacting with people in person. Prolonged use of social networks by students can lead to detachment from the society therefore losing their ability to engage in face to face communication (Raut and Patil, 2016). Furthermore the constant use of social media has been found to have led to poor spelling and grammar. Students rely on the computer spell check for corrections as well as grammar (Raut and Patil, 2016). Students also rely on social networks/media and the web for answers. As a result, they will lose concentration during lessons and study less (Raut and Patil, 2016). Students who post content that is not suitable for public viewing may have their chances of getting future employment jeopardized, due to the fact that some companies check their candidates social network profiles before employing them (Raut and Patil, 2016). Students are losing interpersonal skills because they are used to talking with people on their cell phones (Raut and Patil, 2016).

Some evidence in support of the negative impacts highlighted above were found in the study. Participants reported that a possible negative impact is that, if they allow learners to bring their cell phones to school they might take inappropriate videos and pictures that can go viral and damage the school's reputation. Raut and Patil (2016) mentioned that posting inappropriate content, for instance of learners doing something bad, that goes viral could jeopardize learners' chances employment in future.

Bringing learner based ICTs such as cell phones or laptops can also promote theft in schools. One participant mentioned that during a cancer awareness campaign in their school a laptop was stolen within the school premises.

6.3 Suggestions on ICT use and facilities

At the end of each interview, participants were asked to make suggestions of the improvements that can be made with regards to the use of ICTs in schools. The majority of participants mentioned that they would like to be assisted with Wi-Fi because their schools did not have

libraries yet their learners got the same school work as those who were from well-resourced schools. They felt that having WI-FI could help level the playing field which is currently tilted in favour of better-resourced schools that comprise of a small percentage of learners. This then jeopardizes the goal of the SDG and NDP of providing quality education for all. Others mentioned that they would like to get Wi-Fi so that they can get unlimited and up to date information. Having access to unlimited academic information can help lower quintile schools to have better chances of producing quality students who can become future innovative leaders of the country by giving them skills such as information literacy and global awareness. Others mentioned that they would like to get Wi-Fi because it cannot be stolen. They reported that computers get stolen in the schools and the ones that are broken are not fixed. Providing WIFI in schools also provides benefits for the Department of Education as it means it will not be required to buy certain or too many technological gadgets for learners such as computers. Those learners who do have access to ICT gadgets can use their own to connect to the WIFI.

Improving school based policies for ICTs would be useful so that they can accommodate the growing use of ICTs. For instance having a policy that allowed learners to bring cell phones to school. Furthermore computer training is needed for teachers so that they can feel comfortable to integrate ICTs in their teaching. For instance participant C5MN3 in 5.7.3 mentioned that because educators could not create their own diagrams in Microsoft word when formulating question papers they used diagrams from previous question papers and edited the paper in their own hand writing.

Acting on the suggestions above can help both teachers and learners to have access to high quality education and training which will lead to significantly improved learning outcomes as targeted by the NDP.

6.4 Chapter summary

This chapter discussed study findings in comparison to already existing literature gathered around the use of social media in schools. Thereafter, it explained the current status around the use of ICT using the theory of diffusion of innovation. The chapter also discussed whether study findings were in line with existing literature or against and investigated whether they added new information. The paramount driver of adoption of social media for teaching and learning by educators seems to be the amount of teaching time given to educators.

There were three models for using social media, specifically whatsapp, that the schools used to conduct teaching and learning. In the first one, the teacher gives work to the selected learner as group admin to distribute work amongst his/her classmates. In the second model the teacher created a whatsapp group when learners are about to write exams so that they can discuss their academic challenges. In the last model the whatsapp group runs for the whole year. The teacher is the group admin but the group consists of learners that are keen to learn.

The chapter closed by putting forward ideas educators had to improve ICT uptake within their schools. The most popular ideas were that having WIFI could be very useful, policies to accommodate the growing use of WIFI and providing teachers with computer training.

CHAPTER 7
CONCLUSION

7.1 Overview

The aim of this research was to explore teacher's openness and acceptance of using social media for teaching and learning in previously disadvantaged secondary schools that are performing well academically. Three objectives were used to achieve the aim of this study, viz.:

i) To identify whether the schools used ICTs for the purpose of teaching and learning,
ii) To investigate how ICTs were used in the schools that used them and
iii) To explore teachers' attitude towards the use of ICTs, social media in particular, for teaching and learning.

Data was collected by administering questionnaires to the study schools' management teams and a sample of ordinary teachers during one-on-one interviews. The questionnaire administered to the first group of respondents focused mainly on management's knowledge of ICT policy background while questionnaire administered to teachers explored ordinary teachers' attitude towards the use of social media for educational purposes. Both these questionnaires were specially developed for the purposes of this study and underwent pilot testing.

Study results showed that teachers have already adopted social media for educational purposes and are keen to expand its use. However, inadequate infrastructure or technical support, lack of computer training, as well as lack of learner based policies on ICTs are such that they prevent the optimal use of ICTs. For further information on the aforementioned factors see the discussion contained in Chapter 6.

The most common platform the teachers used on social media was whatsapp. Participants mentioned that the main underlying reasons for the adoption of whatsapp was because there was not enough teaching time in class and that it was expensive to print paper for learners. Three models emerged as to how they used whatsapp for educational purposes.

Study findings were broadly consistent with existing literature. For example some members in the management team reported that they did not know the Department's policy on the use of ICTs in schools. This is in line with existing literature, which states that the policy and strategy of ICTs are defined at a high level and do not extend across all levels of the education system (Meyer & Gent, 2016).

After exploring participants' knowledge of ICTs in school, members of the management team were asked if the schools use ICT. ICTs such as computers were reportedly mainly used for administration purposes while projectors were used for educational purposes.

Thereafter, the study investigated ordinary educators' attitudes towards using social media for educational purposes. Results were consistent with that found in existing literature, see Macupe (2017) which states that schools have successfully integrated social media with teaching and learning. However, according to study respondents, no school based policies that promote the use of social media for educational purposes exists. The non-existence of school based policies in the research results is in contrast with the goals of the SDG which aims to achieve literacy and numeracy by a substantial proportion of youth and adult men and women (UNESCO, 2018). Moreover the strategy to achieve this high literacy is through the use of ICT, particularly mobile technology, for literacy and numeracy programmes (UNESCO, 2018).

The NDP also mentions that the use of mobile devices in education such as cell phone and tablets should be explored (DBE, 2015).This, therefore, implies that schools need to create school based policies that promote the use of learner based ICTs, so that teachers and learners can feel free to use cell phones for educational purposes.

7.2 Importance of the study

Although findings are broadly in line with the existing literature on the use and impact of social networks in education, this study is different and thus an addition to existing literature in that it describes real-world models that are used to conduct teaching and learning. Study findings suggest that greater use of ICTs, social media in particular, could prove effective in improving learners' academic achievements even when circumstances prevent or limit direct contact between teachers and learners. In recognition of these achievements, it follows that exploring whether or how these models could be adapted for use in other school settings would be a

worthwhile exercise, especially in a developing country setting like South Africa where the education sector is beset by vast challenges.

7.3 Suggestions to improve ICT uptake at school level

After investigating current practices surrounding the use of ICTs in the schools, questions were asked about the technical improvements that the teachers would like to see made in order to improve ICT uptake. The main suggestion that emerged amongst the majority of teachers is that they would like to get WIFI. There are various benefits or advantages schools can obtain by installing WIFI. They can get instant, unlimited and up to date information through using the already available computers to access the information. Furthermore learners can use their own ICT gadgets to access the information which decreases a demand in government facilities yet improves service delivery.

Also training on how to use computer software applications such as Microsoft word can help teachers to be comfortable with integrating ICTs with teaching and learning. Furthermore workshops on how to properly integrate social networks with teaching and learning can be useful and help de-stigmatise private communication between teacher and learner as bad.

Teachers recognised that private communication cannot be allowed by the school if it promoted mischievous behaviour between teachers and learners. Minimal contact may be the best solution to avoid such behaviour.

Respondents also felt that studying equipment like projectors can help with integrating ICT with teaching and learning. They can help with displaying information to the whole class through one computer. This is even better when the computer is connected to the internet.

Participants also felt that policies that promote greater use of ICT needed to be formulated.

7.4 Research limitations

Notwithstanding these assertions, it is brought to the attention of the reader that findings are beset by a number of limitations related to the methodology that was used in this study.

Firstly, study results are based on a small sample of teachers from two schools. Even though every attempt was made to recruit participants from a variety of age groups and both genders

and a significant amount of data were collected from them, it is difficult to generalise the study findings to other schools of similar quintiles.

The study was also based on cross-sectional data. To see why this type of data is problematic, the study discovered that whatsapp is the most popular social media platform used in these schools. However, this particular software application might be popular right now but its popularity can possibly change in future.

7.5 Avenues for future research

Since the study results were based on two schools, future research can be undertaken among a bigger number and type of school in order to generalise results to all schools. It is also recommended that research that investigates the installation and use of a more reliable platform like education portal Thutong on cell phones instead of trending social media applications be carried out.

7.6 Conclusion

Based on results that show how well-performing previously disadvantaged secondary schools have embraced ICTs, it is contended that ICTs and social media applications in particular can be used for educational purposes and to improve teaching and learning in schools. Greater adoption and use of ICTs can be further enhanced through providing necessary resources to schools and technical support to staff.

REFERENCES

Akman, I & Turhan, C. 2016. Factors influencing social media usage for learning and teaching purposes. International Journal on New Trends in Education and their implications, Volume 7, pp 52-57.

Beger, G & Sinha, A. 2012. South African mobile generation, study on South African mobile generation, Study on South African young people on mobiles. Digital citizenship and safety, UNICEF, pp 1-48.

BMZ. 2013. Information and communication technology (ICT). Key technologies for sustainable development. Strategy paper.

Boyed, D. M & Ellison, M. B. 2007. Social Network sites, definition, history and scholarship.

Brand South Africa. 2015. South Africa turns on digital classrooms. Web Address: http,//www.brandsouthafrica.com/governance/education/south-africa-turns-on-digital-classrooms. Date Accessed: 05 August 2019

Braun. V and Clarke. V, 2006. Using thematic analysis in psychology, qualitative research in Pyschology. pp 77-101

Braun, V. & Clarke, V. (2012) Thematic analysis. In H. Cooper, P. M. Camic, D. L. Long, A. T. Panter, D. Rindskopf, & K. J. Sher (Eds), *APA handbook of research methods in psychology, Vol. 2: Research designs: Quantitative, qualitative, neuropsychological, and biological* (pp. 57-71).

Buabeng-Andoh. C, 2012. Factors influencing teacher's adoption and integration of information and communication technology into teaching: A review of literature. Vol.8 pp 136-155.

Christie, P., Butler, D & Potterton, M. 2007. Schools that work: Analysing schools that work. Report of Ministerial committee: schools that work, OAI, Paper series, paper 5. Pp 16-42

Cilliers. L & Murire. O. 2017. Factors influencing social media adoption and continued use in academia: A case study at a traditional university. International Symposium on Emerging Technologies for Education, pp 203-209.

DA, 2013. Learning for success. DA policy on basic education. pp 9-16

De Marti, J & Zenou, Y. 2009. Social networks. IZA Discussion papers no4621, Institute for the study of Labor (IZA), Bann

Deloitte. 2016. Game of phones: Deloitte's mobile consumer survey. The Africa cut 2015/2016. Pp 7-29

Department of Basic Education. 2015. Action Plan to 2019: Towards the Realisation of Schooling 2030 - Taking forward South Africa's National Development Plan 2030.pp 17-46.

Department of Education. 2004. White paper on e-education, transforming learning and teaching through information and communication technology (ICTs),15-25.

Department of Education. 2014. Twenty year review. South Africa 1994-2014, pp 1-36

Department of Education. 2016. South Africa year book 2015/16. Twenty-third (23rd) edition, 134-154

Devi, K. S, Eragamreddy, G & Lakshmi, V. 2019. Role of social media in teaching-learning process. JETIR volume 6, issue 1, pp 96-102.

Digital statistics SA, 2017. The digital landscape in South Africa 2017. A data driven look at South Africa's relationship with digital. Qwerty digital with intent. Pp 2-21

ELearningnc. 2020. What is E-learning? Web Address: www.eleraning.gov/about-elearning/what_is_elearning/. Date Accessed: 30 January 2020.

Ertmer, P. A. 2005. Teacher pedagogical beliefs: The final frontier in our quest for technology integration? Educational technology research and development Vol. 53. No. 4, pp 25 - 39.

Goyal, E., Purohit, S & Bhagat, M. 2010. Factors that affect information and communication technology usage: A case study in management education. Journal of information technology,volume 21, pp 38-57

Grimes , G. T & Whitmyer, C. 2009. E-education: what is it? Legacy project: making the most of teaching and learning online, pp 1-2

Koehler, M. J & Mishra.P, 2009. What is technological pedagogical content knowledge? Journal of education,pp 13-19

Macupe, B. 2017. What does it take to be a good school? Mail and Guardian. Web Address: https,//mg.co.za/article/2017-07-27-00-what-does-it-take-to-be-a-good-school. Date Accessed: 25 August 2017.

Mdlongwa, T. 2012. Information and communication technology (ICT) as a means of enhancing education in Schools in South Africa: Challenges, benefits and recommendations. Africa institute of South Africa, pp 1-6

Meyer I.A & Gent P.R, 2016. The Status of ICT in Education in South Africa and the way forward. National Education collaboration trust. pp 12-20

Meenakshi. 2013. Importance of ICT in Education. International Journal of Education and Development using information and communication technology (IJEDICT) Vol. 1, pp 03-08.

Miller. L., Naidoo, .M & Van Belle, J. P. 2006. Critical success factors for ICT interventions in Western Cape schools. Proceedings of the 38th Southern Africa Computer Lecturers Association Conference, Somerset West, South Africa, pp 94-104

Mireku, A. A. 2016. The impact of Information and Communications Technology (ICT) on effective teaching of Environmental Education in rural high schools. Journal of Human Ecology, pp 1-8

Msila, V. 2007. From apartheid education to the Revised National Curriculum Statement: Pedagogy for identity formation and nation building in South Africa. *Nordic Journal of African Studies, 16*(2), pp.146-160.

Mwapwele, S., Marais, M., Dlamini, S & Van Biljon, .J. 2019. Teachers' ICT adoption in South African rural schools: A case study of technology readiness and implications for the South African connect broadband policy. The African Journal of Information and communication, pp 1-21

National Planning Commission. 2011. Our future-make it work. National development plan 2030.

Neyland. E, 2011. Integrating online learning in NSW secondary schools: Three schools' perspectives on ICT adoption. Australasian journal of Educational technology. pp 152-173

Nkula, K & Krauss, K. E. 2014. The integration of ICTs in marginalized schools in South Africa: Considerations for understanding the perceptions of in-service teachers and the role of training. In *International Development Informatics Association (IDIA) conference* (pp. 03-05).

Noor-Ul-Amin, S. 2013. An effective use of ICT for education and learning by drawing on worldwide knowledge, research and experience, ICT as a change agent for education. Scholarly Journal of Education Vol. 2(4), pp-38-45

Nyawoka, S. L. 2014. Factors influencing ICT adoption among public secondary school teachers: A case of Webuye sub-county, Bungoma county, Kenya. Department of Educational Administration and planning

Olaore, I. B. 2014. The impacts (positive and negative) of ICT on Education in Nigeria. Developing country Studies Vol.4

Parisot, A. H. 1995. Technology and teaching, the adoption and diffusion of technological innovations by a community college faculty. Montana state University

Patel, A. D. 2018. The future of ICT is in Gauteng's classrooms. Mail & Guardian. Web Address: http,//mg.co.za/article/2018-06-15-00-the-future-of-ict-is-in-gauteng's-classrooms/. Date Accessed: 12-03-2020.

QWERTY Digital. 2017. The digital landscape in South Africa 2017. A data driven look at South Africa's relationship with digital. Digital statistics in South Africa 2017, pp 1-21

Rambe. P & Ng'ambi, D. 2014. Learning with and from facebook: uncovering power asymmetries in educational interactions. Australasian Journal of Educational Technology

Raut, V & Patil, P. 2016. Use of social media in education: Positive and negative impact on the students.International Journalon Recent and Innovation Trends in Computing and Communication Vol. 4, pp 281-285.

Rey-Moreno, Blignaut, Tucker & May. 2016. An In-depth study of the ICT ecosystem in a South African rural community: Unveiling expenditure and communication patterns, information technology for development. Research articles (computer science)

Sahin, I. 2006. Detailed review of Rogers' diffusion of innovations theory and educational technology-related studies based on Rogers' theory.Turkish online Journal of Educational Technology, pp 14-23

Sailors. M, Hoffman J. V & Matthee, B. 2007. South African Schools that Promote Literacy Learning with Students from Low-Income Communities. Reading Research quarterly, pp 376-384.

Salloum, S. A., Mhamdi, C., Al Kurdi, B & Shaalan, K. 2018. Factors affecting the adoption and meaningful use of social media: A structural equation modeling approach. Technology acceptance and adoption models and theories

Shembilu, A. 2013. Importance of social networking for student participation in education in Tanzania. School of computing Blekinge institute of technology

Surry, D. W. 1997. Diffusion Theory and Instructional Technology, Innovations in Education and Training international, pp145-153

Talaue G. M., Alsaad, A., Alrushaidan, N., Alhugail, A & Alfahhad, S. 2018. The impact of social media on academic performance of selected college students. International Journal of Advanced Information Technology, Vol.8, No. 4/5, pp27-35

Thayer, K. K. 2013. The Diffusion of Innovations in Education: A Study of Secondary English Language Arts Teachers' Classroom Technology Integration. Florida state University Libraries.

Tinio. V. 2003. ICT in Education, e-ASEAN Task force.

Tire, T & Mlitwa, N. 2015. ICT access and use in rural schools in South Africa: The Northern Cape Province. Journal of Gender, Information and Development in Africa (JGIDA), pp187-212.

UNESCO. 2018. Positioning ICT in Education to Achieve the Education 2030 Agenda in Asia and the Pacific: Recommendations for a Regional Strategy. Asia Pacific Journal of Education, pp 1-15

Van der Berg. S, Taylor. S, Gustafsson. M, Spaull. N, & Armstrong.P, 2011. Improving Education Quality in South Africa. Report for the National Planning Commission. pp 1-26

APPENDICES

APPENDIX 1: ETHICAL CLEARANCE FORM

UNIVERSITY OF KWAZULU-NATAL
INYUVESI YAKWAZULU-NATALI

14 February 2019

Mr Sanele Clive Chonco 212536876
School of Built Environment & Development Studies
Howard College Campus

Dear Mr Chonco

Protocol Reference Number : HSS/0029/019M
Project title: Exploring Teacher attitudes towards the official use of social networks in well performing historically disadvantaged secondary schools: A caste study in Pinetown and uMgungundlovu District

Full Approval – Expedited Application

In response to your application received 3 December 2018, the Humanities & Social Sciences Research Ethics Committee has considered the abovementioned application and the protocol has been granted **FULL APPROVAL.**

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment /modification prior to its implementation. In case you have further queries, please quote the above reference number.

PLEASE NOTE: Research data should be securely stored in the discipline/department for a period of 5 years.

The ethical clearance certificate is only valid for a period of 3 years from the date of issue. Thereafter Recertification must be applied for on an annual basis.

I take this opportunity of wishing you everything of the best with your study.

Yours faithfully

[redacted]

.....

Dr Rosemary Sibanda (Chair)
Humanities & Social Sciences Research Ethics Committee

/pm

Cc Supervisor: Dr Gerard Boyce
cc Academic Leader Research: Professor Oliver Mtapuri
cc School Administrator: Ms A Msomi

APPENDIX 2: GATE KEEPERS LETTER

Masijabule High School

P.O. Box54, Cato Ridge, 3680 Tel: (033) 503 0028
Cell: 083 373 3127
Email: mthemthom8@gmail.com / mdukhe5@gmail.com

18 September 2018

Dear Sir/Madam

ALLOWANCE TO CONDUCT RESEARCH AT MASIJABULE HIGH SCHOOL

I Mr H M Ngcobo the Principal of Masijabule High School, here to allow Mr Chonco Sanele Clive Student NO. 212536876 currently doing Masters Degree in Development Studies in your institution UKZN Howard College to conduct his research in an ethical manner that will not course any harm in my school as well as the community surrounding.

The research will commence beginning of year 2019

Yours Faithfully

[redacted]

HM Ngcobo (Principal)

KZN DEPARTMENT OF EDUCATION
MASIJABULE HIGH SCHOOL
P.O. BOX 54
CATO RIDGE 3680
CELL: 083 373 3127

KWAZULU NATAL DEPARTMENT OF EDUCATION & CULTURE
SITHENGILE SENIOR SECONDARY SCHOOL

P.O.BOX 419
CLERNAVILLE
3602
Tel: 031 711 7406
Fax: 086 599 0816
methusi@webmail.co.za

Enquiries: MR ZULU

17 OCTOBER 2018

To whom it may concern

Re: CHONCO SANELE (STUDENT NO: 212536876) – APPLICATION TO DO RESEARCH FOR MASTERS IN DEVELOPMENT STUDIES

The above subject has reference.
This serves to confirm that permission for the above refereed application is herby granted.

[redacted]

N DEPARTMENT OF EDUCATION
HENGILE SECONDARY SCHOOL
DEPUTY PRINCIPAL
ERAL ADMIN & LEARNER AFFAIRS

S.A ZULU (Mr)
DEPUTY PRINCIPAL
Gen. Admin. & Learners affairs

APPENDIX 3: PARTICIPANTS CONSENT FORM

UKZN HUMANITIES AND SOCIAL SCIENCES RESEARCH ETHICS COMMITTEE (HSSREC)

APPLICATION FOR ETHICS APPROVAL
For research with human participants

INFORMED CONSENT RESOURCE
Researcher: Sanele Chonco (212536876)

Note to researchers: Notwithstanding the need for scientific and legal accuracy, every effort should be made to produce a consent document that is as linguistically clear and simple as possible, without omitting important details as outlined below. Certified translated versions will be required once the original version is approved.

Information Sheet and Consent to Participate in Research

Date: _____

Dear respondent,

My name is Sanele Clive Chonco, a student in the School of Built and Environment Studies at Howard College University of KwaZulu-Natal, South Africa.

You are being invited to consider participating in a research on 'Exploring Teacher attitudes towards the official use of whatsapp in well performing historically disadvantaged secondary schools: A caste study in Pinetown district and Mgungundlovu District'.

The aim of this study is to explore teacher attitudes towards the use of Information and communication technology (ICTs) specifically social media (whatsapp) for teaching and learning in secondary schools. The study will look at teacher attitudes towards the official use of whatsapp as one of the main platform to enhance teaching and learning in previously disadvantaged schools, as there is proof that whatsapp does improve learner achievement.

The study will be conducted through one on one in-depth interviews and will involve 10 teachers, 5 from each school selected from two different educational districts and the study will also include individuals from management level such as the principal, school governing body, school management team and school governing body.

The in-depth interviews will be conducted in a planned meeting for the convenient time and venue to do the interview; and will last approximately 20 minutes. The interviews will be audio recorded for easy transcription. The study is not funded by any organization; all costs relating to the study will be covered by the researcher.

There is no risk or harm associated with your participation in this study and should you experience any discomfort during the course of interviewing, you have the right to refuse to respond to certain questions, to discontinue or to withdraw from the interview process.

I hope that your participation in this study may help in contributing to policy development and programmes relevant in enhancing teaching and learning in secondary schools in South Africa.

Your participation in this study is voluntary and you may choose to withdraw from the study at any point without attracting any penalty or loss of treatment.

Your participation will not attract any cost and similarly no incentives for participating in the study are provided. The interview will be kept strictly confidential. Your identity will be protected and anonymity will be maintained throughout the interview. Audio recordings and transcribed materials will be kept safe by the researcher for use in my dissertation without reference to your identity unless with your written consent. After completion of the dissertation, audio recordings and transcripts will be kept with my supervisor and only destroyed after five years upon completion of the study and the awarding of the degree.

In the event of any problems or concerns/questions you may contact the researcher at (+2773 257 9667/ +2784 786 3596), the UKZN Humanities & Social Sciences Research Ethics Committee or the researcher's supervisor, contact details as follows:

HUMANITIES & SOCIAL SCIENCES RESEARCH ETHICS ADMINISTRATION
Research Office, Westville Campus
Govan Mbeki Building
Private Bag X 54001
Durban
4000
KwaZulu-Natal, SOUTH AFRICA
Tel: 27 31 2604557- Fax: 27 31 2604609
Email: HSSREC@ukzn.ac.za

My Supervisor
Dr. Gerard Boyce
School of Built Environment and Development Studies
University of KwaZulu-Natal, Howard College Campus,
Durban 4041,
Shepstone Building Level 7, Room A723
South Africa.
Tel: +27 31 260 1473
Email: Boyce@ukzn.ac.za

CONSENT

I _____have been informed about the study entitled:
Exploring Teacher attitudes towards the official use of whatsapp in well performing historically disadvantaged secondary schools: A caste study in Pinetown and Umgungundlovu District by Sanele Clive Chonco (student No. 212536876)

I understand the purpose and procedures of the study

I have been given an opportunity to answer questions about the study and have had answered to my satisfaction.

I declare that my participation in this study is entirely voluntary and that I may withdraw at any time.

If I have any further questions/concerns or queries related to the study I understand that I may contact the researcher

Sanele Chonco
School of Built Environment and Development Studies
University of KwaZulu-Natal, Howard College Campus,
Durban 4041,
South Africa.
Tel: +27 63 1794 686/+265 995 141 172
Email: mpasoj@yahoo.com

If I have any questions or concerns about my rights as a study participant, or if I am concerned about an aspect of the study or the researcher then I may contact his supervisor:

Dr. Gerard Boyce
School of Built Environment and Development Studies
University of KwaZulu-Natal, Howard College Campus,
Durban 4041,
Shepstone Building Level 7, Room A723
South Africa.
Tel: +27 31 260 1473
Email: Boyce@ukzn.ac.za

or

HUMANITIES & SOCIAL SCIENCES RESEARCH ETHICS ADMINISTRATION
Research Office, Westville Campus
Govan Mbeki Building
Private Bag X 54001
Durban
4000
KwaZulu-Natal, SOUTH AFRICA
Tel: 27 31 2604557 - Fax: 27 31 2604609
Email: HSSREC@ukzn.ac.za

I hereby provide consent to:

Audio-record my interview YES / NO

Signature of Participant **Date**

Signature of Witness **Date**
(Where applicable)

Sanele Clive Chonco, School of Built Environment and Development Studies, University of KwaZulu-Natal, Howard campus, South Africa; +265 995 141 127/+2763 1794 686, choncosanele1@gmail.com

APPENDIX 4: INTERVIEW QUESTIONNAIRE

Research questionnaires

The use of information and communication technology

Questionnaire 1: Policy development questionnaire

Time start:

1. Does the department of Education have a policy on Information and communication technology (ICT)?
2. If yes, what is the policy?
3. Was the school allowed to have inputs/opinions during the formulation of the policy?
4. Does the school have a policy on ICTs?
5. If yes, what is the policy?
6. When was the policy made? Who made/drafted the policy? Has the policy changed:
   -in the past 5 years?
   -in the past 10 years?
   -If so, how has it changed?

7. What are the reasons that made the school choose to have this particular type of policy on the use of ICTs in the school?

8. Does the school use ICTs in any manner?

9. If so, how does the school use ICTs? When and where does the school usually use ICT?

10. How does the school communicate with parents?

11. In your opinion what are the strengths and limits in using ICTs at school?

12. How can these limitations be managed?

13. Is there anything you want to add concerning the use of ICT in schools?

Thank you for your time and cooperation in this regard.

Question 2: Teacher's questionnaire on information and communication technology

Time start:

1. What do you understand by the term information and communication technology (ICT)?
2. What is your opinion concerning the use of ICTs by young people in the school?
3. Does the school have an official policy on ICTs?
4. What is the school policy on ICT's?
5. Did the school members have a say in ICT policy making?
6. If yes, what contributions/inputs did they make?
7. What is your opinion concerning the current ICT policy?
8. How do you feel about the current ICT policy?
9. Is there anything that must be changed in the policy?
10. If yes, what must be changed?
11. What is your opinion concerning the introduction of ICT (computers & cellphones) in education?
12. Do you think ICT is good for learning purposes?
13. In your opinion do you think the use of ICTs specifically social networks like whatsapp can be achieved?
14. What do you say about wishing to connect with leaners after school hours when they are not at school?
15. Is there anything you will like to add with regard to introduction of ICT in schools?

Thank you for your time and cooperation in this regard.

Time end:

APPENDIX 5: LIST OF PARTICIPANTS

Date	Participant
A) Pilot Study	
07/03/ 2019	C12 SK
16/03/2019	C11 MN
B) Study Sites	
i) Masijabule High School	
16/04/2019	C2 MM
16/04/2019	C1 MK
09/05/2019	C3 MN1
09/05/2019	C4 MN2
09/05/2019	C5 MN3
ii) Sthengile High School	
04/06/2019	C6 NM1
08/06/2019	C7 NM2
15/06/2019	C9 NK
29/06/2019	C10 NN
14/07/2019	C8 NT