

**THE PROVISIONING OF INFORMATION AND COMMUNICATION  
TECHNOLOGY RESOURCES IN THE MPUMALANGA DEPARTMENT  
OF EDUCATION IN FET SCHOOLS IN THE GERT SIBANDE REGION**

**by**

**PETER LEBETE SOLOMON MOFOKENG**

**MINI-DISSERTATION**

**Submitted in partial fulfilment of the requirements for the degree**

**MAGISTER EDUCATIONIS**

**in**

**COMPUTER – BASED EDUCATION**

**in the**

**FACULTY OF EDUCATION**

**at the**

**UNIVERSITY OF JOHANNESBURG**

**Supervisor: Prof D van der Westhuizen**

**May 2006**

## ACKNOWLEDGEMENTS

I wish to express my sincere gratitude and appreciation to the following, for without their guidance, inspiration, direction and encouragement I would not have managed to fulfil the requirements for the degree, Magister Educationis.

- **Our Heavenly Father, Jesus Christ and the Holy Spirit** for the inspiration and inner strength.
- **Mpumalanga Department of Education** for the bursary thus affording me the opportunity to pursue my studies of excellence.

A special word of thanks to:

- Prof D van der Westhuizen for the many hours spent offering advice, encouragement and guidance. Your invaluable input is most appreciated and highly valued.
- Andrew from writing support staff and Peter Ramatsebe from MDE. Thank you for the words of advice, your unfailing support, and for many hours spent proofreading each chapter.
- My wife, Catherine, and beautiful daughters Tsholofelo, Mathuto and Lesego for the sacrifice made while I was completing this degree.

## ABSTRACT

This research provides an analysis on provisioning of information and communication technology (ICT) resources at public further education and training (FET) at Gert Sibande region in Mpumalanga province. In particular the research focuses on the readiness of public FET schools in Gert Sibande region to implement e-Education policy. The main purpose of this inquiry is to conduct baseline surveys focused on the factors that may influence the provisioning of ICT resources in the Gert Sibande region in the MDE.

The literature study revealed that computers can deliver and promote high quality education (Kuperstein and Gentile, 1998: 87). Information and Communication Technology (ICT) adds more value to education systems (Forcier, 1996). Since the use of ICT in schools has been shown to be effective, many educators, parents and students already believe that ICT should be the integral part of the South African Education System (Department of Education, 1996). In this study I have collected quantitative data from the participants through survey questionnaires from both the school management teams (SMT) and ICT officials at Gert Sibande region.

From the findings on analysis of data, I clustered survey questions (See Annexure A & B) with similar focus into four categories each of which will be explained in greater detail in chapter 4 and 5, namely:

- White paper 7 (Interaction), derived from question 4 and 7,
- Capacity development of ICT literacy of educators, resultant of question 2
- Policies on distribution/provisioning of ICT resources, derived from question 5, 6, 7 and 8, and
- Feasibility of White paper 7 on e-education derived from question 9 and 10.

# TABLE OF CONTENTS

## CHAPTER ONE: INTRODUCTION, AIMS AND RESEARCH METHODOLOGY

	PAGE
1. CHAPTER 1	1
1.1. INTRODUCTION	1
1.2. THE BACKGROUND OF THE RESEARCH PROBLEM	2
1.3. RESEARCH AIMS	3
1.4. RESEARCH DESIGN AND METHODOLOGY	4
1.4.1. Participants in the study	4
1.4.2. The research strategy	4
1.5. DEMARCATION OF THE RESEARCH	5
1.6. CHAPTER DIVISORS	5
1.7. CONCEPT CLARIFICATION	6
1.7.1. Information Communication Technology (ICT)	6
1.7.2. ICT resources	6
1.7.3. Public schools	6
1.7.4. Further Education and Training (FET) schools	7
1.7.5. Policy implementation	7
1.8. CONCLUSION	8
1.9. SUMMARY	8

**CHAPTER TWO: FACTORS THAT INFLUENCE THE IMPLEMENTATION OF E-EDUCATION POLICY AT FET SCHOOLS IN MPUMALANGA: A LITERATURE-BASED OVERVIEW.**

	<b>PAGE</b>
<b>2.1. INTRODUCTION</b>	<b>9</b>
<b>2.2. ICT IN EDUCATION: A THEORETICAL FRAMEWORK</b>	<b>9</b>
<b>2.3. SOUTH AFRICAN CONTEXT: OVERVIEW OF THE E-EDUCATION POLICY</b>	<b>14</b>
<b>2.3.1. Introduction of e-Education policy frame work</b>	<b>14</b>
<b>2.3.2. e-Education policy framework</b>	<b>14</b>
<b>2.3.3. THE NATURE OF FURTHER EDUCATION AND TRAINING (FET) BAND</b>	<b>18</b>
<b>2.3.3.1. Attributes of public FET institutions</b>	<b>19</b>
<b>2.4. CRITERIA FOR THE DECLARATION OF FET INSTITUTIONS</b>	<b>21</b>
<b>2.5. PROVISIONING AND SUSTAINABILITY OF ICT RESOURCES</b>	<b>21</b>
<b>2.6. POLICY FORMULATION AND IMPLEMENTATION</b>	<b>23</b>
<b>2.6.1. Policy analysis</b>	<b>23</b>
<b>2.6.2. Problem identification</b>	<b>25</b>
<b>2.6.3. Policy development</b>	<b>25</b>
<b>2.6.4. Policy implementation</b>	<b>26</b>
<b>2.6.5. Governance of resources at school level</b>	<b>28</b>
<b>2.7. CONCLUSION</b>	<b>30</b>
<b>2.8. SUMMARY</b>	<b>31</b>

## **CHAPTER THREE: RESEARCH DESIGN AND METHODOLOGY**

	<b>PAGE</b>
<b>3.1. INTRODUCTION</b>	<b>32</b>
<b>3.2. RESEARCH DESIGN</b>	<b>32</b>
<b>3.2.1. Establishment of research goals</b>	<b>34</b>
<b>3.2.2. Selection of sample/test sample</b>	<b>34</b>
<b>3.2.3. Data collection</b>	<b>35</b>
<b>3.2.4. Construction of survey questionnaires</b>	<b>35</b>
<b>3.2.5. Ethical aspects of this research</b>	<b>37</b>
<b>3.2.6. Procedure</b>	<b>38</b>
<b>3.2.7. Statistical method</b>	<b>41</b>
<b>3.2.8. Data display and presentation of data</b>	<b>44</b>
<b>3,2.9. Policy analysis</b>	<b>46</b>
<b>3.3. CONCLUSION</b>	<b>47</b>

## **CHAPTER FOUR: PRESENTATION AND INTERPRETATION OF DATA**

	<b>PAGE</b>
<b>4.1 INTRODUCTION</b>	<b>48</b>
<b>4.2. THE CONTEXT OF THE STUDY</b>	<b>48</b>
<b>4.3. ANALYSIS OF SURVEY QUESTIONNAIRE (OFFICIALS)</b>	<b>49</b>
<b>4.4. ANALYSIS OF SURVEY QUESTIONNAIRE (SMT)</b>	<b>58</b>
<b>4.5. DISCUSSION OF DATA COLLECTED</b>	<b>84</b>
<b>4.5.1. White paper 7 interaction</b>	<b>84</b>
<b>4.5.2. Capacity of ICT literacy of educators</b>	<b>85</b>
<b>4.5.3. Policies on distribution/provisioning of ICT resources</b>	<b>86</b>
<b>4.6. CONCLUSION</b>	<b>86</b>

## **CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS**

	<b>PAGE</b>
<b>5.1. INTRODUCTION</b>	<b>88</b>
<b>5.2. SUMMARY OF THE RESEARCH TOPIC</b>	<b>88</b>
<b>5.3. SUMMARY OF STATISTICAL SURVEY</b>	<b>89</b>
<b>5.3.1. Policy related issues</b>	<b>89</b>
<b>5.3.2. Financing ICT resources</b>	<b>90</b>
<b>5.3.3. ICT infrastructure</b>	<b>92</b>
<b>5.3.4. ICT capacity of educators</b>	<b>93</b>
<b>5.4. RECOMMENDATIONS</b>	<b>95</b>
<b>5.5. LIMITATIONS OF THIS STUDY</b>	<b>96</b>
<b>5.6. TOPICS FOR FURTHER RESEARCH</b>	<b>97</b>
<b>5.6.1. Sustainability of ICT resources</b>	<b>97</b>
<b>5.6.2. Readiness of e-Education in rural FET schools</b>	<b>97</b>
<b>5.7. CONCLUSION</b>	<b>97</b>



## LIST OF TABLES

	<b>PAGE</b>	
<b>Table 2.1</b>	<b>The influence of ICT in education (from traditional to anticipated changes)</b>	<b>11</b>
<b>Table 2.2</b>	<b>Common and significant features in definitions of “governance”</b>	<b>28</b>
<b>Table 2.3</b>	<b>European commission’s principles of good “governance”</b>	<b>29</b>
<b>Table 2.4</b>	<b>Common and significant features in definitions of good governance</b>	<b>29</b>
<b>Table 3.1</b>	<b>Coding the values of different variables</b>	<b>42</b>
<b>Table 3.3</b>	<b>Frequencies of total respondents (n=16) ICT officials at Gert Sibande region (MDE)</b>	<b>45</b>
<b>Table 3.4</b>	<b>Frequency table</b>	<b>46</b>
<b>Table 4.1</b>	<b>Total number of questions that were answered by respondents (n=16) ICT officials at Gert Sibande region</b>	<b>49</b>
<b>Table 4.2</b>	<b>Estimated total number of learners at FET band in schools in the Gert Sibande region</b>	<b>50</b>
<b>Table 4.3</b>	<b>FET educators who are computer literate in the Gert Sibande region</b>	<b>51</b>
<b>Table 4.4</b>	<b>Estimation of computers provided to FET schools</b>	<b>52</b>
<b>Table 4.5</b>	<b>Provision of e-education policy to FET schools in the Gert Sibande region</b>	<b>52</b>
<b>Table 4.6</b>	<b>Availability of procurement registers for ICT resources</b>	<b>53</b>
<b>Table 4.7</b>	<b>Activeness of the procurement register</b>	<b>54</b>
<b>Table 4.8</b>	<b>Feasibility of e-education at Gert Sibande region</b>	<b>55</b>

<b>Table 4.9</b>	<b>Availability of policy on provisioning of ICT resources at Gert Sibande region</b>	<b>56</b>
<b>Table 4.10</b>	<b>Availability of ICT budget</b>	<b>56</b>
<b>Table 4.11</b>	<b>Partnership with other stakeholders</b>	<b>57</b>
<b>Table 4.12</b>	<b>Case processing summary</b>	<b>59</b>
<b>Table 4.13</b>	<b>Enrolments of learners at individual FET schools</b>	<b>61</b>
<b>Table 4.14</b>	<b>The average number of ICT educators who are ICT literate at Gert Sibande region in FET schools</b>	<b>62</b>
<b>Table 4.15</b>	<b>The average percentage of SMT who are ICT literate at Gert Sibande region in FET schools</b>	<b>63</b>
<b>Table 4.16</b>	<b>Availability of computers at FET schools in Gert Sibande region</b>	<b>65</b>
<b>Table 4.17</b>	<b>Provision of computer hardware by MDE</b>	<b>66</b>
<b>Table 4.18</b>	<b>Provision of computer hardware by NGO</b>	<b>66</b>
<b>Table 4.19</b>	<b>Provision of computer hardware by SGB</b>	<b>67</b>
<b>Table 4.20</b>	<b>Provision of computer hardware by private sector</b>	<b>68</b>
<b>Table 4.21</b>	<b>Provision of computer hardware by other</b>	<b>69</b>
<b>Table 4.22</b>	<b>Area classifications of FET schools in Gert Sibande region</b>	<b>70</b>
<b>Table 4.23</b>	<b>Classification of FET schools prior 1994</b>	<b>71</b>
<b>Table 4.24</b>	<b>How do FET schools rate MDE in providing ICT resources</b>	<b>72</b>
<b>Table 4.25</b>	<b>How do FET schools rate NGO in providing ICT resources</b>	<b>73</b>
<b>Table 4.26</b>	<b>How do FET schools rate private sectors in providing ICT resources</b>	<b>74</b>
<b>Table 4.27</b>	<b>Computers received by individual public FET schools from MDE</b>	<b>75</b>

<b>Table 4.28</b>	<b>Computers received by individual public FET schools from NGO</b>	<b>76</b>
<b>Table 4.29</b>	<b>Computers received by individual public FET schools from private sector</b>	<b>77</b>
<b>Table 4.30</b>	<b>Security measures of public FET schools</b>	<b>78</b>
<b>Table 4.31</b>	<b>Perceived strategic objectives of white paper 7 by FET schools</b>	<b>79</b>
<b>Table 4.32</b>	<b>Possession of white paper 7 on e-education by FET schools</b>	<b>80</b>
<b>Table 4.33</b>	<b>Which organisation provided the policy to FET schools the most</b>	<b>81</b>
<b>Table 4.34</b>	<b>Linking e-education to NCS</b>	<b>82</b>
<b>Table 4.35</b>	<b>Readiness of implementation of e-education by FET schools</b>	<b>83</b>

## List Of Figures

<b>Figure 2.1</b>	<b>Framework summarizing the ways of using a computer in schools</b>	<b>18</b>
<b>Figure 3.1</b>	<b>An analogy to validity and reliability</b>	<b>41</b>
<b>Figure 3.2</b>	<b>An example of estimated total number of learners at FET band in schools in the entire Gert Sibande region in 2005</b>	<b>43</b>
<b>Figure 4.1</b>	<b>Graph of estimated total number of learners at FET band in schools in the entire Gert Sibande region</b>	<b>50</b>
<b>Figure 4.2</b>	<b>Estimation of educators who are computer literate</b>	<b>51</b>
<b>Figure 4.3</b>	<b>Estimation of computers provided to FET schools</b>	<b>52</b>
<b>Figure 4.4</b>	<b>Provision of e-education policy to FET schools in the Gert Sibande region</b>	<b>53</b>
<b>Figure 4.5</b>	<b>Availability of procurement register for ICT resources</b>	<b>53</b>
<b>Figure 4.6</b>	<b>Activeness of the procurement register</b>	<b>54</b>
<b>Figure 4.7</b>	<b>Feasibility of e-education at Gert Sibande region</b>	<b>55</b>
<b>Figure 4.8</b>	<b>Availability of policy on distribution of ICT resources at Gert Sibande region</b>	<b>56</b>
<b>Figure 4.9</b>	<b>Availability of ICT budget</b>	<b>57</b>
<b>Figure 4.10</b>	<b>Partnership with other stakeholders</b>	<b>58</b>
<b>Figure 4.11</b>	<b>Enrolment of learners at individual FET schools</b>	<b>61</b>
<b>Figure 4.12</b>	<b>The average number of ICT educators who are ICT literate at Gert Sibande region in public FET schools</b>	<b>63</b>
<b>Figure 4.13</b>	<b>The average percentage of SMT who are ICT literate at Gert Sibande region in FET schools</b>	<b>64</b>
<b>Figure 4.14</b>	<b>The number of computers available at FET schools in Gert Sibande region</b>	<b>65</b>

<b>Figure 4.15</b>	<b>Provision of computer hardware by MDE</b>	<b>66</b>
<b>Figure 4.16</b>	<b>Provision of computer hardware by NGO</b>	<b>67</b>
<b>Figure 4.17</b>	<b>Provision of computer hardware by SGB</b>	<b>68</b>
<b>Figure 4.18</b>	<b>provision of computer hardware by private sector</b>	<b>69</b>
<b>Figure 4.19</b>	<b>Provision of computer hardware by others</b>	<b>70</b>
<b>Figure 4.20</b>	<b>How are public FET schools located in Gert Sibande region</b>	<b>71</b>
<b>Figure 4.21</b>	<b>Classification of FET schools prior 1994</b>	<b>72</b>
<b>Figure 4.22</b>	<b>How do FET schools rate MDE in providing ICT resources</b>	<b>73</b>
<b>Figure 4.23</b>	<b>How do FET schools rate NGO in providing ICT resources</b>	<b>74</b>
<b>Figure 4.24</b>	<b>How do FET schools rate private sectors in providing ICT resources</b>	<b>75</b>
<b>Figure 4.25</b>	<b>Computers received by public FET schools from MDE</b>	<b>76</b>
<b>Figure 4.26</b>	<b>Computers received by public FET schools from NGO</b>	<b>77</b>
<b>Figure 4.27</b>	<b>Computers received by public FET schools from private sectors</b>	<b>78</b>
<b>Figure 4.28</b>	<b>Security measures of public FET schools</b>	<b>79</b>
<b>Figure 4.29</b>	<b>Perceived strategic objectives of white paper 7 by FET schools</b>	<b>80</b>
<b>Figure 4.30</b>	<b>Possession of white paper 7 on e-education by FET schools</b>	<b>81</b>
<b>Figure 4.31</b>	<b>Which organisations provided the policy to FET schools the most</b>	<b>82</b>
<b>Figure 4.32</b>	<b>Linking e-Education to NCS</b>	<b>83</b>
<b>Figure 4.33</b>	<b>Readiness of implementation of e-education by FET schools</b>	<b>84</b>

## ANNEXURES

- ANNEXURE “A” Questionnaire for school management teams (SMT) for Further Education and Training (FET) schools in the Gert Sibande region, in Mpumalanga province.**
- ANNEXURE “B” Questionnaire for ICT officials at Gert Sibande region in Mpumalanga province**

# CHAPTER ONE

## INTRODUCTION, AIMS AND RESEARCH METHODOLOGY

### 1.1 INTRODUCTION

Information Communication Technology (ICT) has great potential for enhancing teaching and learning outcomes (Brady, 1992). According to Van der Westhuizen (1999:3), ICT has already changed the way people in modern times live and work, with it being used extensively in manufacturing, business, education and other public sectors. The realization of this in the South African context will depend much on how the Department of Education (DoE) and its stakeholders provide technological resources, and in turn how the beneficiaries will use them. While the technology is increasingly being integrated into many schools' curricula in many countries, in most South African provinces it has not yet reached the implementation phase. Good planning, administration and control are needed to ensure that information services are built and that they continue to meet educational needs in a cost effective manner. This will require effective management throughout the ICT resourcing process if it is to be aligned to the needs of education.

Furthermore, ICT has also brought potentially powerful tools for social and economic development, and continues to affect people's lives around the world. However, there is a gap between these people who have access to ICT and those who do not. South Africa is faced with challenges of how to bridge this digital divide, how to compete in the new, post-apartheid, economy, and how to develop its human and physical resource capacity, including within the field of ICT. SAIDE (2003) describe the term 'digital divide' as the fact that the world can be divided into people who do and people who don't have access to - and the capability to use - modern information technology, such as the telephone, television, or the Internet. The digital divide exists between those in cities and those in rural areas. It also exists between the educated and the uneducated, between economic classes, and, globally, between the more and less industrially developed nations. The digital divide is perpetuated in the school context, and particularly so in the Mpumalanga province in South Africa. In this study I will look at the factors that influence the provisioning of ICT resources and how ready are public FET schools in the implementation of e-Education policy at Gert Sibande region.

## **1.2. THE BACKGROUND OF THE RESEARCH PROBLEM.**

In 1998 the South African Department of Education (DoE) introduced the strategic plan on e-communication in public schools, documented in White Paper 7 on e-Education of the Government Gazette of 24 August 2000. One of its main objectives or goals is that: “Every South African learner in the general and further education and training bands will be ICT capable (that is, use ICTs confidently and creatively to help develop the skills and knowledge they need to achieve personal goals and to be full participants in the global community) by 2013”.

In the province of Mpumalanga, which will be the area of research in this study, as a senior education specialist for Information Technology (IT) related subjects in Mpumalanga, I am involved in the implementation of a project on e-Education at provincial level, under a directive from the national DoE. The Cabinet Outreach Programme (COP) in Mpumalanga is structured in such a way that the Minister of the Executive Council (MEC) for education and other members of the parliament monitor the implementation of such policies and service delivery in public institutions. During the COP visit in three regions (Gert Sibande, Nkangala and Enhlanzeni) in the province, members of the community expressed concern about the lack of progress with ICT. Despite the fact that 90% of Further Education and Training (FET) public schools in the Gert Sibande Region have received at least one computer, specifically for administration, there is still a major demand for computers for teaching and learning.

The essence of the problem in the Gert Sibande Region is that while some FET schools received computers and others did not, no explanation was provided as to why this was so by the Mpumalanga Department of Education (MDE). Hilhorst (1990) wrote that Public goods are considered ‘pure’ when they are freely available to all citizens and ‘impure’ when only certain citizens who can benefit from them, either because of discrimination on the basis of such factors as wealth, literacy, race or political affiliation. The situation is unlike other provinces, for example, Gauteng, where the provincial department has established Gauteng-Online (15 June 2000) as its main project to attain the 2013 goal of the national Department of Education on Information and Communication Technology strategic plan.



Questions now arise about the readiness of the MDE to implement this policy (e-Education), which public schools are to be provided with computers, and why and when. Moreover, how feasible, realistic or achievable is it for all MDE learners in the Gert Sibande to be computer capable by the end of 2013. Following this, two needs analyses have to be done, one to determine the readiness of the MDE to provide ICT resources, and the other to look at the readiness of public FET schools in Gert Sibande region to implement ICT. No such surveys have yet been conducted, but they are necessary to provide means of assessing the expectations both of the subgroups of the target population, i.e. (learners and educators) and the national DoE.

As Mckillip (1997) indicates, a survey can be designed to address problems, link them to solutions, generate a great deal of information, probe attitudes and opinions and, finally, with expert consultation, provide diagnostic information. A survey into provisioning of ICT resources, that is computer hardware and software, is important in preparing for compliance with elements of project management for sustainability of ICT resources and cost efficiency; [Best practice for ICT infrastructure management; Office of the Government Commerce, 2000].

However, during transformation in education, many factors of implementation studies lowered the pace of policy implementation (Department of Education, 1996,11). Such factors are the following as mentioned by Peers (1996): firstly, problem definition and policy design are political activities, and therefore, they are products of conflict that results in bargaining and compromise. Secondly, lack of proper survey skills that lead to inaccurate statistics. Because little or no research has been conducted into these challenges in Mpumalanga, specifically, my research will aim to fill this gap.

Based on this background, the research questions can be framed as follows:

- 1. What are the factors that influence the provisioning of ICT resources in the Gert Sibande region in the MDE?**
- 2. How ready are schools in the Gert Sibande region to implement e-Education policy?**

### **1.3. RESEARCH AIMS**

Therefore, the main purpose of this inquiry is to conduct baseline surveys focused on the factors that may influence the provisioning of ICT resources in the Gert Sibande region in the MDE, and secondly how ready FET schools are to implement e-Education policy.

Other objectives will be to determine

- how the MDE aligns itself to national ICT strategic objectives and goals.
- how ICT resources are provided and distributed to public schools in MDE.
- which guidelines on the implementation of e-Education can be given for MDE policy developers or writers.

The aim of the study is therefore to identify the challenges that face the MDE in the provisioning of ICT resources in schools in the FET band and suggest ways in which these challenges may be addressed. The findings of the study may therefore contribute to the drafting of a provincial policy on provisioning of ICT resources for the implementation of e-Education in FET schools.

#### **1.4. RESEARCH DESIGN AND METHODOLOGY**

Chapter three outlines the specific design of this section. Therefore in this section I will only briefly describe and illustrate the design methodology that I use throughout the study.

##### **1.4.1. Participants in the study**

Because public FET schools are supposed to be the receiver of these ICT resources, the participants in this study are members of the school management team (SMT) that includes the principal, senior education specialist, school based (Deputy Principals) and education specialists (Head of Departments). In addition, Mpumalanga Departmental ICT officials at Gert Sibande Region were also participants.

##### **1.4.2. The research strategy**

The research approach can be epitomized as a quantitative survey. According to Welman and Kruger (2002) a **quantitative** study focuses on the control of all the components under investigation. This means that the researcher must take over the function of the control group to rule out counter explanations; observe without affecting that which is being observed; and keep his or her expectations under control.

Survey questionnaires will be used to obtain the following types of information.

- Particulars of a school (location of a school and ICTs literacy of educators)
- Opinions, beliefs and convictions of participants about the integration of ICT in education (for example the present state of the ICT), and
- Attitudes of participants (for example, towards the implementation of ICT policies in schools and education in general)

## **1.5. DEMARCATION OF THE RESEARCH**

The following demarcation is applicable to this research:

- a) The research will investigate the readiness of the implementation of white paper 7 on e-education at FET schools at Gert Sibande region in Mpumalanga province.
- b) The study will also investigate factors that will have impact on the provisioning of ICT resources in the Gert Sibande region in the MDE.
- c) This study will also focus on Further Education and Training (FET) schools in three sub-regions of Gert Sibande region: Standerton, Ermelo and Eerstehoek sub-regions. The management of these schools and ICT departmental officials will take part in this study.

## **1.6. CHAPTER DIVISORS**

This research will be presented in the following approach.

**CHAPTER ONE** introduces the topic and provides the background of this research. The problem to be researched and the methods of research are introduced and primary concepts used in this mini-dissertation are clarified.

**CHAPTER TWO** reviews the literature, legislation and policies, which have an influence on the implementation of provisioning of ICT resources in FET schools.

**CHAPTER THREE** describes the research design and data collection methods.

**CHAPTER FOUR** analyses and interprets the empirical data.

**CHAPTER FIVE** summarises the findings of the literature review (Chapter two) and empirical findings (Chapter four). Finally, chapter five deals with the limitations, recommendations and conclusion remarks.

## **1.7. CONCEPT CLARIFICATION**

A common understanding of the primary concepts used in this research is essential hence the need to clarify their meaning.

### **1.7.1. Information Communication Technology (ICT)**

Information Communication Technology (ICT) can best be defined as a field that encompasses forms of electronic communications in both digital and analogue form i.e. computers, tape recorders, internet etc.

### **1.7.2. ICT resources**

These are the materials or assets possessed by the school that includes Computer hardware's, software packages, networking cables, internet and computer laboratory or infrastructure.

### **1.7.3. Public Schools**

Section 12 of the schools Act defines a public school as:

- A school provided for learners out of state funds appropriated for this purpose by this purpose by the provincial legislature.
- It may include the provision of hostels for the residential accommodation of learners.
- It may be an ordinary school for learners with special education needs.

#### **1.7.4. Further Education and Training (FET) schools**

The Curriculum Framework for FET is a policy statement that covers learning, teaching, assessment and qualification of all learners in grades 10 – 12 in the school system. The system as proposed by the curriculum framework is intended to foster intermediate to higher-level skills; lay foundation for entrance into higher education; and facilitate the transition from school to work.

Articulated programmes and provision of a spectrum of personal development and learning will be used for the achievement of high quality learning (Department of Education, 2000b: 2). It is anticipated by the Department of Education (1998b: 22) that the FET band system has to provide access to high-quality education and training within a differentiated system, which will offer a wider range of learning options to a diverse range of learners, including *school-going young people*, out of school youth, young adults and larger adult population.

#### **1.7.5. Policy implementation**

Policy is a statement of general criteria which are used to guide decision making. When a decision is being made its possible outcomes are checked against the statement of policies. The decision outcome that best conforms with the policy statement is in theory the one that should be chosen.

Policies are generally expressed in a general and loose language which reflects a community or nation's value system. When we apply a policy statement we make some assumptions:

- That the policy actually does reflect the communities aspirations, and not just the wishes of those who wrote the policy statement.
- That the relative weighting of the statements in the policy are well understood and relate closely to reality.
- That the policy statements remain relevant in the current environment.

## **1.8. CONCLUSION**

Education is serving a society in transition. In the emerging society all learners' competencies are required. Learners will therefore be able to develop these competencies in a changed educational setting in which Information Communication Technology plays a very important role. Consequently, the Mpumalanga Department of Education is changing, therefore, with ICT in a central role of all section within the department, especially in schools; new competencies in managing ICT resources are required.

Since 1994 education law and education policy have aimed to redress the past imbalances and inequalities which were inherent in the apartheid policies of the then South African education system and to eradicate them by the formulation of new policies. Thurlow, M. (2003) argues that changes in the education system, including the equalisation of access, will have transformative effects on the economy and will produce systematic levelling effects on class, race, gender and other forms of inequality. The most serious challenge facing education transformation is effective policy implementation, particularly at regional and school level.

## **1.9. SUMMARY**

This chapter gives the framework for the study. It was found that ICT in education plays an important role in revolutionising education, and that the implementation of White paper 7 on e-Education clearly rests upon provisioning and sustainability of ICT resources. Placing this rationale within South African situation, in particular public FET schools in Mpumalanga province, the implementation of White paper 7 have not yet even started to take off. Factors' affecting the implementation of this policy needs to be investigated for the realisation of its objective.

Chapter two details the literature review undertaken in order to create a theoretical framework for the research.

## **CHAPTER TWO**

### **FACTORS THAT INFLUENCE THE IMPLEMENTATION OF E- EDUCATION POLICY AT FET SCHOOLS IN MPUMALANGA: A LITERATURE-BASED OVERVIEW.**

#### **2.1 INTRODUCTION**

The value of the use of computers in education has been widely reported in the literature. Kuperstein (1998) states that computers can deliver and promote high quality education, while Roblyer, Edward and Havriluk, (1997: 28) say that Information and Communication Technology (ICT) adds more value to education systems. Since the use of ICT in schools has been shown to be effective, many educators, parents and students already believe that ICT should be the integral part of the South African Education System (Department of Education, 1996).

In this chapter I will review literature on the use of ICT resources in education and then provide an overview of implementation of e-Education policy in South Africa. The purpose of this chapter will further be to draw links between the literature on the provisioning of ICT resources and the factors that will influence the implementation of e-Education in the Gert Sibande region in the Mpumalanga Department of Education (MDoE). White paper 7 on e-education has been drawn up by the national Department of Education (DoE) in conjunction with Department of Telecommunication and recommends the design of the learning process in the future and the role of ICT to support this process, with a focus on teacher and learner ICT training. I will further amplify literature on the e-Education policy, specifically on ICT resources and governance at FET school level to manage those resources.

#### **2.2. INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) IN EDUCATION**

ICT is a generic term referring to technologies, which are being used for collecting, storing, editing and passing on information in various forms (SAIDE, 2003). A personal computer is the best-known example of the use of ICT in education, but the term multimedia is also frequently used. ICT includes not only computers, but also equipment (or hardware) such as printers and scanners as well as the software and systems needed for communication, such as the Internet.

Video recorders, television, radio and digital cameras are also included, but these technologies are less frequently used in most school contexts (Smeets, 1996).

However, the technology that plays a key role in bringing these media together is the computer, and this research focuses on this form of ICT in public FET schools.

Generally, the following functions of the use of ICT in education are described in literature (Moonen and Kommers, 1995, Pilot, 1998). Firstly, they refer ICT as an object. This refers to learning about ICT that is mostly organised in a specific course. What is being learned depends on the type of education and the level of the learners because education prepares learners for the use of ICT in education, future occupation and social life. The second function is about ICT as an ‘assisting tool’. ICT is used as a tool, for example while completing assignments, collecting data and documentation, communicating and conducting research. The third function is about ICT being used as a medium for teaching and learning. This refers to ICT as a tool for teaching and learning itself, the medium through which teachers can teach and learners can learn. It appears in many different forms, such as drill and practice exercises, in simulations and educational networks. Finally ICT is used as a tool for organisation and management in schools.

Forcier (1999: 45) further defines the use of computers in education as

*“the use of the hardware, software, services and supporting infrastructure to manage and deliver information using voice, data and video. The branch of technology devoted to (a) the study and application of data and the processing thereof; i.e. the acquisition, storage, manipulation (including transformation), management, movement, control, display, switching, interchange, transmission or reception of data and (b) the development and the use of hardware, software, firmware and procedures associated with the processing in education.”*

Both educators and learners can use ICT for teaching, learning and assessment as practical tool. This will change the internal and external operation environment of education radically, just as it changed the overall environment of industry and business.

The implication of ICT integration in the education systems and learning is significant, from pre-school to higher education. Mainly due to economic reasons, but also due to technological change and the unsuitability of traditional schools to fulfill the needs of the information society, the educational institutions have been forced to create new forms of organizations, which are more competitive in the global economy of education (Russell & Holkner 2000; Hefce 2000).



The important factor in the development for education institutions is an understanding that ICT can be integrated into new kinds of operation environments, which are teaching and learning, administration and management. These environments can also transform the traditional forms and structures of education in all the levels (Willem: 1990). To summarize the observations from the recent literature about ICT in education, we can see changes at least at the levels (subsystems) presented in table 2.1.

**Table 2.1.**

**The influence of ICT in educational institutions.** (Farrel, 1999, Hefce, 2000).

<b>Traditional (including traditional technology assisted education)</b>	<b>Anticipated change when applying ICT</b>	<b>Challenges and problems to be considered by the research and development</b>
National curriculum, structures and legislation.	International curricula, structures and legislation. Global educational markets and distribution.	Cultural diversity. Globalization. Accessibility.
School based teaching and learning arrangements and methods.	School networks, virtual institutions. Open and flexible methods and learning management tools.	Management. Affordability. Quality of education.
Local teachers. Classroom centered thinking. Disconnected teaching. Individual learning. Obeying. Facts. Formal learning.	Distributed learning communities and networked teachers. Social learning, negotiations, agreements, informal, flexible learning.	Contextuality. Meaningfulness of learning.

From table 2.1 one can see that the actual changes in education are aligned with the general demands of global information society. To be precise, this means that educational products are changing from hierarchically developed and static “paper based course packages” to dynamic processes and flows of information, which are developed by the inputs of the learners as well. The learning process is usually connected to real life through the learning projects and therefore dynamically changes the economic and societal processes – not only becoming merged in them. The challenges /problems column indicates the desired directions of the change although there is not necessary evidence that the development is going on in that way. More global evaluation research is still needed. In the following paragraph, it will now be substantiate how ICT in education can help.

Living in a technologically based information society has created new expectations regarding the education of learners (Simonsonson & Thompson, 1999). Table 2.1 have shown that changing societal expectations, along with new research on how children learn, have challenged the traditional model of schooling. No longer is educator centred, delivery-of-information mode of instruction considered adequate for preparing learners for the future. According to (Simonson & Thompson, 1999), educators and policy makers nationwide recognise the critical need for restructuring the teaching and learning process, and for helping learners become independent thinkers, explore complex problems, and apply what they learn in real-life situations. In this chapter, restructuring and transforming schools will refer to changing both what and how learners learn at school. I will strongly suggest that FET schools are in a process of changing the types of subjects and skills taught to learners, as well as the ways in which these skills and subjects are taught.

Many proponents of school restructuring efforts (David, 1991; Collins, 1991; Sheingold, 1991) have identified ICT as a critical ingredient that can support the new recommendations for schools. The new information and communication technologies are heralded by many educators as exciting new conceptual tools that can promote learners active learning (Barron & Golman, 1994). The potential of technology to support the teaching-learning process will create important implications for educators (Simonson & Thompson, 1999). These advocates of restructuring with technology argue that today's technologies have the potential to transform the relationships between learners and educators and to change how schools operate (Bagley & Hunter, 1992; David, 1991; Collins, 1991; Sheingold, 1991).

The underlying assumption of these claims is that the computer-related technologies, unlike older forms of media, such as televisions and film projectors – are learning devices rather than teaching devices (Thompson & Boysen, 1984). According to the same authors, the computer's capability to interact with learners and react to their individual needs has the potential to provide the context for learner-centred learning and to assist learners in learning to educate themselves.

Papert (1993) argues that the computer, in all its manifestations, offers progressive educators the tools that can bring along and shape qualitative changes in education. One reason early designers of experiments in progressive education failed to bring change (Simonsonson & Thompson, 1999). Papert (1993) believe, is that they lack the tools to create new methods in a reliable and systematic manner.

*“when educators tried to craft schools based on the ideas of visionaries it was as if Leonardo (da Vinci) had tried to make an airplane out of oak and power it with a mule. Most practitioners who tried to follow the seminal thinkers in education were forced to compromise so deeply that the original intent was lost.” (pp.15-16)*

The literature that interrelates technology and restructuring, although not extensive, shows evidence that technology can provide the tools for advancing the new educational goals. For example, information literacy and communication skills are also important goals of restructuring schools (Simonson & Thompson, 1999). Being able to read and write is no longer adequate for the information Age. To communicate effectively, a person must also be able to understand the author’s intent, evaluate the message, and apply the acquired knowledge in a meaningful way. The computer, which is at its basis a communication tool, provides fertile ground on which information literacy skills can be nurtured. Ready access to large data base and electronic networks makes it easier for learners to examine topics of their interest using whatever information is available, then to analyse it, organise it, and share findings that are unique to each learner (McDaniel, McInerney & Armstrong, 1993).

Information Communication Technology can also extend learning beyond the classroom. For example, Pearlman (1989) reported a project, in which 200 schools throughout the country (South America) worked in teams to measure the acid level of their local water, communicated their results via National Geographic Kids Network, consultant experts in the area, and compared their findings with current scientific analyses.

Lockard and Abrams, (2000) further emphasise that computers are an essential part of the “basics” of education in the twenty-first century, both in the United States and worldwide. As Moursund (1995) noted, the basic and the societal standards that shape them do change over time: He suggested this goal for education (p6):

*“All learners should gain a working knowledge of speaking and listening, observing (which includes visual literacy), reading and writing, arithmetic, logic, and storing and retrieving information. All learners should learn to solve problems, accomplish their tasks, and carry out other higher order cognitive activities that make use of these basic skills”*

The National Educational Technology Standards for Students project (ISTE, 1999) is based on the conviction that “all kids must be ready for a different world” and that “our educational system must produce technology capable kids. In the USA, ICT in education is critical to attaining many elements of these goals. Computers offer no panacea for the issues confronting education, but they can improve learning and teaching, if they are used appropriately (Lockard & Abrams, 2000). The challenge is to employ an extremely powerful tool to its greatest advantage. To do so, learners and educators alike must become technology competent (Lockard & Abrams, 2000). Technology competent means being able to take full advantage of computers and other technologies to expand and enhance learning opportunities, teaching methods, and ultimately, daily living. To develop such competence it takes time, more than a single course entails (Moursund & Bielefeldt, 1999).

The other benefit of using computers in schools is that, rather than isolating the learners and the educator, computer-related technologies tend to promote a cooperative social structure (Simonson & Thompson, 1999). Because these technologies require the use of new complex skills, users frequently consult one another to use them successfully (Ray, 1991). For example, one Middle school project in New York has helped learners learn about their environment through collaborative problem solving processes. Learners’ teams gather material and communicate their understanding via multimedia computer exhibit.

## **2.3. SOUTH AFRICAN CONTEXT: OVERVIEW OF THE e-EDUCATION POLICY**

### **2.3.1. Introduction**

The E-education policy, based on the South African government White Paper 7 (2004), is a response to new technology environment in education. In other words, this new environment is no longer teacher-centered, delivery mode of instruction considered adequate for preparing learners for the future. The expected outcome of this policy on e-Education is to enable the education sector and all other related sectors to ensure optimal availability and use of ICT in education, in a manner that will create better access to quality education and bridge the digital divide for all in South Africa (e-Education policy: 2004).

### **2.3.2. e-Education policy framework**

Equity, access to ICT infrastructure, capacity building and the norms and standards are key elements that underpin the use of ICTs in teaching and learning, each of which will be explored below. These key elements are dependent upon policy reforms, both within in education and other sectors (e-Education policy, 2004: 22).

The first of the key elements, equity, relates to choices about resource allocation. These choices result from prior access to information and resources. It is for this reason that the principle of equity should inform the approach and provide an alternative basis for supplying access to information and the allocation of resources (e-Education policy, 2004: 22).

The South African Institute for Distance Education (SAIDE, 2004) further emphasize that providing South African schools with ICT resources is a challenging task. At the most basic level, there is a serious shortage of the minimum infrastructure to support ICTs at many schools. Statistics in the 2004 edition of South Africa Survey (South African Institute of Race Relations 2004) reveal that, in 2000, only 64.5% of schools had access to any form of telecommunications, and only 49.3 % had access to electricity.

In addition, the number of schools with computers for teaching and learning was very small, with only 3 335 schools, or 12.3% of South African schools, having computers for teaching and learning. There are considerable differences between provinces:

Gauteng and Western Cape respectively report ratios of 11 and 9 computers to one school, while Northern Cape has a ratio of four computers to one school, and the other provinces, such as Mpumalanga (the main focus of this research) only one or two. Given that these are averages, it is clear that many schools, particularly in the more rural provinces, do not have any computers at all, and that large numbers of educators and learners have no access to computers at school.

For the e-Education policy to be successful, learners must have regular access to reliable infrastructure (e-Education policy, 2004: 22). Therefore, the impact and effectiveness of ICTs rest on the extent to which end-users (learners, educators, managers and administrators) have accesses to hardware, software and connectivity. Access to e-learning also means ICT resources must be provided to those who do not have them, and that their competencies to access and process the knowledge that these resources make possible must be developed. It is generally recognised that programmes to develop ICT capability in a country should give priority to ICT in education.

Learners at FET band need to develop ICT skills so that they can function effectively in the broader society and can contribute to the sustained use of ICTs within it. In addition, FET band learners are also looking towards higher education and/or the world of work. For them, competent computer use is critical for progress. SAIDE (2004), argues that computer access at FET school environment is essential for the following reasons:

- Each learner must develop a twenty-first century mindset, which is necessary to succeed in contemporary South Africa, Africa and the world.
- While the only subjects in the National Curriculum Statement at Further Education and Training (FET) level that formally require the use of computers to achieve the learning outcomes are Information Technology and Computer Applications Technology. Many other subjects recommend the use of ICT as another way of achieving assessment standards and in turn learning outcomes.
- Together with the worldwide web, computers are irreplaceable in the enhancement of information literacy; the collection of data; and data-handling, research and presentation skills in all subjects.
- Differentiated programmes and levels cater simultaneously for different subjects and learning needs in the same classroom.
- Computers can be used to fast-track learners with learning deficits and provide opportunities for learners to proceed at different individual rates.
- Interactive simulations and computer modeling allow for hypothesis testing, enable learners to experience situations that would normally be beyond their reach, and introduce the world of work.
- Supportive and adaptive technologies allow access to the curriculum for learners with special educational needs.

The White Paper on e-Education (Department of Education 2004) acknowledges the magnitude of the task of delivering ICT and the infrastructure required for ICT in schools. It proposes that the integration of ICT into schools should take place over three phases. When the final phase is complete, in 2013: that all education departments in the country will use ICT for planning management, communication and monitoring and evaluation; all schools will have access to a networked computer facility for teaching and learning, and to high quality educational resources; all schools, teachers and learners will be confident and competent users of ICT, and ICTs will be integrated into teaching and learning at all schools; and communities are involved in ICT developments at all schools.

The other element acknowledged by the e-Education policy (2004: 22), is that many educators have learned and worked in environments with limited electronic technology, and thus finds the adaptation to working with ICTs more difficult than their learners do. Therefore, according to this policy, the DoE will develop a programme to build the capacity of teachers and urgently address their competencies to use ICTs for their personal work and in classrooms (e-Education

policy, 2004: 23). This will require creating an appropriate accreditation within the National Qualification Framework. This policy further stipulates that ICTs will be central to the pre-service training of recruits and the ongoing professional development of practising teachers.

Finally, the aim of the Department of Education in creating national norms and standards for ICTs in teaching and learning is to clarify compliance requirements, responsibilities and implementation mechanism (e-Education policy, 2004).

Educators use computers to support their work in a number of ways. These can be structured around all seven roles of the educator, described in the Norms and Standards for Educators (Department of Education 2000) as follows: learning mediator; interpreter and designer of learning programmes and materials; leader, administrator and manager; scholar, researcher and lifelong learner; community, citizenship and pastoral role; assessor and learning area/subject/discipline/phase specialist.

For the sake of simplicity, teachers can broadly combine these seven roles into two main categories of use (SAIDE, 2004). These are to assist with their administrative work, and to support their teaching and learning activities, including teaching preparation, actual teaching and assessment using ICT resources.

Therefore, according to this policy, e-Education will enhance the development and growth of the relevant existing legislation and regulation such as telecommunication policies and national e-strategy. Moreover, the benefits of e-Education are wide, for example, the uses of computers for a broad range of administrative purposes links directly with the role of the teacher as leader, administrator and manager and with the community, citizenship and pastoral role (Department of Education, 2004). These roles may involve a range of extramural activities and other community involvement, such as drawing up agendas and programmes; booking transport and venues; liaising with colleagues at their own school and elsewhere; compiling, displaying and sending out notices; and collecting and accounting for money.

Consequently, according to White Paper 7, ICT will assist educators to project information for learners by using data projector; to do research by both CD-ROMs and the Internet allow educators to access a wealth of material; to share ideas and information *by* Internet access makes e-mail possible, and with e-mail educators can make contact with people in a various places to seek for information; to prepare material for learners to use on a local area network.

Conversely, these ICT resources may assist FET learners in many things as stipulated by (SAIDE, 2003) such as to be computer literate as it is widely used for that purpose. Secondly, using generic software to support learning in a subject learners like to can also use commonly provided (or ‘generic’) software packages to support their work in a range of subjects. Thirdly, using software and other resources designed for learners with special needs such as *the* possibility to acquire software that can convert electronic text into speech, and so a learner with reading difficulties can have his work ‘read’ to him by the computer, at a pace and in passages decided by him.

Equally, when a teacher is assessing the completed work of a learner with reading difficulties, s/he can use the computer to produce spoken comments on his work, instead of giving a learner written comments that he would find difficult to read.

The following is how SAIDE summarized the uses of computers in FET schools relative to White paper 7 on e-Education.

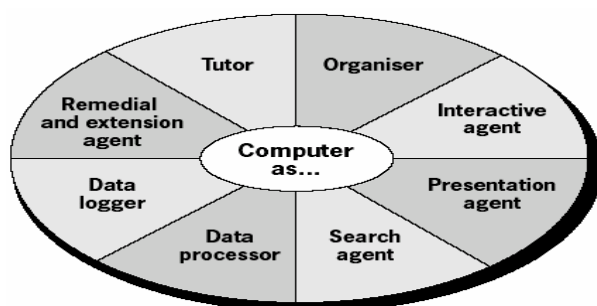


Figure 2.1: Framework summarizing the ways of using a computer in schools. (SAIDE, 2004)

In conclusion to the challenge of obtaining ICT resources and the infrastructure to support it, FET schools face the equally important challenge of how to make the best use of these resources in their particular contexts. FET school principals and other senior managers in MDoE have a critical role to play in introducing ICT into the administration and teaching work of their schools.

### **2.3.3. THE NATURE OF FURTHER EDUCATION AND TRAINING (FET) BAND**

The objective of e-Education policy in South Africa involves all learners at schools, i.e. from General Education and Education Band (GET), which is Grade R – 9 and Further Education and Training Band (FET), which is Grade 10-12.



In this study, the focus will be on implementation of White Paper 7 on e-Education through provisioning of ICT resources at Further Education and Training (FET) institutions at Gert Sibande Region in the Mpumalanga Department of Education (MDE). Learners in FET band are at the entrance of higher education and/or the world of work. For them, competent computer use is also critical for progress. It is also equally important to further scrutinize the existence of newly formed FET band according to the national Department of Education (DoE).

In addition, how FET schools in Mpumalanga are funded, governed and how the provincial department provides their ICT resources.

In South Africa, the public FET institutions, according to White Paper 4 and the Further Education and Training Act 98 of 1998, will be granted institutional autonomy once they demonstrate capacity in institution-based curriculum development, leadership and management, quality assurance and student support services (Department of Education, (2000a: 2). In the light of this, quality managers for quality management will be vital for the FET system, especially in managing ICT resources.

### **2.3.3.1. Attributes of public FET institutions**

The Department of Education (2000a:3) mentions the following as attributes necessary to warrant a successful FET institution:

#### **(I) Institution-based curriculum development**

The degree to which the students retain and achieve qualifications warrants the institutional performance. The institution is thus expected to bring benefits to its learners in terms of programmes offered, their achievements widening participation, promoting flexibility access and open learning opportunities. The programmes should be registered on the National Qualification framework (NQF) with provision made to widen participation with particular emphasis on progressive young people, adults and learners with special needs in line with the labour market needs, potential employment needs and economic needs. Such programmes are, for example, Mathematics, Science, Technology and Engineering (report 550 [schools] and 191 [Technical colleges] provide details).

South African Qualification Authority (SAQA) is a statutory body appointed by the Minister of education in consultation with the Minister of labour, National Education and Training stakeholder membership, which reports to the parliament and is responsible for overseeing the development and implementation of the NQF. Because of this independent statutory body, this will warrant a successful FET institution.

At the heart of NQF is the Education and Training Quality Assurance bodies (ETQAs), which are responsible for the accreditation to monitor and audit the provision assessment and achievement of specified standards and/or qualification. Implicit in SAQA, outline of quality spiral is the understanding that quality is not a thing; quality is an on going event (Isaacs, 2000: 7). Isaacs (2000: 3) further point out that the national system of education and training must balance society's needs with the needs of the individual.

## **(II) Management and administration**

The South African Schools Act, 84 (1996) spells out that the governance of a public schools is assigned to the governing bodies whereas, the management of public FET school vests with the principal. Therefore, institutional managers, that is, principals (CEO), deputy principals (senior educational specialist), heads of departments (educational specialists) that compose the school management team (SMT) and educators have to ensure increased numbers in public FETs (full-time learners) intake and to cater for a diversified curriculum in order to meet academic and personal needs. For this to happen, a high level of adaptability and performance is required for institutional managers on an ongoing basis (Department of Education (2000a: 3).

## **(III) Finance**

The South African national government has allocated money to facilitate the introduction of the new FET system which demands careful use of the ICT resources provided by the State and in the light of this, institutions should prove themselves capable of handling financial matters satisfactory so that:

- The capacity and competence to handle state funds can exist;
- Their management and control comply with the Generally Accepted Accounting Principles (GAAP);

- There is a commitment for the development of financial management and administration structures and capacities in a manner consistent with the national and provincial Acts as the case may be.

#### **2.4. CRITERIA FOR THE DECLARATION OF FET INSTITUTIONS**

In the previous Department of Education (DoE), schools would choose for themselves whether they want to be combined or secondary schools. These have now been changed. The following are then changes gazetted from Department of Education (2000):

- Formation of a new institutional landscape for further educational landscape for further education and education and training sector;
- Institutional development and support necessary to warrant that transformation process achieves the set objectives;
- Consideration of vast differences between institutions and the needs of the local communities and the industry in the province;
- Promotion of effectiveness parallel with an attempt to avoid unnecessary duplication and waste of resources; and
- Promotion of equitable distribution of access and opportunity for further education and training along lines of race, gender, class and geography.

To conclude, all resources are reconciled for collaboration and partnership reasons, whereas on the side this process spells the point of departure of co-operative education, co-operative management, co-operative governance and collegial leadership.

#### **2.5. PROVISIONING AND SUSTAINABILITY OF ICT RESOURCES**

How computers are introduced into learning environment is critical to their effectiveness. Selfe (1992) points out that the introduction of computers in schools through the 1980s and early 1990s was often poorly planned, without consideration for the pedagogical and logistical problems. Hefce (2000) add that there have been two radical forms of convergence in technical development in the past ten years, which have changed the operation environment of education. The above two authors' immediate concern is the retrograde effect this has on the teaching of writing, but the problems apply across the curriculum.

Still in the current educational state, establishing a working computer lab and a reliable connection to the Internet remains a dream for most schools around the developing world. In a recent survey of teachers in developing countries conducted by SRI International for World Links, the majority of teachers in African countries reported that the lack of adequate hardware and software as well as unreliable Internet access were significant barriers to using computers in instruction SRI (2004).

This report reflects the fact that many schools in developing countries have a student-teacher ratio as high as 80:1, and must contend with a computer lab of ten to twenty computers for the entire school—if they are lucky. Moreover, most schools with computers can only afford dial-up connectivity, which in many cases runs over land lines and antiquated telephone exchanges.

Hawkins (2000), points out that, getting computers into schools is relatively easy; keeping them working is a greater challenge. A myriad of problems ranging from electrical spikes, to viruses, dust, heat, and normal wear-and-tear can bring activity in a developing country computer lab to a screeching halt. Furthermore, most schools lack the funds for a full time computer technician, and when one is hired and trained, he is often lured away to a more lucrative job elsewhere, leaving the school to start the search over again. Hawkins (2000), further points out that most ministries of education in developing countries are ill equipped to effectively service a large number of schools.

UNICEF (1996) draws attention that a few innovative solutions have emerged in countries around the world. One solution is to give learners more responsibility for maintaining the labs. Many learners are as or more adapt with the technology than the “professional” technicians who are often hired. An example of such a school cluster level program is the “Kids on the Block” initiative in Namibia, in which School net Namibia works with youth to provide them with the technical training necessary to refurbish, install, and maintain the school computer labs (UNECA, 2004). Providing learners with some basic training and trust can save a school and a school system time and money. Other solutions, however, must also be evaluated, such as additional training for technical staff in schools and administration offices and outsourcing this technical support to private organizations. Nkoe (2002) stipulates that, it is imperative that the quality of teaching and learning be improved across the whole FET sector in order to ensure that curricula are responsive to national and regional needs; hence the following should be considered.

- Physical resources: the availability of the basic minimum requirements for teaching and learning as per national norm.
- Financial resources: financial control to comply with generally accepted accounting principles (GAAP) and appropriate mechanisms should be established to access programmatic funding of both private and public sector.
- Human resources: institutions staff establishments should meet the minimum requirements in terms of national norms and standards, and the evidence of policy to employ additional staff should be aligned to national laws.

Hawkins (2000) stipulates that when computers are introduced into schools, attention focuses on the implementers' policy decisions and consequent reactions of educators and learners.

On the other hand, principals have much power to influence the innovation. In many instances, principals mediate aims of the policy-makers, and their attitudes may make or break the project.

In the province of Mpumalanga, policies have not been drawn for the implementation of this White paper 7. However, policymakers in the DoE are concerned about how computers in education will benefit society at large, both strategically and in terms of development (SAIDE, 2004). In schools, most teachers and learners are more interested in the direct impact that computers make on their daily lives.

## **2.6. POLICY FORMULATION AND IMPLEMENTATION**

Once the provisioning of resources and arrangement for sustainability has been made, it will be necessary to implement e-Education policy to the benefit of both educators and learners. In most developing countries like rural South Africa, the Minister for Education is faced with many challenges. According to Hawkrige (1990), Education is an important aspect. First, it requires a large portion of the national budget. Second, it never meets in full the demand for education, particularly at post-primary levels. Indeed, rates of population growth can make even primary education an unattainable goal. Third, teachers often constitute a very powerful trade union or professional pressure group, and expect to be paid salaries well above the average national wage. Fourth, expansion of the educational system calls for substantial capital expenditure on buildings and equipments, as well as an increased salaries bill for educator trainers and educators, to say nothing of paying for learning and teaching material support (LTSM) production.

In this above context, by comparison, the minister may be inclined to treat talk about computers in schools as trivial and intrusive. Cerych (1982) suggests that national policy on computers in education must take account hardware and software requirements, teacher training needed, curriculum changes to be made, research to be done and support services to be provided. It is therefore in this light that policy becomes a complex issue especially in implementation of White paper 7 as a new policy in provisioning of ICT resources to FET schools.

### **2.6.1. Policy analysis**

Adger (2002) defines policy as the outcome of a series of decisions on what constitutes a problem, what the possible solutions are, and how to implement the preferred solutions. In its most complete form, ICT policy making in FET band requires issue definition and the identification of the issue context, options or solutions, assessment of options, selection of the most suitable option(s), monitoring and assessment of implementation, (hopefully) learning for future policy making endeavours, and (hopefully) attaining increased efficiency, effectiveness and legitimacy.

As the government policy on e-Education becomes a reality, an increasing number of schools will have computers, computer centres, an Internet connection or, in some cases, wide-ranging ICT facilities (SAIDE, 2004). All of this needs planning and management, which means, in part, finding answers to the following questions:

*“How will ICT resources and facilities be used to support the administration of the school? How will they be integrated into teaching and learning? How will they be maintained? What technical support will be required to keep them in working order? What plans will there be for upgrading and further development of the facilities? What plans will there be for capacity building and professional development for staff in the use of computers and other ICTs?”*

In the same way as one might begin any long-distance trip with the help of a good map and guidebook, when planning to undertake the ‘journey’ required to implement an ICT initiative, one needs the assistance of similar tools.

According to (SAIDE, 2004) it is envisaged that the first and best guide is an ICT plan. This will serve both as a compass to point one in the right direction and as a map to show how to get there. The first component of such a plan is the Policy development that will have intensive vision statement. To get the ICT planning process started the MDoE need a clear vision of what it is that they want to achieve and where they want the department to be in the future.

*“Defining policy is rather like the elephant – you know it when you see it but you cannot easily define it” (Cunningham, 1963, cited in Keeley and Scoones, 1999:4).*

Having said that, it is at best difficult to come up with a precise definition of policy analysis for two reasons. First, varying emphases have been placed on the different elements of policymaking depending on the practitioners and the context (Tait & Lyall, 2004). Second, the context of policy making in general has changed (Hajer 2003, Tait & Lyall 2004) however, that in the modern context policy analysis has to be concerned with at least three sets of dynamics. These are

### **(I) Problem Identification**

How did the problem arise in the first place for which policy is required? For example, how will MDoE implement the white paper 7 on e-Education without first providing all public schools with ICT resources in collaboration with other stake holders. This should reveal the main factors and actors, or the problem-policy-politics mix according to Kingdon (1984). The MDoE might want to have a short workshop with School Governing Body (SGB) members and teachers in which they discuss the White Paper on e-Education (2004) **and the White Paper 1 on Education and Training (1995)**. Both state that technological education for learners is very important and that mastering technology enhances the potential of individuals and leads to economic productivity. In my study, this will link by how ICT resources are provided and distributed to public schools in MDE.

### **(II) Policy Development**

Based on problem identification, who should be involved and what should be considered in addressing the problem? This determines the policy-making style, the arena (Ostrom 1999), or the “coalition” (Sabatier and Jenkins-Smith 1993, 1999), and therefore the mode of governance (Kooiman 1993, 2003). Having a clear vision means understanding what MDoE want to achieve. But in a school environment, unless there is a *shared vision* or understanding among staff members, the chances of success are limited. To the extent that people understand and are committed to that vision, individuals are in a position to take responsibility, contribute their creativity and work together as a team. A shared vision guides and develops the strategic plan, giving all members of the school a common direction and enabling people to work together. For example, a vision needs to be expanded in the *context* of what is possible in a particular school.

This means starting with the school itself and doing a thorough audit of the current situation. It is important to be clear about where we *are*, before thinking about where we *want to be*. An audit may include a careful examination of the number of computers in the school and taking a good, hard look at how the computers are used by the school principal and heads of department; administrative staff; teachers and learners. Moreover, as I have already stated, it is, in fact, an important part of the planning process itself.

### **(III) Policy Implementation**

How well are the policy objectives met in practice and what can be learned from the experience? Traditionally, policy effectiveness has been assessed through implementation analysis (Sabatier and Mazmanian 1981, 1983) while policy learning is typically based on information provided through indicators and case studies. As should be apparent, there is a significant element of learning, knowledge accumulation, and knowledge diffusion in the modern policy process.

The central questions for the policy analyst then is “what and who structure the policy discourse?” and “on the basis of what type of information can better policy decisions be made?” Answering the second question requires a discussion on the adequacy and appropriate use of the currently in-use social, economic, and environmental indicators.

In modern school societies Hajer (2003:175) observes that “solutions for pressing problems cannot be found within the boundaries of sovereign polities” because power is dispersed in “transnational, polycentric networks of governance”. Hajer (2003) thus argues that there has been a weakening of the state through diffused authority accompanied with “international growth of civil society, the emergence of new citizen-actors and new forms of mobilization”. The weakening of the state has rendered the classical-modernist (national) institutions of government inadequate or insufficient in providing the rules of the game for dealing with complex and multi-faceted societal issues in rapidly changing environments.

The new approach to policy analysis, particularly in a South African context, needs a better understanding of “the game of ‘scale jumping’: the art of putting each intervention at the appropriate level”, which may include formal, informal, government, and non-government stakeholders (Hajer 2003: 176-9). An operational consideration for the modern policy analyst should be to determine which stakeholders to involve in the policy process and through what mechanisms. Hajer (2003: 181-8) offers three defining elements for the political context of policy analysis: politics, knowledge, and intervention.



Interpreted as a stable political order, polity or the political setting of policy making has changed considerably since the Second World War. Whereas before, one attempted to speak truth to power concentrated in the government of the nation state, there are now numerous other contenders of power in addition to the state that need to be reckoned with. These include transnational or multinational corporations, non-government and civil society organizations, and the media, which while used extensively and strategically by all contenders are themselves sometimes contenders in matters of policy making. The new landscape of governance as it has evolved is marked by a departure from territorially defined spaces of the post war nation states and the emergence of a network society (Castells 1996) that transcends the nation state.

In Mpumalanga, there are many possibilities and many costs involved when a school moves into the use of ICT because of various reasons. Planning is therefore essential and needs to be strategic.

It also means that a range of practicalities must be considered – finances, security and safety of ICT equipment, developing an ICT policy and staff development. According to Cleland (1999) strategic planning is a process, which aims at producing essential decisions and actions that shape and guide what one do and why one do it, like one's vision. A strategic plan sets out in detail what needs to happen to achieve the policy vision within the intended time frame. In other words, it is a matter of mapping the route between the present situation (where we are now) and the desired future situation (where we want to be). Although there are many ways of approaching strategic planning, the key planning questions remain constant.

To sum up, values are crucial in developing how to work to achieve the above policy vision and in turn implement that policy. When thinking about the *values* or principles that underpin MDoE vision for integrating ICTs, SAIDE, 2004 suggests that they need to ensure that they are consistent with the values contained in their MDoE mission statement. The values and mission of the department drive everything. For example, a set of overall values expressed in the MDoE mission statement might include the department's commitment to *quality* education. This may be expressed in the ICT vision statement in various forms. For example, the vision statement may reflect a commitment to building staff capacity around ICT use so that educators can enhance the quality of education provided.

#### **(IV) Governance of resources at school level**

If the Department of Education is concerned with the arbitration on how scarce societal resources are allocated, governance is concerned with the contestations around how resources are actually allocated. Kooiman (2003:4) distinguishes between “governing” as “the totality of interactions, in which public and private actors participate, aimed at solving societal problems or creating societal opportunities” and governance as “the totality of theoretical conceptions of governing”.

Thus governing may be defined as the process through which the contestations and interactions among the competing actors are settled.

**Table 2.2. Common and Significant Features in Definitions of “Governance”**

- |   |
|---|
| <ul style="list-style-type: none"><li>• Leadership; Exercise of Authority and Control, Power, Coordination</li><li>• Managing; Decision Making</li><li>• Influence; Behaviour; Conduct,</li><li>• Interdependence; Transaction; Interaction</li><li>• Social, Ecological, and Political Systems</li><li>• Social, Political, and Economic Actors</li><li>• Society; Hierarchy; Private, Public, and Civic Organizations</li><li>• Traditions; Rules; Formal and Informal Institutions</li><li>• Structures; Culture; Processes</li><li>• Conflicts; Negotiation; Dispute Resolution; Coercion; Influencing; Constituting;</li><li>• Knowledge; Devices; Policies</li><li>• Networks, Associations, and Alliances</li><li>• Issues tackled through governance include: Stability</li></ul> |
|---|

In the policy making domain governance is often described as the exercise of authority and control by a multiplicity of private and public interests. This view of governance seems prevalent in most official definitions of the term. For example, a cursory look at the more formal definitions of governance yields a series of key words (Table 1) that point to governance as how actors organize themselves. The keywords in Table 1, are taken from official statements by the European and African Commission, government ministries and agencies, foreign development agencies, academic institutions, international agencies, and works by numerous scholars including Stoker (1998), Kooiman (1993, 1999, 2003), Weimer and Vining (1999), Hollingsworth and Boyer (1997).

The African Commission uses the term “Good Governance” to refer to a system of governing whose intentions are consistent with the common good of the Member States and the African Community as a whole. The Commission’s vision is based on the five political principles of openness, participation, accountability, effectiveness, and coherence. Furthermore, these principles are to be maintained through the “institutions” of the African Union’s governance system (Table 2).

**Table 2.3. European Commission’s Principles of “Good Governance”**

<p><b>Openness:</b> The <i>Institutions</i> should work in a more open manner...</p> <p><b>Participation:</b> ...Improved participation is likely to create more confidence in the end result and in the <i>Institutions</i> that deliver policies. ....</p> <p><b>Accountability:</b> ... Each of the South African <i>Institutions</i> must explain and take responsibility for what it does in the country. ...</p> <p><b>Effectiveness:</b> Policies must be effective and timely, delivering what is needed on the basis of clear objectives, an evaluation of future impact and, where available, of past experience. ...</p> <p><b>Coherence:</b> ... Coherence requires political leadership and a strong responsibility on the part of the <i>Institutions</i> to ensure a consistent approach within a complex system.</p>
--

Source: CEC (2001:10)

What is most striking in the Commission’s definition of good governance is the emphasis on the role of institutions as entities that are largely viewed as being “up there” and, at least currently, insufficiently within the reach of ordinary citizens. As such, this view of governance seems concerned primarily with minimizing bureaucratization and hierarchy. Thus the intent of the White Paper on Educational Governance (CEC 2001) is to make these *formal* institutions – which are increasing in size and number – more accessible, accountable, and relevant to the general populace and to retain a higher degree of relevancy, credibility, and legitimacy in the average person’s mind. The White Paper’s necessary but exclusive focus on formal institutions overlooks the important role played by other, less formal, institutions in South African governance, particularly in policy formation and implementation.

To fully appreciate the role of institutions, they should not be viewed as synonymous with bureaucracy.

**Table 2.4. Common and Significant Features in Definitions of Good Governance**

- Serving the Common Good
- Monitoring of authority
- Democratically elected, Representative, and Participatory governments
- Accountability; Responsiveness; Transparency; Efficiency
- Rule of Law and Equal Justice under the law
- Government Capacity to manage resources and implement sound policies
- Government Ability to maintain social peace, law and order, economic growth, and a minimum level of social security
- Government Ability to reform structures and processes
- Government Ability to implement policy effectively
- Respect of Citizens and the state for the institutions that govern economic and social interactions
- Interaction between academics and policy makers
- Learning; Problem Reformulation
- Actors include but are not limited to the Private Sector, Civil Society, and the state

Source: Multiple (2004)

There are other definitions of good, or democratic, governance that implicitly point to the importance of informal institutions. Table 3 highlights the keywords and summarizes some of the key characteristics of such definitions of good governance. An illustrative example is provided by the UNDP, which defines governance as “the exercise of economic, political and administrative authority to manage an education affairs at all levels. It comprises the mechanisms, processes and institutions through which citizens and groups articulate their interests, exercise their legal rights, meet their obligations and mediate their differences”.

## **2.7. CONCLUSION**

If we start from a premise that policy-making is value laden (Tait 1992, Tait and Lyall 2004) and, because of intensified interdependencies and interconnectedness, there is greater need for policy integration and deliberative policy analysis (Hajer 2003a, Tait and Lyall 2004), whether policy analysis of sustainable development in the S.A. governance context? The answer to this question is far from clear.

There are those who emphasize the need for policy integration, e.g., Hertin and Berkhout (2003). Others recognize the need for integration but draw attention to, for example, the fact that the formal institutions of EU policy-making have to date functioned in a hierarchical and segmented fashion, e.g., Tait and Lyall (2004).

Yet it can be argued that segmentation and lack of integration can provide room for much innovative activity in so far as informal policy initiatives serving societal objectives are concerned. Tait and Lyall (2004:17) suggest that from a political perspective lack of integration in some cases could be viewed as pragmatic, useful, and perhaps even essential since full clarification may clarify things that are best left as ambiguous. Policy making in the context of governance, according to Tait and Lyall (2004), needs to recognize that the concept of linking ideas of governance and integration may be useful or problematic, depending on how integration is used, “by whom, and in what policy context”.

## **2.8. SUMMARY**

The aim of this chapter was to provide an overview of the factors that influences the provisioning of ICT resources in FET schools at Gert Sibande Region in Mpumalanga Department of Education.

This was based on an examination of the literature of different authors in defining ICT in schools, the use of ICT in education, especially in public FET institutions, which, if widely used, will be a useful tool for every learner. National e-Education policy guidelines for the provisioning of ICT resources in FET public schools were also researched. Equally important, the policy framework on e-Education where the objectives of this research was drawn from was also examined. The next chapter describes the research design.

## **CHAPTER THREE**

### **RESEARCH DESIGN AND METHODOLOGY**

#### **3.1 INTRODUCTION**

The aim of this study is to identify the challenges that face the MDE in the provisioning of ICT resources in schools in the FET band and suggest ways in which these challenges may be addressed. The findings of the study may therefore contribute to the drafting of a provincial policy on provisioning of ICT resources for effective implementation of e-Education policy in FET schools, as it was set out in chapter one.

This chapter focuses on the research design that was used in this particular study. The research design, methods of data collection and data processing techniques are described. Issues of validity and reliability, as well as the credibility and ethical consideration of the research inquiry will be addressed.

Therefore, in this chapter I will also explore the context of the study, research approaches, data collection and survey questionnaires on the factors that will influence the implementation of e-Education policy in Mpumalanga province specifically at Gert Sibande region.

#### **3.2 RESEARCH DESIGN**

Mouton (1996:107) defines research design as a set of guidelines and instructions to be followed in addressing the research problem. This includes the aim of the research, the selection and design of a particular method and the participants and considerations of reliability and validity. According to Le Compte and Preissle (1993:30), research design involves deciding what the research purpose and questions will be, what information most appropriately will answer specific research questions, and what strategy is most effective for obtaining it. Welman and Kruger (2002:15) further emphasises that research design is the plan according to which one obtains research participants (subjects) and collects information from them. In it one describes what one is going to do with the participants, with the view to reaching conclusions about the research problem.

In this study I will collect **quantitative** data from the participants. According to Henning et al. (2004) a **quantitative** study focuses on the control of all the components under investigation. This means that it is the research that is more highly formalised as well as more explicitly controlled, and in terms of methods, relatively close to the sciences (Poggenpoel and Schurink, 2001). De Vos (2001) further emphasises that the nature of data uses a deductive form of reasoning. This means the researcher collects data with types of measurements which are constructed in advance and applied in a standardised manner to assess preconceived models and theories. Measurement is focussed on specific variables that are quantified through rating scales and frequency counts. Concepts developed are in the form of distinct variables and data is presented by means of exact figures, from precise measurements. The fixed procedure can be repeated. Finally, in a quantitative study, data analysis is undertaken by means of standardised statistical procedures where the unit of analysis is variables. Surveys, rapid needs assessment and experiments are a few examples of quantitative study.

My method of data collection will follow the baseline survey system design as stipulated by Creative Research System (2004). According to Huysamen (1997: 23) the survey method is generally used when the researcher wishes to elicit opinions. There will be three main purposes of the survey system. Firstly, it will be used to assess the distribution of ICT resources to FET schools by both the MDE and NGOs in order to establish the readiness of MDE for implementation of the e-Education national policy [Gazetted 20 August, 2000]. Secondly, it will be used to map primary and secondary paths of distribution by estimating the number and demographics of recipients in order to improve the provisioning system of ICT resources in MDE. Lastly, School management teams (SMT) of schools are also important agents of change due to their position at school level, and their attitude towards computers plays a vital role in the successful implementation of ICT in education (Pelgrum & Plomp 1991). In this light, I will therefore also ascertain principals' attitude towards the use of computers in education. (See annexure A and B on questionnaire). The following will then be the survey path that I will follow.

### **3.2.1. Establishment of research goals.**

My goals will be to determine factors that influence the provisioning of ICT resources at Gert Sibande region and how the MDE aligns itself to national ICT strategic objectives and goals by assessing ICT infrastructure and how collaboratively the MDE and NGOs supply computers at FET public schools in the Gert Sibande region.

### **3.2.2. Selection of sample/test sample**

According to Welma and Kruger (2002:34), the population is the study object, which may be individuals, groups, organisations, human products and events, or the conditions to which they are exposed. Sampling is a process of selecting the individuals who will participate (observed or questioned) in a research while a sample is a group of individuals where the data/information is obtained (Willig, 2001). Therefore, in this study the sample population will be MDE employees at Gert Sibande region in the division of ICT services. This division is currently divided into two: Technical Services that deals mainly with maintaining effective information technology system throughout the region and Computers in Education section that implement policy and training on the utilisation of computer hardware and software in learning institutions and FET school management teams (SMT) clustered in three different sub-regions (Eerstehoek, Ermelo and Standerton). Because the number of ICT officials at the regions is less than the number of SMTs in public FET schools, and with the assistance of STATKON (statistic analysis section at UJ) in analysing sample population, I will need 20% of ICT departmental officials and at least 80% of SMTs of public FET schools. My sample group will also recognise ICT literacy level of the SMT to ensure representation.

Finally, because all educators have to be computer literate there is no need to make an effort to have the same proportion, such as gender and age. I will therefore use cluster sampling derived from the three sub-regions. Cluster sampling is similar to simple random sampling, but instead of selecting from individual sampling units in a total target group, one selects from clusters or units. This means that one needs a detailed sampling frame, accurately listing or mapping individual population units for the selected clusters. Kruger (2002) further emphasises that in cluster sampling, one draws pre-existing, heterogeneous group called clusters, and all the members of the selected clusters are eventual sample. All FET schools at Gert Sibande region have a measurable number of



120 – which will be my population. The advantage of using cluster sampling in this research is that there are considerable savings in time and cost when compared to other sampling, such as simple random sampling, where each member of the population has the same chance of being included in the sample of a particular size and has the same probabilities of being chosen. Therefore, acknowledging that there are groups within this particular population that are far beyond the ICT infrastructure strategic plan of the department, I will use cluster sampling, which is heterogeneous and of pre-existing sub-regions (Standerton, Ermelo & Eerstehoek sub-regions) within Gert Sibande region.

### **3.2.3. Data collection**

There are six basic ways to collect data: observations, questionnaires, interviews, documents, tests and unobtrusive measures. McMillan (1993) emphasises the use of numbers and measurement in collecting data. The most appropriate measuring instruments for my research will be baseline survey questionnaires based on this policy (White Paper 7 on e-Education of the Government Gazette of 24 August 2000). Questionnaires can be effective in gaining a broad picture of people's views on policy issues. They are useful for collecting a large sample of views for comparison according to different stakeholder groups (Welman and Krueger, 2002).

### **3.2.4. Construction of survey questionnaires**

Questionnaires are structured questions that can be sent out to people or asked personally (Krefting, 1991). There is a wide-range of advantages of using questionnaires in this study. Such advantages are: responses can be quantified, easily summarised and the returned questionnaire is easy to administer. Questionnaires can provide a large volume of data and information, to be tabulated using any computerised spreadsheet, while confidentiality of respondents is maintained. Contrary to the latter, there are also some disadvantages associated with using questionnaires, for example: low response rate, (I will have to consistently follow them up); they are difficult to interpret and they need clear questions, (I will need to be present to answer queries), minimise jargon in the questionnaire. Therefore, in this section, there are several consideration that I will take note of. Some of these considerations are more important when opinions and beliefs are assessed than when information about typical behaviour is to be collected. The first consideration will be to choose judiciously between Open-Ended and Closed-Ended

(Multiple-choice variety) questions. Because of the different level of ICT literacy of school management teams in FET schools, I opted to include both questions, open and close ended in the questionnaire in an attempt to accommodate their different literacy levels. In open-ended questions, respondents will formulate their responses themselves while in multiple-choice questions I have made use of four-point scale where respondents have to select from four alternative responses. This combination of questions will therefore cater for both SMTs who are ICT literate and those that are not.

As with all ratio measurements (for example, 2 is bigger than 1), the categories reflected in the alternatives will be mutually exclusive and exhaustive. This will be done in order to make provision for every possible response (alternative), but not simultaneously, so there will be more than one category. When it is difficult to anticipate all possible responses, or when there are too many possible responses to list, I will include the category “other” or use open-ended questions. For example, if I ask the SMTs or any ICT services official what they regard as the most important problem in consistent or equal provisioning/distribution of ICT resources in FET schools, there may be many possible responses. In such case the category “other” or open-ended question will apply.

The second consideration when developing questions for these questionnaires will be to take the respondents’ literacy level into consideration. When I formulate the questions, I will use words and ICT concepts with which I will expect the respondents to be familiar. In other words, the command of language of the group that is investigated will therefore be taken into account (Mouton & Marais, 2001). Because I obviously want to obtain accurate information from the respondents, it stands to reason that they should know exactly what is being asked of them. With this in mind technical terms will be avoided. For example, if one might ask a member of SMT a question as follows; How many educators are ICT literate in your school, broken down into gender? Now “broken down” is standard means “divided in terms of”. However, one SMT member who will be unfamiliar with the terminology might reply as: “none, our big problem is alcohol”.

The third consideration that I will take is that I will not offend by any means. I will not only avoid technical terms, but also terms that might offend the respondents. For example, I will refrain from asking questions like: “How many members of your staff are ICT novices or illiterate?”

The fourth consideration when formulating these survey questions is that I will be brief and focused. I will give preference to questions that are concise (brief and to the point) without being ambiguous (having more than one meaning). Groenewald (1981) points out that the longer a question, the longer it takes to read and the greater the possibility that it may create resistance in the respondents. If the abstractness and/or complexity of the topic make it difficult to cover in a single question, I will rather deal with it in several, simple, consecutive questions. For example, double-barreled questions will strictly be avoided.

I will use justified sequence in my fifth consideration. I will carefully consider the order in which I put items because earlier items may affect responses to subsequent items. To put respondents at ease, Welman and Krueger (2002) recommends that the questionnaire should begin with a few easy and non-threatening items (for example, multiple-choice questions with only a few alternatives) that are clearly related to the stated purpose. Later on, more in-depth questions may follow. Consequently, I will group together questions that are related to the same aspect so that respondents do not repeatedly have to switch their focus. The transition from one topic to the next will be clearly identified and will still be connected with the stated aim of the survey. Sensitive topics will also be announced and their relationship with the overall topic will be clear. For example, personal or professional conflicts will be avoided. Respondents will be thoroughly informed beforehand about potential impact of the study.

### **3.2.5. Ethical aspects of this research.**

The final consideration will be on ethical issues. Ethics is a set of moral principles which is suggested by an individual or group, is subsequently widely accepted, and which offers rules and behavioural expectations about the most correct conduct towards experimental subjects (De Vos, 2001). Ethical considerations come into play at three stages of a research project as alluded by Welman and Krueger (2002):

- “when participants are recruited”,
- during the intervention and/or the measurement procedure to which they are subjected, and
- in the release of the results obtained”

The necessary permissions to conduct this research will be obtained from the Mpumalanga Department of Education at Gert Sibande region with their FET schools and consent forms highlighting all ethical issues that will be completed by participants (See appendix I). Participation in the study will also be voluntary and participants can opt out any time. Public FET schools, their school management teams (SMT's), Mpumalanga departmental officials at Gert Sibande region and computer educators will form participants group of my study. All participants will be contracted with the MDE because it is impossible to do a simple random sample of individuals in this study.

These participants will remain anonymous and will be told so at the onset the purpose of the study. All participants will be made aware of the value of their participation in respect of the aims of the research and will be thanked for their assistance. They will thus give informed consent. Similar agreement will be made between researching groups of individuals from the MDE and the schools where research will be conducted. Before survey questionnaires can be conducted, all participants will be given full explanation on what is expected upon them and they will be given full feedback upon completion of this study.

School based participants (SMT and educators) will be partially at risk with their employers during policy analysis, but strict confidentiality during data collection will minimize these risks. Equally important, their persal numbers (work number) and identification will not be required.

### **3.2.6. Procedure**

I will use survey questionnaires to obtain the following types of information from respondents: opinions, beliefs and convictions (about e-Education policy); attitudes (for example towards the implementation of e-Education policy) and biographical particulars (for example, geographical placement of FET schools within the region). I will take the ICT literacy level of the intended respondents into consideration. Not only should the intended respondents be able to read and write, but they should also be able to follow the instructions.

The questionnaires used in the study will be aligned in relation with the research objectives and research question in accordance with a scale developed by Huysamen (1997). This scale incorporates three basic areas of involvement, that is topics of the questionnaire: (I) Human and ICT resources in FET schools at Gert Sibande region, (II)

Provisioning of ICT resources by MDE and (III) Knowledge of e-Education policy by FET schools. (See Appendix A and B).

(I) Human and ICT resources (4 items)

- a. Educators' ratio against learner enrolment in FET schools
- b. ICT literacy of SMT in FET schools
- c. Number of ICT resources required per individual enrolment of FET schools.

(II) Provisioning of ICT resources (8 items)

- a. General provisioning by both MDE and NGOs.
- b. Security measures of ICT laboratories.
- c. The role of private sectors in ICT provisioning for their social upliftment.

(III) Knowledge of e-Education policy (6 items)

- a. General knowledge of e-Education policy, for example: white paper 7 (e-Education policy) to be appropriate to the current national curriculum.
- b. Schools' strategic plan on e-Education policy.
- c. The feasibility of e-Education policy in the individual school.

The first part of the questionnaire is designed specifically for FET schools management teams that is comprised of three sections: Part I, section A with seven items (see Annexure A) refers to the background of the entire human and ICT resources of the FET school. Fifteen items of section B refers to the provisioning of ICT resources in FET schools and section C comprises of 4 items that refers to explore the availability of the policy document on e-Education at FET schools.

Part two is designed specifically for MDE officials at Gert Sibande region. It comprises of one section with eleven items in total. That includes the availability of ICT policy, collaboration with private sectors and NGOs and the entire enrolment of learners at FET band.

The expected results are that schools have not yet received e-Education policy, there is no even distribution of ICT resources to FET schools and policy on provisioning of ICT resources is not readily available from the department. However, the results of the above questionnaires will be analysed intensively in chapter four.

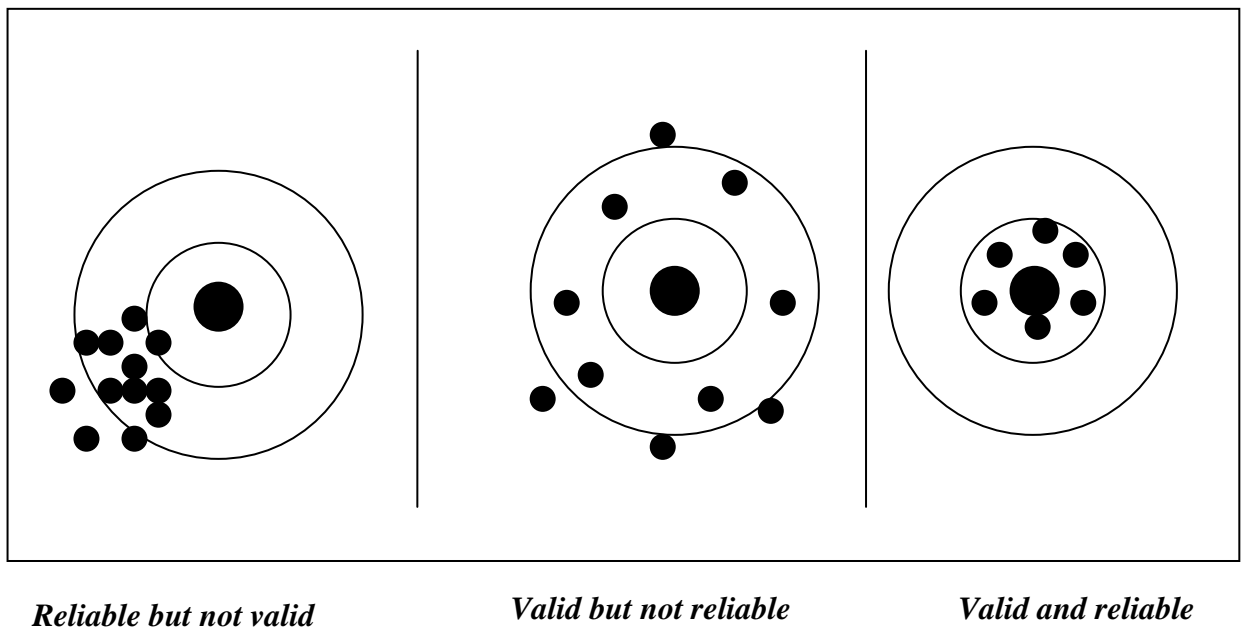
It is important that these above mentioned measuring instruments (survey questionnaires) used should be **reliable** and **valid**. Reliability and validity are ‘key concepts’ in research as they provide the assurance that the research instrument is capable of providing accurate and meaningful answers to the research question (Dyer, 1995:127). Krefting (1990) quotes Agar (1986) who suggests that terms like “reliability” and “validity” are relative to the quantitative view and do not fit the details off qualitative research. That is why it is important that this study should include issues of reliability and validity. According to Welman and Krueger (2002), any given measuring instrument measures three components, namely: the construct intended, irrelevant constructs and random measurement error. When I measure these items, for example, a variable (see annexure A & B), the questionnaire that I have used to measure the variable will measure what it is supposed to measure. I will therefore refer to this as ‘Construct validity’.

Because any given measure of a construct also reflects irrelevant constructs, I will use more than one measure of the same construct. If this is not done, it will be impossible to examine to what extent any given measuring instrument measures anything else but itself. The construct validity of this questionnaire is not only supported by high relationships (correlation) with other measures of the same construct (Convergent Validity), but also low correlation with measures of different constructs (so-called Discriminant Validity) (Krefting, 1990). In simple terms, validity is the idea that the events and settings studied are uncontrived, unmodified by the researcher’s presence and actions (Denzin, 1978).

Reliability refers to the extent to which the obtained scores may be generalised to different measuring occasions, measurement/test forms and measurement/test administrators (Huysamen, 1999). The underlying issue here is whether the process of the study is consistent, reasonably stable over time and could be repeated with different researchers. By generalisation it means the consistency of the ranking (of the scores) that I will assign to FET schools or MDE official in my survey questionnaire. These questionnaires that I have designed will fall under Test-retest reliability. Test–retest refers to the degree to which a measurement or test is immune to the particular measurement or test occasion on which it is administered, so that scores obtained on one occasion may be generalised to those that could potentially have been obtained on other comparable occasions.

To determine this retest reliability of this measuring instruments (FET schools and MDE questionnaires) I will administer them on at least two occasions on the same large, representative sample from the population (Gert Sibande Region, FET schools) for which this instrument is intended. I will then correlate the two sets of scores obtained in this way. The time interval between administrations will not be too long to prevent real and permanent changes from taking place in the attribute being measured. At the same time Huysamen (1989) emphasises that it should also not be too short so that participants may remember the responses given on the first administration. See fig 3.1 for comparing validity and reliability below.

Fig 3.1: An analogy to validity and reliability: Drawn from Welman and Krueger 2002



Because this was a self developed instrument and was not tested in a pilot study, experts from the University of Johannesburg “STATKON” checked and modified the instrument with the view to spotting glaring flaws, helping to determine its validity.

### 3.2.7. Statistical Method

Statistics serve two purposes. The description of data and the inferences that can be drawn from data. Ferguson (1989) stipulates that statistics deals with collection, classification, description and interpretation of data obtained by the conduct of surveys and experiments. My inquiry will use an appropriate statistical approach (developed by

STATKON, U.J) to summarize set of data such as ICT equipment, the number of learners per computer laboratory, and the ICT infrastructure. Popham et al. (1992) note that, by summarising, descriptive statistics, conserve the time and space necessary to describe data and present the results of an investigation in numerical terms.

Once I have collected data, I will make sense of it by organising and coding it so that I can analyse it. Ferguson (1994) defines coding as identifying the variable that one wants to analyse statistically and deciding on the different code values such as a variable level present (see Table 3.1.). In brief, coding is the process of dividing data into parts by a classification system. Furthermore, Peskin (1992) emphasises that coding is a progressive process of sorting and defining the bits of collected data (i.e. answered questionnaires in this study) that are applicable to the research purpose.

For example, as I have received more than sixty return questionnaires on provisioning of ICT resources in FET, I will at least be interested to know if there are differences between FET schools geographical displacement (Sub regional: Standerton, Ermelo and Eerstehoek) and differences between enrolment in these FET schools. There may also be differences in this regard concerning ICT literacy of SMTs of FET schools. I will therefore use codes as tabulated in example table 3.1 to indicate the different values of certain variable. I should also note that the variable of geographical displacement will need five spaces in the computer file because both words urban and rural occupy five spaces. For the word advantage, I will code 1 and disadvantage code 2.

Table 3.1. Coding the values of different variables.

Width of computer column (in memory)	Variable	Code name	Code values	levels
One spaces	Geographical displacement	Geod	1 2 3	Eerstehoek Ermelo Standerton
Four spaces	Enrolment	Enr	?	500 learners. Min enrolment

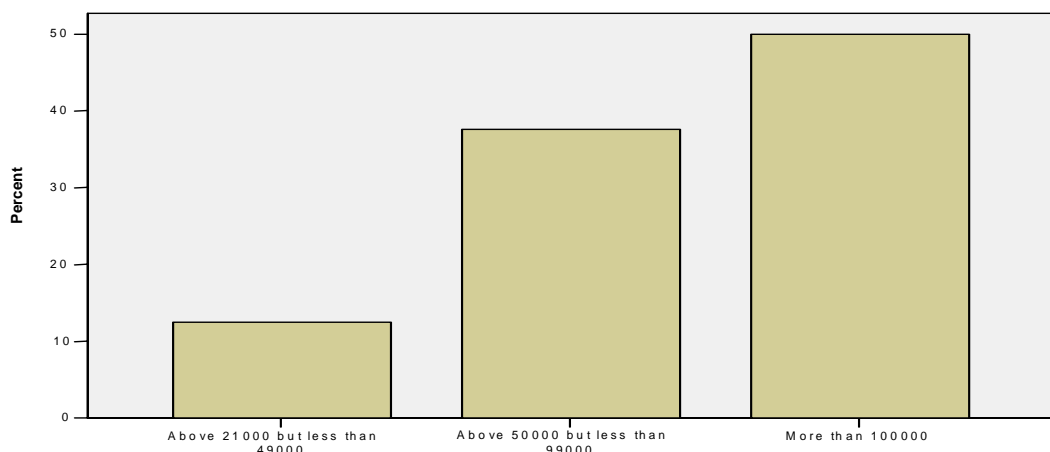


Once I have coded all the data, it will be read into a computer by STATKON using Statistical Analysis System (SAS) and the analysis proceeds. I will now do the following while keeping the research question and objectives in mind:

- Count, for example the number of FET schools provided with computers by MDE.
- Categorise, for example, identified patterns of themes through the use of statistics (such as preference averages towards different geographical displacement)
- describe, for example, schools that did not receive e-Education policy.

I will also determine the level of measurement pertaining in this survey. This is necessary in order to determine the statistics available for different types of data and to select an appropriate statistical test (Huysamen, 1984). I will analyse data using Histograms and bar graphs, that is, a histogram in the case of interval data (levels of measurements) and bar diagrams (see Fig 3.2) in the case of nominal data (biographical variable). Columns in bar diagrams will represent frequencies of the various ranges of scores or values of a quantity. This will provide an overall image of the description of the units of analysis as a whole group.

**Fig 3.2. An example of estimated total number of learners at FET band in schools in the entire Gert Sibande region in 2005.**



In analysing and interpreting the results of this survey, comparison of MDE officials and SMTs will be conducted to make the results meaningful and to use them to initiate appropriate policy change. In other words, I will match up both respondent's (MDE

officials and SMTs) answered questionnaires. In case of large differences, I will scrutinise these areas of variation by consulting Educational Information Management System (EMIS) of the province.

### **3.2.8. Data display and presentation of results**

Miles and Huberman (1984) define data display as “an organised assembly of information that permits conclusion drawing and action taking”. Matrices, graphs and other sorts of visual representations assist in making meaning of data, as well in exposing the gaps or the areas where more data are needed (Miles,1989). It will be part of developing the problem statement, data collection, analysis, and final presentation of this study.

Data analysis is intuitive and meaning orientated. Data analysis is the process of bringing order, structure, and meaning to the data collected (Marshall, 1989:112). However, data analysis and data interpretation are two separate processes. According to McMillan (1999), data analysis is the statistical test, and data interpretation is the conclusion. The process of data analysis is an interactive one that is concerned primarily with selecting, focusing, simplifying, abstracting and integrating the data. Therefore, I will analyse and interpret the data (information) obtain during data collection.

In view of the principle of public scrutiny there is no sense in conducting this research if I do not release the results obtained to the scientific community. This is why I will commit to paper the way in which I conducted this research and interpreted the results I obtained, and present them or submitte them to interested parties for publication. I will then present the results in the following ways:

- As tables (for example, cross tabulation) see the next page example:

Table 3.3. Frequencies of total respondents (n = 16): ICT officials at Gert Sibande Region (MDE)

	N Valid	Missing
What is the estimated total number of learners at FET band in schools in the entire Gert Sibande region?	16	0
How many FET educations are computer literate in the Gert Sibande region?	16	0
How many computers have been provided to school in the Gert Sibande region?	16	0
To approximately what percentage of schools was the White paper 7 on e-Education circulated?	15	1
Does your MDE (Gert Sibande region) have a procurement register or database of ICT resources?	16	0
If your answer is yes above (Q5) is it active?	16	0
To what extent is the strategic objective of e-Education (White paper) feasible in the Gert Sibande region?	16	0
Is there currently a policy on provisioning/distribution of ICT resources at Gert Sibande region?	16	0
Is there any budget from the MDE for ICT resources (FET schools)?	16	0
Are there any partnerships between the MDE and any NGO or private sector with regard to ICT resources?	16	0
How do you rate the main objective of White paper 7 on e-Education?	16	0

- As graphs, for example bar graphs. See table 3.2. Above
- As statistic summaries, for example frequencies, standard deviations, correlation coefficient, mean and percentages. See example below (Table 3.3)

on the response from MDE officials on estimated number of learners at FET schools in the entire Gert Sibande region.

**Table: 3.4 Frequency table.**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Above 21000 but less than 49000	2	12.5	12.5	12.5
Above 50000 but less than 99000	6	37.5	37.5	50.0
More than 100000	8	50.0	50.0	100.0
Total	16	100.0	100.0	

The results thus obtained will then provide feedback on the tenability of my original formulated research question. On the other hand, it is almost impossible to interpret data unless one organises them. Immediately I have collected data I will have to make sense of it. Thereafter, I will analyse and interpret raw data collected from survey questionnaires.

Finally, after I have conducted this research according to its planned design, the obtained results will be interpreted. Therefore, the design of my study will also concern the statistical analysis and interpretation of the appropriate data obtained for investigation of the research hypothesis by measurement of variables. Because of the larger file (two questionnaires for SMTs and MDE officials) I will reduce it to useful information, which will facilitate the interpretation of data and the drawing of conclusions by means of descriptive and inferential statistic in the next chapter.

### **3.2.9. Policy analysis (e-Education policy)**

Policy is a statement of general criteria, which are used to guide to decision-making. When a decision is being made, for example, provisioning of ICT resources, its possible outcomes will be checked against the statement of policies. Because provisioning of ICT resources policy has not been developed yet, it stands to reason that at the end of this study, provisioning of ICT resources policy should be developed by the MDE.

According to e-Education policy, e-schools will be characterised as institutions that have access to ICT resources that support curriculum delivery and connections to ICT infrastructure. Therefore, it is necessary to link access of ICT resources in schools with provincial ICT policy.

Policy is complex and dynamic, and the term embraces a range of different aspects. The *processes* by which policy is informed and formulated are also highly significant. *Measures* for policy implementation (e.g. white papers, regulations, or programmes) are necessary to ensure that policy can be put into practice. Furthermore, policy and policy making is conditioned and shaped by the political, social and economic *environment*, as well as historical factors. However, Policy does not happen in isolation. It is not formulated and implemented solely by policy makers in government offices. A range of *institutions*, such as educational structures and *organisations* such as NGOs, mediate a messy relationship between policy and national education. This is the interface where policy and people meet. Shankland (2000) indicates that Analysis of policy documents only helps in understanding policy content ‘on paper’ – this is not sufficient without an analysis of context, processes, measures and impacts. Therefore, this inquiry will also address questions such as, where do ICT policy statements come from? How do the ideas about what makes a ‘good’ ICT policy evolve and change? Whose voices and views are taken into account in the policy process?

### **3.3. CONCLUSION**

In this chapter, the research procedures and methods of the study have been reviewed. The participants have been identified, and the methods of data collection and data analysis have been explained. The question of trustworthiness has been discussed using Guba’s model.

In the next chapter, the data collected will be presented and interpreted. The chapter concludes with the summary of the findings and critical comments regarding the provisioning of ICT resources and implementation of white paper 7 on e-education at Gert Sibande region in Mpumalanga FET schools.

## **CHAPTER FOUR**

### **PRESENTATION AND INTERPRETATION OF DATA**

#### **4.1. INTRODUCTION**

The previous chapter outlined how data was collected and analysed. In this chapter I will analyse data using statistical methods. Statistics are used as a tool for the collection, organisation, and analysis of numerical data (Leedy, 1997). The purpose of statistics is therefore to present information in a convenient and understandable form, predict what is reasonable to expect and infer a logical conclusion to series of events. Miles and Huberman (1994) describe data display as an organized assembly of information that permits conclusion drawing and action taking. In this chapter, data analysis will be conducted simultaneously with data display. I will consistently reflect on data, by organizing them into frequency counts with headings. Moreover, I will categorise, synthesize and search for patterns in the data that I have collected. The frequency count will be given numerically in table form and as an accompanying bar graph to give more vivid visual representation of the pattern (Spradley & McCurdy, 1982), as well as exposing the gaps or the areas where more data is needed.

This chapter provides the reader with a detailed description of the perceived implication of the different levels of readiness of implementation of the White Paper 7 document (e-Education policy), which forms the focus of this research. A description of the study in terms of the context will be given. The survey questionnaires will be analysed with the help of STATKON using statistical techniques described in paragraph (3.2.7) of chapter 3. The data obtained from the survey questionnaires will be analysed in a holistic way, with the emphasis on the meaning as constructed by the participants of the study.

#### **4.2. THE CONTEXT OF THE STUDY**

Survey questionnaires were the method of data collection in this particular study, and the participants included the members of school management teams (SMT) and Mpumalanga Department of Education officials (MDE), respectively the school-based first and senior education specialist (Principals and Deputies) and ICT departmental officials at Gert Sibande Region. Responses to these two questionnaires will be compared in relation to the research question of this study.

An overview of categories of data analysis, which I assembled from statistical survey, is presented below. Paragraph 4.3 and paragraph 4.4 will represent data that was retrieved from survey questionnaires completed by ICT officials and SMT of public FET schools at Gert Sibande Region respectively.

### 4.3 Analysis of survey questionnaires (ICT, Department of Education officials in the Gert Sibande Region)

This section will analyse responses to each of the questions listed below:

**Table 4.1 Total number of questions that were answered by respondents (n = 16): ICT officials at Gert Sibande Region.**

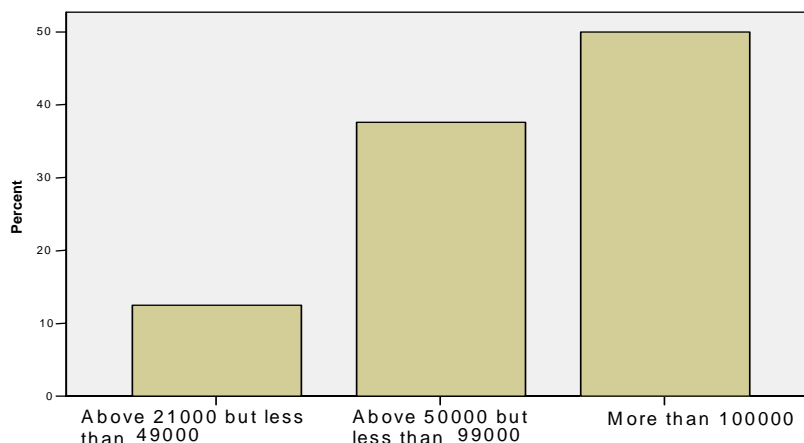
Question Number	Questions	N Valid	Missing
1	What is the estimated total number of learners at FET band in schools in the entire Gert Sibande region?	16	0
2	How many FET educators are computer literate in the Gert Sibande region?	16	0
3	How many computers have been provided to school in the Gert Sibande region?	16	0
4	To approximately what percentage of schools was the White paper 7 on e-Education circulated?	15	1
5	Does your MDE (Gert Sibande region) have a procurement register or database of ICT resources?	16	0
6	If your answer is yes above (Q5) is it active?	16	0
7	To what extent is the strategic objective of e-Education (White paper) feasible in the Gert Sibande region?	16	0
8	Is there currently a policy on provisioning/distribution of ICT resources at Gert Sibande region?	16	0
9	Is there any budget from the MDE for ICT resources (FET schools)?	16	0
10	Are there any partnerships between the MDE and any NGO or private sector with regard to ICT resources?	16	0

Table 4.1 represents the frequency table of respondents in Information communication technology Mpumalanga Department of Education (MDE) officials based at Gert Sibande Region. Each question will be analysed as a separate entity. Equally important, these questions will be analysed individually using frequency counts for each question. I shall then examine each frequency count in turn.

#### 4.3.1. What is the estimated total number of learners at FET band in schools in the entire Gert Sibande region?

**Table 4.2: Estimated total number of learners at FET band in schools in the entire Gert Sibande region.**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Above 21000 but less than 49000	2	12.5	12.5	12.5
	Above 50000 but less than 99000	6	37.5	37.5	50.0
	More than 100000	8	50.0	50.0	100.0
	Total	16	100.0	100.0	



**Figure 4.1. Graph of estimated total number of learners at FET band in schools in the entire Gert Sibande region**

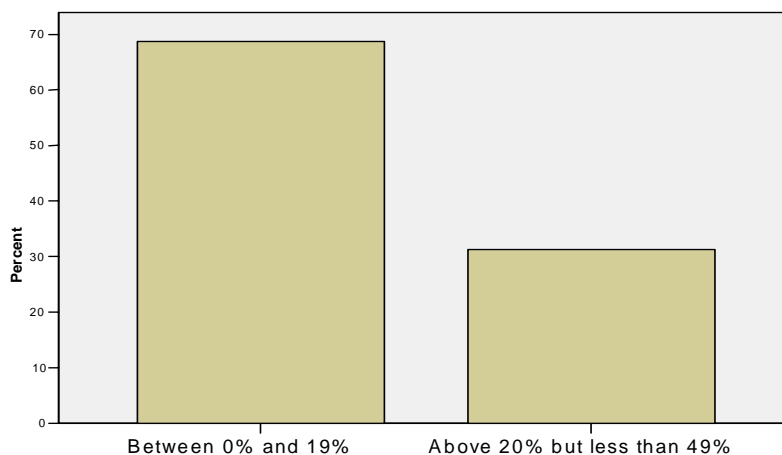
The response from this survey question shows that the entire region has more than 100 000 learners at FET schools. According to the new National Curriculum Statement (NCS) for FET institutions, only two learners should share one computer in case of deficit during teaching, learning and assessment. To project this to an ideal situation, where every two learners would have shared access to one computer throughout the day, this would mean that a minimum of 50 000 computers would have to be provided to FET schools. Despite such a hypothetical scenario being impractical at this stage, it nevertheless is significant that each sub-region has different number of learners, for example Ermelo sub-region has an estimated 30 000 learners (30%) at FET, and that the computers therefore have to be distributed in proportion to the number of learners to all sub-regions by 2013, if the main e-Education goal is to be achieved.



### 4.3.1. How many FET educators are computer literate in the Gert Sibande region?

**Table 4.3: FET educators who are computer literate in the Gert Sibande region**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Between 0% and 19%	11	68.8	68.8	68.8
	Above 20% but less than 49%	5	31.3	31.3	100.0
	Total	16	100.0	100.0	



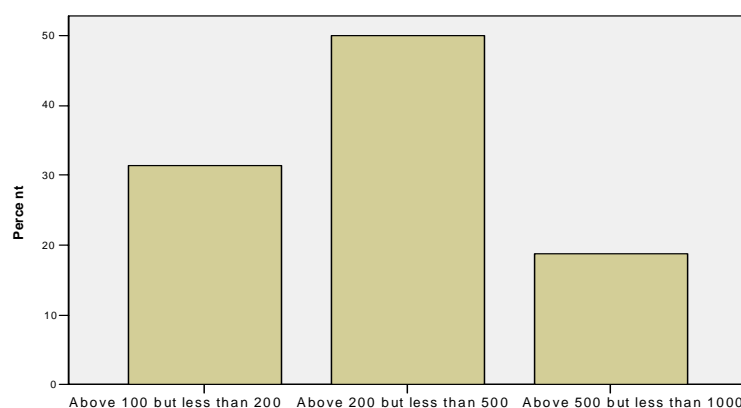
**Figure 4.2. Estimation of educators who are computer literate.**

From figure 4.2 and table 4.3, it appears that fewer than 50% of FET educators are computer literate, meaning that the majority of educators need computer skill development. This figure 4.2 shows that most officials report that only between 0% and 19% of their FET educators are computer literate. A need for provisioning of ICT resources in computer centers for educators to develop ICT skills by the MDE have to be established. Before learners become computer literate, firstly educators have to be ICT literate so that they can more easily cascade the information and skills. More importantly, learners cannot acquire ICT skills on their own, rather they need mentors and/or instructors. In this case, as schools are public institutions, their immediate instructors are therefore educators. To achieve the e-Education goal, where all learners at FET band are supposed to be computer literate, educators have first to be computer literate to assist learners to use computers when learning. Therefore, educators have to be provided with ICT centers for training so that they become computer literate and cascade ICT skills at ease to learners.

### 4.3.3. How many computers have been provided to school in the Gert Sibande region?

**Table 4.4: Estimation of computers provided to FET schools**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Above 100 but less than 200	5	31.3	31.3	31.3
	Above 200 but less than 500	8	50.0	50.0	81.3
	Above 500 but less than 1000	3	18.8	18.8	100.0
	Total	16	100.0	100.0	



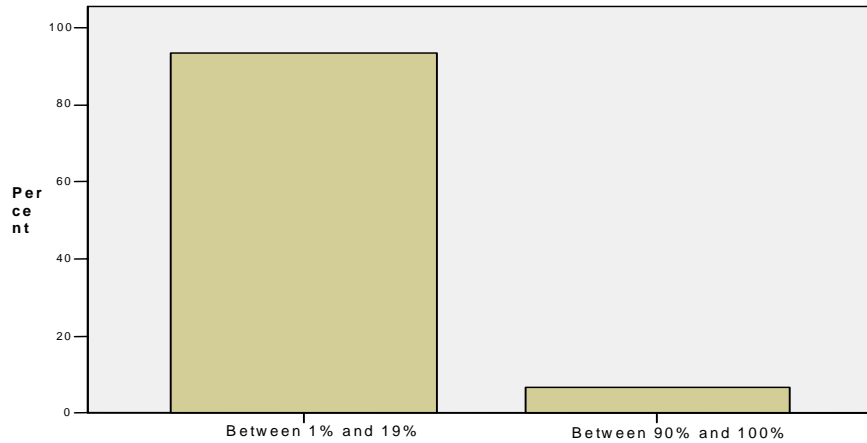
**Figure 4.3 Estimation of computers provided to FET schools**

Table 4.4 and figure 4.3 reflects that, at most, only 500 computers have been provided to FET schools in the Gert Sibande region. According to NCS (2learners:1computer), this implies that only 1000 FET learners have access to computers in the entire region, and this excludes educators who are ICT illiterate. More unsatisfactory are the statistics that 99 000 of the total number of learners in FET schools at Gert Sibande region are without computers at their disposal. It will be difficult for the MDE to implement the policy on e-Education, as it requires ICT resources, as indicated in figure 4.3.

### 4.3.2. To approximately what percentage of schools was the White paper 7 on e-Education circulated?

**Table 4.5. Provision of e-Education policy to FET schools in the Gert Sibande region.**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Between 1% and 19%	14	87.5	93.3	93.3
	Between 90% and 100%	1	6.3	6.7	100.0
	Total	15	93.8	100.0	
Missing	System	1	6.3		
Total		16	100.0		



**Figure 4.4. Provision of e-Education policy to FET schools in the Gert Sibande region.**

For any school to implement any departmental policy or government gazette, schools should have those documents in their hand. The survey shows different path at all. Only 20% of schools are in possession of this e-Education policy. This implies that 80% of FET schools are currently without this policy. It is the responsibility of MDE to furnish or provide schools with all policies that have been officially accepted at national level. FET schools may also struggle to implement a policy that is not at hand. To be precise, no school can implement a policy that its content is not known. Therefore all FET schools should be provided with e-Education policy documents and most importantly educators have to be work shopped on all aspects pertaining content of this document.

**4.3.3. Does the MDE (Gert Sibande region) have a procurement register or database of ICT resources?**

**Table 4.6: Availability of procurement registers for ICT resources.**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	10	62.5	62.5	62.5
	No	6	37.5	37.5	100.0
	Total	16	100.0	100.0	



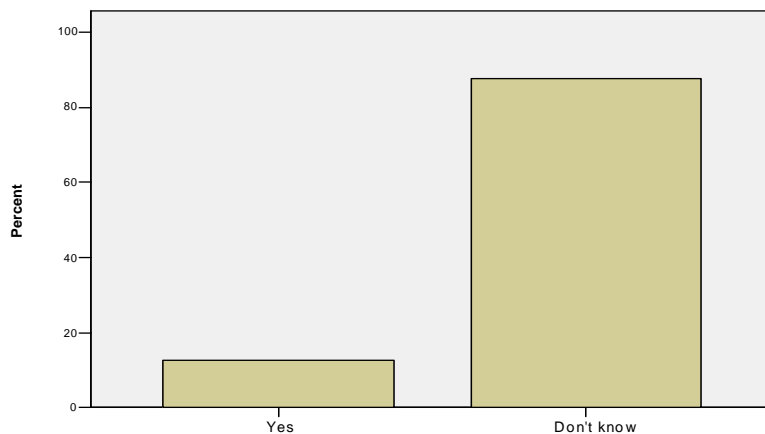
**Figure 4.5 Availability of procurement register for ICT resources.**

According to Public Finance Management Act (PFMA) of 1999, all provincial departments must keep full and proper records of the resources affair of the department, trading entity or constitutional institution in accordance with any prescribed norms and standards. This is designed to make departments accountable to the national treasury for their procurements. However, figure 4.5 shows that 80% of MDE officials at Gert Sibande region acknowledge that there is a register of resources provided to schools. But contrary to the latter, ICT resources are not accounted for, especially those ICT resources that have been provided by private sectors and/or NGOs. According to the National policy on physical resources (SASA, 1996), all equipment gathered for the schools, irrespective of whether those resources were bought by the school or donated to them, automatically belong to the Department of Education. Therefore, the MDE is supposed to update their procurements registry for all ICT resources provided by them or donated by private and/or NGOs.

**4.3.6. If your answer is yes above (4.3.5) is it currently functional (Active)?**

**Table 4.7: Activeness of the procurement register**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	2	12.5	12.5	12.5
	Don't know	14	87.5	87.5	100.0
	Total	16	100.0	100.0	



**Figure 4.6 Activeness of the procurement register**

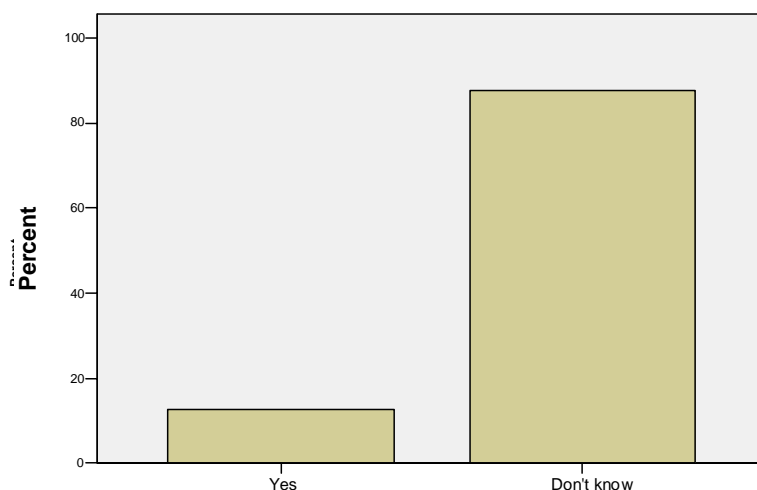
Most departmental officials do not know whether this procurement register (table 4.6) is frequently updated as shown by the survey. Almost 70% of MDE at Gert Sibande region are not aware of this register, how it is operating and updated. This might cause frustration to some FET schools at Gert Sibande region as some ICT resources may be duplicated in one school. In other words, FET schools in the Gert Sibande region that received ICT

resources earlier from private sectors might be provided again by MDE or any other sector/or NGO. Some school will be left unattended because of this uneven distribution of ICT resources. It is always important for the official at the regional level to seek updated ICT register from provincial officials at all times and for the FET schools at Gert Sibande region to honestly disclose their acquisition of ICT resources from any relevant stakeholder in education.

**4.3.7. To what extent is the strategic objective of e-Education (White paper) feasible in the Gert Sibande region?**

**Table 4.8. Feasibility of e-Education at Gert Sibande region**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	To no extent	2	12.5	12.5	12.5
	To a small extent	8	50.0	50.0	62.5
	To a moderate extent	5	31.3	31.3	93.8
	To a very large extent	1	6.3	6.3	100.0
	Total	16	100.0	100.0	



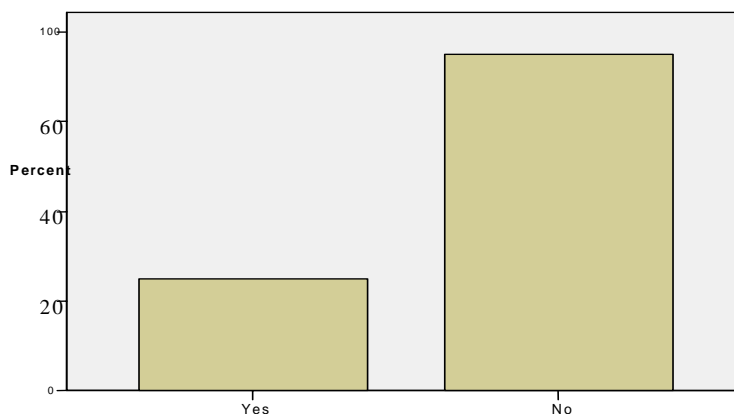
**Figure 4.7. Feasibility of e-Education at Gert Sibande region**

Question 4.3.7 seeks to find out about the readiness of implementing e-Education policy at Gert Sibande region. According to the respondents from the survey, it is clear that MDE officials are not yet ready to implement the policy. This is substantiated by 80% of respondents saying that the strategic objective of e-Education (White paper) at Gert Sibande region is to a lesser extent feasible. This proves that before e-Education policy can be implemented the MDE should provide FET schools in the Gert Sibande region with ICT resources based on national curriculum statement (NCS). For learners to be computer literate, schools must have proper computer laboratories or classrooms that have adequate and smooth running computers.

**4.3.7. Is there currently a policy on provisioning/distribution of ICT resources at Gert Sibande region?**

**Table 4.9: Availability of policy on provisioning/distribution of ICT resources at Gert Sibande region**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	4	25.0	25.0	25.0
	No	12	75.0	75.0	100.0
	Total	16	100.0	100.0	



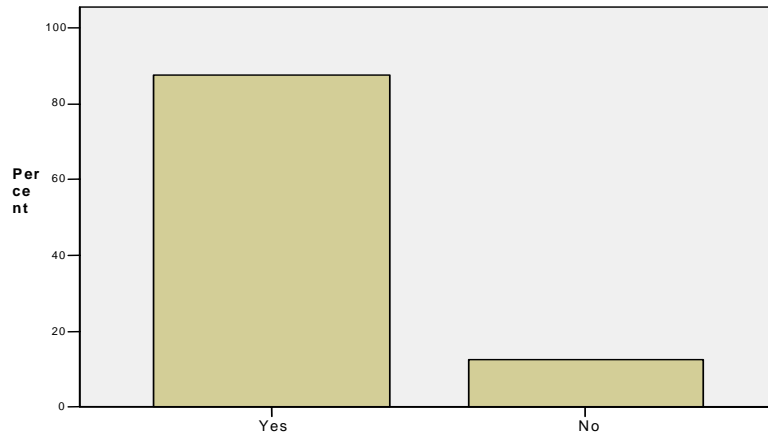
**Figure 4.8. Availability of policy on provisioning/distribution of ICT resources at Gert Sibande region**

From figure 4.8, valid percentage (90%) indicates that the regional implementation strategic programme on e-Education policy does not exist. According to Regenesys (School of Public Management, 2005), all public sectors must manage their sections with the use of MDE policies. All MDE Policies serve as guidance towards achieving goals of the Department. Without neither regional nor provincial e-Education policy in place, schools will implement this policy to respond to situations. This means that SMTs of schools will only implement some sections of the policy just to respond to national call. If a regional policy can be drafted, all schools will follow this policy guidelines and in turn attain the e-Education objectives.

**4.3.9. Is there a budget from the MDE for ICT resources (FET schools)?**

**Table 4.10: Availability of ICT budget**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	14	87.5	87.5	87.5
	No	2	12.5	12.5	100.0
	Total	16	100.0	100.0	



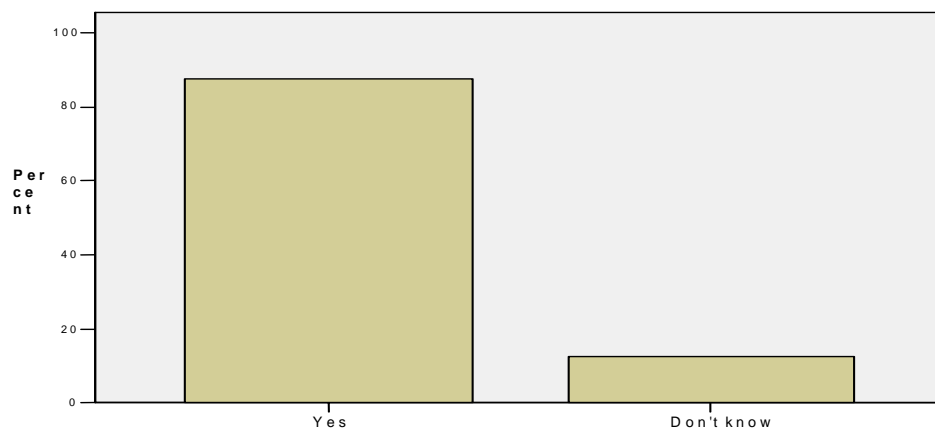
**Figure 4.9. Availability of ICT budget**

Provisioning of ICT resources involves part of budget from the Department. Although table 4.10 and figure 4.9 from the survey shows that there is a budget for ICT resources, it is not structured and it is only used when there is outcry from clients (schools and communities). According to PFMA of 1999, the accounting officer of the Department of Education must publicize all budgets that are going to be utilised during the budget speech of the provincial premier provincial parliament. However, the premier does speak about it in his speech but does not reach regions accordingly. Some MDE official at Gert Sibande region elaborate their response to this question by saying that “only the province does the tendering of all resources therefore that is why the above said budget speech does not reach regions”. In other words, ICT resources will only be provided by the provincial department to schools instead of regions granting schools with their regional budgets.

**4.3.10 Are there any partnerships between the MDE and any NGO or private sector with regard to ICT resources?**

**Table 4.11: Partnership with other stakeholders**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	14	87.5	87.5	87.5
	Don't know	2	12.5	12.5	100.0
	Total	16	100.0	100.0	



**Figure 4.10 Partnership with other stakeholders**

Most of the responded from the survey agreed that without partnership between MDE and private sectors, the Education Department will not attain their vision of e-Education. ICT resources are very expensive and technology changes everyday. A great slice of budget is needed in supplying all FET schools with ICT resources. The private sector plays a very important role in social development. For example, if most software providers can partner with MDE, the department can save a lot in all software provided by these companies. The same can be done with companies that manufacture hardware, like *ACER* or *Dell*. Before taxation can be implemented to these companies, the government subtracts all funds utilised for social upliftment (Taxation in South Africa: Government gazette, 1996). Although it is the private sector's prerogative to donate or sponsor who ever they wish to fund, they are obliged to fund social and educational activities. Also, partnership is very important because ICT resources need to be sustained due to technological change. MDE cannot sustain ICT resources on its own unless other educational activities like providing Learning and Teaching Support Material (LTSM) are overlooked.

#### **4.4. Analysis of survey questionnaires (School Management Team of FET schools)**

Table 4.12 (designed using [SPSS - Statistical Package for the Social Sciences](#) version 13) represents the output coded by cross tabs. These indicate how raw data retrieved from FET schools was clustered, coded, analysed and interpreted. In this section I will create an organizational framework by putting similar figures, numbers and records into data clumps. I will code the contents of each major clump, thereby breaking down major code into numerous sub-codes (See below Table 4.13-4.21). These sub-codes will be classified into four main categories, namely: *Context and demographics of FET schools in Gert Sibande region; ICT literacy of both SMTs and educators; Provision of ICT resources by*



both MDE and NGO/Private sectors and feasibility of e-communication policy. These latter sub-codes will be used in to addressing the research aim and objectives as stipulated in chapter one (1.3). I will place the various data clumps in a meaningful sequence that will contribute to the next chapter on challenges and recommendations.

The following table (4.12) summarises the total number of response of SMT by cross-tabulation of questionnaires that was provided during the survey. In this case processing, “N” represents the number of respondents, “missing” represent the total number of respondents who did not attempt or answer the question, while the total percentages are mathematically drawn from the valid “N” and missing “N”.

**Table 4.12 Case Processing Summary**

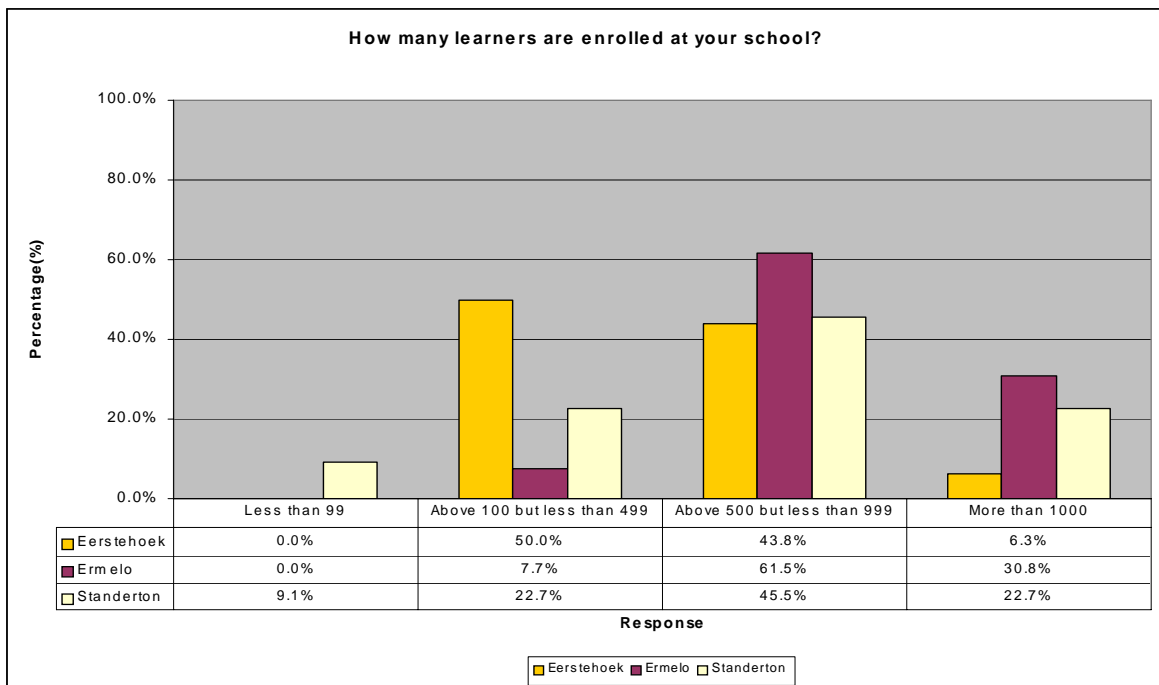
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
How many learners are enrolled at your school? * Sub Region	51	100.0%	0	.0%	51	100.0%
How many educators are ICT literate? * Sub Region	51	100.0%	0	.0%	51	100.0%
How many working computers are currently available? * Sub Region	51	100.0%	0	.0%	51	100.0%
Who provided your school with computer hardware? - MDE * Sub Region	51	100.0%	0	.0%	51	100.0%
Who provided your school with computer hardware? - NGO * Sub Region	51	100.0%	0	.0%	51	100.0%
Who provided your school with computer hardware? - SGB * Sub Region	51	100.0%	0	.0%	51	100.0%
Who provided your school with computer hardware? - Private Sector * Sub Region	51	100.0%	0	.0%	51	100.0%
Who provided your school with computer hardware? - Other * Sub Region	51	100.0%	0	.0%	51	100.0%
How would classify the area in which your school is situated? * Sub Region	51	100.0%	0	.0%	51	100.0%
What percentage of your SMT is ICT literate? * Sub Region	51	100.0%	0	.0%	51	100.0%
In which category was your classified prior to 1994? * Sub Region	50	98.0%	1	2.0%	51	100.0%

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
How do you rate Mpumalanga Department of Education in provisioning of ICT resources? * Sub Region	51	100.0%	0	.0%	51	100.0%
How do you rate NGO's in provisioning of ICT resources? * Sub Region	51	100.0%	0	.0%	51	100.0%
How do you rate private sector in provisioning of ICT resources? * Sub Region	50	98.0%	1	2.0%	51	100.0%
How many computers did your school receive from MDE? * Sub Region	50	98.0%	1	2.0%	51	100.0%
How many computers did your school receive from NGO? * Sub Region	50	98.0%	1	2.0%	51	100.0%
How many computers did your school receive from private sector? * Sub Region	50	98.0%	1	2.0%	51	100.0%
To what extent is the school's current security measures sufficient to safety of ICT resources? * Sub Region	50	98.0%	1	2.0%	51	100.0%
To what extent is the strategic objective of e-Education feasible in the Gert Sibande region? * Sub Region	50	98.0%	1	2.0%	51	100.0%
Is your school in possession of white paper 7 on e-Education? * Sub Region	50	98.0%	1	2.0%	51	100.0%
If yes, where did your school receive it? - MDE * Sub Region	22	43.1%	29	56.9%	51	100.0%
If yes, where did your school receive it? - NGO/Private Sector * Sub Region	22	43.1%	29	56.9%	51	100.0%
If yes, where did your school receive it? - Higher institutions of learning * Sub Region	21	41.2%	30	58.8%	51	100.0%
If yes, where did your school receive it? - Public unions * Sub Region	21	41.2%	30	58.8%	51	100.0%
To what extent do you regard white paper 7 to be appropriate in our current national curriculum statement * Sub Region	21	41.2%	30	58.8%	51	100.0%
Does your school already have strategic plan on e-Education? * Sub Region	21	41.2%	30	58.8%	51	100.0%

As I have indicated above, paragraph 4.4, major code clump will be broken down into numerous sub-Codes. The following displayed tables and figures will now denote more vividly and detailed Sub-Codes, which will be categorized in relation with or according to the case processing summary displayed above in table 4.12.

**Table 4.13 Enrolment of learners at individual FET schools**

How many learners are enrolled at your school?			Sub Region			
			Eerstehoek	Ermelo	Standerton	Total
	Less than 99	Count	0	0	2	2
		% within Sub Region	.0%	.0%	9.1%	3.9%
	Above 100 but less than 499	Count	8	1	5	14
		% within Sub Region	50.0%	7.7%	22.7%	27.5%
	Above 500 but less than 999	Count	7	8	10	25
		% within Sub Region	43.8%	61.5%	45.5%	49.0%
	More than 1000	Count	1	4	5	10
		% within Sub Region	6.3%	30.8%	22.7%	19.6%
Total		Count	16	13	22	51
		% within Sub Region	100.0%	100.0%	100.0%	100.0%



**Figure 4.11 Enrolment of learners at individual FET schools**

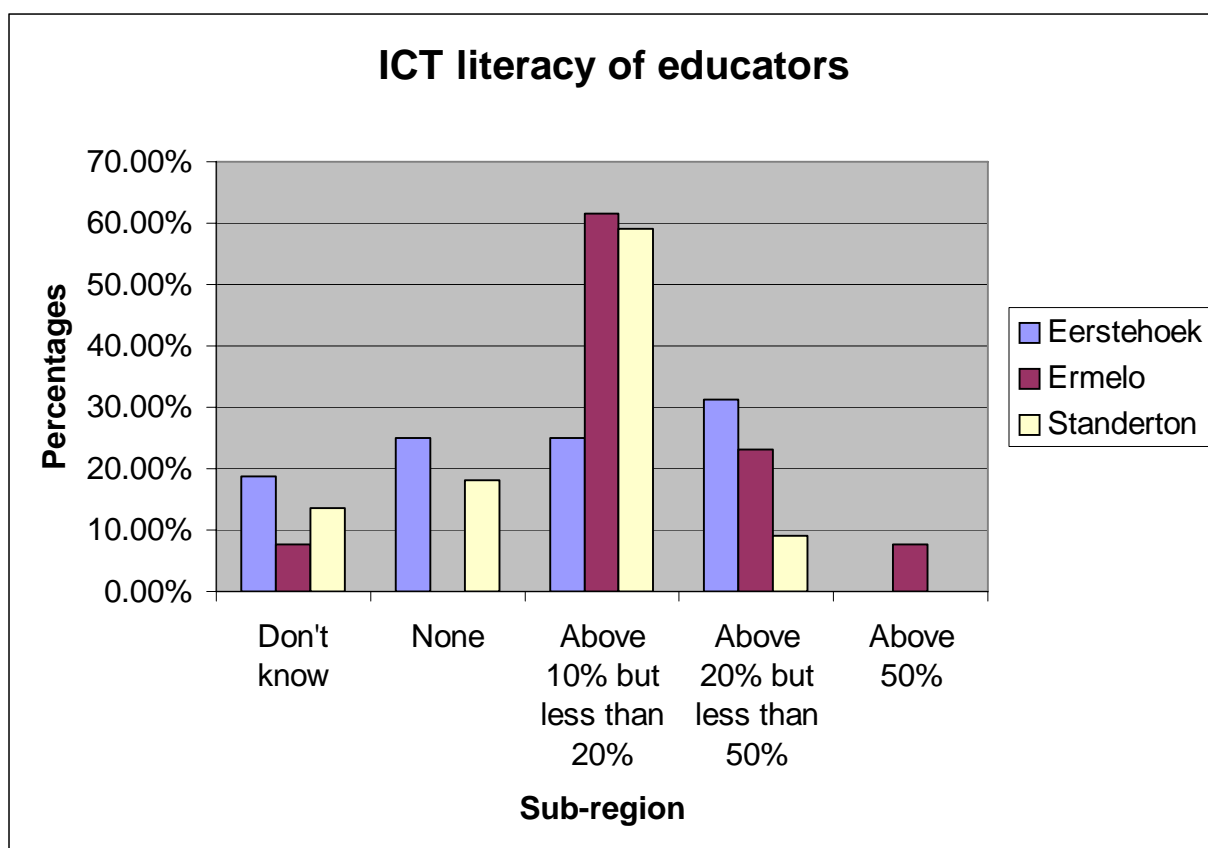
Table 4.13 and figure 11 indicates that the majority of FET schools at Gert Sibande have an average roll (registered learners) between 500 and 1000 learners. According to e-Education policy on provisioning of ICT resource (2learners:1computer), this indicates

that the MDE together with the assistance of NGOs have to provide FET schools with a minimum average of 250 computers per individual school. This also implies that six to seven computer laboratories with a current standard classroom size that allocates 30 computer stations have to be constructed or converted from ordinary classrooms to computer laboratories.

The survey questionnaire also sought to find out about the ICT literacy of FET educators and their SMTs to be of service when provisioning of ICT resources takes place. Because ICT literacy of three sub-codes in the questionnaire are similar in mode but differ in approach, they will be analysed simultaneously. Below are Table 4.14 and 4.15 relating to ICT literacy of human resources in FET schools within Gert Sibande region.

**Table 4.14. The average number of ICT educators who are ICT literate at Gert Sibande region in FET schools.**

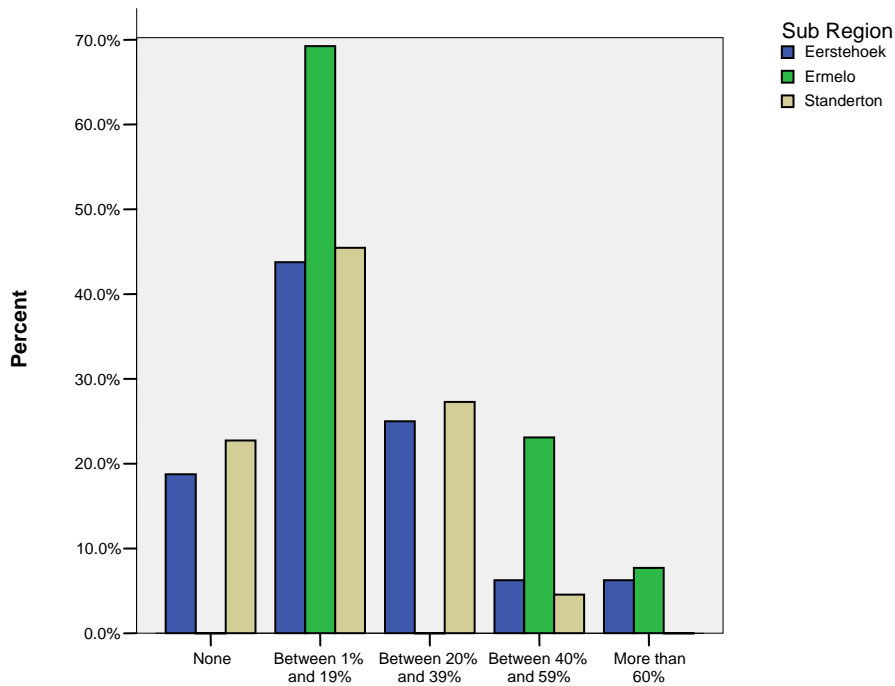
How many educators are ICT literate?			Sub Region			Total
			Eerstehoek	Ermelo	Standerton	
Don't know	Count		3	1	3	7
	% within Sub Region		18.8%	7.7%	13.6%	13.7%
None	Count		4	0	4	8
	% within Sub Region		25.0%	.0%	18.2%	15.7%
Above 10% but less than 20%	Count		4	8	13	25
	% within Sub Region		25.0%	61.5%	59.1%	49.0%
Above 20% but less than 50%	Count		5	3	2	10
	% within Sub Region		31.3%	23.1%	9.1%	19.6%
Above 50%	Count		0	1	0	1
	% within Sub Region		.0%	7.7%	.0%	2.0%
Total		Count	16	13	22	51
		% within Sub Region	100.0%	100.0%	100.0%	100.0%



**Figure 4.12.** The average number of ICT educators who are ICT literate at Gert Sibande region in public FET schools.

**Table 4.15.** The average percentage of SMT who are ICT literate at Gert Sibande region in FET schools.

What percentage of your SMT is ICT literate?			Sub Region			Total
			Eerstehoek	Ermelo	Standerton	
None	Count	3	0	5	8	
	% within Sub Region	18.8%	.0%	22.7%	15.7%	
Between 1% and 19%	Count	7	9	10	26	
	% within Sub Region	43.8%	69.2%	45.5%	51.0%	
Between 20% and 39%	Count	4	0	6	10	
	% within Sub Region	25.0%	.0%	27.3%	19.6%	
Between 40% and 59%	Count	1	3	1	5	
	% within Sub Region	6.3%	23.1%	4.5%	9.8%	
More than 60%	Count	1	1	0	2	
	% within Sub Region	6.3%	7.7%	.0%	3.9%	
Total		Count	16	13	22	51
		% within Sub Region	100.0%	100.0%	100.0%	100.0%



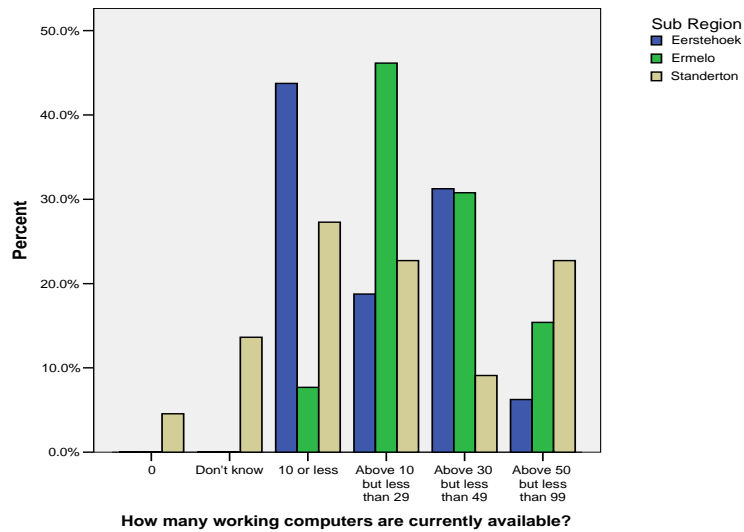
What percentage of your SMT is ICT literate?

**Figure 4.13. The average percentage of SMT who are ICT literate at Gert Sibande region in FET schools.**

According to table 4.13 it is found that 80% of educators within Gert Sibande region are ICT illiterate. Also figure 4.12 shows that 25.0% of half the number of educators in an individual FET school Eerstehoek sub-region are ICT literate, followed by Standerton sub-region at 59.1% and lastly 61.5% in Ermelo sub-region. For example, if a school has 40 educators in Eerstehoek sub-region, 25% of 20 educators, which are only 5 educators out 40, are ICT literate. Between 1% and 19% of school management teams (SMT) are ICT literate. This indicates that most SMTs are still uninformed about introducing computers in teaching and learning as stipulated by e-education policy (white paper 7).

**Table 4.16. Availability of Computers at FET schools in Gert Sibande region.**

How many working computers are currently available?			Sub Region			Total
			Eerstehoek	Ermelo	Standerton	
0	Count	0	0	1		
	% within Sub Region	.0%	.0%	4.5%	2.0%	
Don't know	Count	0	0	3	3	
	% within Sub Region	.0%	.0%	13.6%	5.9%	
10 or less	Count	7	1	6	14	
	% within Sub Region	43.8%	7.7%	27.3%	27.5%	
Above 10 but less than 29	Count	3	6	5	14	
	% within Sub Region	18.8%	46.2%	22.7%	27.5%	
Above 30 but less than 49	Count	5	4	2	11	
	% within Sub Region	31.3%	30.8%	9.1%	21.6%	
Above 50 but less than 99	Count	1	2	5	8	
	% within Sub Region	6.3%	15.4%	22.7%	15.7%	
Total		Count	16	13	22	51
	% within Sub Region		100.0%	100.0%	100.0%	100.0%

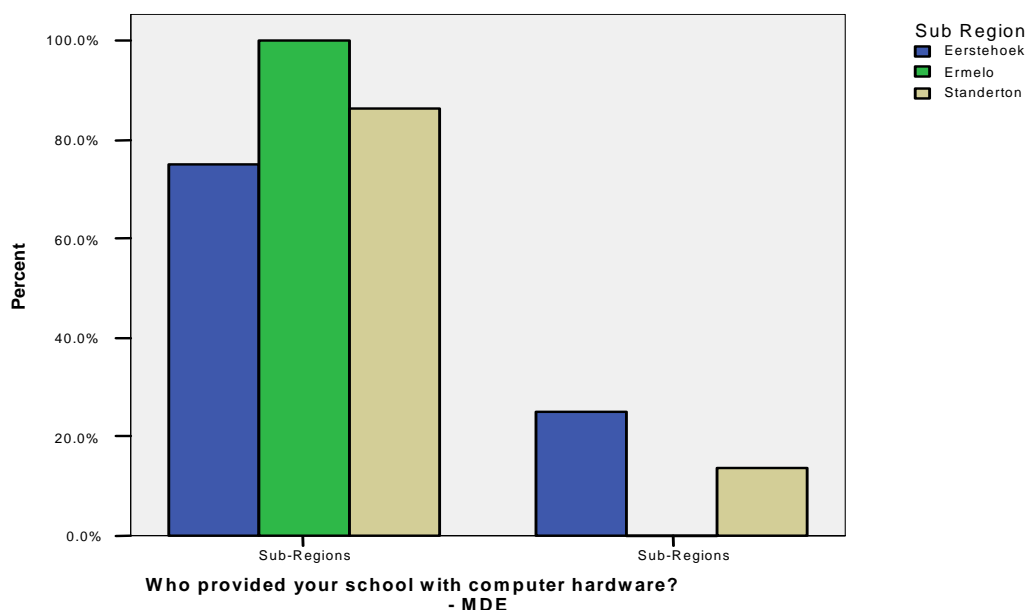


**Figure 4.14. The number of Computers available at FET schools in Gert Sibande region.**

Most schools are in possession of between 10 and 29 computers. This implies that learners are still disadvantaged in using computers in learning because of the inconsistency ratio between computers and learners. For example, a school with 10 computers cannot cater for a roll of 1000 learners in teaching and learning. Table 4.16 and its figure 4.14 also statistically confirm this. Consequently, the following three survey questions refer to provisioning of ICT resources to FET schools.

**Table 4.17. Who provided your school with computer hardware? - MDE**

Who provided your school with computer hardware? – MDE			Sub Region			Total
			Eerstehoek	Ermelo	Standerton	
	Unmarked	Count	12	13	19	44
		% within Sub Region	75.0%	100.0%	86.4%	86.3%
	1	Count	4	0	3	7
		% within Sub Region	25.0%	.0%	13.6%	13.7%
Total		Count	16	13	22	51
		% within Sub Region	100.0%	100.0%	100.0%	100.0%



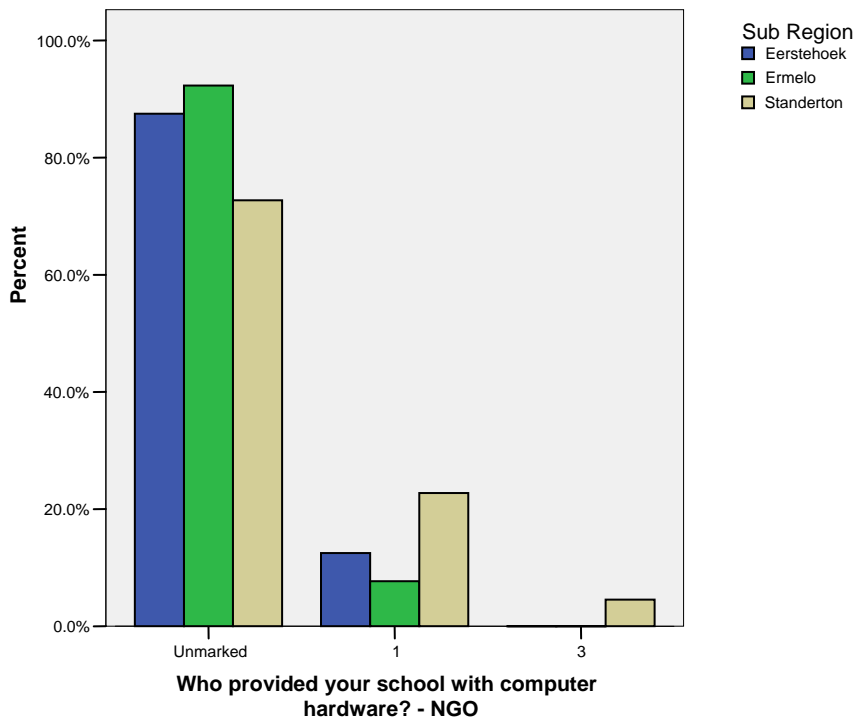
**Figure 4.15. Provision of computer hardware by MDE**

The total number of computers provided by the MDE as shown by the table 4.17 in Gert Sibande region is 44. This implies that an average of one computers have been provided to individual public FET schools. These computers were provided to these FET schools for administration purposes and not for implementing e-Education policies.

**Table 4.18. Who provided your school with computer hardware? - NGO**

Who provided your school with computer hardware? - NGO			Sub Region			Total
			Eerstehoek	Ermelo	Standerton	
	Unmarked	Count	14	12	16	42
		% within Sub Region	87.5%	92.3%	72.7%	82.4%
	1	Count	2	1	5	8
		% within Sub Region	12.5%	7.7%	22.7%	15.7%
	3	Count	0	0	1	1
		% within Sub Region	.0%	.0%	4.5%	2.0%
Total		Count	16	13	22	51
		% within Sub Region	100.0%	100.0%	100.0%	100.0%



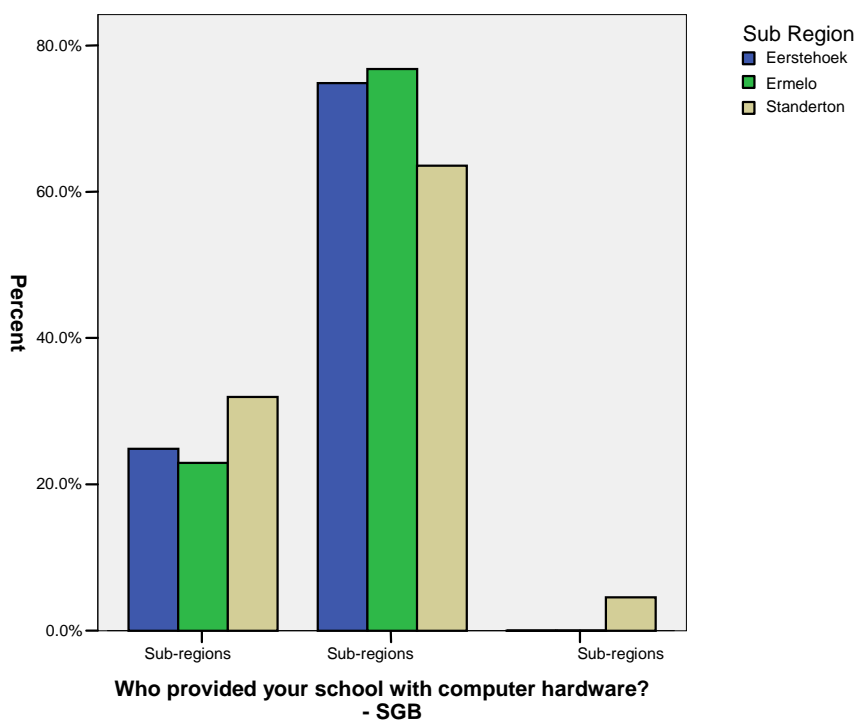


**Figure 4.16. Provision of computer hardware by NGO.**

Table 4.18 indicates that 42 computers were provided to FET schools by the NGOs. Most of these schools that benefited from this donation were most of FET schools in rural areas, especially in Eerstehoek sub-region.

**Table 4.19. Who provided your school with computer hardware? - SGB**

Who provided your school with computer hardware? - SGB			Sub Region			Total
			Eerstehoek	Ermelo	Standerton	
Unmarked	Count	4	3	7	14	
	% within Sub Region	25.0%	23.1%	31.8%	27.5%	
1	Count	12	10	14	36	
	% within Sub Region	75.0%	76.9%	63.6%	70.6%	
3	Count	0	0	1	1	
	% within Sub Region	.0%	.0%	4.5%	2.0%	
Total		Count	16	13	22	51
		% within Sub Region	100.0%	100.0%	100.0%	100.0%

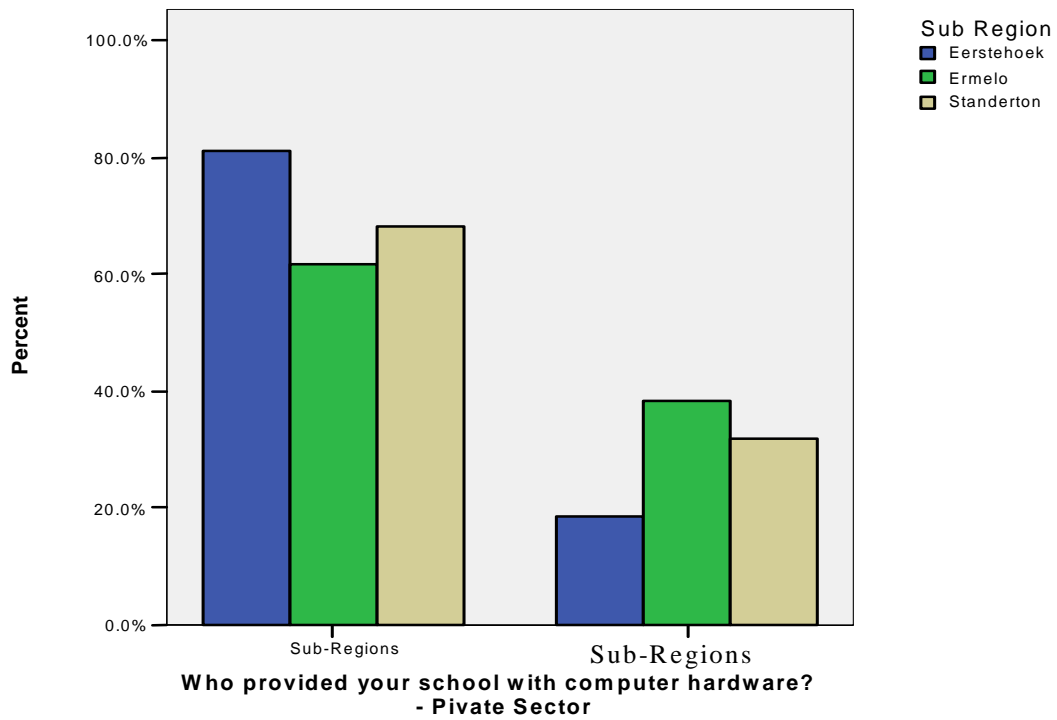


**Figure 4.17. Provision of computer hardware by SGB.**

Figure 4.17 shows that school governing bodies of Ermelo and Standerton sub-regions provides their schools with most ICT resources. Most of formerly Model C schools are located in the latter two sub-regions. Most of the constituencies of parental bodies are able to raise funds from parents and surrounding companies. This is because big companies and factories surround Ermelo and Standerton sub-regions.

**Table 4.20. Who provided your school with computer hardware? – Private Sector**

Who provided your school with computer hardware? - Private Sector			Sub Region			Total
			Eerstehoek	Ermelo	Standerton	
Unmarked	Count		13	8	15	36
	% within Sub Region		81.3%	61.5%	68.2%	70.6%
1	Count		3	5	7	15
	% within Sub Region		18.8%	38.5%	31.8%	29.4%
Total		Count	16	13	22	51
	% within Sub Region		100.0%	100.0%	100.0%	100.0%

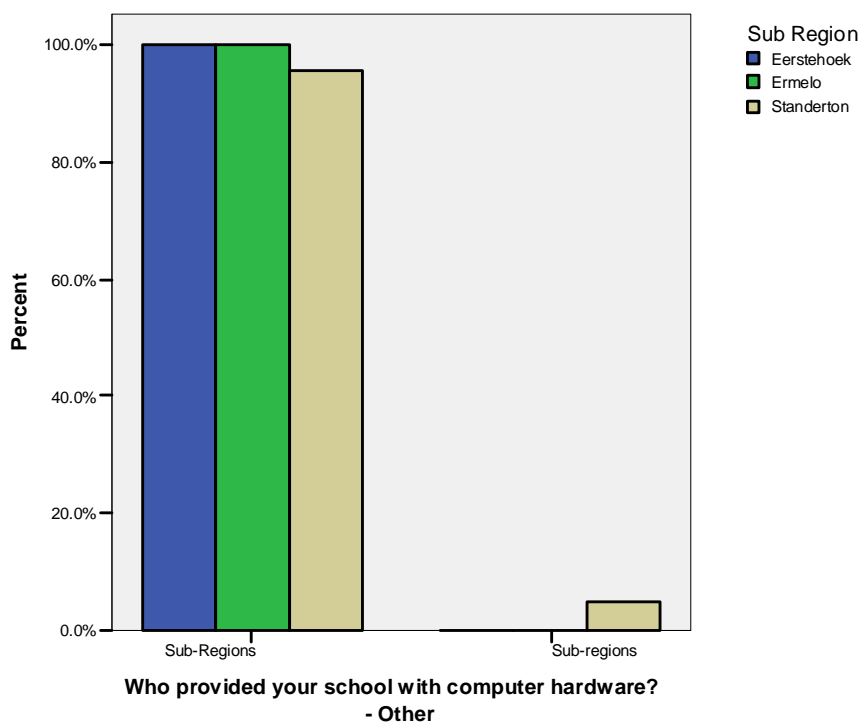


**Figure 4.17. Provision of computer hardware by private sector.**

Table 4.17 indicates that private sectors are the biggest ICT resources providers to public FET schools as compared to MDE, SGB and NGOs. There are two reasons for this. Firstly, the latter three (MDE, SGB, NGO) are not profit generating organizations. Therefore they do not afford to provide ICT resources to schools as much as private sectors. Secondly, some of these private sectors are also manufactures and distributors of these computer hardware.

**Table 4.21. Who provided your school with computer hardware? – Other**

Who provided your school with computer hardware? - Other			Sub Region			Total
			Eerstehoek	Ermelo	Standerton	
	Unmarked	Count	16	13	21	50
		% within Sub Region	100.0%	100.0%	95.5%	98.0%
	1	Count	0	0	1	1
		% within Sub Region	.0%	.0%	4.5%	2.0%
Total		Count	16	13	22	51
		% within Sub Region	100.0%	100.0%	100.0%	100.0%

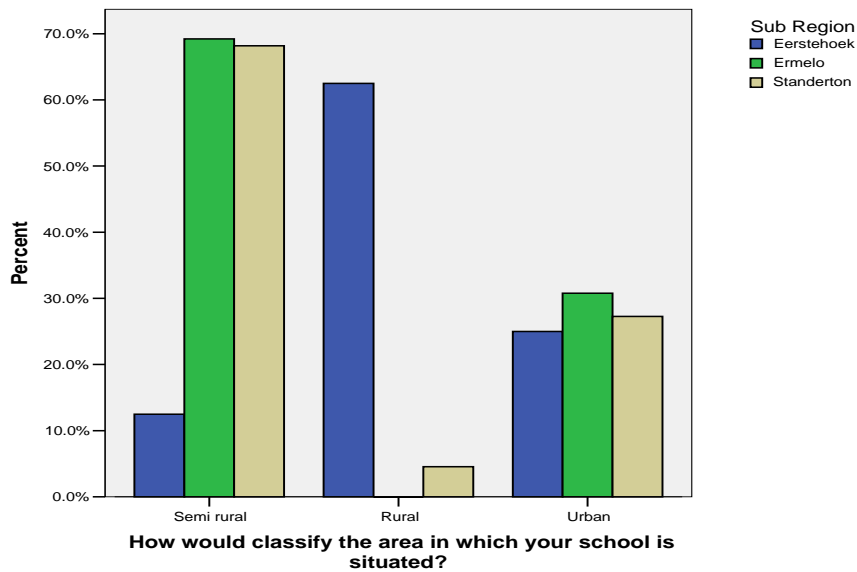


**Figure 4.18. Provision of computer hardware by other sectors.**

ICT resources are provided for schools by private sectors, NGOs and SGBs in most previously advantaged schools, while the MDE is engaged with providing previously disadvantaged schools with computers. Because there are few major private sectors in Eerstehoek as compared with Standerton sub-region, some FET schools have only one computer, provided by the MDE for administration purposes. Most private sectors contribute to their immediate communities because it is believed that their employees come from there. Therefore, this implies that the MDE has the sole responsibility for providing ICT resources to sub-regions where there are a few major private sectors and NGOs that actively participate in sponsoring resources to FET schools within Gert Sibande region. The following cross tabulation then indicates how FET schools in sub regions are located.

**Table 4.22. Area classification of FET schools in Gert Sibande Region.**

How would you classify the area in which your school is situated?			Sub Region			Total
			Eerstehoek	Ermelo	Standerton	
Semi rural	Count	2	9	15	26	
	% within Sub Region	12.5%	69.2%	68.2%	51.0%	
Rural	Count	10	0	1	11	
	% within Sub Region	62.5%	.0%	4.5%	21.6%	
Urban	Count	4	4	6	14	
	% within Sub Region	25.0%	30.8%	27.3%	27.5%	
Total		Count	16	13	22	51
		% within Sub Region	100.0%	100.0%	100.0%	100.0%

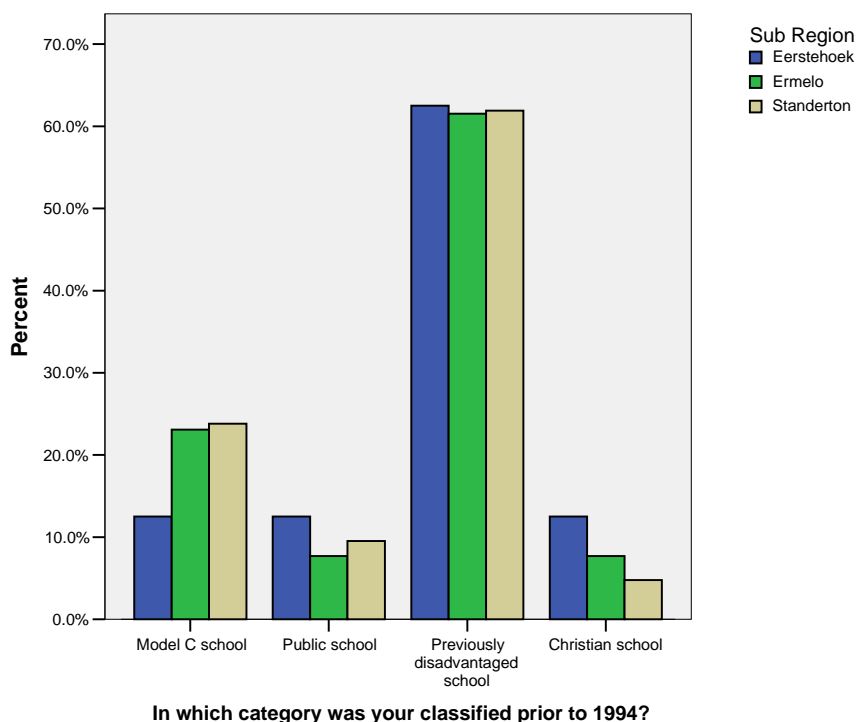


**Figure 4.20. How are public FET schools located in Gert Sibande region.**

According to figure 4.19, Eerstehoek sub-region is composed of 62.5% of rural communities, followed by Ermelo Sub-region. Standerton sub-region is 68% semi-rural. This shows that provisioning of ICT resources will also be influenced by the location of FET schools. For example, SGBs of rural FET schools cannot afford to improve their ICT resources because of inadequate financial resources contributed by parents of learners as compared with urban FET schools. Some of these parents of rural FET schools cannot afford to pay school funds because of unemployment. Therefore, the location of FET schools will play a major role in implementing the e-Education policy and provisioning of ICT resources to implement e-Education policy (White paper 7).

**Table 4.23. Classification of FET schools prior 1994.**

In which category was your classified prior to 1994?			Sub Region			Total
			Eerstehoek	Ermelo	Standerton	
Model C school	Count	2	3	5	10	
	% within Sub Region	12.5%	23.1%	23.8%	20.0%	
Public school	Count	2	1	2	5	
	% within Sub Region	12.5%	7.7%	9.5%	10.0%	
Previously disadvantaged school	Count	10	8	13	31	
	% within Sub Region	62.5%	61.5%	61.9%	62.0%	
Christian school	Count	2	1	1	4	
	% within Sub Region	12.5%	7.7%	4.8%	8.0%	
Total	Count	16	13	21	50	
	% within Sub Region	100.0%	100.0%	100.0%	100.0%	

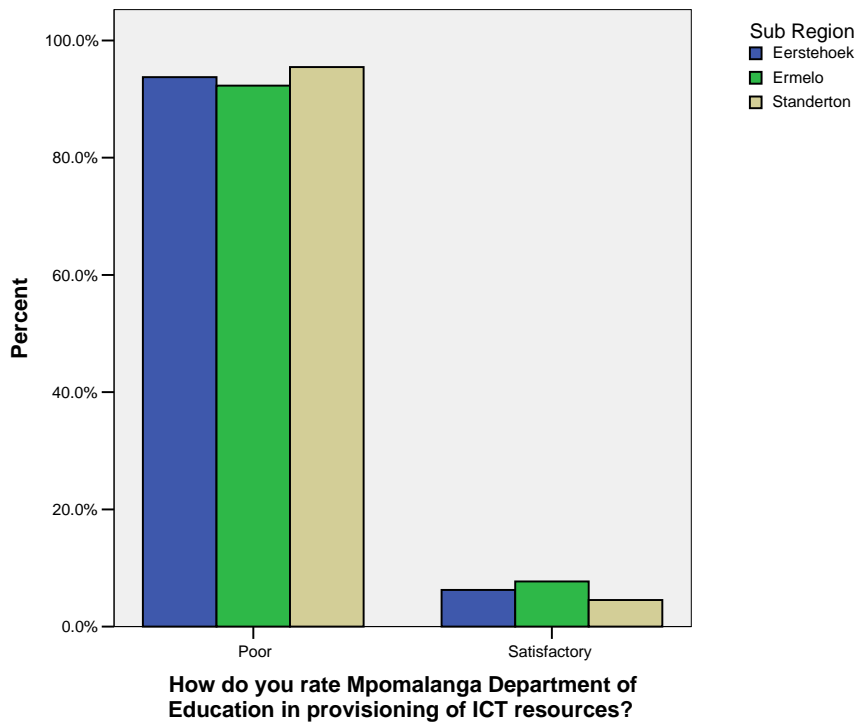


**Figure 4.21. Classification of FET schools prior 1994.**

Table 4.23 also indicates the socio-economic and political trend of FET schools. These two perceptions (socio-economic and politics) have a great influence on provisioning of ICT resources as indicated by the above cross tabulation 4.21. The above table also illustrates that Gert Sibande region is composed by the majority of FET schools (about 62%) that were previously disadvantaged. The below cross tabulations and graphs (4.22 - 4.23) sought to find out about the perception on how public FET schools rate their ICT resources contributors.

**Table 4.24. How do FET schools rate MDE in providing ICT resources.**

How do you rate Mpumalanga Department of Education in provisioning of ICT resources?			Sub Region			Total
			Eerstehoek	Ermelo	Standerton	
Poor	Count	15	12	21	48	
	% within Sub Region	93.8%	92.3%	95.5%	94.1%	
Satisfactory	Count	1	1	1	3	
	% within Sub Region	6.3%	7.7%	4.5%	5.9%	
Total		Count	16	13	22	51
		% within Sub Region	100.0%	100.0%	100.0%	100.0%

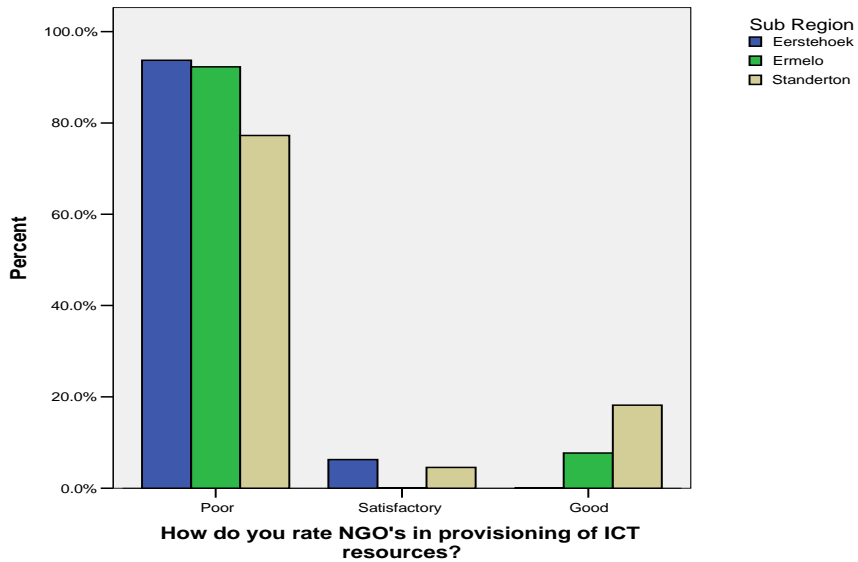


**Figure 4.22. How do FET schools rate MDE in providing ICT resources.**

MDE was rated poor in provisioning of ICT resources by all three sub-regions within Gert Sibande region according to figure 4.21. This data is in comparison with other interested stakeholders in education, such as NGOs, Private sectors, SGBs.

**Table 4.25. How do FET schools rate NGOs in providing ICT resources.**

How do you rate NGO's in provisioning of ICT resources?			Sub Region			Total
			Eerstehoek	Ermelo	Standerton	
Poor	Count	15	12	17	44	
	% within Sub Region	93.8%	92.3%	77.3%	86.3%	
Satisfactory	Count	1	0	1	2	
	% within Sub Region	6.3%	.0%	4.5%	3.9%	
Good	Count	0	1	4	5	
	% within Sub Region	.0%	7.7%	18.2%	9.8%	
Total		Count	16	13	22	51
		% within Sub Region	100.0%	100.0%	100.0%	100.0%



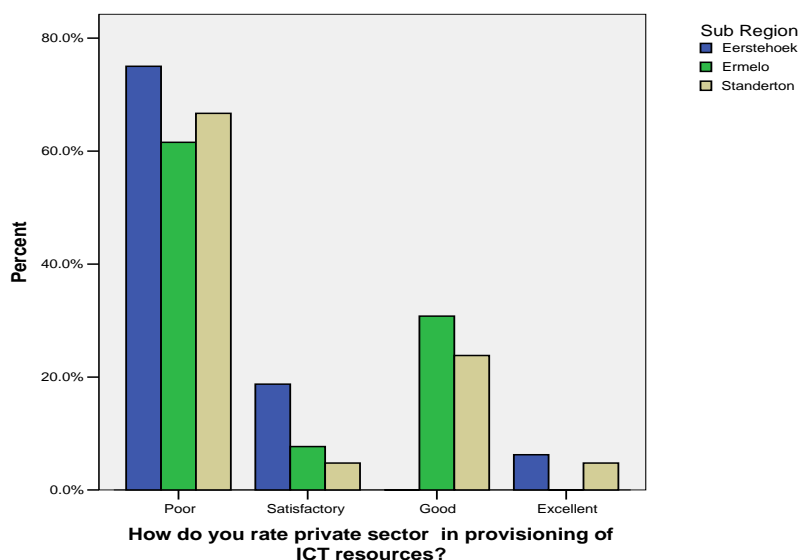
**Figure 4.23. How do FET schools rate NGO in providing ICT resources**

Table 4.21 indicates that only Ermelo sub-region public FET schools are mostly provided by NGOs. This points out that only NGOs around Ermelo Sub-region are actively involved in provisioning of ICT resources in education sector.

**Table 4.26. How do FET schools rate private sectors in providing ICT resources.**

How do you rate private sector in provisioning of ICT resources?			Sub Region			Total
			Eerstehoek	Ermelo	Standerton	
Poor	Count	12	8	14	34	
	% within Sub Region	75.0%	61.5%	66.7%	68.0%	
Satisfactory	Count	3	1	1	5	
	% within Sub Region	18.8%	7.7%	4.8%	10.0%	
Good	Count	0	4	5	9	
	% within Sub Region	.0%	30.8%	23.8%	18.0%	
Excellent	Count	1	0	1	2	
	% within Sub Region	6.3%	.0%	4.8%	4.0%	
Total		Count	16	13	21	50
		% within Sub Region	100.0%	100.0%	100.0%	100.0%





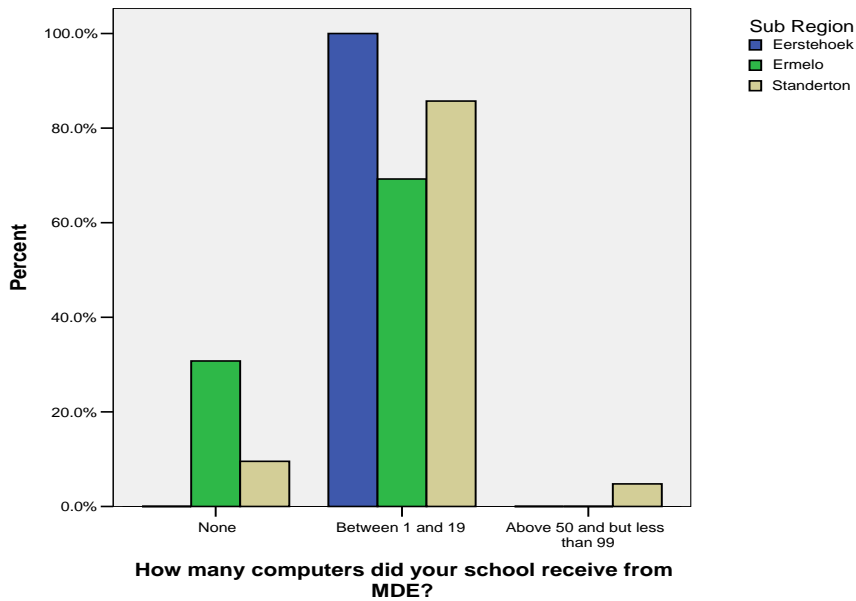
**Figure 4.24. How do FET schools rate private sectors in providing ICT resources**

Table 4.24–4.26 indicates that FET schools rate MDE very poor in provisioning of ICT resources. 30% of FET schools in Standerton sub-region rated private sectors to be good in provisioning of ICT resources and 18% of FET schools in the entire region rated satisfactory to the NGOs. This highlights that the MDE have not yet started with the provisioning of ICT resources and this have great influence in the implementation of e-Education policy. This policy (e-Education) cannot be implemented without computers being made availability to schools.

The following tables (4.4.17 - 4.4.19) shows the exact numbers of computers provided to FET schools in order to verify the above percentages of these schools who rated their ICT resources providers.

**Table 4.27. Computers received by individual public FET schools from MDE**

How many computers did your school receive from MDE?			Sub Region			Total
			Eerstehoek	Ermelo	Standerton	
None	Count	0	4	2	6	
	% within Sub Region	.0%	30.8%	9.5%	12.0%	
Between 1 and 19	Count	16	9	18	43	
	% within Sub Region	100.0%	69.2%	85.7%	86.0%	
Above 50 and but less than 99	Count	0	0	1	1	
	% within Sub Region	.0%	.0%	4.8%	2.0%	
Total		Count	16	13	21	50
		% within Sub Region	100.0%	100.0%	100.0%	100.0%

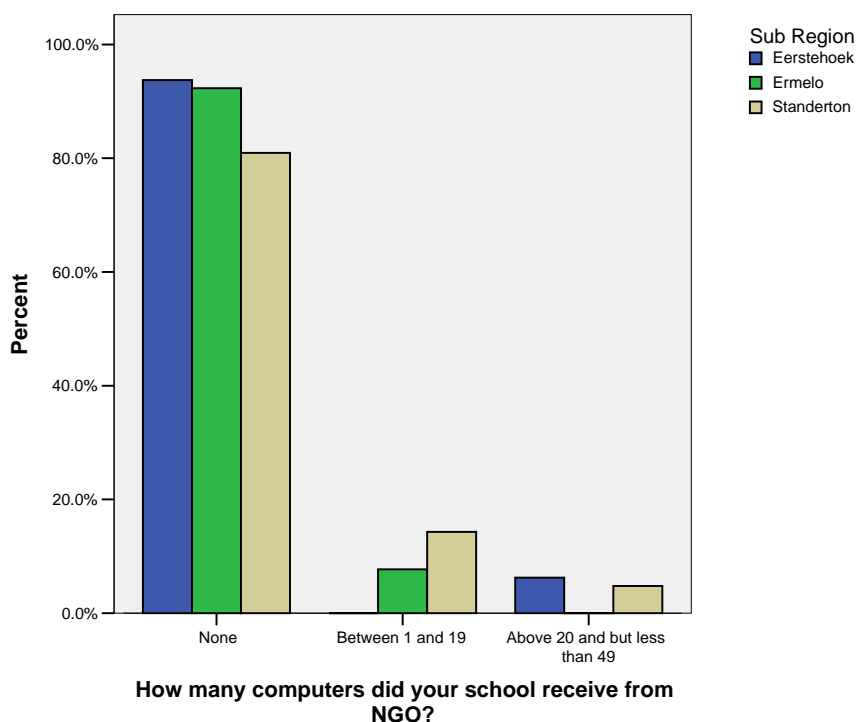


**Figure 4.25. Computers received by public FET schools from MDE**

Figure 4.23 point out that less than 19% of computers were provided to FET school. Most of these FET schools that received much are from Eerstehoek sub-region. This is because the latter sub-region is entirely rural and without productive big companies/factories. Therefore, the only reliable source of ICT resources is of course the MDE.

**Table 4.28. Computers received by individual public FET schools from NGO.**

How many computers did your school receive from NGO?			Sub Region			Total
			Eerstehoek	Ermelo	Standerton	
None	Count	15	12	17	44	
	% within Sub Region	93.8%	92.3%	81.0%	88.0%	
Between 1 and 19	Count	0	1	3	4	
	% within Sub Region	.0%	7.7%	14.3%	8.0%	
Above 20 and but less than 49	Count	1	0	1	2	
	% within Sub Region	6.3%	.0%	4.8%	4.0%	
Total		Count	16	13	21	50
		% within Sub Region	100.0%	100.0%	100.0%	100.0%

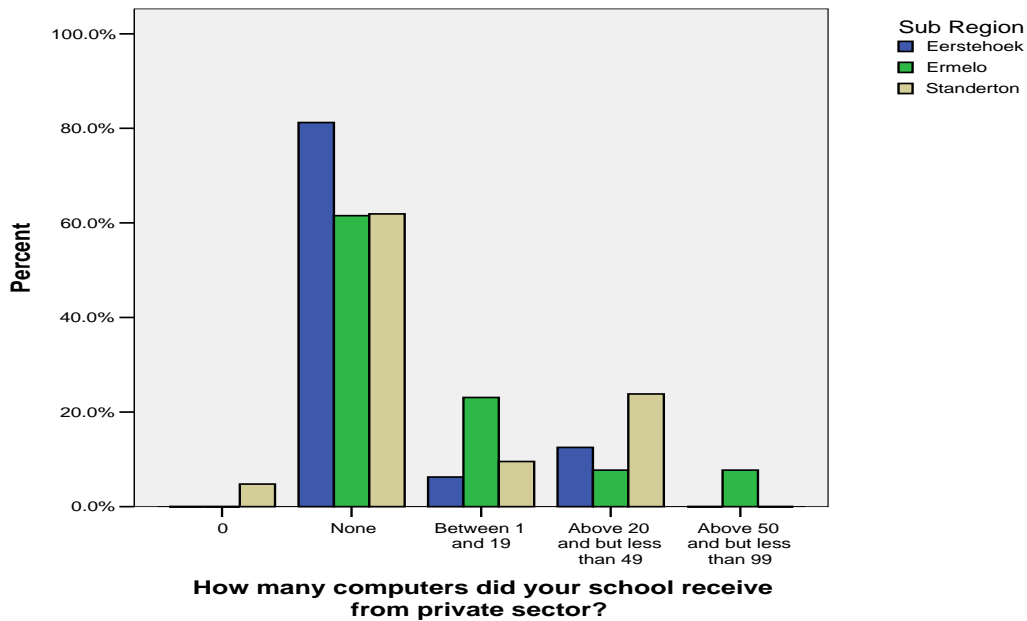


**Figure 4.26. Computers received by public FET schools from NGO**

Public FET schools in Standerton sub-region received more computers from NGOs as indicated by table 4.28. This indicates that Standerton sub-region is enclosed by large number of NGOs that are also participating in education activities of the department. Although in most of the time the government backs up these NGOs financially, some private sectors also give them some sponsorship. The latter sub-region is excessively engulfed by most develop industries such as SASOL.

**Table 4.29. Computers received by individual public FET schools from private sector**

How many computers did your school receive from private sector?			Sub Region			Total
			Eerstehoek	Ermelo	Standerton	
0	Count	0	0	1	1	
	% within Sub Region	.0%	.0%	4.8%	2.0%	
None	Count	13	8	13	34	
	% within Sub Region	81.3%	61.5%	61.9%	68.0%	
Between 1 and 19	Count	1	3	2	6	
	% within Sub Region	6.3%	23.1%	9.5%	12.0%	
Above 20 and but less than 49	Count	2	1	5	8	
	% within Sub Region	12.5%	7.7%	23.8%	16.0%	
Above 50 and but less than 99	Count	0	1	0	1	
	% within Sub Region	.0%	7.7%	.0%	2.0%	
Total		Count	16	13	21	50
		% within Sub Region	100.0%	100.0%	100.0%	100.0%

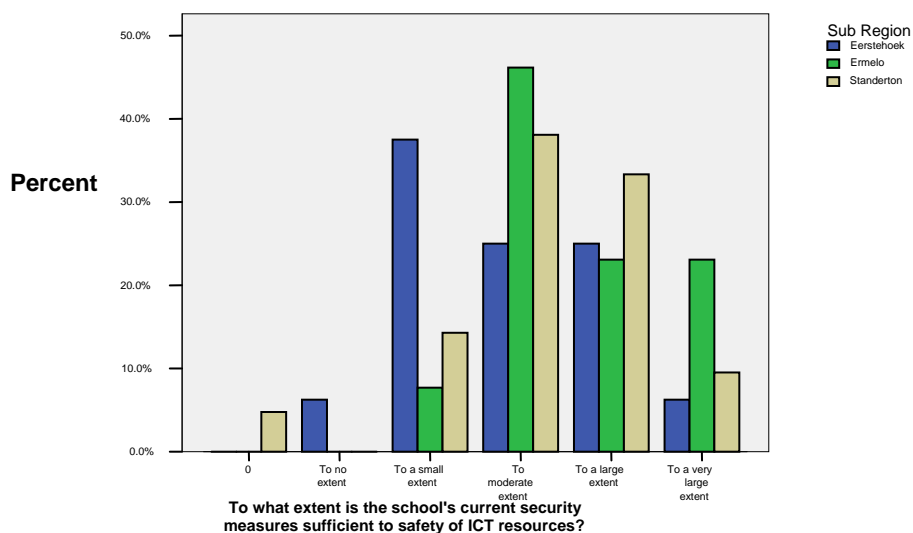


**Figure 4.27. Computers received by public FET schools from private sector**

Not more than 20 computers have been provided to an individual FET school, either by the MDE or private sectors. This statistic also tallies with the latter table 4.22-24 in which both the MDE and private sectors have been rated poor in provisioning of ICT resources. However, there might be various reasons why there is poor provisioning of ICT resources by these structures. Therefore the following survey questions sought to find out about possible reasons why these FET schools were not provided with ICT resources. Such as security measures, mismanagement of resources or infrastructure.

**Table 4.30. Security measures of public FET schools.**

To what extent is the school's current security measures sufficient to safety of ICT resources?			Sub Region			Total
			Eerstehoek	Ermelo	Standerton	
0	Count	0	0	1	1	
	% within Sub Region	.0%	.0%	4.8%	2.0%	
To no extent	Count	1	0	0	1	
	% within Sub Region	6.3%	.0%	.0%	2.0%	
To a small extent	Count	6	1	3	10	
	% within Sub Region	37.5%	7.7%	14.3%	20.0%	
To moderate extent	Count	4	6	8	18	
	% within Sub Region	25.0%	46.2%	38.1%	36.0%	
To a large extent	Count	4	3	7	14	
	% within Sub Region	25.0%	23.1%	33.3%	28.0%	
To a very large extent	Count	1	3	2	6	
	% within Sub Region	6.3%	23.1%	9.5%	12.0%	
Total		Count	16	13	21	50
		% within Sub Region	100.0%	100.0%	100.0%	100.0%

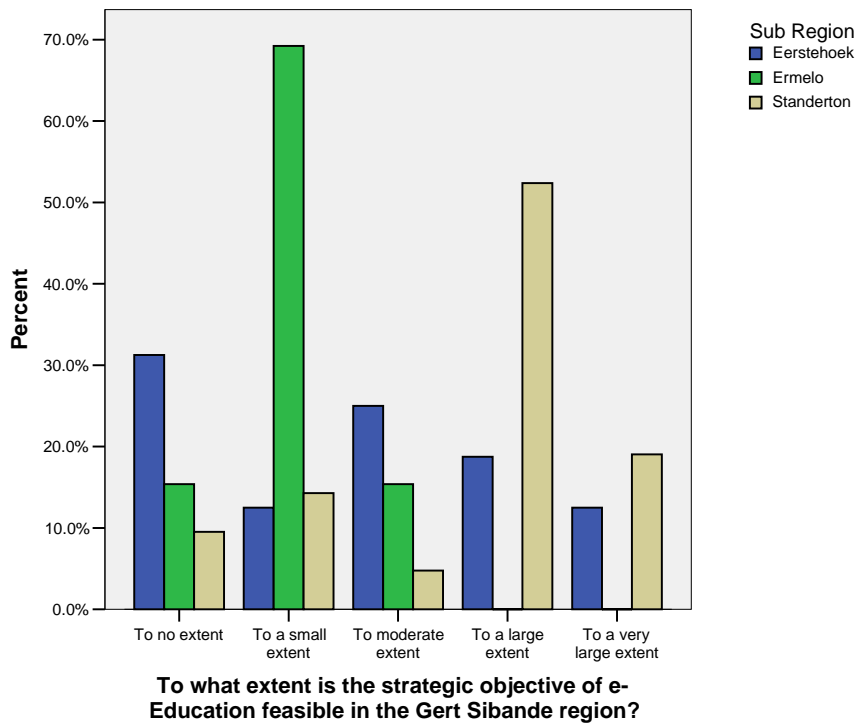


**Figure 4.26. Security measures public FET schools**

Table 4.30 illustrates that FET schools in Ermelo and Standerton sub-region have moderate security measures. This also indicates that schools in urban and semi-rural places have slightly adequate security measures for their resources while rural schools have high percentages of vandalism together with theft of school’s resources.

**Table 4.31. Perceived strategic objectives of White paper 7 by FET schools.**

To what extent is the strategic objective of e-Education feasible in the Gert Sibande region?			Sub Region			Total
			Eerstehoek	Ermelo	Standerton	
To no extent	Count	5	2	2	9	
	% within Sub Region	31.3%	15.4%	9.5%	18.0%	
To a small extent	Count	2	9	3	14	
	% within Sub Region	12.5%	69.2%	14.3%	28.0%	
To moderate extent	Count	4	2	1	7	
	% within Sub Region	25.0%	15.4%	4.8%	14.0%	
To a large extent	Count	3	0	11	14	
	% within Sub Region	18.8%	.0%	52.4%	28.0%	
To a very large extent	Count	2	0	4	6	
	% within Sub Region	12.5%	.0%	19.0%	12.0%	
Total		Count	16	13	21	50
		% within Sub Region	100.0%	100.0%	100.0%	100.0%

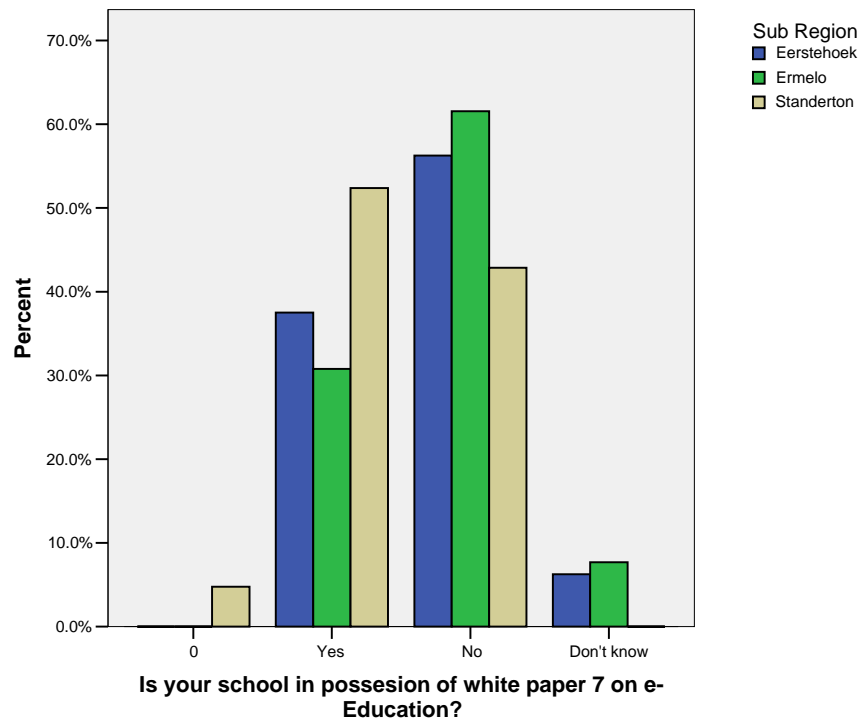


**Figure 4.29. Perceived strategic objectives of white paper 7 by FET schools.**

32% of schools that are in possession of this policy do not know its strategic objective; hence there is little or no endeavor by public FET schools to implement the policy (e-Education).

**Table 4.32. Possession of White paper 7 on e-Education by FET schools**

Is your school in possession of white paper 7 on e-Education?			Sub Region			Total
			Eerstehoek	Ermelo	Standerton	
0	Count	0	0	1	1	
	% within Sub Region	.0%	.0%	4.8%	2.0%	
Yes	Count	6	4	11	21	
	% within Sub Region	37.5%	30.8%	52.4%	42.0%	
No	Count	9	8	9	26	
	% within Sub Region	56.3%	61.5%	42.9%	52.0%	
Don't know	Count	1	1	0	2	
	% within Sub Region	6.3%	7.7%	.0%	4.0%	
Total	Count	16	13	21	50	
	% within Sub Region	100.0%	100.0%	100.0%	100.0%	

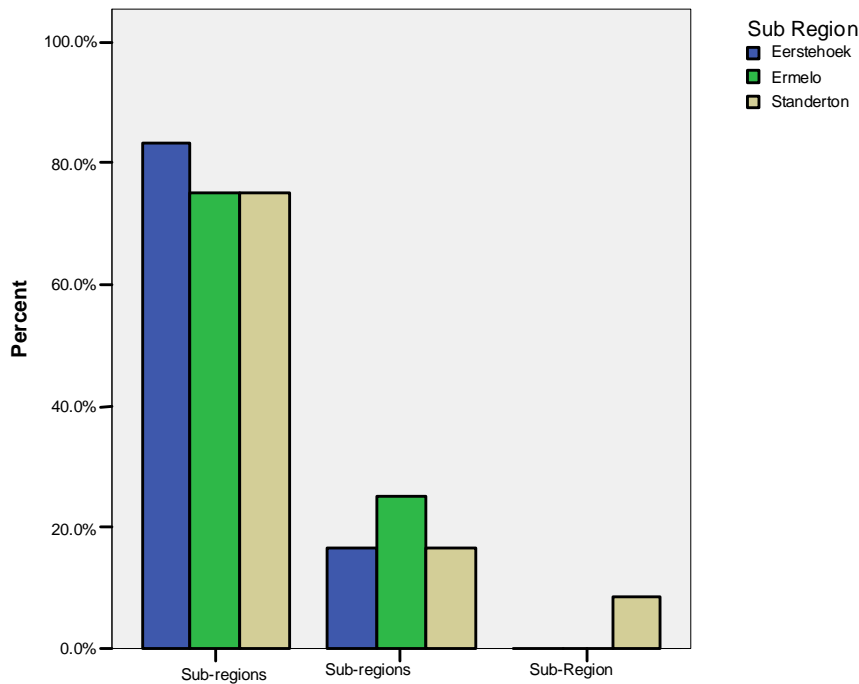


**Figure 4.30. Possession of White paper 7 on e-Education by FET schools.**

Table 4.30 shows the awareness of e-Education policy. More than 60% of FET schools at Gert Sibande region are not in possession of this policy. Because it is the responsibility of MDE to see to it that all public schools are in possession of e-Education policy and are implementing all national and provincial policies, the following stats sought to find out.

**Table 4.33. Which organisations provided the policy to FET schools the most?**

If yes, where did your school receive it? – MDE/Unions/Higher institutions			Sub Region			Total
			Eerstehoek	Ermelo	Standerton	
Unmarked	Count	5	3	9	17	
	% within Sub Region	83.3%	75.0%	75.0%	77.3%	
Marked	Count	1	1	2	4	
	% within Sub Region	16.7%	25.0%	16.7%	18.2%	
5	Count	0	0	1	1	
	% within Sub Region	.0%	.0%	8.3%	4.5%	
Total		Count	6	4	12	22
		% within Sub Region	100.0%	100.0%	100.0%	100.0%



If yes, where did your school receive it? – MDE/Unions/Higher institutions

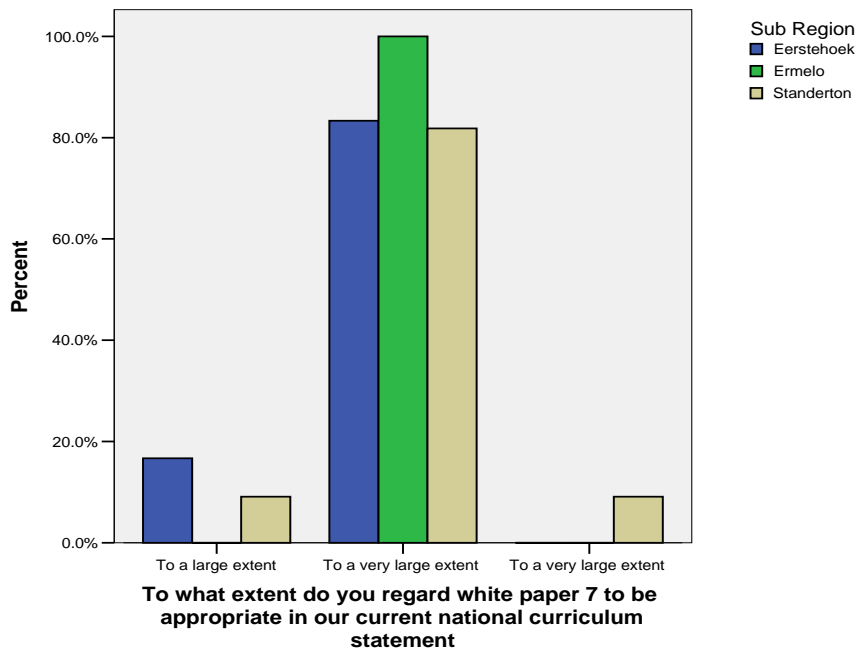
**Figure 4.31. Which organisations provided the policy to FET schools the most?**

More than 50% of FET schools that are in possession of e-Education policy at Gert Sibande region, obtained them from a higher institution of learning and their public unions. Because the MDE is very active in skill development programmes, educators are enrolled with various higher institutions, which is where they get the opportunity to get hold of this policy. From the above survey, it is also learned that unions play a major role in updating their members on new policies that the MDE is currently implementing.

**Table 4.34. Linking e-Education to National Curriculum Statement (NCS)**

To what extent do you regard white paper 7 to be appropriate in our current national curriculum statement			Sub Region			Total
			Eerstehoek	Ermelo	Standerton	
To a large extent	Count	1	0	1	2	
	% within Sub Region	16.7%	.0%	9.1%	9.5%	
To a very large extent	Count	5	4	9	18	
	% within Sub Region	83.3%	100.0%	81.8%	85.7%	
To a very large extent	Count	0	0	1	1	
	% within Sub Region	.0%	.0%	9.1%	4.8%	
Total		Count	6	4	11	21
		% within Sub Region	100.0%	100.0%	100.0%	100.0%



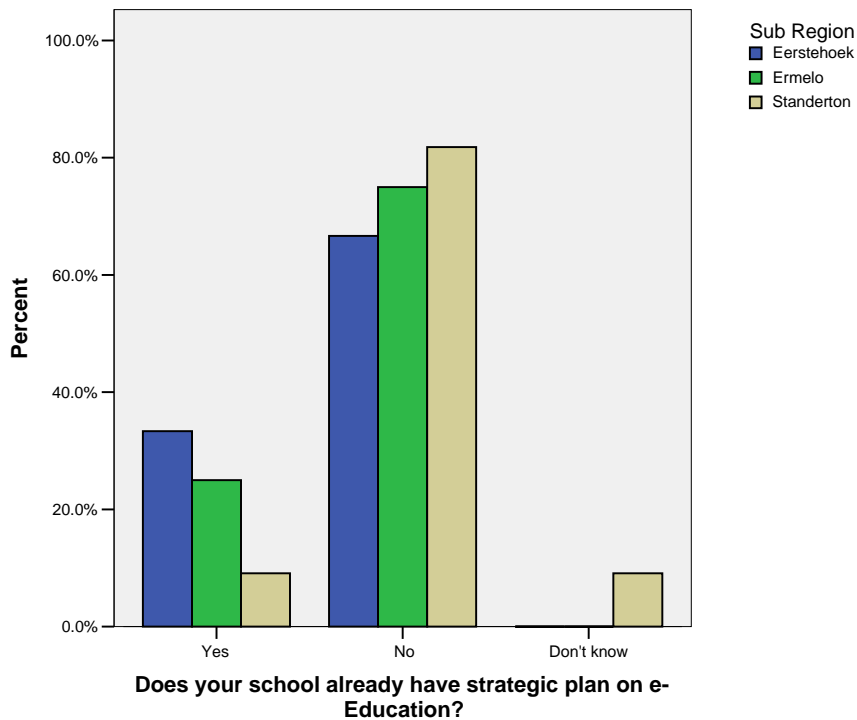


**Figure 4.32. Linking e-Education to National Curriculum Statement (NCS)**

Table 4.30 indicates how this national policy is highly appreciated by most public FET schools. 98% of FET schools regard e-Education policy to be aligned with the new national curriculum statement. Finally, the following table and graph explores FET schools', readiness for the implementation of this policy.

**Table 4.35. Readiness of implementation of e-Education by FET schools.**

Does your school already have strategic plan on e-Education?			Sub Region			Total
			Eerstehoek	Ermelo	Standerton	
Yes	Count	2	1	1	4	
	% within Sub Region	33.3%	25.0%	9.1%	19.0%	
No	Count	4	3	9	16	
	% within Sub Region	66.7%	75.0%	81.8%	76.2%	
Don't know	Count	0	0	1	1	
	% within Sub Region	.0%	.0%	9.1%	4.8%	
Total		Count	6	4	11	21
		% within Sub Region	100.0%	100.0%	100.0%	100.0%



**Figure 4.33. Readiness of implementation of e-Education by FET schools.**

It is found that more than 80% of schools that are in possession of e-Education policy do not have strategies for implementing the policy. This implies that these schools were just given the policy without interpreting it or being workshopped.

#### **4.5. DISCUSSION OF DATA COLLECTED**

From the findings on analysis of data, I clustered these above survey questions with similar focus into four categories (See table 4.1), each of which will be explained in greater detail below, namely:

- White paper 7 (Interaction), derived from question 4 and 7,
- Capacity development of ICT literacy of educators, resultant of question 2
- Policies on distribution/provisioning of ICT resources, derived from question 5, 6, 7 and 8.
- Feasibility of White paper 7 on e-education derived from question 9 and 10.

##### **4.5.1. White Paper-7 interaction**

The state, together with the national and provincial Departments of Education are responsible for providing information to public schools regarding new policies that are developed. This information is provided in a form of a White Paper or a policy document.

Policy documents outline the principles underlying education system, its requirements and the guidelines for implementation. Education reform or innovation is driven by policy and the departmental officials are mandated with the task of cascading and implementation at the level of the client (Motala, 1998:1). Unfortunately this is not so at Gert Sibande region. According to paragraph 4.1, table 4.4 and graph 4.3, only 19% of schools received white paper 7 on e-Education. However, MDE officials do not account for 71% of schools that did not receive this policy. From this analysis, it appears that policies are not evenly distributed to schools. Table 4.8 also supports the latter statement, where a distribution policy of ICT resources is not available.

#### **4.5.2. Capacity of ICT literacy of educators**

It emerged from the survey question number 2, that less than 20% of FET educators are ICT literate. This shows that FET educators are not developed with ICT. Moreover there are no adequate structures put in place for capacitating educators in ICT at Gert Sibande Region. This is proven by the absence of regional ICT policy. e-Education policy spells out that:

*ICTs are most effectively applied when viewed as integral to teaching and learning by both learners and educators. ICT integration supports outcome-based education, which encourages a learner-centred and activity-based approach to education and training. Any ICT integration requires that educators engage in rethinking and refreshing their engagement with the curriculum. Many educators have grown up in environments with limited electronic technology, and thus find out the adaptation to working with ICTs more difficult than their learners do. A programme that urgently addresses the competences of educators to use ICTs for their personal work, in their classrooms, must be developed. This will require extensive staff development and support. Thus, ICTs will be central to the pre-service training of recruits and the ongoing professional development of practicing teaching. (e-Education policy, 2004)*

As mentioned above, for learners to be ICT literate, educators have to be instructors for learners. Therefore, it is imperatively important that educators need to be trained extensively at Gert Sibande region to acquire ICT skills so that they can mentor learners at FET schools in a proper manner.

### **4.5.3. Policies on distribution/provisioning of ICT resources.**

According to the respondents in paragraph 4.1 of the survey, there is no policy in place in provisioning of ICT resources at schools by the region. Schools that were fortunate to receive computers from the Gert Sibande region do not appear in any format or database of the region. 500 computers have been distributed to FET schools for the average of 100 000 learners that exist in the entire region. Although 75% of the respondents agree that there is budget for these ICT resources. This budget is not accountable for by any ICT official at the Ger Sibande region. The evidence drawn from Table 4.8 and Graph 4.7 about this is that a policy on provisioning, which of course should include budget of ICT resources, does not exist. According to Public Finance Management Act (PFMA) No 1 of 1999 as amended by Public Finance Management Amendment Act No 29 of 1999, stipulates that national and provincial governments “should ensure that all revenue, expenditure, assets and liability of those governments are managed effectively and efficiently, and to provide the responsibilities of person entrusted with financial management in those governments”. To sum up, there is no visible structure(s) responsible for the budget for the ICT resources as stipulated by PFMA at the Gert Sibande Region.

### **4.6. Conclusion.**

Based on the interpretation of the data it can be concluded that the participants in this study perceive that the implementation of e-Education policy is highly influenced by the provisioning of ICT resources for public FET schools at Gert Sibande. From four major themes that I have clustered from the data analyses that are in line with the research question, which are:

- Policy (e-Education) related issues,
- Financial implications,
- ICT resource (infrastructure) management, and
- ICT Capacity (The need for skill development)

appears that the democratic process of policy formulation and decision-making will inevitably result in tensions at the operational level. These tensions are not only a result of the dichotomy between conception and execution, but rather, the original policy vision itself becomes diluted to the extent that it no longer provides adequate solutions for the

realities it was designed to address (Vally & Spreen, 1998:3). It is also drawn from data analysis that the respondents perceive such tensions to develop with the implementation of e-Education policy document. These apparent tensions will be a result, primarily, of the financial implications facing previously disadvantaged FET schools, the 'Resources Targeting List' and the regulations regulating physical resources.

Whilst the analysis of the data obtained from the research has been interpreted in chapter four, chapter five seeks to offer recommendations for possible solutions to the perceived tension with the implementation of e-Education policy, and how best the MDE can structure its provisioning policy of ICT resources.

## **CHAPTER FIVE**

### **CONCLUSION AND RECOMMENDATIONS**

#### **5.1. INTRODUCTION**

The new vision for education in South Africa (e-Education policy, 2004) requires a technological innovation of the education system. This process of change is being driven by a series of new legislation and policy initiatives, especially on e-communication and e-education. This research sought to present an analysis and critique of provisioning of Information and Communication Technology (ICT) resources and, in particular, the readiness for implementation of White paper 7 on e-education, which had a direct influence on FET public school teaching, learning and assessment in Mpumalanga Department Education (MDE). By the end of this period (2013), more than 100 000 FET learners in the Gert Sibande region should have adequate computer skills and competency to compete in the global economy.

In this chapter, the results presented in the preceding chapter will be interpreted in terms of the research problem introduced at the beginning of chapter one. Using the results from chapter 4, I shall explain their meaning and implication in the light of the purpose for which this research was undertaken. Therefore, the purpose of this chapter was to address the following research questions which were stated above in chapter one:

- 1. What are the factors that influence the provisioning of ICT resources in the Gert Sibande region in the MDE?**
- 2. What guidelines on the implementation of e-Education can be given for these policy developers or writers?**

#### **5.2. SUMMARY OF THE RESEARCH TOPIC**

In the South African context, the concept of e-Education revolves around the use of Information Communication Technology (ICT) to accelerate the achievement of national education goals. The National Department of Education (DoE) believes that the developments in ICTs create access to learning opportunities, redress inequalities, improve the quality of learning and teaching, and deliver lifelong learning (*Government Gazette*, 2004). Hence, FET e-schools will be characterised as institutions with access to ICT resources that support curriculum delivery and are connected to ICT infrastructure.

The impact and effectiveness of ICTs rest on the extent to which end-users (learners, teachers, managers and administrators) have accesses to hardware, software and connectivity (*Government Gazette*, 2004). Therefore, for e-Education to be successful, learners must have regular access through a reliable infrastructure. In this light, this research sought to unearth the factors that may have an influence in provisioning of ICT resources in public FET schools at the Gert Sibande region, and make recommendations that might suppress negative factors.

### **5.3. SUMMARY OF STATISTICAL SURVEY**

In this study, it has been found that provisioning of resources is influenced by many elements. Four of these major elements were clustered according to similar questions when both survey questionnaires were constructed from the onset, namely:

- Policy (e-Education) related issues,
- Financing ICT resources,
- ICT resource (infrastructure) management, and
- ICT Capacity for educators (The need for skill development)

Sub-categories manifested under each of these broad elements. These were discussed in chapter four, and are summarised in chapter five.

#### **5.3.1. Policy related issues**

The use of ICTs in education involves choices about resource allocation (*Government Gazette*, 2004). The drive for additional resources results from prior access to information and resources. The technically able and well equipped can often make more compelling cases for re-equipping than those who have poor or no resources. From the context of this study in chapter four, data showed that Gert Sibande region comprises mostly semi-rural and rural areas. Because 75% of ICT officials within the region confirm that there is no ICT provisioning policy. Therefore, it is imperative that the MDE develops and implements a contextualised policy in which all FET schools within the region will subscribe to it by adhering to its contents. This policy should be aligned to the provincial and national guidelines on how ICT resources should be distributed to schools.

Furthermore, this policy (MDE policy on ICT resources) will assist in monitoring the implementation of e-Education. For example, the data in the previous chapter showed that the extent of school's security measures to safety of ICT resources is very minimum that is to a

lesser extent. Therefore, if a school does not have a school policy on safety and security of ICT resources, it will be taken for granted that the school is not yet ready to receive such equipment to implement e-Education policy.

Because the survey analysis in the previous chapter has shown that most FET schools were not compliant with such acts (Availability of security policy). This highlights the fact that the MDE will waste its budget in providing some schools with ICT resources on a daily basis, because of the unavailability and unaccountability of resources. Consequently, this also signals that any ICT resource(s) acquired by the school, through the SGB or private sector, become/s the property of the MDE (South African School Act, 1996). This will also help in controlling ICT resources in that particular school. In this light, a policy on how ICT resources are distributed to FET schools should be developed. To amplify this, all stakeholders, for example MDE, NGOs, Private sectors, SMTs and School Governing Bodies (SGB) of FET schools are supposed to be part of this policy formulation so that all ICT resources are fairly distributed to schools and monitored.

### **5.3.2. Financing ICT resources**

From data collected in the previous chapter, 88% of ICT Departmental officials acknowledge that ICT resources budget does exist at Gert Sibande region. According to Tiene D (2001), ICT resources consist of far more than just the basic hardware. Hardware needs software before it is useful for much of anything, including instruction. Among the most important and typical costs of ICT resources are: Hardware, maintenance, personnel, training, services and utilities, materials and software. This software might include computer programmes, videos, and various other pre-recorded media. In addition, there are other materials cost such as networking and connectivity that accompany the use of most ICT resources. Some of these costs may be covered by the regular school-operating budget. But in the context of Gert Sibande region as alluded before, that it is mainly composed of semi and rural area, where most parents cannot afford basic school fees, require critical decisions by the MDE in allocating funds.

The data has also shown that an average of 82% of public FET schools do not have strategic plan on e-Education. According to White Paper 7 (e-Education policy), national and provincial managers and administrators must plan and mobilise funds for provincial, regional and institutional resources to support hardware and equipment installation, as well as maintenance and repair thereof.



This implies that a financial resource is one of the factors that might derail provisioning of ICT resources to FET schools. The survey analysis in chapter four has shown that more than 100 000 learners are registered in FET schools in Gert Sibande region alone. This has indications that billions of Rands need to be spent to develop new computer laboratories. During the old dispensation in education, the DoE depending on the inflation allocated a learner a certain amount for expenditure in that particular school. For example a learner would be estimated at spending R550-00 per annum to utilise school's resources that were actually the MDE property. This included electricity, textbooks, sanitation and infrastructure.

The survey has also revealed that most FET schools (97%) in the Gert Sibande region do not have any policy guidelines in managing ICT resources for their schools. In the initial excitement of getting new ICT resources and setting them up, people involved in the education sector often forget about maintenance costs. Most of today's ICT resources are remarkably reliable but things still go wrong. In the school environment, the problems are especially frequent. ICT resources might be used far more heavily than they were designed for. For instance, keyboards may have liquids spilled on them, cables that are frequently plugged and unplugged may eventually fail and disk drives will crash. Therefore an ICT budget has to include money to replace and repair equipment as indicated in policy guidelines. Introducing ICT resources to schools involves increasing the budget spent by each learner, and these will escalate increases in these budgets.

To achieve this educational goal on e-Education, the MDE have to introduce a new long lasting partnership with NGOs and private sectors. According to the survey analyses in chapter four, school management teams in FET schools rated private sectors as their best partners in provisioning of ICT resources as compared to the MDE. Therefore, this shows that the MDE alone cannot cope with financial implications needed to offer and sustain provisioning of ICT resources to schools. Moreover, these resources are not "lifeless" but change over time. According to the survey analysis in chapter four, many ICT officials in Gert Sibande region tend to think of hardware procurement in much the same way as buildings: as "capital expenses" that are made once and do not have to be repeated for a long time to come. This means that a school provided with such resources will expect to receive new ICT technology over time. This will become a process, unlike a one-off project, that needs to be monitored and strictly conducted with public management financial act requirements on accountability. Equally important, hardware should better be thought of as an "operating expense", which must be addressed on an ongoing basis. Private sectors and NGOs need to disclose to the MDE which schools have being or are going to be provided with ICT resources to eradicate duplication of providing ICT

resources. For example, a school will be provided with computers by both the MDE and private sector while the neighbouring school may not be provided with even a single computer. The provisioning of ICT resources depends also on the school readiness on ICT infrastructure.

To summarise this section, knowing whether ICT in education is worth it may not be an easy task. There may be benefits to using ICT in schools that have not even been thought of. The MDE has to look at the costs first, since they often limit what the department can do. There is no point in pricing ICT resources if the MDE know that FET schools will never be willing or able to budget for them. Expenses should rather be considered in light of potential benefit (Tiene D, 2001).

### **5.3.3. ICT Infrastructure**

The other factor that was also the main focus in the survey questionnaire that will influence the provisioning of ICT resources in Gert Sibande region was the infrastructure of the FET schools. 63% of these public FET schools in the Gert Sibande region are found in rural areas as indicated by the data in the previous chapter. Therefore, infrastructure cost may be important in this situation. The data also indicated that only a few FET schools in the Gert Sibande region already have the necessary electrical and some communications cables installed. On the other hand, when bringing new computers into classrooms, one should consider the problem of furniture. Some of the new ICT resources require special desks or computer stands that are specifically designed for them. Some other devices, such as digital camera and videos, also need their special cabinets with locks for safe storage. The question may arise as to when and where computers should be installed and placed - whether in the current classrooms situations or new computer laboratories?

Developing new computer laboratories will automatically delay the provisioning of ICT resources because new buildings have to be erected within school premises thereby hiking the MDE budget in provisioning of ICT resources. But there is a great potential advantage associated with setting up computer laboratories. Ingram A. (2001) sites that the advantage of setting up computer laboratories is that enough machines will be available to allow everybody in a class to use them at once. Ideally, each learner at FET school will work on his or her own machine. Placing computers in individual classrooms might also be problematic at FET level because educators are not necessarily assigned to a given room. What happens if computers are left in a

room that is unoccupied for part of the school day? While unsupervised, those machines could be underutilized, abused, vandalised, or even stolen.

While the data have shown that 37% of FET schools are located in urban areas, most of these schools are comprised by previously known as Model C schools. Although, most of these schools have started developing their own ICT strategies. The amount of hardware they already owns will also affects the provisioning of ICT resources. That is where its computers will be placed. With enough computers, these FET schools can both establish a laboratory and place computers within individual classrooms. But sometimes adding new computers to existing hardware collection has its own challenges. The data have also shown that 75% of computers have being donated by private sectors or/and NGOs. Some of these computers are donated together with operating software. A school's new computers may not be easily integrated with its previously donated or purchased equipment, either because the platforms differ (*Windows* vs. *Macintosh*) or the operating capability is very different (*Pentium* vs. 386s). Combining significantly different types of machines in the same laboratory can be problematic. Software that runs on some machines may not run on others.

Some computers may have functionality that others do not. Learners can become frustrated when different machines do not respond consistently. This means that some computers will run differently from other. Either slow, fast or in different platforms. It will be very important for the MDE to note such essentials before provisioning of ICT resources is done to FET schools in Gert Sibande region. Therefore the infrastructure of the FET school plays a very important role in the provisioning of ICT resources.

#### **5.3.4. ICT Capacity of educators**

Staffing issues may also affect provisioning of ICT resources to FET schools in the Gert Sibande region. This is also proven by the data that less than 31.3% of educators are ICT literate in the entire Gert Sibande region. The most basic issue is probably simply supervision. A computer lab or classroom may not be as productive a facility if staffs are not available to supervise it. Learners may need assistance, for example, in working with these ICT resources, using software, or accessing a printer. The advisability of providing FET schools with ICT resources may also depend on the availability of FET educators qualified to teach computer classes. Bringing the entire classes into a lab may not work out well if the instruction provided there is not effectively delivered.

Educator attitude about computers might also affect provisioning of ICT resources. According to the data analysis (see paragraph, 4.1.27), indicate that 80% of FET schools that have e-Education policy in Gert Sibande region do not have strategic plan on board. If the majority of educators in a school are uncomfortable with having computers placed in their rooms. It will be far more difficult to effectively implement that strategy. Of course, the degree of overall “computer literacy” of educators will significantly affect the degree of success with which computers are used throughout the school building, regardless of how computers are placed.

According to data analysis (see table 4.4), some educators feel that until teachers and learners are comfortable with computers, it makes sense to provide school with ICT resources. Up until educators are not competent with computers skills, it will be a waste of resources to provide schools with computer laboratories, especially if those computers sit idle throughout most of the school day. In this case, the MDE should provide a few stand-alone computers for practice and learning computer skills. Once an adequate level of computer literacy is achieved, then networked computers within computer laboratories could be made more available, so that learners can take advantage of them through the supervision of computer literate educators.

In contrast to the above, some school management teams of FET schools feel that providing ICT resources first, before the literacy of educators, is the more effective way to build computer skills. Its ongoing presence may generate an interest in learning about it and allows for ongoing practice with these ICT resources.

The bottom line is, as the MDE introduces ICT resources to FET schools, that educators must learn how to use and apply them. Since hardware and software are changing more rapidly than before, there will be no point at which educators can say that they know everything necessary. New software and upgrades of older programmes are released continuously, and frequently the new capabilities and features are of real importance to learners and educators.

Any well-conceived policy for provisioning of ICT resources in FET schools within Gert Sibande region should consider all these above factors and weigh which issues are most significant. Only then should the MDE, with the assistance of private sector and NGOs, provide FET schools with ICT resources.

## 5.4. RECOMMENDATIONS

Four important areas related to provisioning of ICT resources demand MDE attention:

- Firstly, most if not all, school management teams (SMT) and educators of FET schools need to be ICT literate. Available Educators Development Centres (EDC) (previously known as teacher centres) in all the three sub regions can be utilised for training and developing educators in ICT since they were intended for skills development. However, new educators appointed in public FET schools should demonstrate their potential of using ICT skills. This area is important because without good ICT skills educators will find it difficult to implement e-Education policy and cascade them on to their learners or integrate ICT into their teaching. Equally important FET schools need to have ‘champion’ educators who will ensure that the other educators are up to date on how to utilise ICT tools in the classroom. These ‘champion’ educators should be trained on how to use ICT tools in the learning centres. Curriculum developers and implementers in Gert Sibande region, should be trained on how to develop an ICT based curriculum and lessons in order to improve the usage of ICT within the region. Finally, educators should be subsidised to be able to buy desktops or laptops, which are going to assist them in their daily preparation of the lessons. Therefore, provisioning of ICT resources to public FET schools at Gert Sibande region cannot be isolated to ICT capacity building for educators.
- Because data has shown that more than 70% (see table 4.10) receive computers from private sectors and/or NGOs. All private sectors and NGOs interested in providing ICT resources to public FET schools, should register their donation of ICT resources first with the MDE to avoid duplication of provisioning of these resources.

**The MDE should also involve all private sectors and NGOs in implementing the e-Strategy. ICT companies should be encouraged to come with new technologies in order to enhance e-Education, by giving them awards for the best technology.**

- A policy on provisioning of ICT resources has to be established immediately so that all beneficiaries of these resources become responsible and accountable. In this policy, budgets of ICT resources in all FET schools need to be clearly outlined. For example, when a school needs a replacement of any type of ICT resource in future, a worn-out or replaced item should still exist in the database or spreadsheet of the region.

School management teams (SMT) should be trained on ICT leadership in order to implement this provisioning of ICT resources policy. Finally, all stakeholders involved in education should review the regional e-Strategy regularly in order to move with the changes in technology.

- For MDE to achieve the strategic objective of e-Education in public FET schools at Gert Sibande region, some classes have to be converted into computer laboratories to speed up the process. Although these previously erected classes were not built to grant access for ICT resources, a conversion of classes into computer laboratory might be the answer in this case. For departure point, all public FET schools should have at least a computer room with an interactive board and at least 30 computers connected to the internet. For FET schools that are developed, that is those FET schools that are far beyond ICT limits of regional e-Strategy, should have an interactive board and at least 6 computers connected to the internet in each class room.

## **5.5. LIMITATIONS OF THIS STUDY**

Although most public FET schools and ICT officials in the Gert Sibande region took part in this research, the following were limitations and challenges of this study.

- Not all public FET schools took part in this study. Out of 120 public FET schools in the region, only 70 public FET schools were involved in the survey because of geographical displacement of the region.
- During the data analysis, White Paper 7 on e-Education was not yet finalised by the national Department of Education to be an independent policy on its own.
- During the compilation of this research, Gert Sibande region did not have official ICT structure that was directly involve in the implementation of e-Education and ICT provisioning policy.
- The enrolment of learners and appointed educators were retrieved from the database of the previous year.
- All three EDC (teacher centres) within Gert Sibande region were not yet upgraded to have state of the art ICT infrastructure.

## **5.6. TOPICS FOR FURTHER RESEARCH**

Research is critical for the ongoing development in the field of education. The following topics need further investigation.

### **5.6.1. Sustainability of ICT resources**

An investigation should be done to reveal the reasons on who must purchase ICT resources. For example, a school should regulate and order all ICT resources needed or whether the MDE should provide a set of ICT resources needed for schools. How should these resources be sustained in FET schools in future?

### **5.6.2. Readiness of e-Education in rural FET schools**

Taking into consideration the number of SMTs in FET schools at Gert Sibande region that are still frightened about the usage of computers in teaching and learning (see chapter four), further research on the readiness to implement e-Education policy needs to be undertaken, especially in FET rural schools. Questions may be posed: What ICT literacy is needed for these FET educators to be able to use such skills in teaching and learning? Should the MDE develop portal for ICT literacy or should it be tendered for accommodating different levels of computer literacy of educators?

## **5.7. CONCLUSION**

The government, together with the DoE, introduced White Paper 7 to address the so-called 'digital divide'. It is however the sole responsibility of the same government to see to it that all GET and FET public schools implement the policy. Therefore, before the MDE and other stakeholders attempt to provide ICT resources to FET schools, these schools should assess their own unique situation to determine what factors will impact on the potential utilization of these ICT resources and draft proposals to the MDE. That is the extent to which the school is wired, the availability of space for the laboratory, the percentage of educators with computer expertise, the availability of a computer specialist, the school attitude about integration of ICT in their environment, overall learner computer literacy levels, and many other issues after distribution will affect how ICT resources can be used most effectively in FET schools.

## REFERENCES

- Arcado, J. (1995). Quality in education. United States of America: St. Lucie Press.
- Adger, Z. (2002). Policy formulation and implementation. Oxford: Blackwell Publishers.
- Barron, B & Golman V. (1994). Active learning. New York: Cambridge University press.
- Badat, S. (1995). Educational Policies in the transition period. Comparative Education, 31(2): 141 - 159
- Brady, H. (1992). Technology and Learning; New York: IBM.
- Cerych, T. (1982). Developing policy on ICT. Kenwyn: Juta & Co.
- Cleland, D. (1999). Project Management (Strategic Design and Implementation). New York: McGraw-Hill.
- Cresswell, J. (1994). Research design. Qualitative and quantitative approaches. California: Sage Publications Inc.
- David, Z; Collins, K; Sheingold, M. (1991). Restructuring of schools. New York: Cambridge University press.
- Denzil, P. (1978). Construct Validity. The thinking manager's guide. Oxford: Heinemann Educational.
- De Vos, B. (2001). Business Research Methods. Boston:Irwin.
- Dyer, C. (1995). Beginning research. Oxford: Blackwell Publishers Limited.
- Farrel, F. & Hefce, B. (2000). The impact of ICT in educational institutions. New York: Oulu University Library.



Ferguson, G. (1994). *Statistical Analysis in Psychology and Education*. New York: McGraw-Hill book.

Forum Qualitative Social Research (n.d) <http://qualitative-research.net/fqs/fqs-eng.htm> accessed 10 March 2005.

Forcier, R.C.(1996). *The computer as a productive tool in education*. Englewood cliffs. New Jersey.

Fox, W; Schwella, E; & Wissink, H. (1997). *Public Management*. Kenwyn: Juta & Co.

Fraudorf, M.C. (1997). *Distributed computers and labs*. New York: Cambridge University press.

Glass, V. (1996). *Statistical Methods in Education*. Boston: Allyn and Bacon.

Groenewald, J.P. (1996). *Social Research: Design and analysis*. Stellenbosch: University Publishers and Booksellers.

Hajar, F. (2003). *Modern Policy*. London: Routledge.

Hawkins, M. (2000). *Provisioning of ICT resources in schools*. Kenwyn: Juta & Co.

Hawkrige, M. (1990). *Financial Management for FET schools*. Oxford: Heinemann Educational.

Hefce, C. ( 2000). *The influence of ICT in educational institutions*. New York: Cambridge University Press.

Henning, E. (2004). *Finding your way in qualitative research*. Pretoria South Africa: Van Schaik.

Hertin, H. & Berkhout, B. (2003). *How to integrate policies*. Los Angeles: Peacock.

- Hilhorst, J. (1990). *Regional studies and Rural Development*. United States of America: Avebury publishers.
- Hollingsworth, H. & Boyer, L. (1997). *School Governance*. Berkeley: University of California Press.
- Huysamen, G.K. (1997). Qualitative and quantitative research cycles. *South African Journal of Psychology*, 28(1), 183 – 190.
- Ingram, A. (2001). *Virtual Reality*. New York: Intel McGraw-Hill
- Isaacs, C. (2000). *Management of FET schools*. Cape Town: Maskew Miller.
- Kerzner, H. (1998). *Project Management (A systematic approach to planning, scheduling and controlling)*. Australia: Chapman & Hall.
- Kingdon, V. (1984). *Strategic policy and implementation*. New York: Macmillan Co.
- Kooiman, G. (2003). *Governance in schools*. Department of education. Pretoria. South Africa
- Kuperstein, J. (1998). *The Connected Learning Community. Technology Roadmap*. Redmond Washington: Microsoft Corporation.
- Krefting, L. (1991). Rigor in qualitative research. The assessment of trustworthiness. *The American Journal of Occupational Therapy*. 45(3), 1991: 214-222.
- Kruger, R. (1998). *Developing questions for focus groups (Focus group kit 3)*. Thousand Oaks: Sage Publications Inc.
- LeCompte, M.D. & Pressle, J. (1992). *Ethnological and qualitative design in educational research*. San Diego: Academic Press.
- Leedy, P.B. (1997). *Practical Research: Planning and Design*. 6<sup>th</sup> edition. New Jersey: Prentice-Hall Inc.

- Lockard, N & Abrams, B. (2000). Computers in schools. New Jersey: Prentice Hall PTR.
- Marshall, C. (1989). Designing Qualitative research., London: Sage publication Inc.
- McDaniel, P; McInerney, G. & Armstrong, M. (1993). Electronic network in schools. New York: Harcourt College publishers.
- Mckillip, J. (1997). Need Analysis. Tools for the Human Services and Education. London: SAGE.
- McMillan, J. (1999). Research in Education. Virginia: Harper Collins College.
- Merriam, S.B. (1988). Case study research in education – A qualitative approach. San Frasisco: Jossey-Bass publishers.
- Merriam, S.B. (1998). Qualitative research and cases studies applications in education. San Francisco: Jossey-Bass.
- Miles, V & Huberman, S. (1984). Quantitative research. Los Angeles: F.E. Peacock.
- Mitchell, M. (2001). Research design explained. New York: Harcourt College publishers.
- Moonen, K. & Kommers, P. (1995). Learning through ICT. New York: Cambridge University press.
- Motala, G. (1998). Educational Policy. Pretoria. Human Science Research Council
- Moursund, G. & Bielefeldt, R. (1999). ICT literacy in schools. London: Kluwer academic publishers.
- Mouton, J. (1996). Understanding Social Research. Pretoria: J L Van Schaik.
- Mouton, J. & Marais, H.C. (1991) Basic concepts in the methodology of the social sciences. Pretoria: Human Sciences Research Council.

- Neef, D. (2001). *e-Procurement (from strategy to implementation)*. New Jersey: Prentice Hall PTR.
- Nkoe, D. (2002). *Attributes of FET schools in SA*. RAU. JHB. South Africa.
- Ostrom, H. (1999). *Authenticity of policy style*. London: Routledge.
- Office of government Commerce. (2000). *ICT infrastructure Management*. OGC. London.
- Palumbo, D.J. & Calista D.J. (1990). *Implementation and the Policy process*. New York: Greenwood Press.
- Papert, M. (1993). *Computer as a teaching tool*. London; Routledge.
- Pearlman, T. (1989). *Exploring science through ICT*. South America: Usher Press.
- Peers, I. (1996). *Statistical Analysis for Education and Psychology*. London. Washington D.C: The Falmer Press.
- Pelgrum, G. & Plomp, M. (1991). *School Management*. London: Routledge.
- Peskin, R. (1992). *Experimenter Effects in behavioral research (rev.ed)*. Hillsdale, New Jersey: Erlbaum
- Pilot, B. (1998). *ICT as an educational tool*. New York: Harcourt College publishers.
- Popham, W. (1996). *Understanding Statistic in Education*. Los Angeles: F.E. Peacock.
- Poggenpoel, M. (1998). *Data analysis in Quantitative Research*. (In De Vos, A S 1998: *Research at grass roots. A primer for the caring professions*). Goodwood: National Book Printers, pp334-353.
- Powell, R. (1983). *Active Governance*. New York: Prentice Hall PTR.
- Ray, Z. (1991). *Basic ICT skills in Education*. New York: Harcourt College publishers.

Roblyer, J; Edward, G. & Havriluk, H. (1997). *The role of Computer Technology*. Upper Saddle River. New Jersey: Prentice Hall.

Russell, C. & Holkner, M. (2000). *Integration of computers in schools*. Upper Saddle River. New Jersey: Prentice Hall.

Sabatier, P.A. & Jenkins-Smith, H.C. (1999). *Frameworks Focusing on Policy Change over fairly Long Periods*. In Sabatier, P.A. (ed). *Theories of the Policy Process*. Boulder CO: Westview Press. Isaacs, SBA, 2000.

Sabatier, P.A. & Mazmanian, Z. (1983). *Policy learning in informative society*. London: Westview Press.

South African Institute for Distance Education. (2003). *The Use of Computers in Schools*. SAIDE, Johannesburg. S.A

Selfe, K. (1992). *Introduction of Computers in schools*. United States of America: Practice Hall.

Simonsonson, P. & Thompson, H. (1999). *Living in Technology based information society*. London: SAGE.

Shankland, D. (2000). *Education Policy and implementation Developments*. *Journal of Education Policy* 5(4) 3-21

Shortis, T. (2001). *The language of ICT*. London: Routledge.

Smeets, T. (1996). *ICT resources in education*. London: Kluwer academic publishers.

South African Department of Education; *White Paper 7 on e-Education of the Government Gazette of 24 August 2000*.

Spradley, K & McCurdy, V. (1982). *Research designs*. Beverly Hills, Cal: Sage.

Stoker, G. (1998). *Governance*. London: Kluwer academic publishers.

Taylor, H. & Hogenbirk, P. (2000). ICT in education. London: Kluwer academic publishers.

Tait, J; Hajer, F. & Lyall, C. (2004). "A New Mode of Governance for Science, Technology, Risk and the Environment?" Innogen Working Paper 17 (November 2004).

Tait. B. & Lyall, V. (2004). Policy formulation in Schools. Boston: McGraw-Hill.

The National Qualification Framework and Quality Assurance. Pretoria. Department of education. Republic of South Africa, 1998b.

The Further Education and Training Act No 98 of 1998 (20 October 1998). Cape Town. Republic of South Africa: Government printers.

Thompson, S. & Boysen, L. (1984). Computers as teaching devices. Upper Saddle River. New Jersey: Prentice Hall.

Thurlow, M. Bush T. and Coleman M.(eds). (2003). Leadership and Strategic Management in South African Schools.London: The Commonwealth Secretariat.

Tiene, D. & Ingram, A. ( 2001). Exploring current issues in educational technology. Boston: McGraw-Hill.

Tool, M.R. (1993). "The Theory of Instrumental Value: Extensions. Clarifications", in Tool, M.R. (ed.).

Valley, S & Spreen, C. (1998). Education Policy and Implementation Developments. Journal of Education Policy 5(2):3-22.

Van der Westhuizen, D. (1999). Teaching Information Technology in education using online education. Rand Afrikaanse Universiteit, Johannesburg. South Africa.

Weber, M. ( 1978). Economy and Society. Berkeley: University of California Press.

Weimer, D.L. & Vining, A.R. (1999). Policy Analysis. Concepts and Practice. 3rd edition  
Upper Saddle River. New Jersey: Prentice Hall.

Welman, J.C. & Kruger, S.J. (2002). Research Methodology. 2<sup>nd</sup> edition: Oxford university  
press.

Willem, G. (1990). Transforming education through ICT. Los Angeles: F.E. Peacock.

William, C.B. (1991). I.T and Accounting. The impact of Information Technology. London:  
Chapman Hall.

Willig, B. (2001). Research Methodology. New York: MacMillian Publishing Co.

## ANNEXURE A

### University of Johannesburg

Faculty of Education

Department of Maths, Science, Technology and Computer education

06 July 2005

Dear sir/madam

#### **Statistical Analysis on implementation of policy on provisioning of ICT resources in MDE in FET schools in the Gert Sibande Region.**

The department of education has introduced the strategic plan on e-communication in public schools, documented in white paper 7 on e-Education of the Government Gazette of 24 August 2000. One of its main goal is that *“Every South African learner in the general and further education and training bands will be ICT capable (that is, use ICT confidently and creatively to help develop the skills and knowledge they need to achieve personal goals and to be full participants in the global community) by 2013”*

Educators are perceived as the most valued assets in ensuring the implementation of policies of the department. They are also expected to implement this policy at school level and monitor ICT resources that they will use to ensure successful implementation of white paper 7 (e-Education).

Therefore, the proposed general aim of the research is to critically survey ICT resources and to identify the challenges that face the MDE in the provisioning of ICT resources in schools in the FET band and suggest ways in which these challenges may be addressed. The findings of the study may therefore contribute to the drafting of a policy for the MDE for the implementation of ICT in FET schools.

One way of eliciting educator opinion is through questionnaire. You have first hand experience relating to ICT resources at your school. We believe that without your opinion we cannot make inferences about implementation of this policy on e-Education. We request that you kindly answer all questions in this questionnaire.

Please bear the following in mind when completing the questionnaire.

- ❖ Do not write your name or the name of your school
- ❖ There are no correct or incorrect answers in section B. We merely require your honest opinion.
- ❖ Please answer all question unless otherwise indicated. If you would like to change your response to a question, please do so by clearly crossing out the incorrect response and ticking your intended response.
- ❖ The questionnaire should take no more than 15 minutes of your time to complete.
- ❖ Please return the questionnaire to the person from whom it was received as soon as possible.

Thank you for your assistance

Yours faithfully

---

Mofokeng PLS (Mr)  
Researcher

---

Prof D. van der Westhuizen  
Supervisor (U.J)



## PART 1

This questionnaire is specifically prepared for school management teams (SMT) for Further Education and Training (FET) schools in the Gert Sibande region, in Mpumalanga province.

**Please mark with a cross next to the relevant answer you choose.** E.g.

In which region is the head office of education situated in Mpumalanga province?  
For example if your answer is Enhlanzeni, you will mark like this below.

Enkangala region	
Enhlanzeni region	<b>X</b>
Gert Sibande region	

### Section A

Both section A & B should be answered by any member of the SMT and/or any educator who is Information Communication Training (ICT) literate and appointed by the SMT to do so.

**The entire section refers to the background of the entire Human and ICT resources of the school.**

Please indicate which sub-region within Gert Sibande region your school belongs.

Eerstehoek sub-region	
Ermelo sub-region	
Standerton sub-region	

1. How many learners are enrolled at your school?

Less than 99	
Above 100 but less than 499	
Above 500 but less than 999	
More than 1000	

2. How many educators are ICT literate?

Don't know	
None	
Above 10% less than 20%	
Above 20% less than 50%	
Above 50%	

3. How many working computers are currently available at your school?

Don't know	
10 or less	
Above 10 but less than 29	
Above 30 but less than 49	
Above 50 but and less than 99	
More than 100	

4. Who provided your school with computer hardware? (Mark all applicable)

Mpumalanga Department of Education (MDE)	
Non Government Organisation (NGO)	
School Governing Body (SGB)	
Private Sector	
Other (Please specify)	

5. How would you classify the area in which your school is situated?

Semi rural	
Rural	
Urban	

6. What percentage of your SMT is ICT literate?

None	
Between 1% and 19%	
Between 20% and 39%	
Between 40 and 59%	
More than 60%	

7. In which category was your school classified prior to 1994 (democracy)?

Model C school	
Public school (excl. model C schools)	
Previously disadvantage school	
Christian school	

### **Section B**

**This section refers to the provisioning of ICT resources.**

8. How do you rate Mpumalanga Department of Education in provisioning of ICT resources?

Poor	
Satisfactory	
Good	
Excellent	

9. How do you rate NGO's in provisioning of ICT resources?

Poor	
Satisfactory	
Good	
Excellent	

10. How do you rate private sectors in provisioning of ICT resources?

Poor	
Satisfactory	
Good	
Excellent	

11. How many computers did your school receive from MDE?

None ( 0 )	
Between 1 and 19	
Above 20 but less than 49	
Above 50 but less than 99	
More than 100	

12. How many computers did your school receive from any NGO?

None ( 0 )	
Between 1 and 19	
Above 20 but less than 49	
Above 50 but less than 99	
More than 100	

13. How many computers did your school receive from any private sectors?

None ( 0 )	
Between 1 and 19	
Above 20 but less than 49	
Above 50 but less than 99	
More than 100	

14. To what extent is the school's current security measures sufficient to ensure the safety of ICT resources?

To no extent	
To a small extent	
To moderate extent	
To a large extent	
To a very large extent	

15. To what extent is the strategic objective of e-Education (White Paper 7) feasible in the Gert Sibande region? [*“Every South African learner in the general and further education and training bands will be ICT capable (that is, use ICTs confidently and creatively to help develop the skills and knowledge they need to achieve personal goals and to be full participants in the global community) by 2013”*]

To no extent	
To a small extent	
To a moderate extent	
To a large extent	
To a very large extent	

### Section C

**This section aim to explore the availability of the policy document on e-Education at your school.**

16. Is your school in possession of white paper 7 on e-Education?

Yes	
No	
Don't Know	

If your answer is **No/Don't know** above question, thank you for completing the questionnaire. Please return it to the researcher. If your answer is **yes**, please continue with question 17.

17. If yes, where did your school receive it? (Mark all applicable)

MDE	
NGO's/ Private Sector	
Higher Institutions of learning	
Public unions	

18. To what extent do you regard white paper 7 (e-Education) to be appropriate in our current national curriculum statement?

To no extent	
To a small extent	
To a moderate extent	
To a large extent	
To a very large extent	
To a very large extent	

19. Does your school already have strategic plan on e-Education?

Yes	
No	
Don't Know	

Thank you for completing this questionnaire. The results will be available at the end of the year (2005). If you are interested in the findings of this research, please do not hesitate to contact the researcher.

Thank you once more.

Researcher: Mofokeng P.L.S  
 University of Johannesburg  
 B-ring 306  
 +27-82-951-5572 (Cell)  
 +27-17-801-5000 (W)  
 909672706@rau.ac.za

## ANNEXURE B

### PART 2

This part is strictly to be completed by ICT officials from Gert Sibande region employed by Mpumalanga Department of Education. Below is an example of how it should be answered.

#### Example

In which region is the head office of education situated in Mpumalanga province?  
For example if your answer is Enhlanzeni, you will mark like this below

Enkangala region	
Enhlanzeni region	<b>X</b>
Gert Sibande region	

#### Section A

1. What is the estimated total number of learners at FET band in schools in the entire Gert Sibande region?

Less than 20 000	
Above 21 000 but less than 49 000	
Above 50 000 but less than 99 000	
More than 100 000	

2. How many FET educators are computer literate in the Gert Sibande region?

Between 0% and 19%	
Above 20% but less than 49%	
Above 50% but less than 69%	
More 70%	

3. How many computers have been provided to school in the Gert Sibande region?

01 but less than 100	
Above 100 but less than 200	
Above 200 but less than 500	
Above 500 but less than 1000	
1000 or more	

4. To approximately what percentage of schools was the White Paper 7 on e-Education circulated?

None	
Between 1% and 19%	
Between 20 and 49%	
Between 50 and 69%	
Between 70% and 89%	
Between 90% and 100%	

5. Does your MDE (Gert Sibande region) have a procurement register or database of ICT resources?

Yes	
No	
Don't know	

6. If your answer is yes above (Q5) is it active?

Yes	
No	
Don't know	

7. To what extent is the strategic objective of e-Education (White Paper 7) feasible in the Gert Sibande region? [*“Every South African learner in the general and further education and training bands will be ICT capable (that is, use ICTs confidently and creatively to help develop the skills and knowledge they need to achieve personal goals and to be full participants in the global community) by 2013”*]

To no extent	
To a small extent	
To a moderate extent	
To a large extent	
To a very large extent	

8. Is there currently a policy on provisioning/distribution of ICT resources at Gert Sibande region?

Yes	
No	
Don't know	

9. Is there any budget from the MDE for ICT resources (FET schools)?

Yes	
No	
Don't know	

10. Are there any partnerships between the MDE and any NGO or private sector with regards to ICT resources?

Yes	
No	
Don't know	

11. How do you rate the main objective of White Paper 7 on e-Education?

Excellent	
Good	
Average	
Poor	

Thank you very much for your participation in this regard. Please do not hesitate to contact me if you have any queries.

Enquiries: Mofokeng PLS  
[mofokengpls@msn.com](mailto:mofokengpls@msn.com)  
[petercan@telkomsa.net](mailto:petercan@telkomsa.net)

---