Faculty of Business & Economic Sciences

Managing tomorrow

STUDENT NAME: ALICIA TENJISWA MOOI
STUDENT NUMBER: 195450130
MODULE CODE: 504
LECTURER NAME: Dr GWENDOLYN WELLMANN
ASSIGNMENT NUMBER: Final
ASSIGNMENT TITLE: Effectiveness of ICT Education in the Northern School Area of Port Elizabeth

Date Submitted: 30 November 2011
EFFECTIVENESS OF ICT EDUCATION IN THE NORTHERN SCHOOL AREA OF PORT ELIZABETH

By: Alicia Tenjiswa Mooi

Treatise submitted in accordance with the requirements for the degree:

Masters (Development Studies) in the Faculty of Business and Economic Sciences at the Nelson Mandela Metropolitan University

November 2011

Supervisor: Dr Gwendolyn Wellmann
ETHICS FORM
ETHICS FORM (2)
PERMISSION TO SUBMIT
DECLARATION

I, ALICIA TENJISWA MOOI, do hereby candidly and somberly affirm that this dissertation is my original and independent work, and has never been presented for degree purposes at any other university.

.................................................

Alicia Tenjiswa Mooi
ACKNOWLEDGEMENT

My gratitude goes to God Almighty for giving me courage and strength as well as His guidance and protection;

To my supervisor, Dr Wellmann, for her dedication to see that I do the right thing;

To my parents, my sisters for their encouragement and prayers and my son Mvelo for his understanding during my studies;

All my fellow students at NMMU, Richard Sonkwala, Nomfundo Mahleza, Nomawethu Ratya and Edward Mdlongwa for their encouragement and support; and my colleagues at CSIR for their support.

Lastly I would like to thank my friends who were always supporting and appreciating.

Love you all – God bless you.
ABSTRACT

The use of information communication technology in the 21st Century is very important. The skills and knowledge of using these technologies should start at high school level, as it is at this stage where learners are equipped for tertiary education and the business world. This study seeks to answer how much ICT is used at the average school in Port Elizabeth and how effective such use is.

South Africa is one of the countries in the whole world that is still behind in using the new technology. Learners from high school still enter university with no knowledge of how to use a computer. This becomes a problem in the world of technology as almost everything is done using technology. It also becomes a big problem when learners look for jobs in the business world.

An active learning theory has been used on the study because, if learners can learn and have access computer at school, life will be easy for both learners and teachers, there would be co-operation and discussion and the fast way of doing school work. For the purpose of the study a qualitative research method has been used to ensure that answers are received straight from, teachers and learners for evidence.

It is therefore clear that there are schools in South Africa that still needs the attention of the government in terms of getting access to computers and to have professional teachers for teaching the subject.

The government has a responsibility of making sure that all learners and teachers in high schools have access to computers and internet. This will improve the working and learning conditions of both parties involved.
# CONTENTS

<table>
<thead>
<tr>
<th>章節</th>
<th>頁碼</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACRONYMS</td>
<td>11</td>
</tr>
<tr>
<td>CHAPTER ONE</td>
<td>12</td>
</tr>
<tr>
<td>1.2. INTRODUCTION AND CONTEXT</td>
<td>12</td>
</tr>
<tr>
<td>1.3. SCHOOLS IN PORT ELIZABETH</td>
<td>14</td>
</tr>
<tr>
<td>1.4. CONCLUSION</td>
<td>14</td>
</tr>
<tr>
<td>CHAPTER TWO</td>
<td>15</td>
</tr>
<tr>
<td>2.1. LITERATURE STUDY</td>
<td>15</td>
</tr>
<tr>
<td>2.2. ROLE OF ICT IN EDUCATION</td>
<td>16</td>
</tr>
<tr>
<td>2.3. IMPORTANCE OF ICT USE IN SCHOOLS</td>
<td>17</td>
</tr>
<tr>
<td>2.4. ROLE OF TEACHERS IN THE USE OF ICT</td>
<td>20</td>
</tr>
<tr>
<td>2.5. ICT CHALLENGES TO LEARNERS AND TEACHERS</td>
<td>22</td>
</tr>
<tr>
<td>2.6 ICT IN PORT ELIZABETH SECONDARY SCHOOLS</td>
<td>23</td>
</tr>
<tr>
<td>2.7 THEORETICAL FRAMEWORK</td>
<td>24</td>
</tr>
<tr>
<td>2.8. CONCLUSION</td>
<td>25</td>
</tr>
<tr>
<td>CHAPTER THREE</td>
<td>26</td>
</tr>
<tr>
<td>3.1 METHODOLOGY</td>
<td>26</td>
</tr>
<tr>
<td>3.2. RESEARCH METHODOLOGY</td>
<td>26</td>
</tr>
<tr>
<td>3.3. QUALITATIVE RESEARCH</td>
<td>27</td>
</tr>
<tr>
<td>3.4. RESEARCH TOOLS</td>
<td>27</td>
</tr>
<tr>
<td>3.4.1. FOCUS GROUPS</td>
<td>28</td>
</tr>
<tr>
<td>3.4.2. KEY INFORMANT INTERVIEWS</td>
<td>30</td>
</tr>
<tr>
<td>3.6. CONCLUSION</td>
<td>32</td>
</tr>
<tr>
<td>CHAPTER FOUR</td>
<td>33</td>
</tr>
</tbody>
</table>
ACRONYMS

CAT – COMPUTER APPLICATION TECHNOLOGY
DOE – DEPARTMENT OF EDUCATION
HSRC – HUMAN SCIENCE RESEARCH COUNCIL
ICT – INFORMATION COMMUNICATION TECHNOLOGY
IT – INFORMATION TECHNOLOGY
NEPAD – NEW PARTNERSHIP FOR AFRICA’S DEVELOPMENT
SAIDE – SOUTH AFRICAN INSTITUTE FOR DISTANCE
SGB – SCHOOL GOVERNING BODY
CHAPTER ONE

1.2. INTRODUCTION AND CONTEXT

Information Communication Technology (ICT) can play a number of important roles in education, including assisting teachers to improve their teaching skills and aiding learners to engage in the process where they will have a personal interest in their learning. The use of ICT has been adopted globally as an important tool for education and business. Examples of ICT include internet resources, electronic communication via e-mail and the use of computers. South African schools are also participating in this worldwide important trend which has improved the lives of people in schools, universities and in the work environment (Adebisi, 2008:2).

The introduction of computers in schools has a positive impact on high school learners as it prepares them for further education at university level or for work in the business world. Huang (2004:743) mentions in his research that today’s learners are different from those of the past because they are surrounded by media, computers and internet. Educators, therefore, need to meet the expectations that learners have and to motivate them to move forward. One way to affiliate this movement is to use ICT as a teaching tool.

According Ogbonaya (2010), students today live in a digital age where computers are used in virtually every sphere of life; hence ICT has been found to benefit students in the following ways:

- It provides easy access to the knowledge explosion: where knowledge is power and the pace of change is occurring faster.
- It can help them to be globally competitive: for South Africa to be on the same level as other countries in terms of education new systems such as internet should be explored and applied.
- It facilitates different levels of learning: by incorporating ICT into the learning experience, educators will be able to create more creative and stimulating methods of teaching that support learning and maximize the efficiency of the learning experience.

The use of ITC will allow learners to remember more of what they do (Ogbonaya, 2010:49-60).
Before 1994, in South Africa, schools were divided into black and white schools, where the latter had more resources than the others. Unfortunately, the continued lack of resources is still experienced in most ‘black’ schools today and Information communication technology in black South African schools is not yet regarded as an important subject. This becomes a problem when learners enter university level, where they need to know how to use a computer.

According to the Department of Education White Paper (2003:25), there are still more than 19 000 schools without computers for teaching and learning. Nevertheless, there is an improvement in the Northern Cape, Gauteng and the Western Cape while the Eastern Cape reported to have the least numbers of computers in schools.

Although the use of ICT and the improvement in learning is an important issue in South African secondary schools, little information is available and there are still gaps that researchers need to fill. A lot of research questions still need to be answered, for example researchers need to investigate challenges that contribute to the failure of ICT in high schools, availability of resources in schools, the number of computers in schools and the extent to which teachers are able to handle computer projects.

There has been some research done on ICT in high schools in Port Elizabeth, but there are some areas where gaps need to be filled. In the research done by Adebisi (2008), the focus was on the adoption and usage of ICT in secondary schools. A study done by Ogbonayi (2010) was on the improvement of ICT learning in mathematics, while the book written by Servace (1999) looked at the effect of computer on educators’ teaching method. Foko (2009) focused on the mobile phone as a tool to be used in the classroom.

There is a great demand for the introduction of ICT in all secondary schools in South Africa. Adebisi (2008:3) indicates that integration of ICT into learning and teaching in secondary education in Port Elizabeth could change learning and teaching attitude, and help to prepare teachers and learners for future challenges.

The aim of this research is to investigate the level of usage of ICT in urban high schools in Port Elizabeth, the impact and the accessibility of such resources, and also to see how effective ICT is in aiding teaching and learning. There are schools in Port Elizabeth with access to computers, but whether they are using them is the question and if so, how is it improving teaching, learning and personal development of teachers and learners.
1.3. SCHOOLS IN PORT ELIZABETH

Port Elizabeth has the largest number of secondary schools in the Eastern Cape district. The total includes both private secondary schools and government schools. The total number of government schools in Port Elizabeth is 247 (DoE, 2006:26). This research was conducted at St James Secondary school, a government school, catering for girls and located in the coloured (Northern) areas of Port Elizabeth. Focus groups included teachers and Grade 10, 11 and 12 learners.

1.4. CONCLUSION

Information communication technology is very important in a developing country such as South Africa. It is the responsibility of the school to provide learners’ access to ICT for them to be able to know how to use computers and also for educators to ensure that they transfer skills to learners. Easy access to knowledge, global competitiveness and facilitated learning will never be possible if the government is not providing ICT training for teachers to able to do the job. Computer skilled learners will have a better future in terms of getting jobs and as well as knowing exactly what to do at the university in terms of using a computer. The use of computers in school will also make the work performed by teachers easier, because the learners will see what the teacher is talking about, instead of just listening.

Things are changing; and almost everything is done through the use of ICT, requiring each and everyone to learn and to adapt to these changes. It is almost impossible for one not to be involved in or make use of ICT services these days.
CHAPTER TWO

2.1. LITERATURE STUDY

Information and Communication Technology (ICT) refers to the integration of computing technology and communication. “It can be defined as anything which allows us to get information, to communicate with each other, or to have an effect on the environment using electronic or digital equipment” (Laxman and Vohra, 2006:1).

Electronic learning can be broadly defined as the use of various forms of technology and media for online delivery of education courses as part of traditional on campus provision, for distance learning, or as part of corporate training. Examples of ICT include videotapes and clips, internet resources, electronic discussion via e-mail, computer and video conferencing (Servaes, 1999).

Some of the methods that were used before are not in use today. Moving from the old way of doing things can make things easier, for example, depositing money sitting at home using the internet can save time on travelling to town to do such things.

The world today is changing; South Africa is also one of the countries that are experiencing such changes. As a developing country, South Africa needs to understand the benefits that information and communication technology can bring to the country.

The world’s most serious problems such as the growing demand for food, shelter, health, employment and quality of life cannot be solved without highly efficient new technologies. With the advantage of being developed to be more nature protecting, non polluting, less energy consuming and more human friendly, ICT applications are becoming indispensable parts of contemporary culture, spreading across the globe through general and vocational education (Wenglinsky, 2005:30).

The use of ICT in South Africa can bring positive results such as addressing development needs and enhancing the country’s global competitiveness (Department of Education, 2003:1). ICT in general, can assist in government sectors and businesses by creating transparency, where one needs to be accountable on everything. It can become a tool for
socio-economic development and can increase the ability of people to benefit from development programmes (Friedman, 1997:157-161).

According to Mlitwa (2007:95), ICT gives interaction between the government and the public, where the community can access government services via the internet. For example, if one applied for an identity document and needed to check the status, with internet it would be easy to do that. ICT is an important tool to improve efficiencies in commerce, government and society interactions, and in education.

There has been a lot of research done on ICT in schools. Locally, researchers in this field are focussing on different areas but all of their research is relevant to the study on ICT. For example, the research done by Adebisi, (2008) focused on ICT use and accessibility in Port Elizabeth Secondary schools, Ogbonayi (2010) investigated the improvement of ICT in Mathematics. Servae (1999) was interested on the effects of computers to educators and Foko (2009:1) focused on the mobile phone as a tool that can be used in the classroom.

Research is currently being undertaken on the use, effectiveness and the accessibility of ICT in the schools of Nelson Mandela Bay. Sonkwala (unpublished, 2011) is focusing at Victoria Park Senior secondary school, looking at the use and accessibility of ICT. The researcher has found that the school has enough computers for each and every learner. Learners are not just doing Computer Applied Technology (CAT) they also take Information Technology (IT) as a subject at school. At Pearson High School, where Mdlongwa (unpublished, 2011) is conducting research on accessibility and effectiveness, each and every learner and teacher has his or her own computer with internet access. In contrast, Mahleza (unpublished, 2011), who is also focussing on the use and effectiveness of ICT, has found that in the poorer Sakhisizwe Secondary school there are only 28 computers for the whole school. These are, without internet access and they are used by learners from grades 8-12. There is only one computer for teachers. The learners are using the computers for computer literacy and not taking computers as a subject.

2.2. ROLE OF ICT IN EDUCATION

Education has not been left out of this wave of change to the era of Information and Communication Technology. Most of the developed countries have exploited the potential of ICT to transform their educational landscape at all levels of learning, particularly the instructional process (Kosakowski, 1998:1).
The South African Education Department has indicated the importance of integrating ICT into education. In the Draft White Paper Department of Education (2003:22) it is stated that the introduction of ICT in education represents an important part of government's strategy to improve the quality of learning and teaching across the education and training environments. The policy's intention is to focus on learning and teaching for a new generation of young people who are growing up in a digital world and are comfortable with technology.

Education is largely recognized as a route to information and knowledge literacy, and ultimately a significant step towards improving living standards and escaping poverty. "Rural communities consider education as a most precious gift that one can get in a lifetime; parents, principals, teachers and learners place a high value on education and the benefits that they think it can bring" (HSRC, 2005:142).

According to Mlitwa and Nonyane (2007), who focused their research on investigating resource ICT challenges faced by rural schools in Mpumalanga, "ICT in education is considered as part of a solution for addressing the changing learning needs of societies”. It helps improve administration, such as the registration of learners, the keeping and retrieving of learner records, and enables electronic rather than manual handling of marks as well as easy access to learning and teaching materials online without constraints. "The use of ICT in education can be of major benefit not only in teaching and learning, but also in enhancing administration processes" (Tira and Mlitwa, 2007:141).

Using computers in learning does more than improve the quality of learning, but also introduces learners to technology-embedded practices of the post schooling technology based information economy. Within the education environment, learners are able to access learning material; do course exercises and exchange ideas among each other regardless of diverse locations (Mlitwa, 2006:95).

2.3. IMPORTANCE OF ICT USE IN SCHOOLS

For learners to be able to use computers at tertiary level, it is important to have a good knowledge and skills from their secondary schools. Having these skills will assist them in the changing world where almost everything is done technologically.
The availability of computers in schools has created the need to take advantage of technological change to improve education in schools. As an example, ICT offers the modelling of different scenarios that allows students to study the effects of changes in the value of one variable on the other (Ogbonayi, 2010:49-60).

According to Friedman (1997:157-161), "rapid advances and declining prices in computers technology have made the use of computers as a classroom tool affordable". Although computers today are coming at a cheaper price, in South Africa there are schools that are still struggling to own them. In such cases the involvement of government is needed. In the research done by Dickens and Harper (1986) on the effective use of computers in accounting as a subject, they found that students were more interested in using computer assisted instructions as compared to the traditional chalk and talk method of teaching. They further concluded that integrating computers to subjects such as accounting helps learners in solving problems in a very easy and quick manner.

ICT has become an important key feature of education in this 21 Century. It is a solution in addressing the changing learning needs of societies and improves school administration and enables teachers and learners to easily gain access to learning and teaching materials (Mlitwa, 2007:95). It is highlighted in the Draft White Paper, Department of Education (2003), that the integration of ICT in South African schools by 2013 will bring the following benefits:

- All education departments in the country will be able to use ICT for planning management, communication, monitoring and evaluation.
- All schools will have access to a network computer facility for teaching and learning.
- All school teachers and learners will be confident and competent users of ICT and ICT will be integrated into teaching and learning at all schools (Department of Education, 2003:18).

The Department of Education (2003) furthermore believes that computers will be able to improve on how educators teach and learners learn.

Providing schools with ICT in South Africa is a challenging task; there is a shortage of the minimum infrastructure to support ICT in many schools. In 2004 only 12% of South African schools had computers available for both teaching and learning (Department of Education, 2003). It is now 7 years later and it is important to find out if some schools do have the computers, are they in use, and what type of information that learners receive from them. It
is also important, to find out if there can be any improvements made in the way in which the learners receive information.

It is felt that the aim of ICT should be to engage students at three levels: technical, practical and critical. Learners should not only learn to use technology but should also be able to use it in other activities (Lexman and Vohra, 2006:1).

The use of technology can facilitate a move from didactic classroom teaching to participatory, decentralized and interactive group learning. It is therefore important for teachers to take a decision about the use and implementation of ITC in their schools in order to meet the needs of the student (Lexman and Vohra, 2006:22).

The successful integration of ICT into teaching and learning requires teachers and learners to break away from the barriers of time, lack of confidence and resistance to change (Becta, 2003:50). People become very worried when change is introduced, but when that change gives self development and knowledge, it is important to grab it with both hands. For example, teachers and learners in South African schools, especially in black areas, are becoming interested in using computers. Some teachers are even attending computer classes after school.

In America, policy makers identified educational technology such as computers and networks as tools that can lead students to meet new, challenging academic standards. In 1990 they decided to include what they called educational workforce, looking at teachers who have been using chalks and blackboards, to get training on technology. Learner improvement and quality were seen to be related to one another, after the introduction of technology (Wenglinsky, 2005). The successful transformation of student learning and accomplishment in the 21st Century requires effectively bringing together an emerging consensus about learning and teaching, and the well integrated uses of technology and restructuring (Sheingold, 1987:6).

In the presence of ICT, teachers no longer have to rely on limited and outdated library resources and other materials for their educational needs. With the internet and web, learning materials in almost every subject can now be accessed from anywhere at any time of the day by an unlimited number of learners in developing and developed countries (Tinio, 2002).
2.4. ROLE OF TEACHERS IN THE USE OF ICT

According to Schiller (2003:40), school leaders are key factors in ICT implementation in schools. They have to shoulder the heavy responsibility for creating changes in schools through the use of ICT and facilitating the process of making complicated decisions to integrate it in schools.

Teachers have a very important role to play in making sure that learners are receiving enough information and to ensure that they know exactly how to use computers in school. They need to encourage learners not only to use ICT but to know what to do as it will assist them through their studies.

The South Africa Institute for Distance Education (SAIDE) did research on the amount of information that teachers in the Western Cape had on the use and management of ICT in their schools in 2002 and 2003 (Bialdorzeska and Cohen, 2003:6). The research also focused on assisting teachers in their educational development and for them to gain learning skills in teaching and learning computers. They concluded that computers can add value to teachers, learners and to education at large. According to the researcher there are three phases where learning of computers can take place:

- Foundation Phase- This is where learners spend most of their time on learning concepts and basic skills.
- Intermediate Phase- In this phase learners can expand their learning features into other learning areas, and also enhance research skills
- Senior Phase – learners in this phase are looking at higher education or the world work (Tinio, 2002:23).

Teachers have a role of ensuring that ICT resources are used effectively, if not, this valuable resource can be wasted on non-educational pursuits. In order for teachers to play a role in ICT, they need to be educated and get skills and knowledge before transferring this to learners.

According to Tinio (2002:8), who focused his research on the use of ICT in education, ICT has been used to improve access and improve the quality of teacher training. In South Korea, some institutions are taking advantage of the internet to provide development opportunities to teacher’s services. In China, radio and television based teacher education has for many years been conducted by China Central Radio and TV University. In South Africa there are different programmes that have been introduced to assist teachers in
getting skills on computers. These programmes include SchoolNet SA, a programme that provides online mentor-based in-service training for teachers to introduce ICT into the curriculum and to management. Another programme is INTEL "Teach to the Future", this one also provides ICT training for teachers.

Connecting education with ICT is not only priority at an intercontinental level, but also at continental, regional and national country level as well. At continental level, for example, NEPAD (New Partnership for Africa's Development) institutions set out a school initiative whose priority is to use ICT to connect schools across its member countries. The idea is to provide teachers with ICT skills to use ICT tools in enhancing efficient management and administration of schools (NEPAD e-schools, 2004:1).

Pelgrum (2001:171) argued that educators are unable to develop higher order thinking skills in learners, when they themselves have not acquired these skills. Moreover he suggested that the use of computers for lesson delivery will always depend on the type of training the educator has received. It is, therefore, vitally important for teachers to get trained first, so that they can transfer the skills on to the learners. Untrained teachers can be at a disadvantage, for example, one might find that learners know how to use internet before the teacher knows how to use it, because of the advanced cell phones that learners have. This can be an embarrassment to the teacher and can lead to a breakdown of teacher learner roles.

Educators view computers as resources to assist them in teaching the prescribed curriculum In an international study of technology and classroom practices by Kozma (2003:13), the conclusion was reached that educators in many countries are starting to use computer technology as part of the curriculum. They are utilising computers to change their role from the main source of information to one where they provide students with advice, monitor their progress, and assess their performance.

Educator training programmes need to be provided to prepare and support educators. In addition, it should challenge educators’ beliefs regarding the way they teach their subjects and how the use of computers can enhance the way in which students learn (Naicker, 2010).
2.5. ICT CHALLENGES TO LEARNERS AND TEACHERS

The adoption of ICT in education continues to pose challenges both globally and in South Africa. The White Paper on Education (Department of Education, 2003) states that these challenges can be categorised into three main areas:

- Participation in the information society
- Impact of ICT’s on access, costs effectiveness and quality of education and
- Integration of ICT into learning and teaching process (Department of Education, 2003:8)

Language is another challenge that puts pressure on learners when dealing with computers, as computers are generally designed to operate in the English language. Research conducted by Cummins (1996), found that English is a second language or foreign language for many South African high school learners, and in most black schools, English, as a subject, is taught as a second language.

Another factor in South African black schools is that classes are full; the number of learners in one class makes it difficult for individuals to effectively understand what is taught in class. Large classes pose problems for all students and make it difficult for teachers to employ interactive teaching strategies. It is in this context that ICT provides useful opportunities for education (Nicol and Boyle, 2003:133).

Another major teaching and learning challenge facing higher education revolves around student diversity, which includes amongst other things diversity in student’s academic preparedness, language and schooling background (Knapper, 2001:94).

The other challenges that teachers and learners are facing in the integration of ICT with education as defined by Pelgrum (2001) are as follows:

- Insufficient number of computers
- Teachers lack of skills and knowledge
- Scheduling computer time Insufficient teacher time
- Not enough access to World Wide Web (WWW)
- Not enough supervision staff
All of the above challenges need to be addressed for ICT to be successfully working for both teachers and learners. There is no use of just putting computers at any school without addressing the challenges. According to Friedman (1997:157-161), high schools in the United States, are the best in the world, due to technology. Students have access to unlimited information and have freedom to be creative and innovative with this information. The only limitations students have are their imaginations.

It is not the same situation when it comes to high schools in South Africa; many schools still lack resources. Teachers who have solid technology training are more confident and more interested to use technology as a tool to connect education to students’ lives and aspirations (Hirschbuhl, 1998:35).

Secondary schools in urban areas of Port Elizabeth in South Africa have access to ICT, but the challenge is whether learners are using them, and whether they do improve their learning skills and knowledge. The following discussion will be looking at the current situation in Port Elizabeth secondary schools.

2.6 ICT IN PORT ELIZABETH SECONDARY SCHOOLS

It is important for each and every school, in particular secondary schools to have ICT in their schools, to prepare learners for their tertiary and working environment. Port Elizabeth has the largest number of secondary schools, both private and government schools. There are 69 secondary schools in the area, and out of the 69, 45 are situated in urban and other areas of Port Elizabeth (Department of Education, 2003:4).

A draft ICT document, “Education Implementation 22”, which was done in 2003, reported that of the 25,580 public schools in South Africa, 5,778 have computers used for teaching and learning and 13,011 have one or more for administrative purposes, of course the above numbers are not the same since we are in 2011 and a lot has changed. Less than 5% of schools could afford internet connections few were integrating internet for teaching, learning, communication and collaboration. The report also stated that the quality of the use of ICT for teaching and learning in South Africa was low (Department of Education, 2003:9-).

The numbers given above highlight the shortage and the need for the improvement of computers in the schools. It should be the responsibility of the government to ensure the availability of computers in each and every secondary school.
During a recent discussion on ICT support for teaching and learning, (13 May 2011), the Minister of Basic Education, Angie Motshekga, said that an urgent need exists to further explore information and communication technologies to support administration, teaching and learning (Herald newspaper, 2011).

South Africa’s education system still faces severe challenges in combating the legacy of Apartheid. A UNESCO report, published in 2007, found that:

- Illiteracy rates were as high as 24% of adults over 15 years of age.
- There was a shortage of qualified teachers, one-third of teachers teaching mathematics and science were not qualified.
- The majority of schools were under-resourced and under supplied (UNESCO, 2007)

The following discussion will look at the theoretical framework that informs the whole research study.

### 2.7. THEORETICAL FRAMEWORK

In South Africa many schools do not have access to Information Technology, especially on computers. Tinio (2000) used four theoretical frameworks for the study namely, Active learning, Collaborative learning, creative learning and Evaluative learning. For the purpose of this study an Active learning theoretical framework has been used in the following manner:

- ICT in schools can be used as a tool for examination purpose, where learners can write their exams using a computer and teacher use a computer in marking papers.
- Computers can assist learners in their calculation and receiving information.
- Learners can analyse and construct problems.
- Computer assist learners and teachers in making learning less abstract and more relevant to the learner’s life situation and also promotes learner engagements (Tinio, 2002: 9).

Given a chance of using the resources the schools can learn a lot on how to use computers, it can make the life of both teachers and learners easy and to have a time of doing other school projects.
2.8. CONCLUSION

From the above discussion, it is clear that ICT is needed and is important for both learners and teachers. Educators need to be trained so that they have all the skills to be able to teach their students, and more programmes need to be developed for education and skills development. The government has a responsibility of ensuring that these computers are available in all schools, even the less privileged schools. The availability of the computers will assist learners in preparing for their tertiary education and to be able to use their skills in the business world.

Computers can also assist teachers in their self development and in gaining skills that they can use for improving their teaching. ICT can help teachers do their work easily and save their time, for example, the marking of exam papers can take less time compared to when done manually. This will allow them time to focus on other things.

ICT will not only assist learners at university level and in business, but also it will help them to do their work much quicker and more easily. A country that has more people with skills and knowledge of computers is where things are done easy and this can have very exciting outcomes.
CHAPTER THREE

3.1 METHODOLOGY

The objective of the study was to investigate the level of usage of ICT, the type of information that learners search for on the internet and whether the information obtained is really assisting them in their studies. The research also sought to find out if these technologies are developing the learner's knowledge and improving their skills. Lastly the research aimed to find out to what extent educators are able to handle computer projects, and if any training was given to educators to allow them to be able to transfer skills. It is crucially important to first look at the population and sampling used in the research together with the manner on which the above were chosen.

Firstly during the research no names of people were used. The researcher used a group of learners from grade 10-12 from the Black and Coloured areas of Port Elizabeth. The reason being that, the chosen schools are the ones that were previously disadvantage schools and the when the present government took over it promised to change the bad situation in those particular schools. This chapter will discuss the research methodology, what methods were used and also the advantages and limitations of using such methods.

3.2. RESEARCH METHODOLOGY

There are different types of research procedures in all spheres of research. According to Bless and Hongson-Smith (1995) although the basic logic of scientific methodology is the same in all fields, its specific technique and approaches will vary depending upon the subject. Research methodology is a collective term for the structured process of conducting research. It is concerned with how the research is conducted (Groenewald, 1986). Research methodology can be qualitative or quantitative. For the purpose of this research a qualitative research method was used. The following discussion will look at the definition of a qualitative research method and the reasons why the researcher used it.
3.3. QUALITATIVE RESEARCH

The qualitative method of research has no precise meaning in any of the social sciences. It is an umbrella term covering an array of interpretive techniques which seek to describe, decode, translate and otherwise come to terms with the meaning, not the frequency, of certain more or less naturally occurring phenomena in the social world (Groenewald, 1986).

According to Denzin and Lincoln (2000) qualitative research is a type of scientific research, and it consists of an investigation that:

- Seek answers to questions
- Systematically uses a predefined set of procedures to answer a question.
- Collects evidence
- Produces findings that were not determined in advance
- Produces findings that are applicable beyond the immediate boundaries of the study
- Effectively obtains culturally specific information about values, opinions, behaviour and social contexts of particular populations.

“Qualitative research has its roots in social science and is more concerned with understanding why people behave as they do, their knowledge, attitudes, beliefs and fears” (Rutman, 1996).

The researcher used this type of method as it can easily give an understanding of the accessibility of ICT in schools and obtain answers straight from learners and teachers for evidence.

3.4. RESEARCH TOOLS

There are three common qualitative methods and each method is particularly suited for obtaining a specific data. These methods are:

- Participant observation, this is appropriate for collecting data on naturally occurring behaviours in their usual contexts.
• In-depth interviews, which are optimal for collecting data on individuals' personal contexts.

• Focus groups, which are effective in eliciting data on the cultural norms of a group and in generating broad overviews of issues of concern to the cultural groups or subgroups represented (Hennink, 2004:16).

For the purpose of this research, in-depth interviews and focus group discussions were used.

The following discussion will look at the definition of a focus group discussion, the number of focus group discussions that were used during the research, the number of questionnaires used and the number of people who were interviewed.

3.4.1. FOCUS GROUPS

A focus group discussion is a method of qualitative research that involves discussing a specific set of issues with a pre-determined group of people; it differs from other qualitative methods in its composition and process of data collection (Hennink, 2004:4).

In focus groups, the goal is to let people spark off one another, suggesting dimensions and nuances of the original problem that any individual might not have thought of. Sometimes a totally different understanding of a problem emerges from the group discussion (Carter and Beaulieu, 1992). Interaction and assures that the discussion remains on the topic of interest. A typical focus group discussion will last from one and a half to two and a half hours.

This particular research took place at St James Senior Secondary School. The school is situated in the northern areas of Port Elizabeth, where the majority of people staying there are coloured people. The school is in an area where the crime rate is very high, not even the teachers are safe. The school is a girls-only school. Only Computer Applied Technology (CAT) is taken as a subject from grades 10-12, with only one professional teacher responsible for all grades.

Focus group discussions were conducted with learners and teachers who were willing to participate in the research. The focus of the research was on the grade 10-12 learners and their teachers. There were six focus groups for learners in total, consisting of eight learners per group from each grade. Another focus group was conducted with one group consisting of six teachers. The researcher conducting the research was assisted by another student who was the note taker.
According to Stewart and Shamdasani (1990:45) focus group discussions involves 8 – 12 individuals who discuss a particular topic under the direction of a moderator who facilitates the discussion.

The discussion with teachers was conducted during their free period, and with the learners took turns during their free periods, so as to try and not disturb the functioning of the school.

A focus group guide was used to gather information. The same questionnaire was used for learners, teachers, School Governing Body and for the principal. Focus group discussions provide a number of advantages, but also limitations. These are discussed below.

**ADVANTAGES OF A FOCUS GROUP**

- Focus groups provide data from a group of people much more quickly and at a lower cost than would be the case if each individual were interviewed separately.

- The researcher can obtain deeper levels of meaning, make important connections and identify subtle nuances in expression and meaning.

- Focus groups allow respondents to react and build upon the responses of other group members.

- Focus groups are one of the few research tools available for obtaining data from children or from individuals who are not particularly literate.

- The results of a focus group are easy to understand and the researcher and decision maker can understand the verbal responses of most respondents (Denzin and Lincoln, 2000).

In this current study, it was noted that the response was much quicker from the group and one received different views, ideas and information from each person. There was more interaction and flexibility between the researcher and the group.

It was easy for the researcher to get more clarity on the answers because one could do a follow up question, and more information was forthcoming from other participants as well.

**LIMITATIONS OF A FOCUS GROUPS**

Although focus groups are important research tools, and have many advantages, they also have some limitations.
• The smaller numbers of respondents that participate in a focus group significantly limit generalization to a larger population.

• The interaction of respondents with the researcher has two effects. First, the responses from members of the group are not independent of one another, which restrict the generalizability of results. Second, the results obtained in a focus group may be biased by a very dominant member.

• The “live” and immediate nature of the interaction may lead a researcher to place greater faith in findings than is actually warranted.

• The open-ended nature of responses obtained in focus groups often makes summarization and interpretation of results difficult.

• The researcher may bias results by knowingly or unknowingly providing cues about what type of responses and answers are desirable (Denzin and Lincoln, 2000).

In this current study, although there were some good advantages in using a focus group discussion for the research, some limitations also existed during the research process.

When the research was conducted with learners, there would be one or two learners who dominated discussions and be the ones who seemed to have all the answers all the time. Sometimes there was a student who becomes shy and decided to be quiet in front of the others in the group. In addition, the learners were sometimes playful, disruptive and not serious.

3.4.2. KEY INFORMANT INTERVIEWS

Key informant interviews (which can be in the form of both semi-structured and unstructured interviews) are of a more in-depth manner than quantitative, structured interviews. They can be used at a various stages of the research interview objectives (Cassell and Symon, 1994).

According to Johnson and Weller (2002), there are two types of key informant interviews, the bottom-up key informant interview, which assists in the clarification of less well understood topics and knowledge domains, and contribute to the construction of more valid structured interviewing format, such as structured questionnaire. The second one is the top-down informant interview, which aids in the validation and alteration of existing structured questionnaires, leading to more valid adaptation of existing interviewing forms.
Informants are selected in terms of their knowledge, experience and understanding of a given topical area.

For this study, the top down key informant interviews were conducted with the principal of the school and with a member of the School Governing Body (SGB).

Questionnaires for the interviews consisted of the following sections:

- Knowledge and accessibility of ICT
- The Role/Involvement of SGB on ICT
- Impact of ICT
- Usage of ICT in school

The principal and the member of the school governing body (SGB) were selected because of their knowledge of the functioning and running of the school. Informant interviews are qualitative, in-depth interviews to collect information from people who know what is going on regarding a particular research topic (USAID, 1996). There are advantages and disadvantages of using informant interviews.

**ADVANTAGES OF AN INFORMANT INTERVIEWS**

- Detailed and rich data can be gathered in a relatively easy and inexpensive way.
- The interviewer can establish a rapport with the respondent and clarify questions
- They provide an opportunity to build or strengthen relationships with important community leaders and stakeholders.
- Awareness, interest and enthusiasm around issues can be raised.
- Informants can be contacted to clarify issues as needed (Bryman, 2004).

The advantage of using an informant interview during this research was the kind of good relationship and trust that was built between the two parties. The researcher felt like it was a conversation between friends who knew each other. It was easy to clarify issues because of the relationship that was created.
DISADVANTAGES OF AN IN-DEPTH INTERVIEW

- Selecting the right key informant may be difficult – they need to be representative of diverse backgrounds and viewpoints.
- Scheduling of interviews with busy and hard to reach respondents may be challenging.
- Generalization of results to the larger population may be difficult unless interviewing many informants (Carter and Beaulieu, 1992: 9).

In the present study, it was difficult for the researcher because one does not know what kind of a person one was going to meet, for example, is he or she going to give all the answers or will they just get bored.

3.6. CONCLUSION

There are different methods that one can use when doing any research. It is important for one to know exactly which methods will be used, to avoid confusion. One should be aware of the advantages and disadvantage when using the research methods. Sometimes, one can find out that there is no way of escaping some challenges, but is important to look at them carefully anyway.

Learners from grades 10-12 were selected for the research because they are the ones who are preparing themselves for tertiary education, where they will need the ITC skills gained at high school.
CHAPTER FOUR

4.1. FINDINGS/ RESULTS

The aim of the study was to investigate the accessibility of ICT in Secondary schools of urban areas, the usage, as well as the effectiveness and impact of ICT in these schools.

This chapter focuses on the analysis of the data that was collected. The research was done in a middle class school; this is the school where some resources are available but not enough, consisting of girls only. Interviews were conducted with the girls, teachers, principal and a member of SGB, to see the different experiences from teachers and learners, principal and SGB. The following analysis discusses information from teachers, followed by the learners, principal and SGB.

4.2. TEACHERS’ FOCUS GROUP DISCUSSION

At the selected school six teachers participated in a focus group discussion in which ICT was understood as a tool where information can be accessed easily; fax machines, computers and telephones were regarded as some of the tools. Teachers have access to fax machines, telephones and printer machines and can use computers during their free periods. The teachers are using computers to print class information, school reports, to type question papers, to study guidelines from the department and to do research for learning activities. Teachers also use their own computers at home. The school has Computer Applications Technology (CAT) as a subject for grades 10 – 12.

In terms of improving their personal knowledge and skills, the teachers felt that it easy now to get information relevant to their work, marking class tests and doing class work using a computer is much quicker, and it also improved their typing skills.

Teachers also felt that learners are getting information quicker and easier from using a computer. The use of computers is assisting learners in keeping track of the work done in class and improving their knowledge. There is also an improvement in the sense that learners can do their work and get information without any supervision from the teachers.
One of the challenges is that there is only one professional teacher responsible for all grades doing CAT. Other challenges are that the 28 computers that the school has with a total number of 48 learners using them number of computers is not enough, and burglaries are common as the school has no security measures. Learners are not paying school fees and that makes it difficult to find the funding to repair broken computers or to buy new computers. There is a shortage of qualified teachers and resources, while training for all teachers is also important because having only one teacher is a problem. This situation contrast with that found in current research being undertaken at Pearson High School, one of the private schools in Port Elizabeth, all teachers have their own computers and printers, and they also have full access to the internet (Mdlongwa, unpublished, 2011).

4.3. FOCUS GROUP DISCUSSIONS WITH LEARNERS GRADE 10

Learners from Grade 10 viewed ICT as instruments such as TV, calculators, cell phones, electrical appliances and computers. They have access to computer at home and from their personal cell phones where they easily communicate with friend and relatives and search for information. They also use computer and their cell phones to access social communication websites such as Skype, Twitter, Mixit and Facebook. The ones who do not have access to computer at home rely on local libraries and internet cafes. At school, computers are used for searching work related information, to do projects and assignments.

Learners at St James are only doing CAT as a subject; as compared to the other schools that are doing Information Technology (IT), one has to choose the subject according to grouping of subjects from grades 10-12. The school has 28 computers in the lab, but only one computer has access to the internet. This is in stark contrast to some schools, for example at a school with more resources in Port Elizabeth, current research shows that the school has about 300 computers, all with access to the internet and each learner has access to his or her computer (Sonkwala, unpublished, 2011). The school also provides CAT and IT as a subject from grades 10-12.

The use of computers improved the learners’ knowledge and skills, they are able to search for information, send e-mails, and they feel independent when it comes to research. They are able to design and create their own work and get information very easily. Some mentioned that in terms of their skills there is an improvement in their typing skills and communication skills. It has improved their grammar, spelling and it saves a lot of time. The group felt that computers can give one a chance of getting a better job.
The challenges that Grade 10 are experiencing are the shortage of computers at the school, there is only one computer for every six learners. There is no security so it easy for computers to be stolen. Some computers are old and they need to be upgraded. The learners felt that the upgrading and quick repair of computers would make their lives easier.

4.4. FOCUS GROUP DISCUSSIONS WITH LEARNERS GRADE 11

Grade 11 learners also participated in focus group discussions. They viewed ICT as instruments such as Play Stations, laptops, digital cameras, radios and IPods. These instruments are used for relaxation, socialising, communicating and research, and to gain knowledge. Only those learners that are taking CAT as a subject have access to computers. Learners are using computers to do their activities from the textbook such as to draw-in tables, write tests and exams.

Before having these computers, learners were using their cell phones to communicate and to search for information. Some mentioned internet cafes as where they got information from. Textbooks are still the primary source available for information.

The use of computers has improved their typing skills, and it is easy for them to use Microsoft word, spreadsheets and to format borders. The introduction of computers had a positive impact to them, in that they are more informed about what is happening in South Africa and other countries. It has developed their political thinking by doing research about South African history. They are able to even transfer money using cell phone banking. In education, they can type, and are able to do work in other computer programmes, and this gives them an opportunity of getting jobs during school holidays.

Some problems were identified by the group. One is when one has to share a computer with others. This is time consuming and one could end up not doing anything the whole period. Some computers are always not working.

Learners thought things might be different if they could have more computers, and if they could bring their own memory sticks where they can save their work.
4.5. FOCUS GROUP DISCUSSIONS WITH LEARNERS GRADE 12

A group of grade 12 learners also participated in a discussion. They viewed ICT as computers, navigators, intercom radio and smart phones which they use for communicating, music searches, downloading pictures, and for finding map directions.

They do have access to computer at school but for only school work purposes. They use internet cafes and their personal phones for access to the internet.

Learners can take CAT as a subject, but only learners who are doing Physical Science and Maths; i.e. not all Grade 12 learners are doing CAT. Before the introduction of computers at school, they used their cell phones and computers at home for searching for information.

In their personal life, they mentioned that the use of computers gave them a chance to be able to play music, games, access the internet, and participate on Twitter, Facebook, and 2Go. These sites assist them in communicating with friends.

In their education, the use of computer has assisted them in understanding computer programmes, which will help them in getting better jobs after finishing school. It has also prepared them for tertiary education where almost everything is done using a computer. They are also now able to search for information much faster than previously.

Computers are important to them because they save time, and ICT is helping them in their grammar, spelling, and gives them more knowledge than they find in books. It was also mentioned that learners can be addicted in using the websites and sometimes lose self control and lose focus in their school work, this means the use of computer can also have some negative effects on learners.

The problem they are facing as learners at school is that the computers that they do have do not have access to the internet, which makes it difficult to search for information. In addition, the number of computers at the school is not enough which makes it impossible to finish projects. Learners from lower grades regularly delete their work as all learners are all using the same passwords. It is also easy for other learners to copy someone else’s work. Burglaries and theft of computers are also problems faced at the schools.

The learners indicated that more computers would be of benefit and also privacy for users through own passwords and cubicles in between computers.
4.6. PRINCIPAL INTERVIEW

The principal viewed ICT as a computer related tool that is very important for learners to use as it prepares them for the future and for tertiary level. At the school, learners are taking CAT from grades 10-12 as a subject, but it is grouped according to the subjects, that means learners who are doing Physical Science and Maths are also doing CAT, while those who do not do this group of subjects will not do CAT. Learners have access to computer without any access to the internet because this would be too expensive.

Teachers do have access to computers, but only during their free periods as the school has a limited number of computers. The secretary is the only person who is using a computer for long periods of time. Teachers are mainly using computers for administrative purposes, such as typing tests and preparing work. Although the principal has knowledge of how to use a computer, the secretary assists in doing some of the work, as the principal needs to run the school.

The introduction of computers at school has improved the principal’s skills. She used to perform basic computer functions before, but now she knows more and that helps her when the secretary is absent and she is needs to use the computer. For teachers, they can easily type their work and do reports quicker and more accurately. In the case of learners, it gives them the opportunity to do their work quickly, preparing them for a tertiary education, and for them to be able to search for information more widely.

The administrative functioning of the school has improved, the reports and other documents are saved on the computers rather than keeping a lot of paper-based files in the office. Everything is done in a much quicker way than before.

Burglaries at the school have been a challenge at school, where computers are stolen. This makes thing hard for the teachers and students. If the parents pay their children's school fees, the school would be able to sort out some of the problems, such as upgrading and buying new computers. Security is much needed at the school, not only for computers, but also for the safety of teachers who need to do their work after hours.
4.7. INTERVIEW WITH SCHOOL GOVERNING BODY REPRESENTATIVE

A member of the School Governing Body (SGB) was interviewed. She described ICT as instruments such as computer and cell phones. She further indicated that it is important for learners to have access to computers so that they can have knowledge of what is going on around them and it will assist in their future education and in the business world.

ICT should be taught as a subject at school because it is important for Grade 12 learners, especially as they prepare for university. They should at least have basic knowledge on how to use a computer.

The role as members of the SGB is to make sure that there is security at the school and there are enough computers and other resources, but there are limits to what the SGB can accomplish. For example, their hands are tied in the case of parents not paying school fees as the South African government does not force parents to pay school fees. The SGB should make sure that there is security and more computers by organising sponsors from various organisations, for example the computers that the school is using were donated by Scottish people with the help of SGB.

4.8. CONCLUSION

From the above findings it is clear that there is still a lot that the government still needs to do in terms of providing all learners with computers for them to be computer literate. It is also clear that there are schools that are still struggling, and some learners can even go on to tertiary studies with little or no basic computer skills or knowledge. Security at school is another important factor that needs consideration because it would be senseless to bring a lot of computers into a place that is not safe.

More teachers should get training as one teacher responsible for all learners doing one subject will not produce good results at the end of the year. Access to the internet is also important as learners need to search information.
CHAPTER FIVE

5.1. INTRODUCTION

This chapter will look at the summary of the findings, the recommendations as well as the conclusion of the whole research. The main objective of the whole study was to investigate the following objectives:

- The challenges that contribute to the success of ICT in high schools.
- The resources that the school has and also the availability of ICT teachers.
- Availability and use of technology at school
- The number of computers that the school has available, and whether they have access to the internet or not
- Is the use of technology improving learners’ skills and knowledge?
- Was there any training provided for teachers, and
- To what extent are teachers able to handle computer projects?

5.2. SUMMARY OF FINDINGS

The following is a summary of the information gathered during the research.

The challenges that are facing the school include the ongoing burglaries and theft. The limited number of computers with a ration of 28 computers and a total number of 48 learners is a problem, meaning they have to share which makes things difficult. The computers that learners use do not have access to the internet. There is only one professional teacher responsible for all grades, 10-12. Teachers have access to computer, fax machines and photocopy machines. There is only one computer for teachers to do their work.

Learners have access to computers only at school. Learners who have computers with access to the internet at home have a higher level of computer skills compared to the ones
who do not have such facilities. At school, the learners use the computers independently and only ask for assistance when they experience problems. Teachers are only using computers for work-related purposes.

ICT facilities improved the working conditions of teachers, for example, marking exam papers has become an easy and a very quick task for teachers and learners can quickly achieve their results. The use of computers improved the communication between learners and student; and learners finish their projects on time. They both access information quicker.

Teachers did not get any training from school. They use computers at home to train familiarise themselves with this technology.

The use of ICT enable learners and teachers to communicate with friends all over the world; while depositing money in the bank using telephone banking has made their lives easier. Learners are visiting various sites for chatting with friends and downloading music and videos; while teachers can easily access information to be shared with students or communication from the Department of Education.

The fact that teachers now type and mark tests using a computer, has made life easier for them. They can at least understand computer basic skills and the advantage of having them in their homes have improved their use.

5.3. CONCLUSION

The assistance from the government is needed in assisting schools in the process of using ICT in schools, as it is clear that the statement by the government that every child should be computer literate by 2013 needs to be looked at again. A lot still needs to be done before 2013; learners are still not skilled with basic computer skills and they are ill-prepared for university Learners from grades 8 -12 in secondary schools of Port Elizabeth are doing different things in terms of learning computers, some are doing CAT as a subject, others computer literacy and the privileged schools are doing IT which gives them a very good chance of taking ICT as a subject at university level. It is therefore the responsibility of the government to take a closer look on resolving the matter.
5.4 RECOMMENDATIONS

Based on the study, one can see that St James Secondary School is still struggling when it comes to ICT resources. Although they are trying to get these resources on their own terms, they cannot afford to do much. The following recommendations may assist in the improvement of the effective use of ICT in the school and in other schools in general:

- The government should assist by providing ICT equipment to all schools
- Training should be provided to all teachers in each and every school, because the use of these facilities is not only for one particular person, but for all teachers.
- Learners should be encouraged in using computers and ITC so that they can have a clear understanding of their importance.
- Each and every school should have security measures to look after the school facilities
- The Department of Education should have a policy that will make ICT a compulsory subject for all learners in secondary schools.
- It is the responsibility of the department to make sure that all computers in schools are in good condition and are upgraded.

Affordable ICT facilities should be provided by the government, so that all the schools can make good use of them. If the above recommendations can be taken seriously by the government, this would give learners a good chance to succeed in the 21st Century. There should be a policy that would look specifically at secondary schools because that is where learners get their skills and knowledge of using computers
REFERENCES


Tire, T. & Mlitwa, N. 2007. ICT access and use in rural schools in South Africa, Faculty of information design, Cape Peninsula University of Technology.

Focus Group Guide for Teachers-Topic: ICT usage, access and impact in Secondary Schools in the Nelson Mandela Bay Metropolitan (NMBM)

The purpose of this study/research is to determine the following with regards ICT at your school:

- The accessibility of ICT at your school
- The usage of ICT at your school
- The effectiveness of ICT at your school and
- The impact of ICT at your school

Below is a general guide for leading our focus groups. We may modify this guide as needed as each focus group will inform the subsequent groups. Before the group begins, conduct the informed consent process, including discussion about confidentiality of research.

Introduction (5 min)

- Welcome participants and introduce yourself.
- Explain the general purpose of the discussion and why the participants were chosen.
- Discuss the purpose and process of focus groups
- Explain the presence and purpose of recording equipment and introduce observers.
- Outline general ground rules and discussion guidelines such as the importance of everyone speaking up, talking one at a time, and being prepared for the moderator to interrupt to assure that all the topics can be covered.
- Address the issue of confidentiality.
- Inform the group that information discussed is going to be analyzed as a whole and that participant names will not be used in any analysis of the discussion.
- Read a protocol summary to the participants.

Knowledge and Accessibility of ICT (15 min)

Questions to be asked under knowledge and accessibility of ICT at school include the following:
• What do you know about ICT/IT?
• What is ICT used for?
• Do you have access to the instruments of ICT like computers and the internet at your school?
• Do you have ICT as a subject at your school?
• Do all learners take ICT as a subject?

Usage of ICT (10 min)

Questions to be asked under usage of ICT at school include the following:
• How accessible are computers to teachers during their working hours?
• What do you mainly use computers at your school for administrative purposes or teaching purposes?
• How frequently do you make use of computers at your school?

Effectiveness of ICT (10 min)

Questions to be asked under effectiveness of ICT at school include the following:
• Do you think the introduction of ICT has improved your own skills and knowledge?
• Do you think the introduction of ICT has improved the skills and knowledge of the learners at your school?
• Has ICT improved the administrative functioning in your school?

Impact of ICT (15 min)

Questions to be asked under impact of ICT at school include the following:
• What attitude do learners have towards ICT as opposed to traditional methods of teaching?
• What challenges are you facing as an educator with regard ICT at your school?
• What challenges are you facing with regard ICT at your school?
• What do you suggest that can be done in order to overcome the challenges you stated previously?

Summary/Conclusion (5 min)

• Closing remarks
• Thank the participants
Focus Group Guide For Learners - Topic: ICT usage, access and impact in Secondary Schools in the Nelson Mandela Bay Metropolitan (NMBM)

The purpose of this study/research is to determine the following with regards ICT at your school:

- The accessibility of ICT at your school
- The usage of ICT at your school
- The effectiveness of ICT at your school and
- The impact of ICT at your school

Below is a general guide for leading our focus groups. We may modify this guide as needed as each focus group will inform the subsequent groups. Before the group begins, conduct the informed consent process, including discussion about confidentiality of research.

Introduction (5min)

- Welcome participants and introduce yourself.
- Explain the general purpose of the discussion and why the participants were chosen.
- Discuss the purpose and process of focus groups
- Explain the presence and purpose of recording equipment and introduce observers.
- Outline general ground rules and discussion guidelines such as the importance of everyone speaking up, talking one at a time, and being prepared for the moderator to interrupt to assure that all the topics can be covered.
- Address the issue of confidentiality.
- Inform the group that information discussed is going to be analyzed as a whole and that participant names will not be used in any analysis of the discussion.
- Read a protocol summary to the participants.

Knowledge and Accessibility of ICT (15 min)

Questions to be asked under knowledge and accessibility of ICT at school include the following:

- What do you know about ICT/IT?
- What is ICT used for?
- Do you have access to the instruments of ICT like computers and the internet at your school?
- Do you have ICT as a subject?
- Do all learners take ICT as a subject?

**Usage of ICT (10 min)**

Questions to be asked under usage of ICT at school include the following:

- What do you use computers for at your school?
- What ICT instruments have you used before?
- Do you use ICT in your personal lives besides at school?

**Effectiveness of ICT (10 min)**

Questions to be asked under effectiveness of ICT at school include the following:

- Do you think ICT improves your skills and knowledge?
- How effective do you think is ICT in education?

**Impact of ICT (15 min)**

Questions to be asked under impact of ICT at school include the following:

- What impact has ICT had in both your education and personal life?
- What challenges are you facing with regards ICT at your school?
- What do you suggest that can be done in order to overcome the challenges you stated previously?

**Summary/Conclusion (5 min)**

- Closing remarks
- Thank the participants
Focus Group Guide for School Governing Body (SGB)-
Topic: ICT usage, access and impact in Secondary Schools in the Nelson Mandela Bay Metropolitan (NMBM)

The purpose of this study/research is to determine the following with regards ICT at your school:

- The knowledge and accessibility of ICT at your school
- Your involvement in ICT at your school and
- The impact of ICT at your school

Below is a general guide for leading our focus groups. We may modify this guide as needed as each focus group will inform the subsequent groups. Before the group begins, conduct the informed consent process, including discussion about confidentiality of research.

Introduction (10min)

- Welcome participants and introduce yourself.
- Explain the general purpose of the discussion and why the participants were chosen.
- Discuss the purpose and process of focus groups
- Explain the presence and purpose of recording equipment and introduce observers.
- Outline general ground rules and discussion guidelines such as the importance of everyone speaking up, talking one at a time, and being prepared for the moderator to interrupt to assure that all the topics can be covered.
- Address the issue of confidentiality.
- Inform the group that information discussed is going to be analyzed as a whole and that participant names will not be used in any analysis of the discussion.
- Read a protocol summary to the participants.

Knowledge and Accessibility of ICT (15 min)

Questions to be asked under knowledge and accessibility of ICT at school include the following:

- What do you know about ICT/IT?
- What is ICT used for?
- In your view do you think learners at your school have access to the instruments of ICT like computers and the internet?
- In your view do you think ICT should be taught as a subject at school?
- In your view does ICT assist learners at your school?

**Involvement in ICT (15 min)**

Questions to be asked under involvement of ICT at school include the following:

- What do you do to make sure that ICT resources are available in your school?
- What is your role in ensuring maintenance of ICT in your school?
- What is your involvement in making sure that the computers/hardware are kept safely at school?

**Impact of ICT (15 min)**

Questions to be asked under impact of ICT at school include the following:

- What impact has ICT had in both the education and personal lives of your children?
- As SGB members what are some of the challenges that you are facing with regards ICT at your school?
- What do you suggest that can be done in order to overcome the challenges you stated previously?

**Summary/Conclusion (5 min)**

- Closing remarks
- Thank the participants
APPENDICE D

Questionnaire for Principal

INTRODUCTION

My name is Alicia Mooi. I am a student at Nelson Mandela Metropolitan University (NMMU) in Summerstrand, South Campus and I am currently completing my Masters Degree in Development Studies. One of the requirements of the fulfilment of my degree is that I conduct a research project. The topic for my research project is: “The Study of the use of Information and Communications Technology (ICT) in schools in the Nelson Mandela Bay Metropolitan Area”. Findings from the project will help in the future development of ICT in schools across Port Elizabeth. Your answers will be kept anonymous but we may quote some of the things you tell us in some of our reports, without attributing them to you. Please do let me know if you want more details about this project or have any other doubts which I might not have addressed.

<table>
<thead>
<tr>
<th>Broad Topic areas for Discussion</th>
<th>Questions For Teachers</th>
<th>Possible Probes (follow up questions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Knowledge and accessibility of ICT</td>
<td>What do you know about ICT?</td>
<td>What is ICT used for?</td>
</tr>
<tr>
<td></td>
<td>Do you have ICT as a subject at your school?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Do all learners take ICT as a subject</td>
<td></td>
</tr>
<tr>
<td>2. Usage of ICT</td>
<td>How accessible are computers to teachers during their working hours?</td>
<td>What do you mainly use computers at your school for administrative purposes or teaching</td>
</tr>
<tr>
<td>3. Effectiveness of ICT</td>
<td>Do you think the introduction of ICT has improved your own skills and knowledge?</td>
<td>Do you think the introduction of ICT has improved the skills and knowledge of the learners at your school?</td>
</tr>
<tr>
<td>------------------------</td>
<td>--------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>Has ICT improved the administrative functioning in your school?</td>
<td></td>
</tr>
<tr>
<td>4. Impact of ICT</td>
<td>What attitude do learners have towards ICT as opposed to traditional methods of teaching?</td>
<td>What challenges are you facing as an educator with regard ICT at your school?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>What challenges are you facing with regard ICT at your school?</td>
</tr>
<tr>
<td>5. Summary &amp; Conclusion: Thank interviewee and Closing Remarks!</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>