

An evaluation of e-Government as a support system in public schools

by

Peter Johan Knuppe

12020753

Mini-dissertation submitted in partial fulfilment of the requirements
for the degree

Masters of Business Administration

at the North West University, Potchefstroom Campus

Study leader: Mr J.C. Coetzee

November 2011

ACKNOWLEDGEMENT

I want to acknowledge the following persons for assisting me during the writing of this mini-dissertation:

- My Heavenly Father, for giving me this unique opportunity, the insight and knowledge.
- My study leader, Mr Johan Coetzee, for all his guidance and assistance.
- My family, for giving me the time and space to work on this research.
- My son and daughter, Ruan and Luandi, for understanding that my study forms part of our future.
- To my employer, for funding this research study.
- Ms Antoinette Bisschoff, for the text/technical editing.

If you can dream it, you can achieve it

ABSTRACT

The objective of the study was to develop a framework for the implementation of a Business Information Management System in order to increase the efficiency of the knowledge management strategy in the ultimate quest to deliver administrative support to public schools at the Gauteng Department of Education within the Sedibeng East District Office geographical area. A literature investigation was done on the concepts of e-Government, e-platforms, information technology and enablers to determine if Government models are working effectively and efficiently. Based on the findings of the literature study, a questionnaire was designed and used to measure the efficiency of the knowledge management strategy in the base of administrative support to public schools.

Government to Government models are the ability to interact and support services through the availability of e-platforms in the ultimate support, and sharing of knowledge through effective knowledge management. Knowledge in an organisation alternates between tacit and explicit knowledge as it goes from an idea to explicit knowledge that can be shared throughout the whole organisation and in the process gives the necessary administrative support to public schools and learners. Proper managed and implemented systems are important for the management of knowledge in an organisation. Knowledge management is a never-ending cycle that starts at discovering knowledge and goes through generating knowledge, evaluating knowledge, sharing the newly found knowledge to leveraging the knowledge. This cycle forms the heart of a knowledge management model like the different education e-platforms that is available. It was concluded that the knowledge in an organisation can be managed with the help of one standardized e-platform model throughout the entire Education Department. Knowledge in an organisation is a very important resource and ought to be strategically managed. The knowledge management strategy starts by determining what knowledge is needed and what is available in the organisation. The chosen standardized model will form the central part of a successful knowledge management strategy. The

test for the success of a knowledge management strategy is determined with a knowledge audit.

The state of the knowledge management strategy at Gauteng Department of Education, Sedibeng East District Office was assessed by employing convenience survey questionnaires to extract the data. Sedibeng East District Office and therefore the Department of Education, still have a long way to go in order to optimise the management of knowledge. The key area of concern is a lack of a written knowledge management strategy and policy which results in informal e-platform usage and therefore different ways of managing knowledge. A large portion of the indecisiveness seen in the analysis of the questionnaires could be attributed to the lack of a formal knowledge management strategy. It was further concluded that a knowledge gap assessment is the start of the knowledge management strategy and will give direction to the strategy. The culture at Sedibeng East District Office was not tested to determine if the staff will be supportive of a knowledge management strategy. However, the survey indicated that much needed administrative support to public schools needs to be formalized in order to optimize the services and standards of support. A practical knowledge management framework is proposed in order to assist the Department in the implementation of a knowledge management strategy and bridging the gaps found after analysing the questionnaires.

Key words

Business Information Management System, Government-to-Government services, e-platforms, knowledge management, knowledge management strategy, information technology, enablers and knowledge sharing.

TABLE OF CONTENTS

	Page
ABSTRACT	ii
ACKNOWLEDGEMENTS	iii
LIST OF EQUATIONS	viii
LIST OF FIGURES	viii
LIST OF TABLES	ix
LIST OF APPENDICES	x
LIST OF ABBREVIATIONS	x
CHAPTER 1: ORIENTATION AND PROBLEM STATEMENT	
1.1 INTRODUCTION	1
1.2 IMPORTANCE OF THE STUDY	2
1.3 PROBLEM STATEMENT	3
1.4 OBJECTIVE OF THE STUDY	3
1.4.1 Primary objective	3
1.4.2 Secondary objective	4
1.5 SCOPE OF STUDY	4
1.6 RESEARCH METHODOLOGY	5
1.6.1 Literature review	5
1.6.2 Empirical study (questionnaire design, study population, gathering of data, statistical analysis)	5
1.7 LIMITATIONS OF THE STUDY	6
1.8 LAYOUT OF THE STUDY	6
1.9 CONCLUSIONS	7
1.10 CHAPTER SUMMARY	8
CHAPTER 2: LITERATURE STUDY	
2.1 INTRODUCTION	9
2.2 E-GOVERNMENT	11
2.2.1 Definition of e-Government	12
2.2.2 E-Government Models	14
2.2.3 E-Government Legislation	17

2.2.4	E-Government and Gauteng Department of Education	19
2.3	INFORMATION COMMUNICATION TECHNOLOGY DEFINED	22
2.3.1.	Definition of Information Communication Technology	22
2.3.2	House of IT value	23
2.3.3	Information Communication Technology and Gauteng Department of Education	28
2.4	ENABLERS DEFINED	31
2.4.1	Definition of enablers	32
2.4.2	Identified enablers	35
2.5	CONCLUSION	38

CHAPTER 3: RESEARCH METHODOLOGY AND FINDINGS

3.1	INTRODUCTION	39
3.2	DISCUSSION OF GAUTENG DEPARTMENT OF EDUCATION SEDIBENG EAST DISTRICT	39
3.3	THE PROCEDURE AND SCOPE OF THE QUANTITATIVE RESEARCH	42
3.3.1	Sample group and size	42
3.3.2.	Margin of error of answers	45
3.3.3	Overview of responses	46
3.3.3.1	Question 1: Biographical information	46
3.3.3.2	Question 2: ICT Resources available	48
3.3.3.3	Question 3: E-platforms	49
3.3.3.4	Question 4: Communication channels used	51
3.3.3.5	Question 5: Computer/program and internet training	52
3.3.3.6	Question 6: Social platforms for communication	53
3.3.3.7	Question 7: Experience with connectivity	54
3.4	STATISTICAL AND PRACTICAL SIGNIFICANCE	55
3.5	SPEARMAN'S RANK-ORDER CORRELATION	57
3.5.1	Define Spearman's Rank Order Correlation	57
3.5.2	Results based on Spearman's Rank Order Correlation	58
3.5.3	Discussion of main identified correlation results	59

3.6	PEARSON'S CHI – SQUARED CROSS TABULATIONS	62
3.6.1	Pearson's Chi-Square Cross Tabulations defined	62
3.6.2.	Results based on Recoded Cross Tabulations	64
3.7	CONCLUSION	65
3.8	SUMMARY	66
 CHAPTER 4: CONCLUSIONS AND RECOMMENDATIONS		
4.1	INTRODUCTION	68
4.2	STATE OF GOVERNMENT-TO-GOVERNMENT SERVICES AND OTHER EDUCATIONAL E-PLATFORMS	69
4.2.1	Development and training	69
4.2.2	Available resources	69
4.2.3	Gauteng on Line Project	70
4.2.4	Government-to-Government services (Departmental website)	70
4.2.5	Support e-platforms	70
4.2.6	Departmental policy and guidelines	71
4.2.7	Communication methods	71
4.3	STRATEGY FRAMEWORK TO BOOST ADMINISTRATIVE SUPPORT TO PUBLIC SCHOOLS	72
4.3.1	Phase 1: Content evaluation	73
4.3.2	Evaluate or analyse gap indications	74
4.3.3	Realignment of system	75
4.3.4	Implementation and feedback	76
4.4.	RECOMMENDATIONS	78
4.5	RECOMMENDED FURTHER STUDIES	79
4.6	CONCLUSION	80
4.7	CHAPTER SUMMARY	81
 REFERENCES		82

LIST OF EQUATIONS

Equation 3.1:	Sample size	43
Equation 3.2:	Calculation for margin of error	45
Equation 3.3:	Spearman's rank order calculation	57
Equation 3.4:	Calculation for Chi – Square	62

LIST OF FIGURES

Figure 2.1	District Office e-Government Environment	13
Figure 2.2	Departmental/private e-models available	15
Figure 2.3	Reasons for not using e-content	20
Figure 2.4	House of IT value	24
Figure 2.5	Most commonly used ICT's in South Africa	26
Figure 2.6:	GDE Organogram	29
Figure 2.7:	Factors influencing successful implementation of ICT's.	35
Figure 3.1:	Geographical area of Sedibeng East District	40
Figure 3.2:	SWOT analyses: Sedibeng East District Office	41
Figure 3.3:	Correlation between Q 7.3 versus Q7.1, 7.5, 7.14 and 7.15	59
Figure 3.4:	Correlation between Q 7.13 versus Q7.3, 7.9, 7.10 and 7.11	60
Fig 3.5:	Correlation between Q 7.14 versus Q7.9, 7.10, 7.11 and 7.13	60
Figure 3.6:	Correlation between Q 7.15 versus Q7.2, 7.9, 7.10 and 7.11	61
Figure 3.7:	Correlation between Q 7.17 versus Q7.9, 7.10, 7.11, 7.11, 7.13, 7.14, 7.15 and 7.16	61
Figure 4.1:	E content evaluation process	73
Figure 4.2:	Gap Analysis	74
Figure 4.3:	Realignment of system	76
Figure 4.4:	Implementation and feedback	77

LIST OF TABLES

Table 2.1	Access to service indicator.	27
Table 3.1:	Detail of population size	44
Table 3.2:	Biographical Information	46
Table 3.3:	Age group	46
Table 3.4:	Representivity level	47
Table 3.5:	Qualifications	47
Table 3.6:	Language	47
Table 3.7:	Previous educational experience	48
Table 3.8:	Years experience	48
Table 3.9:	ICT resources available	49
Table 3.10:	Educational E-platforms	50
Table 3.11:	Communication channels	52
Table 3.12:	Training received	53
Table 3.13:	Social platforms used	54
Table 3.14:	Connectivity satisfaction	55
Table 3.15:	Practical significance guidelines	56
Table 3.16:	Results based on Spearman's Rank Order Correlation	58
Table 3.17:	Cross Tabulations (Pearson's Chi – Squared)	63
Table 3.18:	Recode Cross Tabulation results	64

LIST OF APPENDICES

APPENDIX A:	Designed and distributed questionnaire
APPENDIX B:	Approval of engagement with target population
APPENDIX C:	Data sheet based on feedback from respondents
APPENDIX D:	Letter from language editor

LIST OF ABBREVIATIONS

Business Information Management System (BIMS)
Gauteng Department of Education (GDE)
Government-to-Citizen (G2C)
Government-to-Government (G2G)
Information Communication Technology (ICT)
Sedibeng East District (SE)
State Information and Technology Agency (SITA)
Business-to-Business (B2B)
Business-to-Consumers (B2C)
Consumer-to-Business (C2B)
Consumer-to-Consumer (C2C)
Government-to-Citizen (G2C)
Government-to-Business (G2B), and
Government-to-Government (G2G)
Government On Line (GOL)
Information Technology (IT)
Communication Technology (CT)

CHAPTER 1

ORIENTATION AND PROBLEM STATEMENT

1.1 INTRODUCTION

Understanding the direct impact information has on an organisation's bottom line is crucial to running a successful business (Baltzan, Phillips & Haag, 2009:7). In South Africa plans for which the provision of public service through local e-content is the ultimate goal, are in place. Government therefore plays a critical role in supporting and enabling this process and in the creation of a socially inclusive information society (Farelo & Morris, 2002:1). E-Government as a communication tool in the 21st century, is the most important necessity for an effective and efficient Department to be able to provide in the supply and demand of information within educational communities.

By using Information Communication Technology (ICT), the Gauteng Department of Education (GDE) provides a Business Information Management System (BIMS), as a part of their communication strategy to supply information and service delivery to schools, pupils, and communities. By providing these services the GDE complies with the vision statement, by ensuring that every learner does well at school and leaves our institutions with the knowledge, skills and qualifications that will give them the best chance of success in adult life (Gauteng Department of Education, 2011: 1).

The main purpose of these initiatives is to create business intelligence. The enablers of business intelligence are technology, people and culture (Baltzan *et al.*, 2009:98). However, effective schools and systems are only as effective to the extent that they create conditions under which effective teaching and learning as well as communication takes place. For effective teaching and learning to take place, certain support infrastructures such as e-Government, forms the backbone of information sharing, availability and distribution within

communities. Government enables citizens, enterprises and organisations to interact with Government more easily, faster and at a lower cost.

Schools and learning institutions should acknowledge their responsibility in informing and educating students and communities by utilizing resources available to them, such as information through available technology and e-Government. By fully utilizing these resources, significant support and education can flow to surrounding communities and therefore, education becomes a partner by forming the cornerstone of making education a societal priority.

The study focused on aspects of knowledge management through e-Government and measured against the utilization of current resources. The level of interaction with e-Government by secondary learning institutions will form the basis of the research. An e-Government strategy was thus proposed.

1.2 IMPORTANCE OF THE STUDY

The following influential factors can be identified as:

- Lack of knowledge/awareness of programmes/products on offer to assist management of secondary public schools.
- Lack of equipment and technology at administrative offices at school level to access e-Government.
- Narrow focus of principals on primary objectives according to curriculum.
- No guidance and proper training on how to use additional e-Government resources that is available.

The above-mentioned problems were inherited from a previous lack of access to technology, narrow approach to curriculum delivery and in certain situations, lack of funds. Unawareness of available resources and connectivity at school level, also relates to the above-mentioned problems.

The objective of this research is to determine the level of awareness of programmes, information and resources that are available in e-Government format that can assist pupils and communities.

1.3 PROBLEM STATEMENT

The Commonwealth Telecommunications Organisation undertook a study in South Africa about the demand and supply factors affecting the provision of public service through local e-content created by Government and supplied to their citizens (Nokia Siemens Networks, 2008:3). The report stated that the Government prioritised the implementation of ICT infrastructure and processes for effective Government-to-Government (G2G) e-Governance above Government-to-citizen (G2C) e-Governance. In developing countries a failure rate of up to 85% can be recorded due to gaps in design and reality and therefore result in poor G2G services.

E-content such as resources/programmes and information are available from G2G (GDE to schools) to assist principals to deliver an effective and efficient service. Service delivery from schools to students and communities (G2C) are not taking place and therefore fails the purpose of G2G services. These resources are not accessed in the correct format, or accessed at all. Enablers such as lack of information, technology, knowledge, people and culture plays a critical role in the effectiveness of G2C engagement. G2C services fail to deliver to students and they leave the schools unaware of such services that could have made a drastic impact on their and the communities' lives. The availability of ICTs then could be reported as wasteful and fruitless expenditure by not reaching the targeted population groups.

1.4 OBJECTIVE OF THE STUDY

1.4.1 Primary objective

The primary objective of this research was to develop a framework for an e-Government system to increase the efficiency of knowledge management

through Business Information Management within the Sedibeng East District Office primarily used by public schools through the utilization of e-Government. To accomplish the primary purpose, an evaluation of e-Government as a support system to Public Schools, will be completed.

1.4.2 Secondary objectives

The specific objectives of this research are to:

1. Undertake a literature study to research the different aspects of e-Government.
2. Identify the elements of an e-Government framework.
3. Carry out a stratified quantitative research to measure e-Government usage within Sedibeng East secondary public schools against best practices found in the literature.
4. Develop a framework based on the gaps found during the analysis of the empirical study to increase the efficient and effective use of e-Government.
5. Scan the schools to identify the ICTs that are currently being used to meet local education e-content needs and evaluate their effectiveness according to criteria.
6. Identify and access the roles and responsibilities of GDE and schools respectively.
7. Understand the end user priorities and attitudes regarding information of educational aspects and to the delivery of associated e-content.

1.5 SCOPE OF STUDY

The discipline of Information Communication Technology, especially e-Government and the access of e-Government as and administrative support function within education will be studied.

Secondary Public Schools within the Gauteng Department of Education, Sedibeng East District (SE) will be evaluated. The Sedibeng East District is

responsible for the delivery of education within Sharpeville, Vereeniging, Meyerton and Heidelberg geographical areas.

1.6 RESEARCH METHODOLOGY

1.6.1 Literature review

In phase 1 a complete review is given regarding the topic of the study. A stratified method of research will be conducted. The sources that will be consulted include:

- The different e-Government resources/programmes/products that are available;
- To determine best practices with regard to e-Government;
- Study sources such as publications, websites and textbooks found in South Africa and published from 2008 upwards;
- Different Government Departments and what they offer to assist with development of students and communities from Home Affairs, Health and subjects in general;

1.6.2 Empirical study (questionnaire design, study population, gathering of data, statistical analysis)

The empirical study consists of the research design, participants, measuring instrument and statistical analysis that was undertaken to gather primary information. This empirical study was done by employing a questionnaire that has been distributed to 19 secondary public schools within the Sedibeng East geographical area. The data that was obtained from the questionnaires were used to form an objective opinion about the state of e-Government usages within the District. The software that was applied includes MS Word and MS Excel.

1.7 LIMITATIONS OF THE STUDY

The limitation of the study that can be identified and may have an influence on the data is as follows:

- Principals of 76 public schools will complete the questionnaire within Sedibeng East geographical area;
- Administrative support staff members in units such as Finance and Administration, Human Resources, Institutional Development and Support Officers, Information Technologists and Curriculum support staff that deliver administrative support to public schools will complete the questionnaire;
- There are 15 offices in total and the results may not predict a trend within the Department;
- The office is geographically one of the biggest offices in terms of distance. The difference in the distance between offices, institutions and the access to major Government centres may influence the survey;
- The fact that Heidelberg was previously seen as a farming community may influence the results.

However, the results of the survey will definitely give an indication as to the level of e-Government usage within the District Office and if the access makes an impact on students or communities within the catchment area.

1.8 LAYOUT OF THE STUDY

This mini-dissertation is divided into four chapters, each with a different focus area. A summary of the contents in these chapters are as follows:

Chapter 1

This chapter forms the introduction to the dissertation. The problem statement and background, that form the basis for conducting this study, are discussed. This is followed by a brief overview of the principles of e-Government. The

chapter concludes with the research methodology, target population and summary of the chapter.

Chapter 2

Chapter 2 consists of a literature study on e-Government and the delivery of e-content to the public. It focuses on Business Information Management (BIM), knowledge management, Government-to-Government services, Government to citizen services, information communication technologies and enablers such as technology, people and culture.

Chapter 3

The methodology employed during the empirical study is explained in this chapter. The design of the questionnaire, the sample design, analysis and evaluation of data form part of this chapter. The results from the survey questionnaires are also evaluated in detail and reference is made to the literature study.

Chapter 4

A summary of the opinions from the respondents and the effect of e-Government as an administrative support tool to public schools within the Sedibeng East District Office, are dealt with in this chapter. A practical framework for the usage of e-Government and educational e-platforms within the Sedibeng East District office, will be proposed. The e-Government competencies are plotted on a competency map. Recommendations for implementing a new Business Information Management System with specific focus on Government-to-Government and educational e-platforms will be made. Opportunities for future studies will be made in the conclusion.

1.9 CONCLUSION

Government-to-Government services play an important part in the administrative support functions to public schools. There is a role for e-Government as a knowledge management system that will provide and retain knowledge within the school environment, enabling the public schools to

function properly. School principals and administrative support staff need to understand the capturing, organization and dissemination of knowledge through relevant e-platforms and follow through with support to students and communities in which they operate. The availability of e-Government as an administrative support tool must be readily available, widely used as an information distributing support tool in addition to curriculum delivery within these schools. Efficient and effective systems and supportive e-platforms for e-Government will provide schools with a competitive advantage, and will ensure sustainable performance in providing in the basic needs of pupils and the community in which they serve.

1.10 CHAPTER SUMMARY

The core of this stratified study is rooted in this chapter. The objective of this study was to do research on the different aspects of e-Government and to establish a framework to measure the efficiency of the e-Government strategy at Gauteng Department of Education. It was proposed to do an empirical study to gather primary information that would be used to draw up the framework. The literature study follows in Chapter 2. In the problem statement it was made clear that e-resources are available in the Government-to-Government model to support learners and communities. However, the usage of the e-services will be measured against a questionnaire in Chapter 3 where the results will be interpreted. Through a literature review we will determine best practices and what forms the basis for an effective e-Government system to deliver the required content through different e-platforms. In Chapter 4 a practical framework for the usage of e-Government as an administrative tool within the Sedibeng East District will be proposed. The e-Government competencies will be plotted on a competency map to discuss the current state of affairs. Recommendations will be done to the Gauteng Department of Education on how to resolve issues that were identified. The dissertation will be concluded by mentioning opportunities for future research.

CHAPTER 2

LITERATURE STUDY

2.1 INTRODUCTION

E-Government in South Africa still finds itself perched between performance and promise. Furthermore, citizen awareness and readiness to engage and consume the services is fundamental (Mtimuney, 2011:1). Attributing factors such as maladministration, unavailability of service delivery close to communities, lack of resources and training and the digital generation caps plays a pivotal role. Departments must take into consideration the continuous change in demand such as social platforms, new programmes and technology changes when making decisions about what and where to invest in infrastructure and services to deliver e-content and e-text to stakeholders. Therefore it is imperative to do a proper evaluation of e-Government support systems within the geographical area to determine where we are with regard to performance and promise. These systems include SA-SAMS (School Administration Management System), Edupack, Microscope, Sci-Bono, Microsoft Education Desk, Gauteng on Line and Thutong.

The purpose for e-Government within the education sphere is to assist principals, educators, learners and communities with regard to educational matters such as administrative assistance, research, knowledge management, knowledge sharing and ultimately provide resources to assist grade 12 pupils with skills and competencies to give them the best chance to excel in life. E-Government forms the cornerstone of support in executing the responsibilities assigned to the Educational Department.

While the Government's intent is to bring services closer to stakeholders by investing in infrastructure and electronic resources (5 Year Strategy plan 2010–2015, 2009), the public schools does not properly and to the full extend

utilize these resources ultimately for administrative and educational purposes on a daily basis to have an overwhelming impact on effective and efficient school management, which will result in overall greater matric pass rates.

Businesses and Governments constantly change their way of doing business to optimize the use of new technologies (Ndou, 2004:2). Technology such as mobile and social platforms is some examples of new technology that can be utilized to reach communities. Since new technologies will continue to improve the way people, citizens and communities perform their business and improve the quality of their life, it will be the responsibility of Government to determine the sweet spot. Quicker communication channels, the manner in which routine tasks are performed, easier programmes written for specific purposes, electronic data storage, after hour access to education and e-learning is only a few examples of the direct impact new technology within the educational environment.

Statistics South Africa does not have many Information Communication Technology (ICT) related surveys and at present no exclusive related survey is performed or being planned (Statistics of South Africa, 2011:17). This created problems for Government Departments such as Education that needs to deliver service to consumers. By having data available, the presentation of available services could be directed based on the real need of schools in supporting learners within different communities.

If Government-to-Government services with the support of additional e-platforms, are functioning properly and implemented in the correct manner, it can be utilized effectively, create new ways for learners, staff members and schools to engage in information selection, gathering, sorting and analysis. The use of social platforms in reaching the learner and community as well as for work sharing and problem solving, are some of the alternatives in communicating the message across. Overall, this will lead to the enhancement in the management and administrative capacity of schools and form the base of support services to public schools.

In the foreword of the White Paper on e-Education (No 26762, Government Gazette , 2 Sept 2004), Naledi Pandor indicated that schools must have access to a wide choice of diverse, high-quality communication services that will not only benefit the learners and communities, but also provide unlimited opportunities and development to all. With the wide diversity choices available, problems could be experience with regard to delivery of support services. No constant format is used that can be updated and reviewed and improved to deliver the required services.

The questions if schools really have access to high-quality communication services that provide administrative support as indicated, is the e-content relevant to management of public secondary schools or do the choice of diversity play a pivotal role in the lack of communication contribution, then arises. Therefore, does Government-to-Citizen service really impact and support schools administrative functions?

2.2. E-GOVERNMENT

For the purpose of this study the following concepts are defined as:

- Administrative support: A service or system that enhance the work efficiency of a unit to ensure that high quality output are delivered in advance to promote effective and efficient decision making to reach the relevant goals;
- Public school: A school offering grade R to grade 12 education with government financial assistance.

When studying the concept of e-Government, it will be necessary to define the phrase or meaning of e-Government, the relevancy within the education environment, available textbook e-Government models and identify current models that are used in education, identify relevant legislation in which e-Government should operate for interaction and distribution of e-content to stakeholders.

2.2.1 Definition of E-Government

Although there are several definitions available for the term e-Government, the majority define e-Government more or less like Kroukamp (2005:54) as the use of information technology in general to provide citizens and organisations with more convenient access to Government information and services, and to ensure delivery of public services to citizens and those working in the public sector.

However, a combination of the definition on e-Government from Baltzan *et al.* (2009:460) and Ndou (2004:6), covers all aspects of e-Government as the use of strategies and technologies to transform Governments by improving the delivery of services and enhancing the quality of interaction between the citizen-consumer within all branches of Government. E-Government means different things to different people such as:

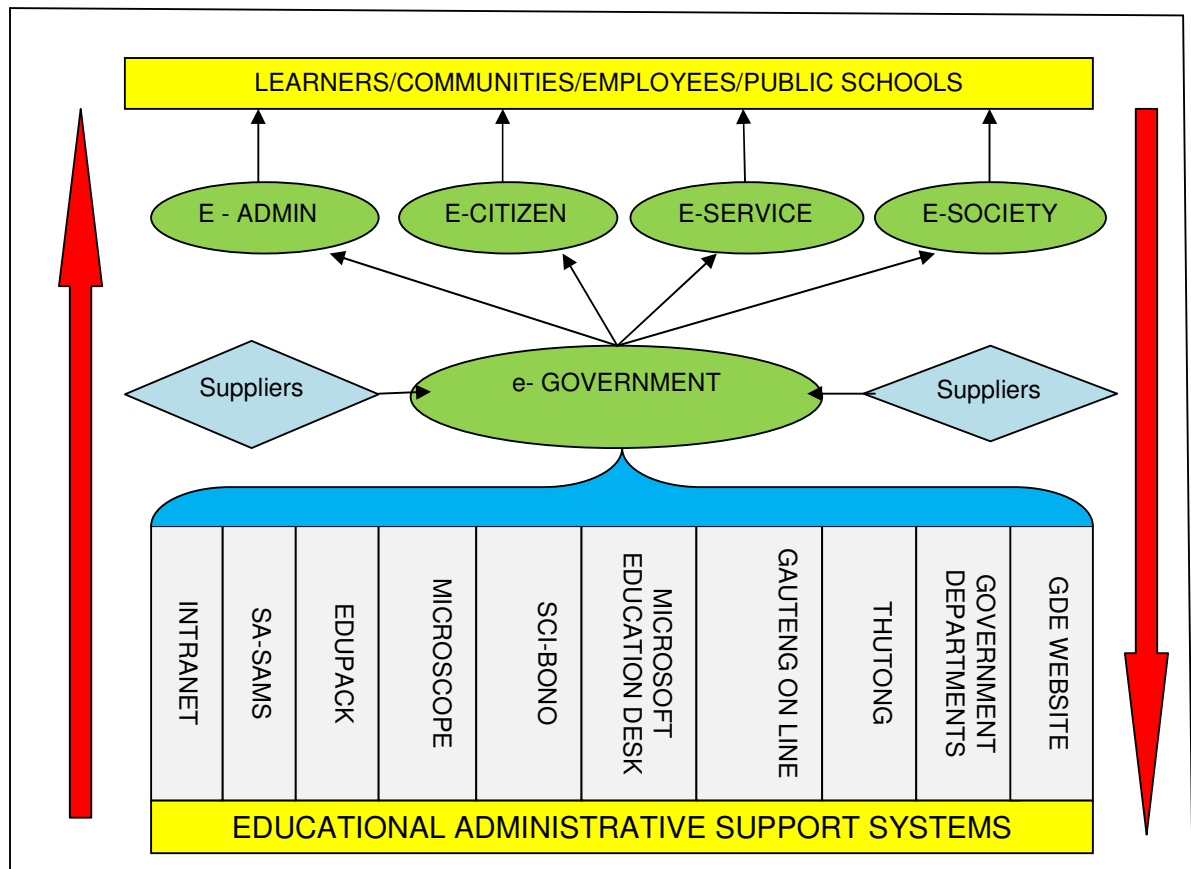
- “E-Administration” in which an administration or a Government uses ICT in order to interrelate its various departments and digitise its internal operations via “automation and computerization of administrative tasks”
- “e-Citizen and e-Services” which are e-Government applications that enable online access to Government information and knowledge and “deliver automated services”
- “e-Society” which provides a platform that facilitates interactions between Government actors and civil society.

In figure 2.1 the current environment of the District Office operations can be summarized as interaction between role players (District Office, Learners, Communities and Secondary Public Schools) in supporting each other to reach the educational goals and objectives through e-Government. The basis of e-Government is a combination of different platforms that allow interaction to ensure that ultimate administration support and services are provided to

achieve the objectives of the Education Department. Interaction is a two way communication to ensure that the relevant support is given at the correct time and place for services to be effective and efficient.

E-Government can therefore be defined as an electronic platform through which administrative support and communication is channelled within the operational environment to educate, inform and direct stakeholders through e-admin and e-society to reach pre-set goals and objectives through available electronic platforms.

FIGURE 2.1: District Office e-Government Environment



Source: Own illustration.

In delivering e-Government to communities, learners and citizens with regard to educational activities, we need to look at available models and how the

Gauteng Department of Education uses these models, and creates new models to reach their goal of proper e-Government service delivery to public secondary schools.

2.2.2 E-Government Models

Baltzan *et al.* (2009:190) defines an e-business model as an approach to conducting electronic business on the Internet. He identified the following e-Business Models:

- Business-to-Business (B2B);
- Business-to-Consumers (B2C);
- Consumer-to-Business (C2B);
- Consumer-to-Consumer (C2C).

In the e-Service Journal, Reddick (2004:62) mentioned additional e-Business Models such as:

- Government-to-Citizen (G2C);
- Government-to-Business (G2B); and
- Government-to-Government (G2G).

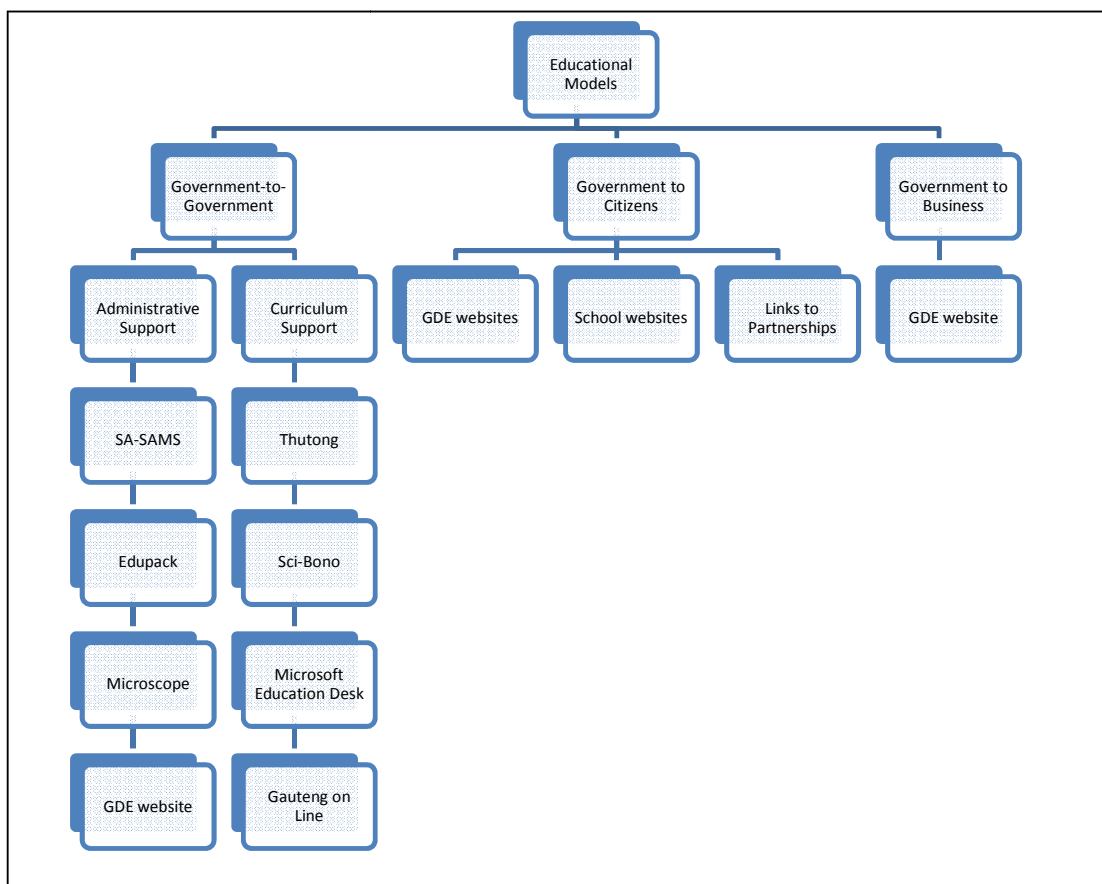
The above-mentioned additional models identified by Reddick are in line with the identified definitions as role players being Government-to-Consumer, Government-to-Business, and Government-to-Government. Government –to-Consumer will cover online presence of information about Government and its activities for citizens such as project information. Government-to-Business covers online information for businesses about Government such as application procedures. Government-to-Government is the online presence of information for other levels of Government and its employees such as information sharing on local intranets.

When analysing the models available for delivery of services to stakeholders, the Education Department provides the following e-platforms:

- Government-to-Government;
- Government-to-Business;
- Government-to-Citizens.

With the implementation of the different models within the educational sphere, it is imperative to determine if these models comply with regard to relevant legislation that is set by Government to govern the processes and models. Figure 2.1 is an illustration as to how e-Government models are used to service the educational environment within Gauteng.

FIGURE 2.2: Current E-Models in use within Gauteng Department of Education



Source: Own illustration.

When looking at the administrative support to public schools and schools in general (Government-to-Government), the three (3) programmes provide basically the same information functions such as:

- General School Information;
- Human Resource Information;
- Learner and Parent Information;
- Learner Listing;
- Governance Information, Standard Letters and Forms;
- Export data;
- Annual National Assessment;
- Financial Assistant;
- Curriculum Related Data;
- Timetabling Assistant;
- Physical Resources;
- Security and Database Functions; and
- Unit Approval Mode.

The problem with the Administrative Support is that none of these programmes are linked to e-platforms. They are operating platforms on standalone computers, except for the GDE website. Although the intended purpose is to ease the burden on reports and get uniformity, no direct communication exists between schools to schools in these programmes, schools to District Offices or District Offices to Head Office. Reports and documentation is done manually which is time consuming and not productive.

In addition neither guidelines nor policy exist directing schools to use one format therefore each school chooses the format that will suite them. District Officials within the office also do not have access or the knowledge to assist schools in administrative support with regard to these programmes. North West and Western Cape are the only provinces in South Africa where they only use SA-SAMS and the programme is linked to electronic platforms.

With Administrative Support to Curriculum related issues (Government-to-Government), the same principle where schools can choose which programme to use, exists. However, these programmes are linked to electronic platforms to which schools do not have access due to equipment and connectivity problems.

Gauteng on Line is the only e-platform that is prescribed by National Treasury, but again this platform is linked with its own problems especially where two Governmental Departments needs to interact with each other. Social problems within communities do not promote the programme due to poverty, which leads to increase in theft and burglaries, placing another burden on the Department to provide security and that causes budget constraints.

For Government to Citizens the GDE website provides general information and link to partners. Schools created their own website to which learners and parents can connect to. These pages provide general school information such as exam rosters, policies, procedures, personnel and School Governing Body introductions and planned events.

In the Pretoria News dated 15 September (2011:7), Jones stated that many existing teachers are poorly managed and do not teach effectively. The above-mentioned models are linked to relevant legislation to ensure that administrative support is there for these teachers to ultimately perform within the teaching environment. To determine if these models comply to set standards and procedures, it is necessary to determine which legislation is relevant to the educational environment.

2.2.3 E-Government legislation

Each action within Government is governed by relevant applicable legislation. The purpose of legislation is to ensure that relevant services are delivered according to mandates of Departments that regulate specific areas such as e-platforms.

According to the Bill of Rights captured in the Constitution of the Republic of South Africa, as amended on 11 November 1996, the State places an obligation on Departments to improve access to services. It also stated that the state must take legislative and other measures to provide access to arrange services, for instance education, within its available resources to achieve progressive realization of these rights.

The Constitution also provides for the setting of norms and standards to ensure equal access to public services. In terms of Section 146, subsection 2 (b) of the Constitution, the role of national legislation prevails if legislation is aimed at uniformity for effective service delivery.

The Public service Regulations Act no. 30 of 2007 states in Part 111.C.1 (SA, 2007) that an Executive Authority shall establish and sustain a service delivery improvement programme in his/her Department by:

- Specifying the main services to be provided to the different types of actual and potential customers;
- Implementing strategic plans to decrease barriers to access.

In addition the Telecommunication Act, Act no. 103 of 1996 (SA, 1996), also provides for discounted connectivity rates for all educational institutions. Public Schools are not aware of these provisions due to ignorance, lack of information on the GDE website and overall non-connectivity.

Although the Gauteng Department of Education has internal policies that covens roles and responsibilities of users with electronic formatted access and documents, no directives is available for public schools on the type of e-platforms that must be used to ensure uniformity and therefore creating a serious lack in knowledge management, supervising and controlling purposes. Each office and school do manual administrative support according to different kinds of templates that are requested on the spur of the moment.

Although umbrella legislation covers the most of the above-mentioned acts, how does the Education Department implement e-Government as support to public schools?

2.2.4 E-Government within Gauteng Education Department

In figure 2.3, Nokia Siemens Networks in their Global Report identified reasons why South Africans are reluctant to use e-content (2008:19). This is in spite of the fact that even with priority types of e-content such as education, people are willing to pay for services for each successful transaction or the time they spend using the service.

The four main reasons in South Africa for not using e-content which the Department should note, in order of percentage are:

- Usage is currently too expensive;
- Citizens and communities have no trust in e-content;
- For most users it is too complicated; and
- Users are not aware of or where to find these services.

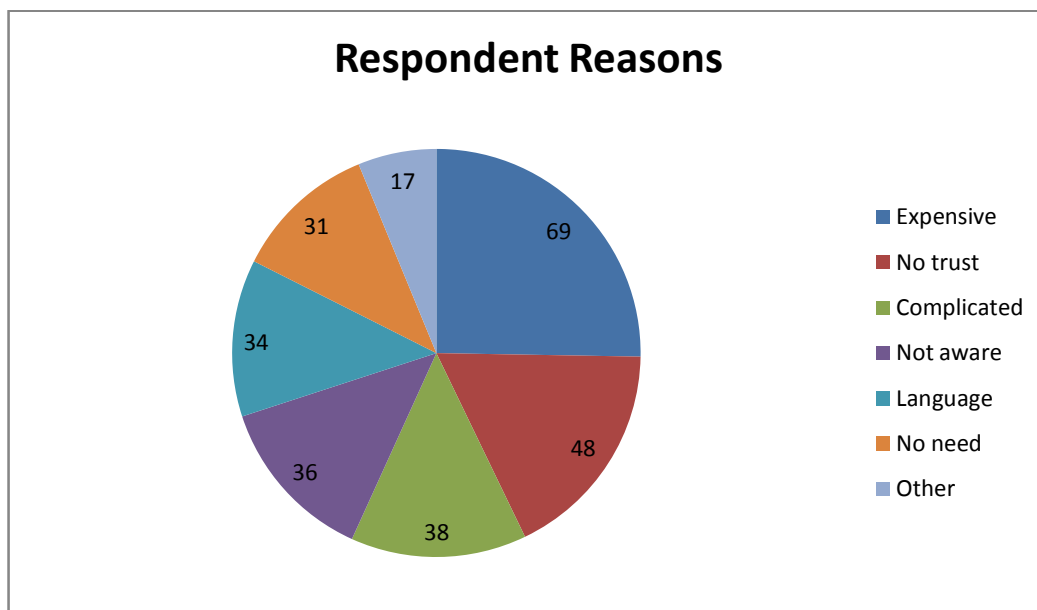
This is in line with the findings of Kroukamp (2005:61) which states that cognisance should be taken with South African realities such as internet infrastructure, literacy levels and per capita income. Disadvantaged and rural areas have limited access to electricity and telephone lines which impacts on internet connectivity and e-Government facility usage.

When evaluating the relevant models and the variety of platforms that is available for public schools to interact with e-Government, it can be suspected that the biggest problems according to Figure 2.3 will be relevant, namely:

- Too expensive for the allocated budget to public schools;

- Possible lack of training on the relevant programs might lead to platforms not being trusted;
- Lack of training support to the not-awareness rate of possibilities and programs available; and
- The variety of programs makes it difficult for the end user to properly interact with the different features of each program.

FIGURE 2.3: Reasons for not using e-content services



Source: Nokia Siemens Networks Global Report (2008)

Education in the province is managed through a two-tier structure with a provincial head office and 15 District Offices aligned to the local Government boundaries.

According to the Gauteng Department of Education's Five-Year Strategic Plan for 2009/2010 – 2014/15, version 9 (Chanee,2009:42), GDE will continue to enhance support and the extensive information system planning process with a view of improving data collection, management and information generating to support decision making, accountability and social targeting. Measures will

be taken to ensure that each school has access to information and communication technology infrastructure and services.

GDE delivers the following e-Government services as administrative support to public schools, learners, communities and personnel and businesses:

- Government-to-Government (Directed to public schools): Schools' infrastructure needs, education calendar, publications, legislation, educational guide, curriculum issues, text book catalogues and libraries and for learners at public schools services such as previous Grade 12 question papers, bursaries and career guidance.
- Government-to-Citizens: Linkage to GOL and other relevant departments, parental education guidelines, site maps, legislation, school information, bursaries, community libraries and vacancies.
- Government-to-Business: Available tenders, tender procedures and relevant business related forms.

According to the proposed Organization and Post Establishment for the Gauteng Department of Education (2006:22), the Department makes provision for e-Government, which resorts under the Chief Directorate Information Technology Services in line with the Branch of Information Technology and Knowledge Management. The purpose of the Sub-Directorate is to manage and co-ordinate functions related to information and Communication Technology for effective functioning of departmental processes. Key functions linked to this unit are:

- Management and co-ordinating ICT Operations including network connectivity and technical support to minimize disruption to service delivery in GDE Institutions and Offices;
- Providing IT Management services to facilitate the achievement of corporate objectives and business goals in a cost-effective manner; and

- To ensure the co-ordination, development and implementation through the GOL project.

With e-Government systems and legislation in place, we need to look at the current ICT's that are available to ensure effective engagement between Government and citizens and vice versa.

2.3 INFORMATION COMMUNICATION TECHNOLOGY DEFINED

2.3.1 Definition of Information Communication Technology

In the White Paper on e-Education (SA, 2004:15) information and communication technologies were defined as:

- Information Technology (IT) is a term to describe the items of equipment (hardware) and computer programmes (software) that allows a user to access, retrieve, store, organise, manipulate and present information by electronic means.
- Communication Technology (CT) is a term to describe telecommunication equipment through which information can be sought, sent and accessed.
- Information Communication Technology (ICT) represents the convergence of information technology and communication technology. Therefore it is a combination of networks, hardware and software as well as the means of communication, collaboration and engagement that enable the processing, management and exchange of data, information and knowledge.

Statistics South Africa (2011:27) defines ICT as products that must primarily be indented to fulfil or enable the function of information processing and communications by electronic means, including transmission and display. These include internet backbone service, narrowband internet service and broadband internet access service.

However, ICT's is linked to certain criteria that must be complied with such as information security, interoperability, economies of scale and reducing of duplication.

In the Mail and Guardian dated 29 September (2011: 3) the author Lebusa Monyooe raises the question of systemic imbalances where only 30% of South African citizens have access to ICT's.

2.3.2. House of IT value

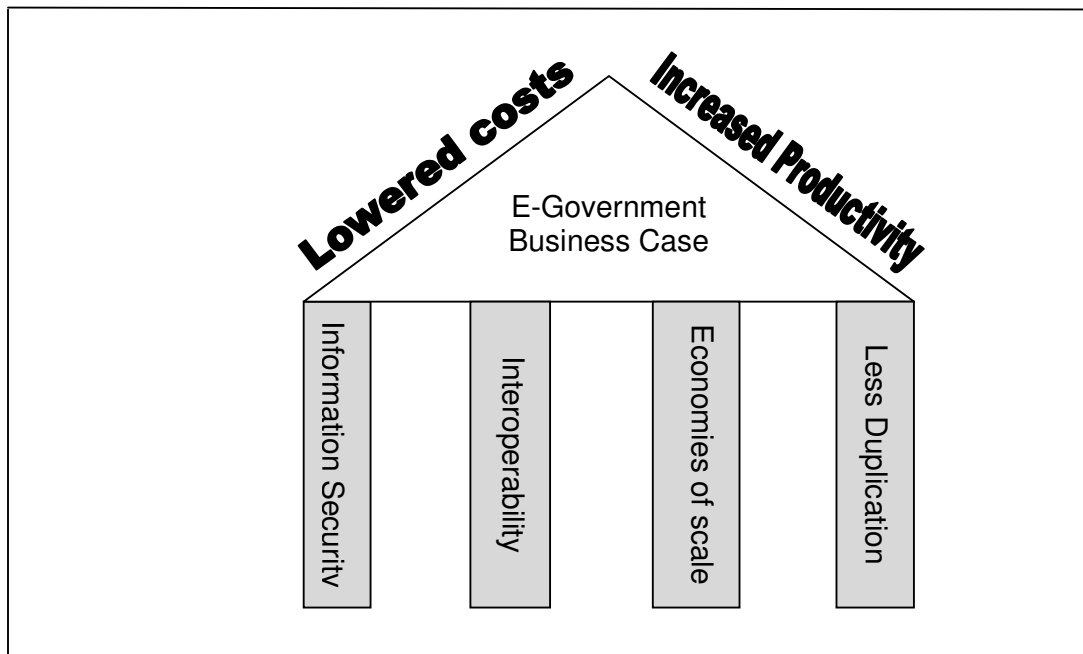
In the Machinery of Government: Structure and Functions (Department of Public Service and Administration, 2010:72) the following three Batho Pele principals guides Government's investment in Information Technology (IT) related goods and services:

- Improving the internal operations of Government to reduce cost and time of delivery of services;
- Increase the accessibility of information about public services in order to empower citizens and enhance accountability; and
- Provide specific services electronically, be it through the Internet, telephone, television and electronic means.

The above-mentioned is very critical to the education environment, since it can be argued that education is one of the most vital infrastructural obligations and developments within this structure is urgent. However, in contradiction to resource allocations to uplift performance, an article in the Mail and Guardian of 29 September (2011:2) stated that lack of resources for poor performance cannot be a reason. They stated that other poorer countries with fewer resources perform better than South Africa.

Therefore Information technology must add value to Government's service delivery initiatives, and Government should have a universal understanding of the concept of 'Government House of IT value' as illustrated in figure 2.4.

FIGURE 2.4: The House of IT value



Source: Machinery of Government: Structure and Functions (2003:3)

The main aim (Figure 2.4) according to the Department of Public Service and Administration (2003:3), is for Government to lower technology cost and simultaneously increase productivity in delivering their services to communities. The following primary focus areas underpin the success of any e-Government initiatives (pillars):

- Information security – Government operates in an environment where electronic documents/data must be protected from unauthorized access, malicious code and denial of service attacks.
- Interoperability – IT systems must talk to each other, allowing automatic sharing and exchanging of electronic messages and documents, collaborative applications, distribution of data processing

and report generations, searches and queries in the entire Government. Programs are not linked to e-platforms.

- Economies of scale – Development of local IT skills that are crucial to E-Government initiatives through Government's IT economic power
- Less Duplication – abolish unnecessary duplication of similar IT functions, projects and resources, as well as practices or re-inventing the wheel.

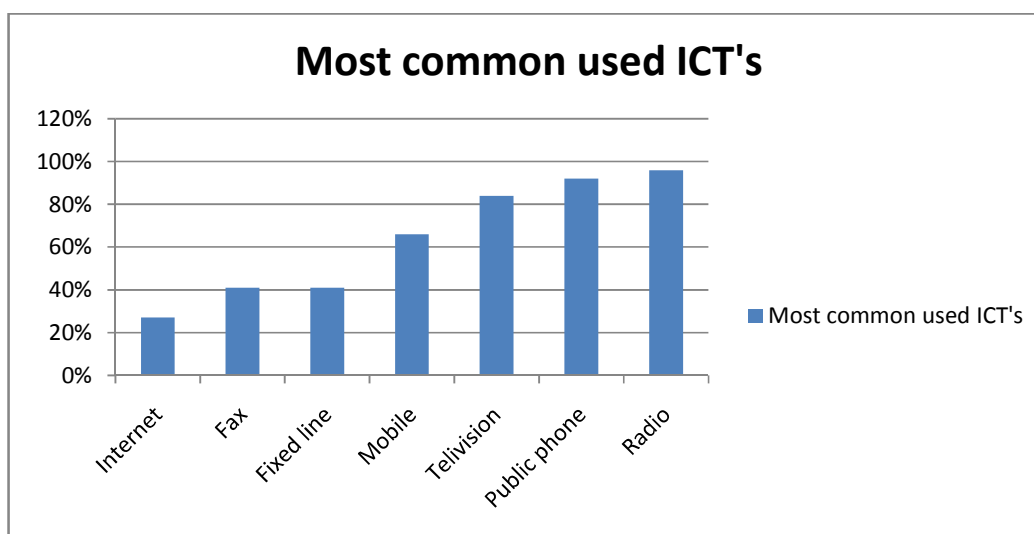
With regard to Information Security the Department of Public Service and Administration (2003:3) indicated that they are covered with regard to implemented policies such as:

- Gauteng Provincial Government (GPG) Internet Policy;
- Gauteng Provincial Government (GPG) e-Mail Policy;
- Gauteng Provincial Government (GPG) Information Security Policy;
- Gauteng Provincial Government (GPG) Information User Policy; and
- Gauteng Provincial Government (GPG) User-ID and Password Policy.

The above-mentioned policies only provide user guidelines and procedures and it will be the responsibility of the relevant Line Departments to implement it within their structures and scope of work.

In line with "The House of IT value", Nokia Siemens Network (2007:14) identified the most commonly used ICT's in Figure 2.5 based on their survey in October and November 2007. According to the Nokia report as indicated in Figure 2.5, the internet and internet support services are currently still the lowest used service in South Africa. If this is a true reflection of current status in South Africa, the question arises if e-Government and educational e-platforms are relevant at this stage in time.

FIGURE 2.5: Most commonly used ICT's in South Africa



Source: Nokia Siemens Network survey in October and November 2007 (2007: 14).

The belief that a wide range of ICT's should be considered when attempting to stimulate the demand and supply of services, is supported by the fact that respondents use a wide range of ICT's. The survey also indicates that non-owner's intention to get an internet connection is stronger than their intention to get a fixed line phone, implying that there is a market for wireless internet within South Africa.

The Annual Report of the Department of Public Service and Administration (2010:5) indicated that the Department would aim to strengthen policy orientation to ensure prioritisation of a broadened e-Governance culture by strengthening citizen's engagement in Government programmes. In the ITC Expenditure Review a number of general opportunities could see cost savings for Departments such as:

- Improved ICT asset management and configuration management;
- Improved software management to achieve economies of scale;
- Sustainable (Green) ITC; and
- Improved procurement services to achieve economies of scale.

The responsibility for Information Technology (IT) and Information Management (IM) in the Public Service is vested with the Minister of Public Service and Administration according to the Public service Act no. 30 of 2007 (SA, 2007) for national and provincial Departments.

Based on the above-mentioned responsibility, SITA is the primary appointed IT service provider for Government according to the State Information Technology Act, Act no.88 of 1998 (SA, 1998) and the Public Finance Management Act, Act no.1 of 1999 (SA 19999). The service delivery is governed by the Business Agreement (BA) and Service Level Agreement (SLA). The current transversal systems that are being used are: Basic Accounting System (BAS), Logistic Information System (Logis), Persal and Vulindlela.

Internet connectivity is the lowest ICT used by the public. This is confirmed by the survey of the Social Profile of South Africa, 2002-2009, Report No. 03-19-00 (2009:26) where it is less than 8% as indicated in Table 2.1. Whilst the access to connectivity is so low, the the administrative support functions of Public Schools became more relevant in delivering services to learners and communities. This is an indication of the need for the service to back the low access that citizens have in communities to support educational needs.

TABLE 2.1: Access to service indicator

Access to service indicator	Age	2009
Internet – dwellings with access to internet	0-17	5.5%
Internet – dwellings with access to internet	15-24	6.3%
Internet – dwellings with access to internet	25-34	7.2%

Source: Social Profile of South Africa, 2002-2009, Report No. 03-19-00.

Public information and education campaigns, stressing the importance of the active involvement of parents in education and development of their children,

may to some extent mitigate the potential negative impact that internet connectivity may have on child development and well-being.

Young people represent a major focal point of policy making, mainly because of their potential to be a major resource for national development. Household living arrangements are influenced by aspects such as politics, access to housing, health, education and socio-economic amenities.

2.3.3 Information Communication Technology and Gauteng Department of Education

A Government is a huge and complex organisation whose operations and strategic focus could be greatly enhanced by the well-focused application of ICT to support improvements in productivity, management effectiveness and ultimately, the quality of service offered to citizens (Gichoya, 2005:176). In Shirish and Thompson (2009:2082) difference by identified “Technology thrust” rather than “citizen orientation” is the main driving force for most of the ICT’s initiatives.

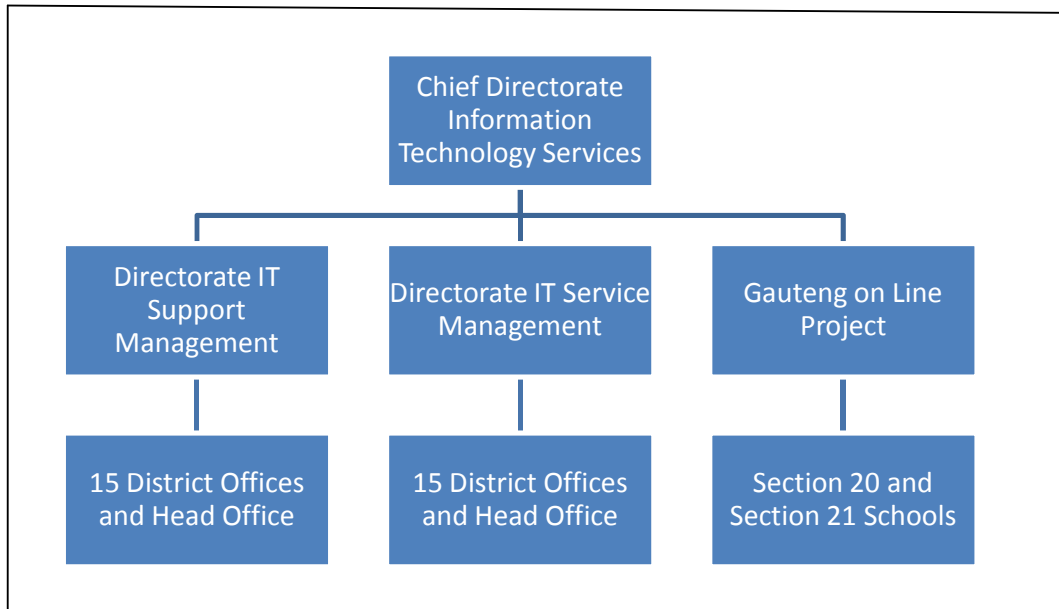
The Department of Public service and Administration (2003:2080) is of the opinion that mass e-proliferation needs to be completed internally by Government at operational levels such as office automation, meaning routine office functions must be performed in a more effective and efficient way by utilizing ICT’s. Internal Governmental operations should be computerized before linkage could be established with parties outside Government.

Service delivery through ICT’s is online information that is accessible by citizens which is programme administration and compliance. Information services should be delivered to citizens in real time according to customized needs (2003:2081).

When looking at the models (G2G, G2B and G2C) as discussed in e-Government, the GDE makes provision in their organogram (Figure 4) that services are directed straight to the point where the need arises through

relevant structures. Although the Gauteng-on-Line Project is directly related to learners and educators, we need to understand the functions of additional administrative support that need to be delivered to secondary public schools through the IT Support Management and IT Service Management structures.

FIGURE 2.6: GDE IT Support Organogram



Source: Department of Education (2010)

The main objective of the Support Management Sub-Directorate is to provide technical advice and support the user base of the Department and management of Lan and Wan connectivity. The Sub-Directorate Service Management is responsible for IT Management services that facilitate the achievement of corporate objectives and business goals in a cost-effective manner.

In a study completed by Zailane, Ong and Shanon (2006: 31), it was determined that adoption of ICT exhibits influences on the manner in which knowledge are linked and shared significantly positive. In basic terms the availability of the correct ICT's will impact on the culture of a Department in a decision to adopt the relevant technology as support.

In Layman's terms, knowledge is gained from ICT utilization and several enablers affect the support of ICT adoption. Effective utilization of ICT's is therefore directly linked to certain pre-conditions (enablers) to exist and what must be put in place before progress with regard to knowledge management can take place.

Waspe (GDE, 2007:8) stated that the Department of Education believes that developments in ICT create access to learning opportunities, redress inequalities, improve the quality of learning, and teaching deliver lifelong learning. He is also of the opinion that the introduction of ICT's will not in itself improve the quality of education, but that there is also evidence that ICT's can:

- Capture and store data for informing data driven decision making;
- Enhance avenues for collaboration among family members and school communities; and
- Improve methods of accountability and reporting.

It is especially the collaboration and support part between learners, family members, communities and schools that we are interested in.

Based on the homepage of the Gauteng Department of Education, it was indicated that the Department also relies heavily on additional ICT's that will enhance administrative support to schools. Such mediums of communication include:

- Time slots on local radio stations to advocate School Intervention Programmes. This was utilized very effectively to communicate to communities during the 2010 union strikes.
- GOL at schools where learners can interact with different levels of Government. However, this programme and the maintenance of the programmes is outsourced and are plagued with problems such as

connectivity, utilization by institutions and high crime rates within certain areas.

- Blackberry and laptops that were made available to principals during the 2010/2011 financial years. Although this is a new system that is in place, the benefits for communication purposes have not yet been tested.
- GDE homepage where relevant informational aspects are covered.
- E-mail addresses available to schools for communication purposes between the District Office and schools.
- In general schools have fixed and fax lines and fax lines available for back up communication over and above the cellular phones issued to principals.

When considering the available technology, it must be noted that the Department totally lack in utilizing social platforms and means of interaction with Government, Learners, Communities and Businesses. Platforms worth mentioning could be Facebook and Mxit.

2.4 INFORMATION TECHNOLOGY ENABLERS

To be enabled means to be supplied with the means, knowledge or opportunity and the capacity or sanction to activate or make operational certain actions or projects (Thefreedictionary, 2011). The Business Dictionary (Businessdictionary.com, 2010) defines enablers as the capabilities, forces and resources that contribute to the success of an entity, program or projects. It can therefore relate to the medium that is used by someone or something that makes a process easier.

Circular 71/2008 of the Gauteng Department of Education (2008:3) define enablers as the combination of hardware, software and means of communication that brings people together and enabling the process, management and exchange of data, information and knowledge in order to expand the range of human capabilities.

In short enablers are the provisioning, utilization and assistance of technology through communication interaction and mediums that produces the necessary outcomes or services required. In his argument John Moore (2010:1) is correct by stating that Government is not about technology, technology is simply the enabler. Although Government is not about technology, Government must supply and provide the technology means to enable interaction between communities, citizens and businesses. Therefore Government must have the necessary skills, resources, know-how on how to operate technologies to deliver effective and efficient services. A part of the Government's functions need to be technology orientated functions and confusion that Government is about technology becomes a reality.

The question now arises as to how schools are utilizing these available ICT's as administrative support to learners and communities based on the fact that internet access is very low and connectivity cost is very high for learners and citizens.

2.4.1. E-Government enablers as support to the system

Baltzan *et al.* (2009:98) identified the following knowledge management enablers:

- Technology – systems that compute and monitor metrics on virtually every variable important for managing the company.
- People – allows organizations to systematically create insight and turn these insights into actions. Decision-making can be improved by having the right people making decisions.
- Culture – corporate culture can be managed and shaped to the most important indicators, measuring these indicators and analysing the results to guide improvements.

Elsevier (2008:44) identified the role of ITC versus technology according to Baltzan; the role of organizational practices versus culture according to

Baltzan inclusive of human capital or people as one of the most important enablers that will make or break an electronic support system.

In the White Paper on e-Education (SA, 2004:10) the Government identified three (3) critical elements or enablers that will determine the usage of ICT's as an effective tool for social and economic development, namely:

- Cost;
- Sustainability; and
- Efficient utilization of ICT's.

With both the authors (Baltzan and Elsevier) in agreement of technology, people and culture being enablers, Mitrovic (2010:2) added e-skills (practitioner, user, e-business and e-literacy skills) and e-competencies as additional enablers. This directly ties up with the White Paper on e-Education's concepts of sustainability and utilization.

Practitioner skills refer to capabilities required for researching, developing, designing, managing, producing, consulting, marketing, selling, administrating and supporting ICT systems. User skills refer to the capability for the effective application of ICT system and devices by the individual. E-business skills are used to ensure more efficient and effective performance of different types of organisations and e-literacy as the capabilities needed to socially appropriate ICT for local development.

However, language communication as an enabler is a cultural barrier in South Africa (Kruger & Johnson, 2010:58). They stated that communication is severely hampered when having to deal with eleven (11) official languages. White South Africans prefer an explicit style of communication such as written commitments (i.e. contracts) opposed to black South Africans who prefer oral communication. Based on this statement, it can be concluded that white South Africans will therefore more easily adapt to interaction with e-content than their black counterparts.

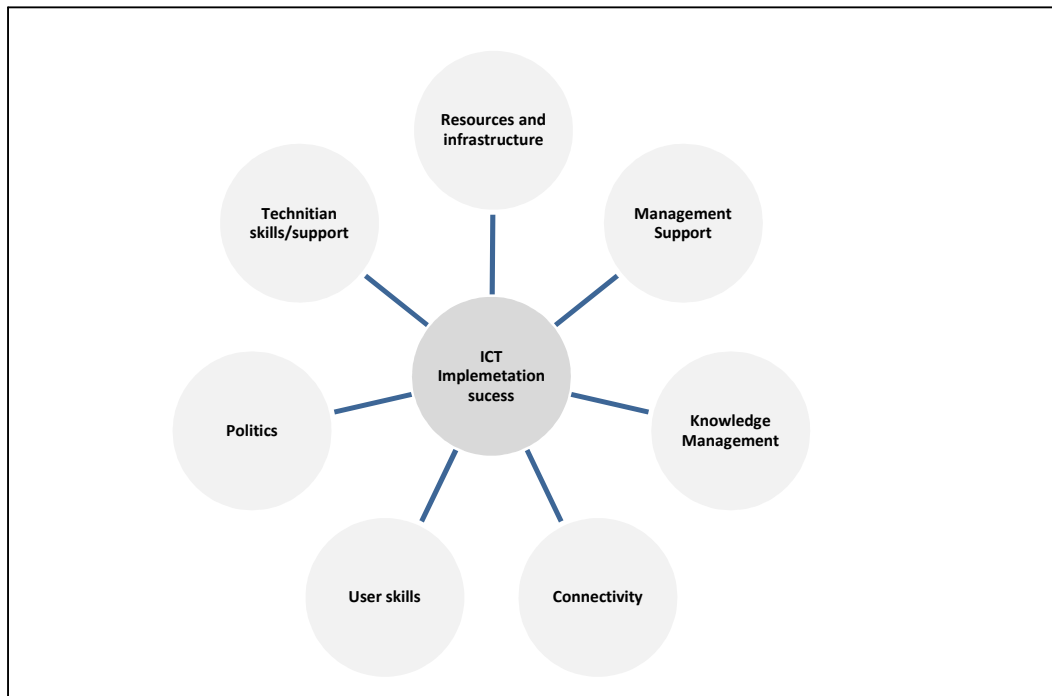
Shirish and Thompson (2009:2082) stated that evolution is contingent upon the presence of certain enablers. They continued to list the following additional enablers:

- Infrastructure: Building of a complementing ICT structure, internet connectivity, bandwidth capacity, secure servers and computers;
- Political Will: Electronic commerce needs to be taken as a strategic business decision, not merely a technological one;
- Knowledge: E-Government is more of an organizational change issue than a technological issue. Citizens in addition must understand the potential of e-Government;
- Trust: development of trust not only involves secure systems but also communication and educating citizens;
- Legal framework: Should lay down cyber laws and indicate punishments for such crimes together with an efficient cyber-surveillance system for policing.

When evaluating the above-mentioned, e-Government should be an organizational change issue which links up with the culture drive within the Department that is necessary to enforce the Government-to-Government and educational e-platforms for effective administrative support to public schools. However, this will be a fruitless and wasteful exercise in the absence of supportive policy from the Gauteng Department of Education.

In Figure 2.7, David Gichoya (2005:175) identified additional factors that have an impact on the successful implementation of ICT implementation successes such as resources and infrastructure, management support, knowledge management, connectivity, user skills, politics and technical support.

FIGURE.2.7: Factors influencing successful implementation of ICT's



Source: Gichoya (2005:175).

2.4.2 Departmental interaction with information technology enablers.

According to the Five-year Strategic Plan of the Department (Gauteng Department of Education, 2009:1) the Department is committed to accelerate service delivery to ensure that the needs of the citizens are met. To analyse Figure 5 the following interactions and counter measures have to be in place to ensure successful implementation of ICT's within secondary public schools:

- **Resources and infrastructure:** The IT capacity of the Department has improved tremendously as effective support systems and processes of the Department. Huge strides were made towards the utilization of ICT in education. The adoption of e-learning promises to revolutionize business processes and communication within the Department. One of the risks currently is the unreliability of the Wide Area Network (WAN)

connectivity. Risk elements are the fact that computers at schools are not connected on a regular basis and are often vandalised or stolen;

- Management support: The baseline of the Department was 366 computers delivered to public schools, 105 computers distributed to teacher centres, 1200 schools linked to GOL and 969 schools can be contacted electronically;
- Knowledge Management: The Department will continue to enhance and support an extensive information system planning process with a view of improving data collection, management and information generation to support decision making, accountability and social targeting. Measures will be taken to ensure that each school has access to information and communication technology infrastructure and services;
- Connectivity: Provisioning of blackberry cellular phones and laptops to school principals were completed in January 2011;
- User skills: The competence of personnel requires great development and is currently a major challenge for the Department;
- Technical skills: Currently the Department appointed IT Technical Interns within district offices. By creating employment and given the opportunity to gain experience and knowledge, these interns are used to assist schools with technical help to ensure that they are connected. In addition plans are on the table to recommend the creating posts and appointment of Education Technologists at schools. The appointee will be responsible for overall usage of ICT's within the school environment.

Potential enablers that are underutilized or not yet explored by the Department to enhance service delivery through public schools to learners and communities are:

- Social web pages such as Facebook, Twitter and Mxit;
- Cellular phones and applications such as i-Pac and i-Pod;

On News 24.com (27 September 2011) an article indicated that South Africa lost four places on the IT Rankings and dropped to 47th out of 66 countries. The rankings are based on innovation, business environment, IT infrastructure, human capital, research and development and public support. With a report like this, the question can be asked if e-Government really supports stakeholders, learners and communities within the educational environment - Does the Department have enough enablers to support ITC's and to ultimately boost the functionality of e-Government?

2.5 CONCLUSION

The aim of the literature review was to establish different e-Government models, available Information Technology to support e-Government models to determine the Information Technology Enablers that have the potential to enhance the management and administrative capacity of schools to deliver a service to learners and communities in their catchment area. Schools need to exploit the benefits of such services to enhance the quality of teaching and learning.

E-platforms should be directed to address the specific needs of schools, learners, society, community and business through the delivery of administrative support e-platforms. Smarter ways of interacting with relevant stakeholders through social platforms should be investigated and established as the current mode of communication is to encumber some. Mandates by Departments to direct users in a specific program should get the urgent attention it needed to ensure that the Department will be in a position to build knowledge and sustain the knowledge that was collected.

Value added services to public schools is insufficient according to literature and communities and learners are not reached through the appropriate channels as earmarked by the Gauteng Department of Education. The culture of the Department must be re-visited to ensure that this is in line for effective support from employees, learners and communities.

2.6 SUMMARY

In the literature review we looked at the meaning of e-Government and the different models of e-Government that is available and accepted worldwide. Specific attention was given to Government-to-Government models and additional e-platform support that is available.

The review covered the Government legislation or the lack thereof to give support to the Government to Government model. In addition reasons were identified as to why communities, learners and the population in general do not make use of e-content services.

The current Information Technology that is available were identified and the link between the technology and certain enablers were made to ensure that Government to Government systems deliver and are functional to address the objectives of this study, namely to deliver administrative support to public schools. Through identifying the current support structure (Departmental Organogram) an attempt was made to see how it supports the available technology, implement the technology and how it complies with enablers that allow it to deliver a Government to Government service through the availability of different e-platforms.

CHAPTER 3

RESEARCH METHODOLOGY AND FINDINGS

3.1 INTRODUCTION

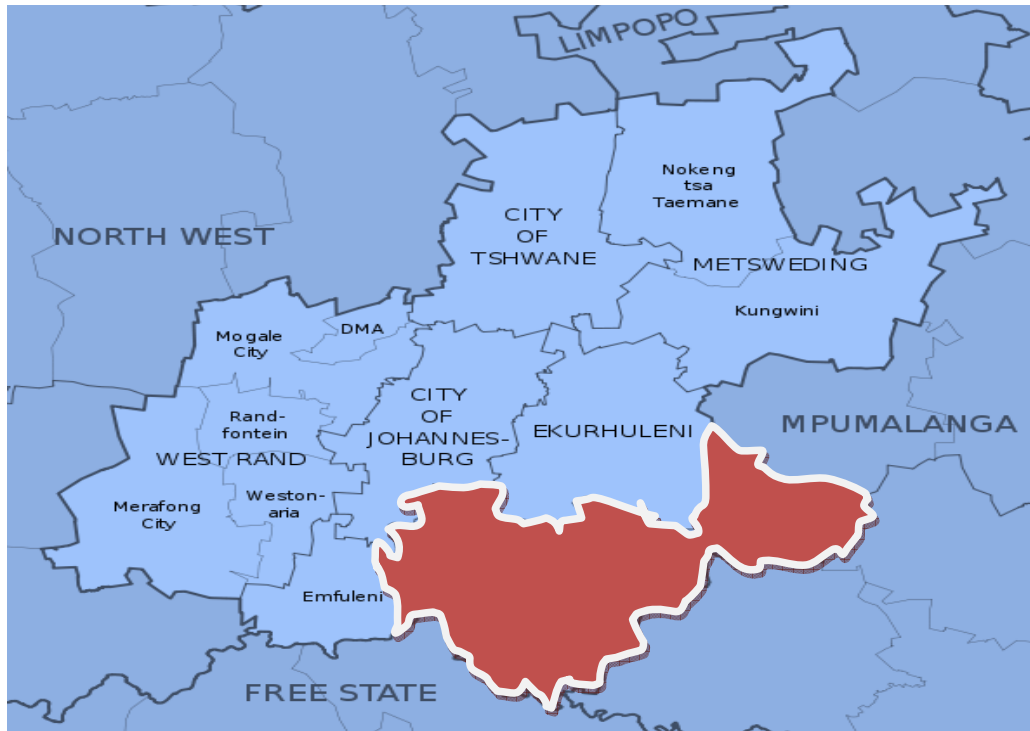
In chapter 2, sources indicates that factors such as availability of resources, training, legislation, ITC's and enablers play an important role in administrative support through e-Government within the Government-to-Government and Government-to-citizens models. In this chapter, the focus was on the research methodology used to help meet the research objectives as laid out in 1.4. The findings of the survey are presented. A questionnaire was designed for the survey (see Appendix A).

3.2 DISCUSSION OF GAUTENG DEPARTMENT OF EDUCATION SEDIBENG EAST DISTRICT

The Sedibeng East District is one of fifteen (15) Districts that resort under one Head Office for the Department of Education within Gauteng Province. The District Office consist of support personnel such as Finance and Administration, Human Resource, Information Technologists, Curriculum support staff and School Managers (IDSO's) for 76 public schools, schools of industry and private schools. Inclusive of the Sedibeng East District Office is the seventy six (76) pubic school principals. The geographical size of the office includes, Sharpeville, Vereeniging, Meyerton, Heidelberg and Devon schools. This is one of the smallest District Offices but geographically one of the largest. The geographical borders of the office is spread over three (3) municipal areas inclusive of Emfuleni, Lesedi and Midvaal Local Municipalities. In figure 3.1 an illustration of the geographical area under discussion is indicated in red. Please note that Sedibeng District is divided between Sedibeng East and Sedibeng West District Offices. Therefore the

only geographical part covered in the questionnaire is covered in red (Sharpeville, Vereeniging, Meyerton, Heidelberg and Devon).

Figure 3.1: Geographical area of Sedibeng East District



Source: Education website (2007)

The most recent strong points, weakness, opportunities and threats (SWOT) analyses is summarised in Figure 3.2 as discussed during the Sedibeng East Imbizo on 12 October 2011. It is evident that resources, connectivity, updated software and knowledge of Information Technology Specialist pose a big problem for the effective and efficient operations and service delivery within the department. In information technology there is huge opportunities for growth, training and proper utilization of resources to enhance administrative support through e-Government for all stakeholders. Communication processes and the availability of technical skills are influencing the overall support programme within the office. E-platforms are not available and with the wide variety, no clear policy guidelines are provided as a directive.

Figure 3.2: SWOT analyses: Sedibeng East District Office

STRONG POINTS	WEAK POINTS
• Electronic Resources such as computers and networks are available. • A full complement of IT staff members is available at the District Office. • The IT Helpdesk is online and calls can be logged for IT related problems.	• Lack of funds for proper maintenance and repair of computers and IT equipment. • Lack of control measures of IT personnel linked to office and their reporting structure. • Poor server performance with too much down time • Aging computers within District & turnaround time for repairs and replacements. • Purchases for IT related equipment is centralized at Head Office and can only be accessed through an approved submission • Lack of computer training and software training with personnel and school principals.
OPPORTUNITIES	THREATS
• Movement of Teacher Centre to previous GPG Building could free up some bandwidth. • Improvement of more financial utilization of resources. • Better interpretation and interaction with reports. • District Office Units to mirror Head Office structures. • IT equipment purchases decentralized back to units within District Offices. • Policies for schools with regard to software programmes that must be used as communication tools.	• Communication PABX brakeage/system problems • Virus protection for network users • Not enough budget allocation for IT resource commitments within the office • Growing organogram versus network & Telkom points and office space. • Server failures and turnaround time to repair reported problems. • Personnel operating outside GDE policies and the lack of policies with regard to electronic usage. • Public Schools not operating on same network than Offices.

Source: Sedibeng East Imbizo (2011)

3.3 THE PROCEDURE AND SCOPE OF THE QUANTITATIVE RESEARCH

The empirical study focused on the usage of e-Government within the Sedibeng East District Office borders by office personnel and public schools by means of an availability study. The maturity level of computerised skills, knowledge and the availability of resources are measured against the effective and efficient engagement with e-Government as an administrative support system.

The interaction with e-Government from different spheres and angles are measured and analysed to determine how effective available resources and e-Government supports the day to day administrative functioning of education within the Sedibeng East District Office.

The reasoning behind this as a sample was that the Sedibeng East District is on the outskirts of the economic hub of the country, namely Gauteng.

3.3.1 Sample group and size

The first question in quantitative research is: "What is the size of the sample needed?" Lenth (2001:1) stated that it must be "big enough" so that the results are of scientific significance as well as of statistical significance. Lenth further argues that it is also important that the study is not "too big". Against this scenario, the results will have little scientific importance, but nevertheless will be statistically significant. The sample size is also important for economic reasons (Lenth, 2001:1). An undersized study can be a waste of resources for not having the capability to produce useful results, while an oversized one uses more resources than necessary, therefore, it is important to have a sample with the right size.

From the above, it can be seen that the decision of the sample size is very important and complex. The equation for calculation of the sample size that was used can be seen in equation 3.1.

Equation 3.2: Sample size

$$S = \frac{P(1-P)}{\frac{A^2}{Z^2} + \frac{P(1-P)}{N}}$$

Where:

S = Sample size required

P = Estimate of people who possess attribute of interest (80%)

A = Accuracy desired (10%)

Z = The number of standard deviations of the sampling distribution that correspond to the desired confidence level (Z equals to 1.64 for a 90% confidence interval)

N = Number of people in population (218)

The number of employees in the population is 218 (as seen in table 3.1). For these set values it were calculated that 68 questionnaires were required, with a confidence interval (margin of error) of 6.3. A total of 115 surveys was received back, therefore the answers represent a true reflection of the population of Gauteng Department of Education within the geographical borders of Sedibeng East District Office.

The scope included a full contingent of all public principals, managers and departmental workers in all categories based on the fact that they deliver administrative support to public schools. The sample covered a broad spectrum of participants with mixed race, gender and work experience at different levels within the organisation. A full breakdown of the number of employees found in these groups is summarised per functional area and organisational level in table 3.1. It can be seen in table 3.1 that the total number of employees in the population is 218.

Table 3.1: Detail of population size

DESCRIPTIONS	HAND OUTS	% SAMPLE	RECEIVED	% RECEIVED
Public Schools (Principals)	76	100%	30	39.47%
Institution Development Support Officer	13	100%	5	38.46%
Curriculum Support	65	100%	28	43.08%
Human Resource	20	100%	10	50%
Finance and Administration	38	100%	32	84.21%
Information Technology Specialist	6	100%	4	66.67%

Table 3.1 indicates the full target population within each sphere that were approached to complete the relevant questionnaire. The main components for delivering e-Government administrative support where Public Schools, Institutional Development Support Officers and Curriculum Support. Although a return below 50% was received, the rate of return might also indicate the lack of e-Government access or administrative support.

It is also just too cumbersome and inefficient to obtain a complete count of the target population. However, in this study the target population was not too big and the decision to include the whole target population was very important.

The basic structure of the questionnaire was on own experience within the working environment in giving administrative support to public schools.

An overview of the questionnaire is as follows:

- Question 1: Biographical information such as gender, age group, representivity level, qualifications, previous educational experience, years experience and current appointment levels were asked;
- Question 2: ICT resources currently available to users at work and at home to determine the overall resource availability;

- Question 3: Current e-platforms that are used by respondents;
- Question 4: Communication channels used within the geographical area;
- Question 5: The level of development and training that was received with regard to using ICT resources;
- Question 6: Current social platforms that respondents use;
- Question 7: Experience with regard to connectivity and logging on problems.

3.3.2 Margin of error of answers

The margin of error of the questions was calculated at a 95% confidence level. Equation 3.3 was used to calculate the margin of error on the questions (Fisher, 2007:199). The value of the margin of error can be seen in section 3.4.

Equation 3.2: Calculation for margin of error

$$L = 2 \sqrt{\frac{p(100 - p)}{n}}$$

Where:

L = the margin of error

p = the percentage of answers received back per question

n = the number of questionnaires received back (115)

3.3.3 Overview of responses

The overview of responses will be dealt with per question numbers within the questionnaire. A short discussion of interesting histograms per question set will also be presented and discussed.

3.3.3.1 Question 1: Biographical information

In Table 3.2 the biographical information indicated that 39.1% respondents were male against the 60.9% female respondents within the population.

Table 3.2: Biographical Information

Question	Description	Frequency/valid %		Missing
		Male	Female	
1.1	Gender	43	67	19

Within the age group the highest age bracket was 50+ years at 32.7% of respondents. The lowest frequency in the sample was recorded between the 31-40 year age brackets. What can be noted in this age bracket is the fact that during this period employees were appointed round about the 1994 first South African democratic elections. It could also indicate that fear of uncertainty after the 1994 elections played a role when people applied to be employed within Government structures.

Table 3.3: Age group

Question	Description	Frequency/valid %				Missing
		20-30	31-40	41-50	50+	
1.2	Age group	23	17	34	36	19

The most represented group within the sample was recorded within the Financial Management and Administration section at 29.6% of all respondents. One reason for this could be that finance and administration cuts across all representivity levels especially within the administrative support as being the centre of each organisation to operate successfully.

Table 3.4: Representivity level

Question	Description	Frequency/valid %						Missing
		Principal	IDSO	CS	HR	Fin	IT	
1.3	Representivity Level	30	4	26	10	32	6	21

The qualification with the highest percentage in this sample is personnel with diplomas at 30.8% closely followed by post degrees at 27.1%. However, younger people within the system are more lenient to study for diplomas than personnel aged 30 years and older.

Table 3.5: Qualifications

Question	Description	Frequency/valid %				Missing
		Grade 12	Diploma	Degree	Post Degree	
1.4	Qualifications	21	33	24	29	22

In Table 3.6 it is clear that the majority of the respondents are Afrikaans speaking at 44% of the sample. In contradiction to the spread of public schools where Afrikaans medium schools is the minority (10) schools, the population majority in (66) schools are other language medium schools.

Table 3.6: Language

Question	Description	Frequency/valid %						Missing
		Xhosa	Zulu	Sotho	Afrikaans	English	Other	
1.5	Language	6	10	32	44	11	6	20

In terms of previous educational experience, the majority of respondents (39%) indicated that they were with the Ex – HOR (House of Representatives or also known as Coloured Education) Department. The researcher is of the opinion that the question was misinterpreted based against the current organogram and the fact that the Ex – HOR Departments represents only 4% of the total appointments at the Sedibeng East District Office.

Table 3.7: Previous educational experience

Question	Description	Frequency/valid %					Missing
		TED	DET	HOD	HOR	Other	
1.6	Years previous educational experience	20	19	13	39	1	37

With years of experience, 49.6% indicated 16+ years. However, the 6-10 years experience field produced interesting results at a mere 4.7%.

Table 3.8: Years experience

Question	Description	Frequency/valid %				Missing
		0-5	6-10	11-15	16+	
1.7	Years experience	26	6	12	64	21

When interpreting results of Table 3.8 on resources available to respondents, only 29.5% indicated that they have access to Gauteng on Line (GOL). The Gauteng on Line project is a flagship project for Gauteng being funded by National Treasury and coordinated by the Education Department. The Gauteng on Line project is one of the earmarked projects to provide administrative support to schools especially within the teaching environment. Laboratories at schools can also be used to access e-platforms to increase effective en efficient service delivery.

Additional support resources which reduce the paper trail burden to smooth operations and where signed off reports can be submitted via e-mail within the Department is on 22.5%, therefore failing to provide one of the key support resources within the system, according to the respondents.

3.3.3.2 Question 2: ICT Resources available

Most of the respondents indicated that they have a work and home computer, work and home printer and access to work and home internet connection. What seems to be a missing link or a luxury for both the work and home combination, is access to a scanner. All or most of the respondents indicated that they do not have access to a scanner either at home or at work. This is

one of the areas that need improvement because signed documents can be easily scanned and forwarded to the addressee. The signed copy of the relevant document can also be stored electronically for record purposes. Most of the target population also don't have access to departmental e-mails after hours. Either respondents are not aware of the procedures to access e-mails from home connectivity or there is a lack in the drive to prepare and complete work on time.

Table 3.9: ICT resources available

Question	Description	Frequency/valid %		Missing
		Yes	No	
2.1	Work computer	105	5	19
2.2	Home computer	88	22	19
2.3	Work printer	109	1	19
2.6	Home internet	50	58	21
2.7	Work e-mails	93	16	19
2.8	Work e-mail access at home	22	86	21
2.9	GDE webpage at work	93	16	20
2.10	GDE webpage at home	37	71	20
2.11	Access to Gauteng on line	38	66	25
2.12	Departmental scanner	29	79	21
2.13	Home scanner	29	80	20
2.14	Departmental mobile phone	36	73	20
2.15	Own mobile phone	100	8	19

3.3.3.3 Question 3: E-platforms

By analysing Table 3.9 with regard to access to e-platforms and the usage thereof, several scenarios can be discussed.

Question 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7 and 3.8 test the usage of the different e-platforms that is currently available within the Gauteng Department of Education for the sole purpose to assist with administrative support to public schools. Three options from the questionnaire combined, namely never heard of it, no access and never delivered - a staggering 72.9% as the highest to

62.1% as the lowest scores. More than 62.10% of respondents do not use any e-Government platforms as an administrative support structure.

Question 3.9 asked respondents whether they have access to the Gauteng Department of Education's website, the only official website for the Department through which information sharing of activities and services with regard to educational matters are shared - 30.3% of respondents indicated that they do not have access or use the website at all. Through the Department's website services as mentioned in question 3.10, 3.11, 3.12, 3.13, 3.14 and 3.15 are delivered. The most prominent, like access to electronic text book catalogues and library on-line, are covered. Respondents indicated that 52% of them do not access the services of electronic textbook catalogues and 65.10% indicated that they never utilize the library on-line service.

Interaction through e-Government with other Departments that can assist with support to public schools in questions 3.17, 3.18, 3.19, 3.20, 3.21, 3.22, 3.23 and 3.24, ranged from 68.20% to 59.70%. Respondents indicated that they do not know of the service, do not have access, or do not access these sites.

Table 3.10: Educational E-platforms

Question	Description	Frequency/valid %						Missing
		No knowledge	No access	Never	Sometimes	Usually	Always	
3.1	Work on SASAM	28	25	34	16	3	3	20
3.2	Work on Edupack	27	24	40	6	2	8	22
3.3	Work on Microscope	25	26	45	8	1	4	20
3.4	Linked to Thutong	30	18	32	18	10	2	19
3.5	Linked to GOL	11	24	46	17	6	6	19
3.6	Linked to Partners in Learning	28	14	52	10	2	2	21
3.7	Linked to Microsoft education Desk	21	12	54	11	5	4	22
3.8	Linked to Sci-Bono	17	17	57	13	3	3	19
3.9	Linked to GDE	10	10	19	43	10	13	24
3.10	Access event calendars	14	14	42	26	8	6	19
3.11	Access electronic publication	14	10	33	37	12	4	19
3.12	Access electronic legislation	10	9	29	44	13	4	20
3.13	Access electronic Departmental forms	8	5	18	50	14	13	21
3.14	Access electronic textbook catalogue	11	14	42	25	10	5	22
3.15	Access on line library	12	15	57	15	4	4	22
3.16	I submit reports electronically	6	5	17	34	16	27	24
3.17	Department of Health website	8	11	58	29	2	2	19
3.18	Department of Home Affairs website	7	11	60	27	3	2	19
3.19	Department of Finance website	5	15	55	30	2	2	20
3.20	Department of Transport website	7	13	63	24	2	1	19
3.21	Department of Labour website	8	13	58	30	1	0	19
3.22	Department of PSA website	6	13	53	30	6	2	19
3.23	Trade and Industry website	9	11	68	18	2	2	19
3.24	Science and Technology website	8	12	67	18	4	1	19

3.3.3.4 Question 4: Communication channels used

In Table 3.11, 41.10% respondents still do not feel comfortable in sharing information through e-platforms. This can be based on trust or that respondents do not know how to share information.

In terms of questions 4.2, 4.3, 4.4, 4.5, 4.6 and 4.7 respondents indicated that they preferred older methods of communication instead of e-platforms. The respondents in order of preference, are circulars (63.60%), memorandums (58.90%), meetings (51.20%) and telephonically (51.20%). Interesting to note that meetings as means of communication is in the third place. One can then argue what the purpose of a meeting is other than informing, communicating and sharing information.

Table 3.11: Communication channels

Question	Description	Frequency/valid %				Missing
		Never	Sometimes	Usually	Always	
4.1	Share info on e-platforms	53	31	13	7	24
4.2	Share info through circulars	16	41	25	28	19
4.3	Share info through memo's	11	33	32	34	19
4.4	Share info through visits	9	36	31	34	19
4.5	Share info telephonically	3	26	37	44	19
4.6	Share info on own website	43	39	17	8	22
4.7	Share info through meetings	3	24	38	43	21
4.8	Employee access website	9	29	32	35	24
4.9	Learners access website	34	39	17	12	27
4.10	Communities access website	40	42	8	8	31
4.11	Mobile phones for communication	19	31	27	27	25
4.12	Connect through Wan/Lan	51	23	8	22	25
4.13	Connect through 3 G	56	26	12	11	24
4.14	Connect through modem	46	26	12	20	25
4.15	Connect through Wi-Fi	74	20	6	3	25

3.3.3.5 Question 5: Computer/program and internet training

In table 3.12 it is clear that the Department covered the basic needs for training on Microsoft software and packages compared to other software packages. However, e-support structures indicated a 'never heard of it' rating between 45% and 63.30%. Of all respondents 50.40% indicated that they never heard of training with regard to departmental policies on information technology.

Table 3.12: Training received

Question	Description	Frequency/valid %					Missing
		Never heard	Sometimes	Usually	Always	Own	
5.1	Microsoft Word	19	29	26	12	23	20
5.2	Microsoft Access	30	23	26	7	22	21
5.3	Microsoft Excel	21	28	26	10	24	20
5.4	Microsoft Outlook	28	24	21	10	26	20
5.5	SASAMS	58	22	15	6	4	24
5.6	Edupack	79	14	9	1	4	22
5.7	Mircoscope	82	13	8	1	3	22
5.8	Website usage	56	30	10	7	4	22
5.9	Sci-Bono	75	15	8	4	4	23
5.10	Education Desk	76	15	9	5	2	22
5.11	GOL	59	26	10	7	4	23
5.12	Thutong	68	21	9	7	3	21
5.13	Current policies	65	24	10	6	2	22
5.14	Intranet	67	17	7	6	10	22
5.15	Social platforms	71	19	6	3	8	22
5.16	E-support systems	67	15	9	6	10	22
5.17	Search engines	70	11	11	3	12	22

3.3.3.6 Question 6: Social platforms for communication

The most used social platform according to the respondents, are Yahoo and Facebook. For Yahoo only 43.40% indicated that they have never heard of the platform. For Facebook only 48.10% indicated that they have never heard the platform. This was an interesting result as the researcher was of the opinion that Facebook was more utilized than any other social platform.

The rest of the social platforms ranged between 50.40% and 82.20% bracket of 'never heard of it'.

Table 3.13: Social platforms used

Question	Description	Frequency/valid %					Missing
		Never heard	Never	Sometimes	Usually	Always	
6.1	Facebook	10	52	26	7	13	20
6.2	WhatsApp	18	64	8	6	8	25
6.3	Mxit	13	76	13	2	3	22
6.4	MySpace	21	80	2	2	2	22
6.5	BBM	12	53	10	16	17	21
6.6	Twitter	15	77	9	5	2	21
6.7	Wiki's	25	77	5	0	0	22
6.8	Foursquares	28	76	2	0	0	23
6.9	Yahoo	9	47	25	14	13	21
6.10	Mashable	34	72	0	1	0	22
6.11	Gowalla	38	69	0	0	0	22
6.12	SCVNGR	43	64	0	0	0	22
6.13	Aardvark	29	56	16	4	2	22

3.3.3.7 Question 7: Experience with connectivity

In Table 3.14 respondents reflected on their connectivity experience within the Department of Education. In question 7.4 only 30% and 10.9% of respondents indicated that their e-mails are usually and always on time, respectively. E-mails are currently used as one of the communication channels to inform or distribute information to personnel and public schools. A concern is that some 20.25% indicated that they have problems usually or always with downloading and installing new security updates, indicating that the network is vulnerable and opened for security breaches. With regard to virus protection only 34.90% indicated that they are satisfied with the on-line and computer protection. This links up with question on installation of installing new security releases.

Table 3.14: Connectivity satisfaction

Question	Description	Frequency/valid %				Missing	MEAN	Std Deviation
		Never	Sometimes	Usually	Always			
7.1	Password problems	31	65	4	9	19	1.92	.803
7.2	Log on problems	25	68	11	6	19	1.98	.742
7.3	E-mail problems	11	61	19	19	19	2.42	.892
7.4	E-mails on time	13	52	33	12	19	2.40	.837
7.5	Internet connectivity problems	4	59	20	25	21	2.61	.884
7.6	Down time	10	62	19	16	22	2.38	.854
7.7	Spam e-mails received	34	49	7	12	27	1.97	.938
7.8	New security updates	22	56	13	13	25	2.16	.904
7.9	Virus protection problems	39	21	29	16	24	2.21	1.107
7.10	IT call response	13	38	27	25	26	2.62	.991
7.11	Access to relevant programs	16	28	42	21	22	2.64	.965
7.12	Strange messages	54	45	6	4	20	1.63	.754
7.13	Servers on line	10	42	35	17	25	2.57	.879
7.14	Regular backups	12	50	24	19	24	2.48	.921
7.15	Prompt repairs of equipment	16	40	31	23	19	2.55	.982
7.16	Procedures for call logs	10	10	20	69	20	3.36	.986
7.17	IT personnel knowledgeable	8	29	42	29	21	2.85	.905

3.4 STATISTICAL AND PRACTICAL SIGNIFICANCE

According to Ellis and Steyn (2003:51), the advantage of drawing a random sample is that it enables one to study the properties of a population with the time and money available. In such cases the statistical significance tests (e.g.

t-test) are used to show that the results (e.g. difference between means or correlation) are significant. The p-value is a criterion of this, giving the probability that the obtained value could be obtained under the assumption that the null-hypothesis is true. A small p-value ≤ 0.05 is considered that the result is statistically significant.

Statistical significance does not necessary imply that the result is important in practice. However, the rule of thumb is that if $p \leq 0.05$, the finding or result (difference in means or correlation), is statistical significant.

If you have a p-value of 0.05 or 5% it is then said that there is a 95% chance of finding the same result in the population.

The practical guidelines for significance of the effects are shown in Table 3.15.

Table 3.15: Practical significance guidelines

TEST	EFFECT SIZE	SMALL EFFECT	VISIBLE EFFECT	PRACTICLE SIGNIFICANCE EFFECT
Comparing means of group	d	0.2	0.5	0.8
Correlation	r	0.1	0.3	0.5
Crosstabulation	phi or Cramer's v	0.1	0.3	0.5

In consolation with the Consulting Statistic's Department of the North-West University, the following tests were done on the results received from respondents as per questionnaire attached in Appendix A:

- Spearman's rho non parametric correlation test.
- Pearson's Chi- Squared test with cross tabulations.

3.5 SPEARMAN'S RANK-ORDER CORRELATION

3.5.1 Define Spearman's Rank Order Correlation

SPSS Inc. (2009:1) defines the use of Spearman's rank-order correlation as a way to analyse your data, what assumptions you have to satisfy, how to calculate it, and how to report it. The rank-order correlation is the nonparametric version of the Pearson product-moment correlation. Spearman's correlation coefficient, (ρ , also signified by r_s) measures the strength of association between two ranked variables.

The assumptions of the test are that you need two variables that are ordinal, interval or ratio.

Equation 3.3: Spearman's rank order calculation

The two formula methods to calculate Spearman's rank-order correlation depends on the following:

- Your data does not have tied ranks therefore the formula is:

$$\rho = 1 - \frac{6 \sum d_i^2}{n(n^2 - 1)}$$

Where: d_i = difference in paired ranks and n = number of cases.

- If the data has tied ranks, then the formula would be amended to be:

$$\rho = \frac{\sum_i (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum_i (x_i - \bar{x})^2 \sum_i (y_i - \bar{y})^2}}$$

Where: i = paired score.

3.5.2 Results based on Spearman's Rank Order Correlation

The results of the respondent's answers compared using the Spearman's Rank Order Correlation, is revealed in Table 3.15. However, the following must be noted:

- Based on Table 3.14, only results with a visible correlation effect will be reported where r / correlation coefficient is ≥ 0.3 .
- Interpretations will be dealt with after Table 3.16 based on statistical significance, practical significance and discussions.

Table 3.16: Results based on Spearman's Rank Order Correlation

COMPARISON BETWEEN QUESTIONS	P-VALUE	R-VALUE	N
Experience e-mail problems (Q7.3) vs password (Q7.1)	0.001	0.570	108
Experience e-mail problems (Q7.3) vs experience internet connectivity (Q7.5)	0.001	0.589	107
Experience e-mail problems (Q7.3) vs regular backups (Q7.14)	0.001	0.913	105
Experience e-mail problems (Q7.3) vs replacement and repairs done promptly (Q7.15)	0.001	0.960	110
Servers are on line (Q7.13) vs receive e-mail on time (Q7.3)	0.001	0.762	104
Servers are on line (Q7.13) vs virus protection (Q7.9)	0.001	0.909	102
Servers are on line (Q7.13) vs IT call response (Q7.10)	0.001	0.517	99
Servers are on line (Q7.13) vs access to programmes (Q7.11)	0.001	0.906	102
Regular backups (Q7.14) vs virus protection (Q7.9)	0.001	0.499	102
Regular backups (Q7.14) vs IT call response (Q7.10)	0.001	0.907	99
Regular backups (Q7.14) vs access to programmes (Q7.11)	0.001	0.997	102
Regular backups (Q7.14) vs servers are on line (Q7.13)	0.001	0.514	103
Replacement/repairs promptly (Q7.15) vs log on problems (Q7.2)	0.001	0.362	110
Replacement/repairs promptly (Q7.15) vs virus protection (Q7.9)	0.001	0.943	105
Replacement/repairs promptly (Q7.15) vs IT call response (Q7.10)	0.001	0.579	103
Replacement/repairs promptly (Q7.15) vs access to programmes (Q7.11)	0.001	0.947	107
Knowledgeable IT personnel (Q7.15) vs virus protection (Q7.9)	0.003	0.991	103
Knowledgeable IT personnel (Q7.17) vs IT call response (Q7.10)	0.001	0.561	102
Knowledgeable IT personnel (Q7.17) vs access to programmes (Q7.11)	0.001	0.961	105
Knowledgeable IT personnel (Q7.17) vs servers on line (Q7.13)	0.001	0.409	102
Knowledgeable IT personnel (Q7.17) vs regular backups (Q7.14)	0.001	0.490	103
Knowledgeable IT personnel (Q7.17) vs repair time (Q7.15)	0.001	0.596	108
Knowledgeable IT personnel (Q7.17) vs call centre procedures (Q7.16)	0.001	0.392	108

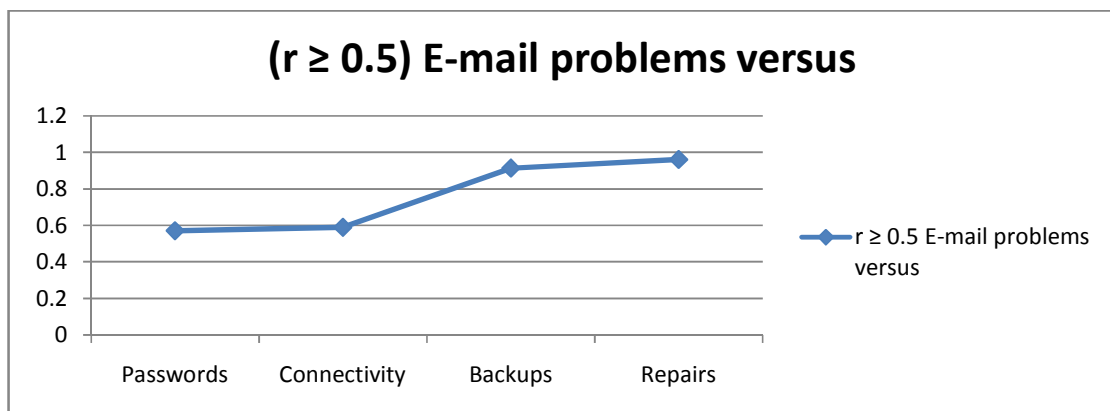
3.5.3 Discussion of main identified correlation results

From the correlation results as shown in Table 3.15, the following main areas were highlighted:

- Respondents experience e-mail problems;
- Servers are on-line;
- Regular backups are done on computers and servers;
- Replacement and repairs to computers are done promptly;
- IT personnel are knowledgeable in their scope of work;

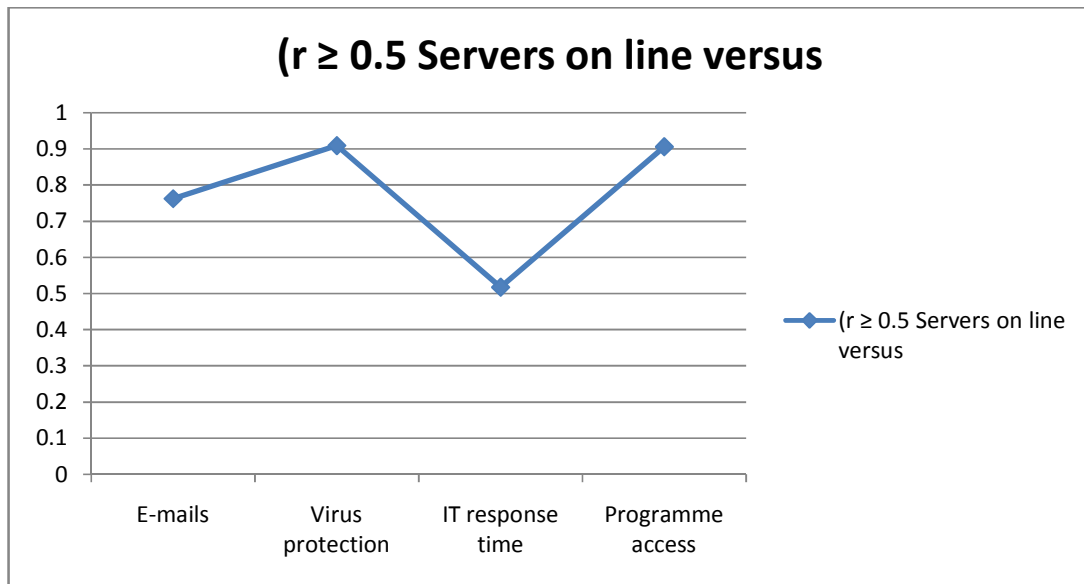
There is a practical significant association with respondents who indicated experience with e-mail problems ($r \geq 0.5$) that they will also indicate problems with passwords, internet connectivity, regular backups and the time it takes to repair or to replace their equipment. The correlation results are reflected in Figure 3.3.

Figure 3.3: Correlation between Q 7.3 versus Q7.1, 7.5, 7.14 and 7.15



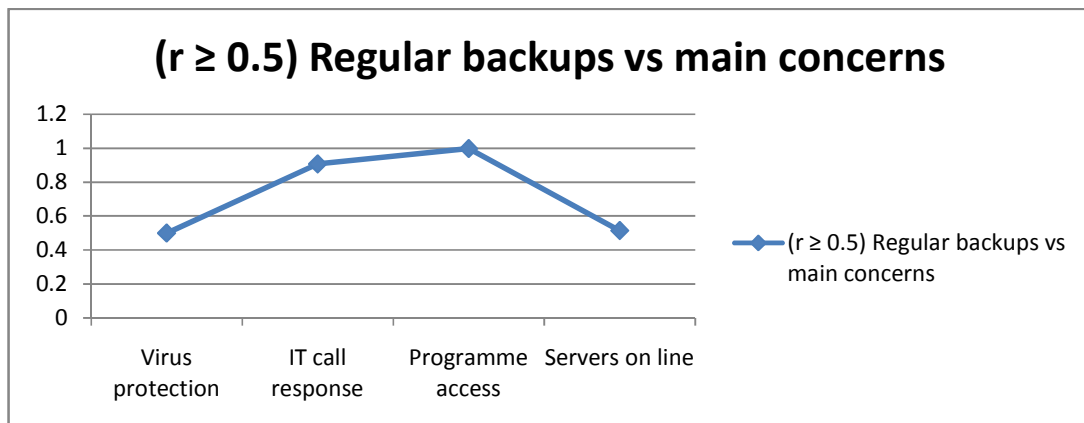
There is a practical significant association with respondents who indicated problems with servers not on-line ($r \geq 0.5$) that they will also indicate problems with e-mails, virus protection, IT personnel response time and programme access. The correlation results are reflected in Figure 3.4.

Figure 3.4: Correlation between Q 7.13 versus Q7.3, 7.9, 7.10 and 7.11



There is a practical visible significant association with respondents who indicated that they make regular backups on computers and servers ($r \geq 0.5$), that they will indicate virus protection, IT personnel response time, programme access and servers on-line as their main concern. The correlation results are reflected in Figure 3.5.

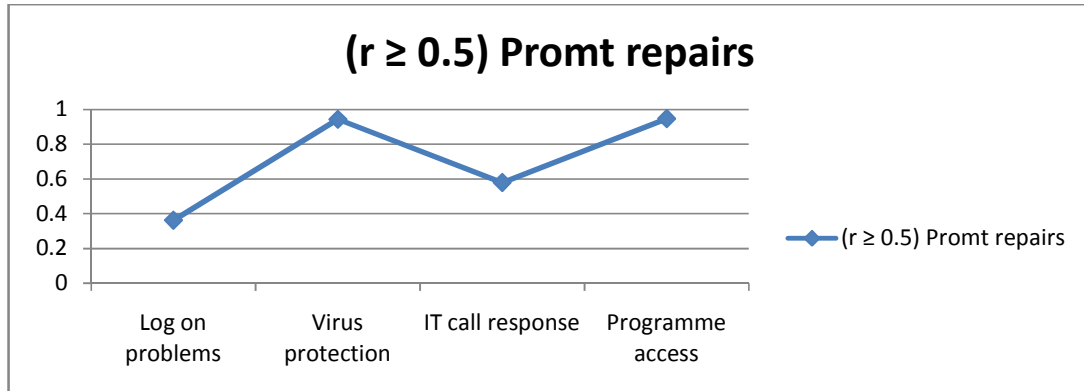
Fig 3.5: Correlation between Q 7.14 versus Q7.9, 7.10, 7.11 and 7.13



There is a practical visible significant association with respondents who indicated that replacement and repairs to their equipment are done promptly ($r \geq 0.5$) that they will not report log on problems, virus protection problems, IT

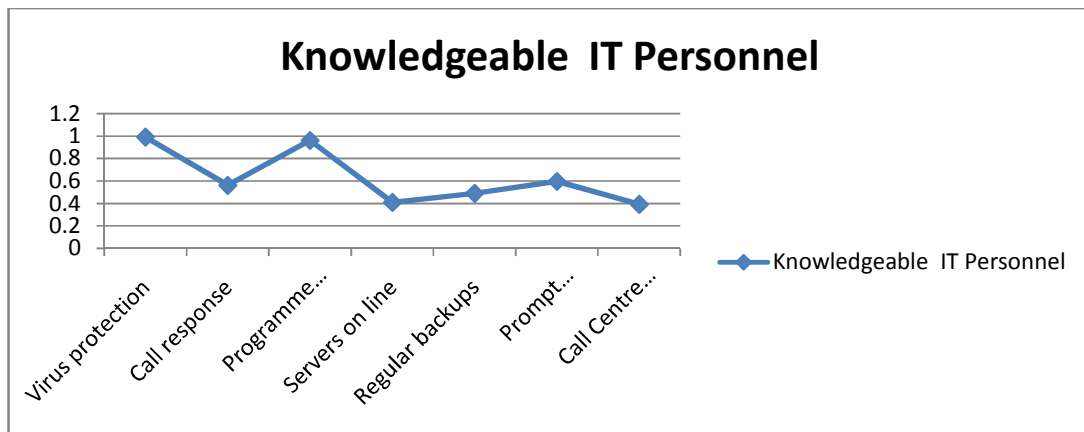
personnel call response time and programme access as main concerns. The correlation results are reflected in Figure 3.6.

Figure 3.6: Correlation between Q 7.15 versus Q7.2, 7.9, 7.10 and 7.11



There is a practical visible significant association with respondents who indicated that IT personnel is knowledgeable within their scope of work ($r \geq 0.5$), that they will report problems with virus protection, IT personnel call response time, denied programme access, server off-line problems, make regular backups, satisfied with repairs done promptly and they know the call centre procedure to report problems. The correlation results are reflected in Figure 3.7.

Figure 3.7: Correlation between Q 7.17 versus Q7.9, 7.10, 7.11, 7.11, 7.13, 7.14, 7.15 and 7.16



3.6 PEARSON'S CHI – SQUARED CROSS TABULATIONS

3.6.1 Pearson's Chi-Square Cross Tabulations defined

Vicki Sharp (2009:1) defines the Chi-Square (I) as a test used to determine whether there is a significant difference between the expected frequencies and the observed frequencies in one or more categories.

The chi-square test requirements are as follows:

- Quantitative data;
- One or more categories;
- Independent observations;
- Adequate sample size (at least 10);
- Simple random sample;
- Data in frequency form;
- All observations must be used.

The formula and value of the test-statistic is:

Equation 3.4: Calculation for Chi - Square

$$X^2 = \sum_{i=1}^n \frac{(O_i - E_i)^2}{E_i}$$

where

X^2 = Pearson's cumulative test statistic, which asymptotically approaches a χ^2 distribution;

O_i = an observed frequency;

E_i = an expected (theoretical) frequency, asserted by the null hypothesis;

n = the number of cells in the table.

However, if Pearson's Chi – Square ≤ 0.05 the result is statistical significant. The rule of thumb is that if the finding or result (difference in means or correlation) is statistical significant, there is also a practical significance or visible significance if Cramers's V is more than 0.2 as illustrated in Table 3.16 as example (Cramer, 1999).

Cramer's V value is used when contingency table dimensions exceed 2x2, alternatively the Phi value is used to determine practical significance. The cut-off is as follows: 0.1 indicated a small effect; 0.3 indicates a medium or practically visible effect; and 0.5 indicates a large or practically significant effect

Cross tabulations are used to study patterns or groupings that may exist between two or more categorical variables, therefore one variable have an influence of groupings on a second variable.

Table 3.17: Cross Tabulations (Pearson's Chi – Squared).

COMPARISONS	(P-VALUE) PEARSON'S CHI -SQ	(R-VALUE) CRAMERS'S V VALUE OR PHI VALUE (2X2)
Question versus question	0.05	0.2

Recoding was done for certain questions into new variables. The reader should note that the following changes were made to ensure sufficient expected counts which are a prerequisite for the accuracy of the Chi – Squared test. These questions are:

- Question 1.3 was collapsed from 6 options to 5 options due to small group size (6- IT and 2 – IDSO collapsed to other);
- Question 1.5 option 1 (Xhosa) was collapsed into option 6 (other);
- Question 1.7 option 2 and 3 were collapsed into option 5 (6-15 years' experience);
- Question 1.8 options 1, 2 and 3 were collapsed into option 5 (other);

- Question 3 options never heard of it and don't have access to it was collapsed into never (new count: Never = 1, Sometimes = 2, Usually = 3 and Always = 4);
- Question 6 options 3, 4 and 5 were collapsed into option 6 = some use.

3.6.2. Results based on Recoded Cross Tabulations

Only question 3 from the questionnaire will be reflected in Table 3.17, namely electronic e-platform programmes and sites for educational purposes (E-platforms). As per title an evaluation will be done on e-platforms to determine administrative support to public schools. Question 3 is thus the core of the matter to the researcher and therefore cross tabulations of question 3 as per Table 3.18 values will be discussed.

Table 3.18: Recode Cross Tabulation results

COMPARISON BETWEEN QUESTIONS	(P-VALUE) Pearson's Chi-Squared	(R-VALUE) Cramer's V Value or Phi Value (2x2)
I work on SASAMS (Q3.1) vs gender (Q1.1)	0.002	0.369
I work on SASAMS (Q3.1) vs representivity level (Q1.3)	0.001	0.436
I work on SASAMS (Q3.1) vs qualifications(Q1.4)	0.003	0.280
I work on EDUPACK (Q3.2) vs representivity level (Q1.3)	0.001	0.395
I work on EDUPACK (Q3.2) vs qualifications (Q1.4)	0.002	0.287
I link to Thutong platform (Q3.4) vs representivity level (Q1.3)	0.001	0.336
I link to Microsoft Education desk (Q3.7) vs qualifications (Q1.4)	0.002	0.287
I link to Sci-Bono (Q3.8) vs representivity level (Q1.3)	0.005	0.320
I link to Sci-Bono (Q3.8) vs qualifications(Q1.4)	0.001	0.289
Access to electronic textbook catalogue (Q3.14) vs representivity level (Q1.3)	0.001	0.350
Access to electronic textbook catalogue (Q3.14) vs qualifications(Q1.4)	0.004	0.279
Submit electronic reports (Q3.16) vs home language(Q1.5)	0.005	0.323
Access Department of Science and Technology website (Q3.24) vs years experience(Q1.7)	0.002	0.281

3.7. CONCLUSION

From the discussion about the population it can be concluded that the respondents represents the whole administrative support tier (clerk level, middle management level, management level and principals of public schools) with regard to the supporting of public schools.

The sample size indicated that the survey results were representative of the target population. Based on the frequency analysis the Department have a problem with age groups between the 31 - 40 year brackets. In terms of an article in the magazine, Nuus Nou (2011:7), the highest internet users range from 30% (age 25 – 34) to 43% (age 35 – 54). In terms of years experience most of the respondents indicate 16+ years experience and did not indicate the mentioned age groups. This is a contradiction with regard to the general population sample of South Africa.

The same article indicates that males (69%) use the internet more than females (31%). Within the sample female respondents represent 60.9% and males respondents only 39.1%.

Taking the above-mentioned into consideration, it is clear why a staggering 62.9% of the respondents did not use any form of e-platforms which will include Government-to-Government electronic support models. This includes the flagship programme Gauteng on Line (GOL). South African results show that only a mere 5% uses schools as a place where internet access is obtained. If only 5% access is obtained at school level, surely the e-Government services are not effective as suggested to deliver administrative support to public schools!

When the most popular place of internet access is at work (53%) for South Africans, problems within the Government such as training and development, no policy guidelines with regard to packages and programmes to be used, and connectivity, poses a real threat to administrative support delivery within the Department.

It is however evident that there is a visible significant difference in own experience with connectivity especially with knowledgeable IT personnel, prompt repairs and services, regular backups, servers on-line and e-mail problems. This conclusion was substantiated by statistical and practical significance tests and it is evident that the levels of e-Government platform users do not support administrative support to public schools within the Sedibeng East District geographical area.

The Government e-platforms are lagging behind the general tendency of the broader population on internet users. The common form of communication is still in writing and the trust levels of using e-platforms as support systems needs to be developed and sustained.

3.8. SUMMARY

Chapter 3 was devoted to the research methodology and presentation of the results.

An overview of the Sedibeng East District Office was done; given the current support structure is within the office against the geographical areas that needs to be supported. The location, products and the size of the facilities selected for the empirical study were presented.

A summary of the most recent SWOT analyses of the District Office was presented which indicates the problem areas and threats with regard to e-support within the office.

The next part of the chapter included a discussion of the procedure and scope of the research used to assess the e-Government usage within the target population as administrative support to public schools. The intent was to get the maximum number of responses possible within the timeframe available and the design decided upon for the study was a convenience sampling approach. The minimum required responses or sample size to ensure that the

survey results are representative, were calculated and it was concluded that the survey results are representative of the opinion of the population.

The detail of the population was given in Table 3.1 which also indicates the group sizes and the response percentage received from each group. The detail of the questionnaire as a design instrument was presented and responses presented and discussed per question.

Only the visible and practical significances with the r -value ≥ 0.5 where more than two results were reflected, were discussed in Table 3.15 which indicate e-mail problems, servers on-line, regular backups, prompt repair and replacements and knowledgably IT personnel.

Finally, the results were used to draw conclusions with regard to the level of e-Government usage as e-platforms to deliver administrative support to schools.

The conclusions and recommendations will be discussed in chapter 4.

CHAPTER 4

CONCLUSIONS AND RECOMMENDATIONS

4.1 INTRODUCTION

The primary objective of this study (section 1.4.1) was the development of a framework for an e-Government system to increase the efficiency of knowledge management through Business Information Management within the Sedibeng East District Office, primarily used by public schools through the utilization of e-Government. To accomplish the primary purpose an evaluation of e-Government as support system within the Gauteng Department Sedibeng East District Office was done. Through the effective use of Government-to-Government services and additional educational e-platforms, the Department will be able to use e-Government platforms effectively which will enable maximum administrative support for public schools within the District to deliver on their key performance areas. It is also critical that e-Government platforms are available and on-line for these services to be rendered. Through educational e-platforms and the website of the Education Department, knowledge sharing and interaction could take place to assist and alleviate pressure on the much needed administrative support to public schools. This will also enhance effective and efficient communication between offices and schools. In chapter 3, it became evident that certain gaps and problems exist with regard to the utilization of Government-to-Government services, educational e-platforms and general knowledge amongst respondents on these concepts. In order to address these problems, recommendations are presented to the Sedibeng East District Executive Management Team. A framework to implement and attain the required level of usage with an implementation of strategy is proposed. The findings of the stratified quantitative study were used as the basis of the framework. A summary of the conclusions was drawn in chapter 3, follows.

4.2 STATE OF GOVERNMENT-TO-GOVERNMENT SERVICES AND OTHER EDUCATIONAL E-PLATFORMS

From the literature study critical aspects such as e-models, resources available, connectivity, information technology enablers and value were identified which an organization should have in place in order to ensure effective utilization of e-Government structures for the enhancement of administrative support to public schools. These aspects were tested within the Sedibeng East geographical area with a questionnaire and the results were analysed in Chapter 3. From this analysis, a number of conclusions were drawn regarding the current state of the affairs with e-Government:

4.2.1. Development and training

Personnel did not receive any training on website usage and the different e-content and e-platform services that are accessible. Respondents could not associate with the content that is currently available on the departmental website. Content available on the website forms the backbone of the Government-to-Government service delivery between Head Office, District Offices, Public School Principals, Communities and Learners. The general indication is unawareness of e-content and what is available. However, the Department made good strides towards training and development, especially in Microsoft such as Microsoft Word, Microsoft Excel, Microsoft Access and Microsoft Outlook.

4.2.2. Available resources

Resources at office and school level are readily available and equipment is in place and ready to be used... Lacking however is the support services such as repairs and replacement of computers, non-connectivity and e-mail communication. Questions were also raised with regard to the capability of information technology personnel to identify and fix problems timeously. The lack of a centralized report system where problems and faults can be reported

was also indicated. IT personnel are not delivering a proper service to personnel by constantly downloading new security releases that is available on the Windows and Microsoft websites. This increased the departmental risks for threats such as hacking and virus protection. The lack of proper virus protection is also responsible for increasing down time on computers and servers. One shortcoming that was indicated is the unavailability of scanners. Scanners could boost effective communication and relevant documents can also be stored electronically.

4.2.3. Gauteng on Line Project

The flagship project for learner education, Gauteng on Line (GOL) is not accessible for employees and principals. Indications are that the project and computer laboratories are not functioning at all.

4.2.4. Government-to-Government services (Departmental website)

Respondents were not sure as to the kind of support services that are available on the website. Most respondents never accessed the website or use the website as an information tool with regard to library on-line services, textbook catalogues, calendar events or legislative framework that shares information to assist with administrative support to public schools. Although the website is available, no interaction is taking place. Respondents also do not interact with other Government Department's websites such as Health and Home affairs, to name a few. These sites also provide administrative support such as application forms for identity documents for secondary schools and immunization projects for children in pre- and primary schools.

4.2.5 Support e-platforms

Support e-platforms such as South African School Administration Management System (SASAMS), Microsoft Education Desk, Sci-Bono, Thutong, Gauteng on Line (Gol), Edupack and Microscope are available. There are too much platforms and no standardized systems for schools to

work on throughout the District Office. Respondents indicated a negative usage on all of these platforms. Reasons for not using ranged from training and development, no access, unawareness and lack of departmental policy and guidelines.

4.2.6. Departmental policy and guidelines

Sedibeng East District Office does not have a written policy or policy guidelines for schools with regard to e-platforms that should be used. Despite the fact that the office do advocacy on the usage of SASAMS for submitting electronic reports, respondents still indicate that they do not have access to the system or they use an entirely different system. The majority of office personnel do not have access on SASAMS were they can support public schools with finances, asset management, timetable rosters and general school filing systems. Respondents also indicated that they were unaware of the fact that the Department has an e-mail and internet policy. Through the absence of standardization, proper knowledge management and knowledge sharing is not well supported in the Department.

4.2.7. Communication methods

Older methods of communication such as circulars, memorandums, sharing information in meetings and telephonic communication are still the preferred choice of interaction within the Department. The majority of respondents use Facebook in private capacity as a social platform while the most popular search engine is Yahoo.

From the above, it is clear that there is a large opportunity for improvement to ensure that e-platforms are available and used in a proper manner to support administrative functions within the Department. The key area of concern is that there is no formal or written policy dictating or giving guidelines to public schools to standardize the usage of educational e-platforms. This state of affairs influences the ability of the Department to ensure that proper knowledge management and knowledge sharing through Government-to-

Government services are taking place. The result of this is that knowledge is not managed optimally and the Department and public schools do not get the full yield from its knowledge asset.

In section 4.4, recommendations are made to correct the status quo in order to improve some of the aspects mentioned above. In the next section, a framework for the implementation of a strategy to boost administrative support to schools, is proposed.

4.3 STRATEGY FRAMEWORK TO BOOST ADMINISTRATIVE SUPPORT TO PUBLIC SCHOOLS

The summary of the conclusions in section 4.2 yielded insights in the gaps in a proper managed Government-to-Government service within the Education Department. These findings as discussed separately in section 4.2, together with the learnings in the literature study, gave suggestions in the formulating of a strategy framework for the implementation of a proper Government-to-Government service delivery strategy. For this reason, it must be used as a guiding tool to assist in the implementing of a new e-strategy.

The primary aim of this mini-dissertation was the development of a framework for the implementing of a proper Business Information Management system for effective and efficient administrative support to public schools and in the end, the learners. During the literature study, the author indicated in Figure 2.1 how administrative support to public schools, communities and learners are possible through proper utilization of e-Government platforms. The author also indicated the different platforms that are currently available for utilization in Figure 2.2. The author identified the value that can be obtained through information technology and touched on the information technology enablers that will ensure that e-Government platforms and services will be used for administrative support systems. Without proper strategy, and therefore the improper management of knowledge obtained through these systems, the wrong knowledge will be generated for the Department and organizational

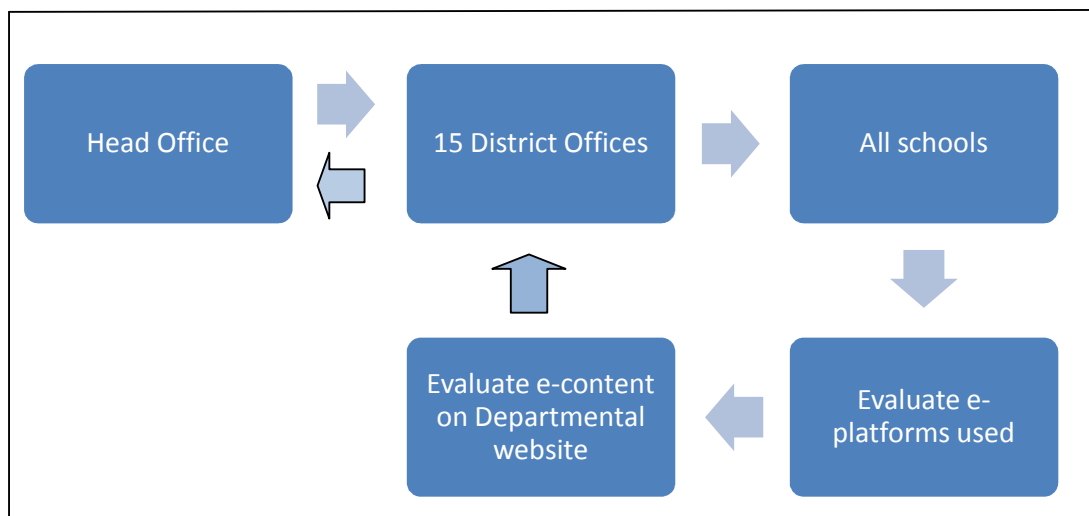
knowledge will not be shared or be supportive to the right persons, in this case the public schools, communities and learners.

The different steps or phases for setting up the framework for the revisiting of the e-content strategy can be analysed. The framework will consist of 4 steps. In figure 4.1 the first phase, namely evaluation is indicated. In figure 4.2 the second phase of gap analysis is identified. Figure 4.3 indicates the realignment of the new e-platform as phase 3. Figure 4.4 indicates the 4th phase by implementation and feedback evaluation. Each step of the proposed framework will be discussed below.

4.3.1. Phase 1: Content evaluation

In terms of figure 4.1, Head Office Information Technology Sub Directorate in conjunction with Head Office Communications Sub Directorate to initiate an e-content evaluation process throughout the Gauteng Department of Education.

Figure 4.1: E content evaluation process



The 15 District Offices will assist the facilitation through interaction with all schools within their geographical area. Schools will indicate their preferences with regard to the e-platform they are using and also indicate the type of knowledge that will assist them on the GDE website in order to receive proper

administrative support to perform in their key performance areas. District Office will combine the results and forward it to Head office for analysing purposed.

One important thing to keep in mind is that the evaluation that is done must be aligned with the operational goals and strategic objectives of the Education Department. If there is misalignment the end result in the evaluation process will be misinterpreted and therefore be of no use.

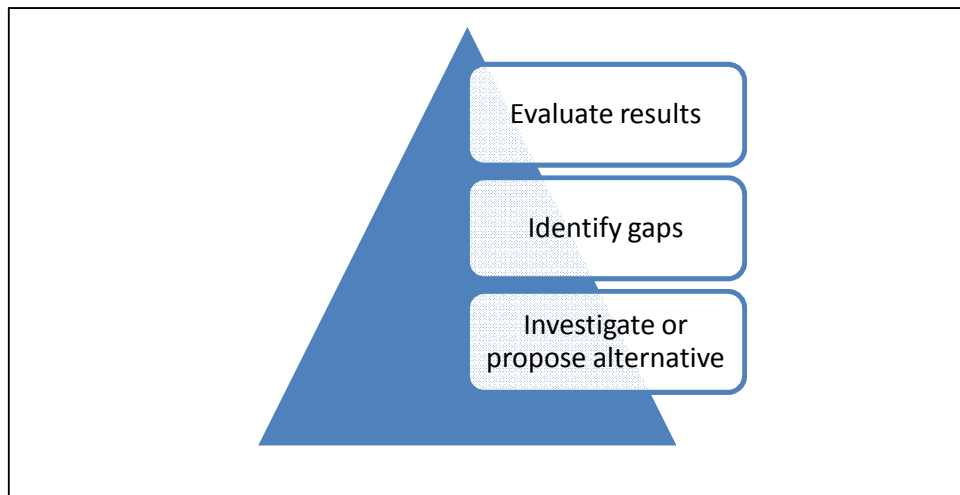
Head Office must also indicate to schools why the evaluation of the current systems in use is necessary and what they want to archive as end-result.

4.3.2 Evaluate or analyse gap indications

Head Office as policy implementer within the Department must appoint a technical committee to evaluate results that were received from the evaluation. If the know-how skills are not available, this service can be outsourced to specialists within the relevant field guided by a project committee appointed by the Department. Results and requests need to be analysed and the current gaps within the system should be identified.

The first step of doing a gap analysis is to determine what systems are needed for proper administrative support to schools and the type/kind of knowledge that will be needed at the Department of Education. Proposals to eliminate or to overcome the gaps should be identified and properly investigated to determine if the proposed solution will address the problem of non-administrative support delivery through e-platforms and e-content to public schools.

Figure 4.2: Gap Analysis



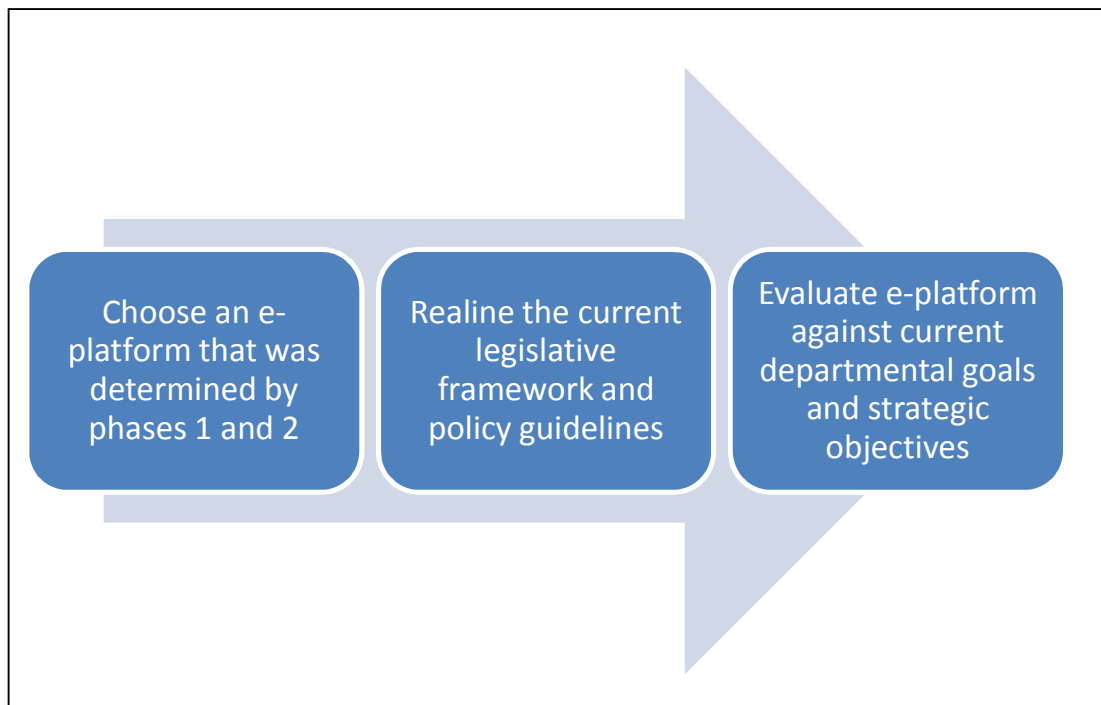
The proposed system must also reduce the loss of knowledge through proper implementation of e-platforms and increase knowledge sharing amongst the different tiers within the Department. The proposed platform should be easy to use and interaction on the system should increase operational, supplier, financial and administrative support to public schools.

The last step of this phase is to set up plans to address the gaps that were found. The timeline for addressing the gaps must be aligned with the evaluation process indicated in phase 1.

4.3.3. Realignment of system

In phase 3 the realignment of the e-platform that was identified must be done in terms of the current legislative and policy frameworks. It is also important that the system is evaluated according to the departmental goals and strategic objectives.

Figure 4.3: Realignment of system



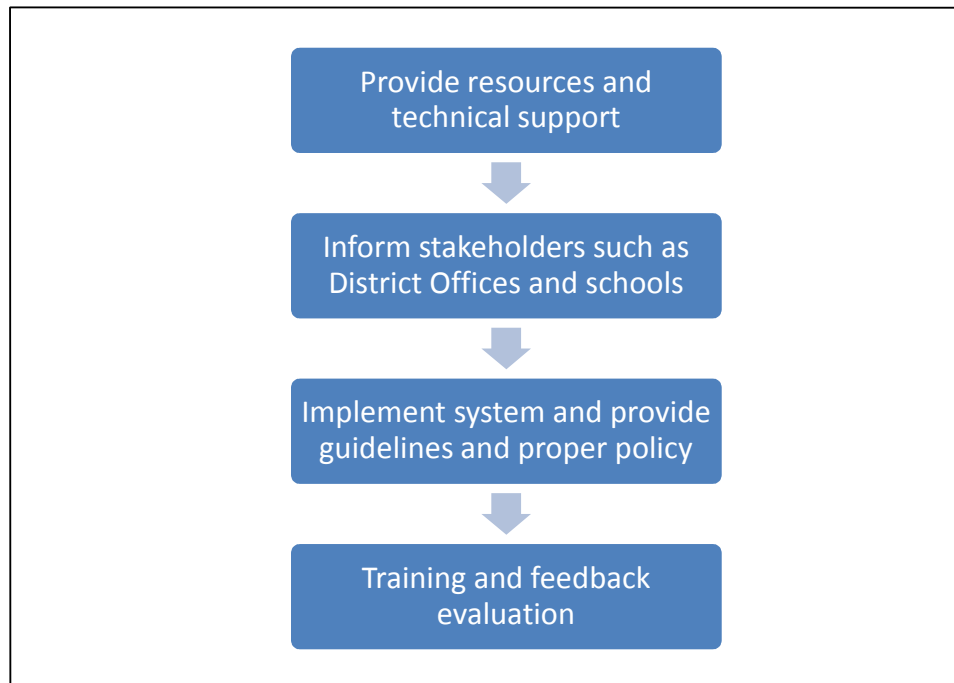
The conclusion from the stratified quantitative study was that there are too many different systems in place without clear policy guidelines for interaction with these systems. No standardized system on the usage of e-platforms is compulsory and schools access any system or none at all. This creates difficulties when principals and office staff must deliver administrative support in different electronic ways to principals and schools. Therefore e-Government and educational e-platforms does not assist in the sharing of knowledge within the Gauteng Department of Education. The South African School Management System (SASAMS) is one of these programmes that was written especially for schools to ease the burden of administrative overload.

4.3.4. Implementation and feedback

In phase 4 the standardized e-platform tool or programme will be implemented with proper policy guidelines in place. Head Office will fund the necessary resources such as equipment, licence agreements and technical support. District Offices will assist in the co-ordination of the implementation

and will also provide support with regard to feedback from schools to Head Office. In this phase the training of the employees and principals is imperative to increase the success rate of the project.

Figure 4.4: Implementation and feedback



A proper equipped and manned call centre will add creative value to the operations and technical support that were installed for the e-platform. A one stop shop service as a call centre where problems can be identified and properly recorded can also provide the necessary feedback on the success of the implementation and operational phase of the system. The employees must understand where they fit into the system and their involvement in the whole process. During this phase, the employees and principals will also learn how to use the tools and the relevant system to capture and retrieve knowledge from the system.

The importance of an evaluation phase was stated earlier. The purpose or main aim of the review is a test to find if the right knowledge reaches the right person at the right time and if proper knowledge retrieval can be done from systems to support public schools with their administrative burden. It further

analyses the whole knowledge management process to ascertain that the strategy is still on track to meet the progress set during the formulation of the strategy. It is the opinion of the author to, at least once a year, review the strategic implementation process.

In the macro environment changes will be on the organogram of the District Offices as part of attempts to bring education delivery closer to the ground, communities and learners. New processes, strategies and carefully implemented improvements will bring changes that will affect the efficiency of knowledge management and sharing with the end result to improve administrative support to public schools through line functions and systems.

It is also the opinion of the author that the proposed four phase strategy framework will improve service delivery and administrative support to public schools. The end result will be the unlocking of the potential of e-Government to properly give administrative support to public schools.

4.4 RECOMMENDATIONS

In section 4.2, a number of statements were made about the state of Government-to-Government services, e-content and educational e-platforms at the Sedibeng East District Office in the Gauteng Education Department. These statements or problems highlighted by the questionnaires were combined and the outcome is the framework that is proposed in section 4.3. From these two sections, it can be concluded that the Gauteng Department can do a great deal to improve administrative support to public schools and the management of knowledge by implementing the strategy that was proposed. This will help Education to increase the efficiency of Government-to-Government service delivery through e-platforms that is standardized for proper administrative support to schools, learners and communities. The focus points that are recommended are the following:

- Conduct a proper evaluation on the current status of e-content and e-platforms used within public schools;

- Evaluate the data received and do a proper gap analysis to determine the short-comings of service delivery to public schools. If the need arises, outsource the service to a specialist within the scope of work that is guided by a pilot committee of the Department;
- Align a standard e-platform system with current legislation, policies and departmental goals and strategic objectives;
- Implement, provide resources and equipment for the new system, conduct training and development and set up a feedback platform through a call centre to evaluate the successes and failures with regard to the program.

However, take note that the culture must be supportive within the Department when implementing the new e-platform system. This is very important, because it will increase the success rate of the implementation process and will assist with backup support to make the programme or system work. In section 1.3, the problem statement stated that resources/programmes and information are available through Government-to-Government models to assist principals to deliver an effective and efficient service. Administrative support to principals and learners do not take place due to none or incorrect utilization of educational e-platforms that are available.

The non-standardization of e-platforms is directly linked to the absence of a proper e-Government strategy and clear and direct policy and legislative guidelines. The conclusion is that if one standardized system is used, knowledge will be managed properly and knowledge sharing will increase the much needed administrative support to public schools

4.5 RECOMMENDED FURTHER STUDIES

During the study the author identified the following study fields for future studies:

- As the focus moves to the increase in technology utilization and e-platforms as means of communication - how will the Department control the much needed and even overstated Auditor General requests to provide the necessary paper trail during audit processes?
- The relationship between effective e-platforms delivering administrative support to public schools and the influence it has on the Grade 12 pass rate within public schools;
- The relationship between properly managed e-platforms solely for educational purposes and the workload of principals of public schools: Properly managed e-platforms that provide the necessary information and management tools to principals, should support public school principals in the administrative management of schools. Once implemented and readily available, effective and efficient communication will be established that will decrease the paper workload of principals in order for them to focus more on curriculum activities and therefore linking up with the second proposed study, the increasing of the Grade 12 results.

4.6 CONCLUSION

The primary aim of the study was to determine the effect of e-Government platforms that are available and how these platforms provide administrative support to public schools. The aim was to base this on a stratified quantitative study within the Sedibeng East District Office as the base of Gauteng Department as a public entity. A literature study was done and used as the basis for the questionnaire in the study. During the literature study different e-Government models were identified and information technology and enablers that explained the elements of the current Business Information Management System that is in use. A questionnaire was distributed to the units within the District Office whose main task is administrative support to public schools and principals of public schools that in return must support learners and

communities in obtaining or achieving their goals. The analysis of the questionnaires revealed areas of great concern and indicated areas where improvements could increase the usage of e-Government platforms. The analysis of the questionnaire revealed that in some areas of competencies there are large gaps that need to be addressed as well as smaller areas or gaps in terms of training and connectivity needs. A proposed strategy framework was drawn up based on the findings of the analysis of the data from the questionnaires. It can finally be concluded that the usage of this framework will assist in the implementation of a Business Information Management System that will address the indicated lack of technology awareness and administrative support that is available to public schools on e-platforms. Through the study other research opportunities were identified mentioned at the end of the study.

4.7 CHAPTER SUMMARY

In chapter 4, a number of conclusions and recommendations were made in an attempt to assist the implementation of a strategy framework to improve the management of knowledge, awareness of e-platforms and interaction with these platforms to increase/improve administrative support to public schools. The conclusions that were drawn in chapter 3 were summarised at the start of this chapter. It was concluded that it is critical to do a proper evaluation of current e-platform systems within the Department and analyse the needs indicated by public schools. The evaluation should indicate the different gaps that exist and therefore give clear guidelines in terms of what is needed to boost administrative support to public schools through e-platforms and e-Government services. This will formalise the way in which knowledge are managed and shared but also provide uniformity within the Department in the process. It was further concluded that the identified gaps should be closed or eliminated by providing proper legislation and policy guidelines for employees and public school principals. A strategy framework based on the conclusions was drawn up and consists of four phases. The aim of phase 1 is to conduct a proper evaluation within all tiers of the Education Department. The second phase is to identify the gaps indicated by offices and public schools with

regard to e-platforms and e-content that is necessary to deliver administrative support to public schools. It is also suggested that outsourcing must be done to obtain professional specialist knowledge in this regard. Adjustments or change must be done in Phase 3 to align the new system with legislation, departmental policies, goals and strategic objectives... The implementation of standardized systems and e-platform in phase 4 must be executed with the help of resources and technical support. The establishment of a call centre to manage the process and to record feedback and problems indicated will add additional value to the strategy. The feedback process should also indicate that the right knowledge gets to the right employee at the right time if the levels of administrative support to public schools have increased. Short comings and deviations must be addressed and corrected as soon as possible during the next evaluation cycle which should be conducted on an annual basis.

REFERENCES

BALTZAN, P., PHILLIPS, A. & HAAG, S. 2009. Business driven technology. 3rd ed. New York: McGraw-Hill. 604p.

BUSINESS DICTIONARY. 2010. Enablers definition. [Web:] <http://www.BusinessDictionaty.com> Date of access: 9 May 2011.

CHANE, A. 2009. Five-Year Strategic Plan 2009/2010 – 2014/2015. <http://www.education.gpg.gov.za> Date accessed: 8 Feb 2011. 86p.

CRAMER, H. 1999. Mathematical Methods of Statistics. Princeton University. [Web:] http://changingminds.org/explanations/research/analysis/cramers_v.htm Date of access: 7 Nov 2011.

DEPARTMENT OF PUBLIC SERVICE AND ADMINISTRATION. 2003. The machinery of government. Structures and functions of government. [Web:] <http://www.dpsa.gov.za> Date accessed: 20 Apr 2011.

DEPARTMENT OF PUBLIC SERVICE AND ADMINISTRATION. 2010. Annual Report: 2009/2010. <http://www.dpsa.gov.za> Date accessed: 20 Apr 2011.

EDUCATION. 2007. Homepage. [Web:] www.education.gpg.gov.za Date of access: 10 May 2011.

ELLIS, S.M. & STEYN, H.S. 2003. Practical significance (effect size) versus or in combination with statistical significance (p-values), Management Dynamics, 12(4): 51-53.

FARELO, M. & MORRIS, C. 2002. The status of E-government in South Africa. [Web:] <http://www.dpsa.gov.za> Date of access: 18 Feb. 2011.

FISHER, C. 2007. Researching and writing a dissertation: a guidebook for business students. 2nd ed. Essex: Pearson Education. 359 p.

GAUTENG DEPARTMENT OF EDUCATION. 2006. Proposed organisation and post establishment for Gauteng Department of Education. [Web:] <http://www.education.gpg.gov.za>. Date of access: 14 March. 2011. 49p.

GAUTENG DEPARTMENT OF EDUCATION. 2009. Five-Year Strategic Plan 2009/10 – 2014/15, Version 9. [Web:] <http://www.education.gpg.gov.za>. Date of access: 14 March. 2011. 86p.

GAUTENG DEPARTMENT OF EDUCATION. 2011. Vision statement. [Web:] <http://www.education.gpg.gov.za/Vision.htm> Date of access: 19 Feb. 2011.

GICHOYA, D. 2005. Factors Affecting Successful Implementation of ICT Projects in Government. *Electronic Journal of e-Government*, 3(4):175-184.

HOPKINS, W.G. 2008. Quantitative research design. [Web:] <http://www.sportsci.org/jour/0001/wghdesign.html> Date of access: 7 Nov 2011.

KROUKAMP, H. 2005. E-Government in South Africa: are we coping? *Service Delivery Review*, 4(2).

KRUGER, C.J. & JOHNSON, R.D. 2010. Information management as enabler of knowledge management maturity: A South African perspective. *International Journal of Information Management*, 30:57-67.

LENTH, R. V. 2001. Some practical guidelines for effective sample-size determination. Department of Statistics. Iowa City, IL: University of Iowa.

NUUS NOU. 2011. Internet gebruik in SA. 20 October 2011. [Web:] www.nn.co.za Date of access: 1 November 2011.

MITROVIC, Z. 2010. Positioning e-skills within an organization: An information system management viewpoint. *SA Journal of Information Management*, 12(1):1-24. [Web:] <http://www.sanjim.co.za> Date of access: 12 March. 2011.

MOORE, J.G. 2010. Why do we continue to get confused about Government. [Web:] <http://www.govinthelab.com> Date of access: 9 May 2011.

MTIMUNEY, M. 2011. Driving e-Government success in South Africa. . [Web:] <http://www.itwebinformatica.co.za> Date of access: 24 Feb. 2011.

NDOU, V. 2004. E-Government for Developing Countries: Opportunities and challenges. *The Electronic Journal on Information Systems in Developing Countries*, 18(1): 1-24. . [Web:] <http://ejisdc.org>. Date of access: 12 Feb. 2011.

NEWS24.COM. 2011. South African competitiveness. Newsflash: 27 September 2011. [Web:] [News24.com](http://www.news24.com). Date of access: 27 September 2011.

NOKIA SIEMENS NETWORKS. 2008. Global Summary Report. . [Web:] <http://www.nokiasiemensnetwork.com> Date of access: 17 Feb. 2011.

REDDICK, C.G. 2004. Empirical Models of E-Government Growth in Local Governments. *e-Service Journal*,3(2):59-84.

SEDIBENG EAST IMBIZO. 2011. Sedibeng East District Office: Strategic Planning Session. Combined document form all the units within the District Office. 20 September 2011. Unpublished.

SHARP, V. 2009. Statistics for the social sciences. . [Web:] <http://www.enviroliteracy.org/pdf/materials/1210.pdf> Date of access: 2 Nov 2011. 5p.

SHIRISH, C.S. & THOMPSON, S.H.T. 2009. A framework for electronic government: Evolution, enablers and resource drainers. P2079-2084.

SOUTH AFRICA. 1996. Constitution of the Republic of South Africa as (Amended: 11 October 1996). Pretoria: Government printers.

SOUTH AFRICA. 1998. State Information Technology Act of 1998. Pretoria: Government printers.

SOUTH AFRICA. 1999. Public Finance Management Act, Act 1 of 1999. Pretoria: Government printers.

SOUTH AFRICA. 2004. White Paper on e-Education. *Government gazette*, 26734: 10, 26 Aug. (Regulation gazette no. 26734.)

SOUTH AFRICA. 2007. Public Service Act, Act 103 of 1994 as amended by Act 30 of 2007. Pretoria: Government printers.

SPSS Inc. 2009. PASW Statistics 18, Release Version 18.0.0. Copyright© by SPSS, Inc., Chicago, IL. . [Web:] www.spss.com. Date of access: 2 Nov 2011. 2p.

STATISTICS SOUTH AFRICA. 2011a. Social Profile of South Africa, 2002-2009, Report No. 03-19-00. . [Web:] <http://www.statisticssa> Date of access: 6 March 2011. 89p.

STATISCTICS SOUTH AFRICA. 2011b. The status of the Information and Communication Technology satellite account for South Africa. . [Web:] <http://www.statisticssa> Date of access: 24 Feb 2011. 83p.

THEFREEDICTIONARY. 2011. The free dictionary. [Web:] [Thefreedictionary.com](http://thefreedictionary.com) Date of access: 10 May 2011.

WASPE, T. 2007. Leveraging ICTS to optimize scarce competences in learning attainment. . [Web:] <http://www.education.gpg.gov.za> Date of access: 12 Feb 2011. 19p.

ZAILANE, S., ONG, H.K. & SHANON, S. 2006. The adoption of Information and Communication technology for effective Knowledge Management in the Small and Medium Industry in Malaysia. *Asian Journal of Information Technology*, 5(1): 28-33.

APPENDIX A:

Designed and distributed questionnaire

An evaluation of E-Government as a support system in Public Schools

The aim of this questionnaire is to establish to what extend e-Government is used as administrative support to Secondary Public schools. This study is for academic purposes and will take you as respondent ten (10) minutes to complete. Respondents will remain anonymous to maintain confidentiality in the presentation of results, analysis of data and discussion of outcomes. Please answer each question from your perspective in dealing with this environment. The findings of this study will be forwarded to the Gauteng Department of Education for recommendation/implementation purposes. Participation is voluntary and participants may withdraw at any time without fear of negative consequences.

Mark your choice in the relevant block with an “x”

QUESTION 1: BIOGRAPHICAL INFORMATION

GENDER

		Male	Female
1.1	I am a	1	2

AGE GROUP

		20-30	31-40	41-50	50+
1.2	My age group	1	2	3	4

REPRESENTIVITY LEVEL

		Principal	IDSO	Curriculum Support	Human Resource	Finance & Admin	IT
1.3	I represent the Department in the capacity as:	1	2	3	4	5	6

QUALIFICATIONS

		Grade 12	Diploma	Degree	Post degree
1.4	My current qualification.	1	2	3	4

HOME LANGUAGE

		Xhosa	Zulu	Sotho	Afrikaans	English	Other
1.5	My home language	1	2	3	4	5	6

PREVIOUS EDUCATIONAL EXPERIENCE

		Ex TED	Ex DET	Ex HOD	Ex HOR	Other
1.6	The majority of my prior experience was obtained through:	1	2	3	4	5

YEARS EXPERIENCE

		0-5	6-10	11-15	16+
1.7	My years experience	1	2	3	4

APPOINTMENT

		Intern	On probation	Temporarily appointed	Permanent appointed
1.8	My current work situation is	1	2	3	4

QUESTION 2: ICT RESOURCES AVAILABLE

		Yes	No
2.1	I have a work computer at work	1	2
2.2	I have a computer at home	1	2
2.3	I have access to a printer at work	1	2
2.4	I have access to a printer at home	1	2
2.5	I have internet connectivity at work	1	2
2.6	I have internet connectivity at home	1	2
2.7	I have departmental e-mail access at work	1	2
2.8	I have departmental e-mail access at home	1	2
2.9	I can access the Gauteng Department of Education webpage at work	1	2
2.10	I can access the Gauteng Department of Education webpage at home	1	2
2.11	I have access to Gauteng on Line laboratories at work.	1	2
2.12	I have access to a departmental scanner at work.	1	2
2.13	I have access to a scanner at home	1	2
2.14	I have a departmental mobile phone.	1	2
2.15	I have a mobile phone	1	2

QUESTION 3: E - PLATFORMS (electronic programs and sites for educational purposes) AVAILABLE

		Never heard of it	Don't have access to it	Never	Sometimes	Usually	Always
3.1	I work on SASAMS	1	2	3	4	5	6
3.2	I work on Edupack	1	2	3	4	5	6
3.3	I work on Microscope	1	2	3	4	5	6
3.4	I link to Thutong platform	1	2	3	4	5	6
3.5	I link to Gauteng on Line	1	2	3	4	5	6
3.6	I link to Partners in Learning platform	1	2	3	4	5	6
3.7	I link to Microsoft Education Desk platform	1	2	3	4	5	6
3.8	I link to Sci Bono platform	1	2	3	4	5	6
3.9	I link to Gauteng Department of Education platform	1	2	3	4	5	6
3.10	I access electronic event calendars	1	2	3	4	5	6
3.11	I access electronic publications	1	2	3	4	5	6
3.12	I access current legislation electronically	1	2	3	4	5	6
3.13	I access departmental forms electronically	1	2	3	4	5	6
3.14	I access the electronic textbook catalogue	1	2	3	4	5	6
3.15	I access the on-line library	1	2	3	4	5	6
3.16	I submit reports electronically	1	2	3	4	5	6

3.17	I access Department of Health websites for support	1	2	3	4	5	6
3.18	I access Department of Home Affairs website for support	1	2	3	4	5	6
3.19	I access Department of Finance website for support	1	2	3	4	5	6
3.20	I access Department of Transport website for support	1	2	3	4	5	6
3.21	I access Department of Labour website for support	1	2	3	4	5	6
3.22	I access Department of Public Service and Administration website for support	1	2	3	4	5	6
3.23	I access Department of Trade and Industry website for support	1	2	3	4	5	6
3.24	I access Department of Science and Technology website for support	1	2	3	4	5	6

QUESTION 4: COMMUNICATION CHANNELS USED

		Never heard of it	Sometimes	Usually	Always
4.1	I share information on departmental e platforms	1	2	3	4
4.2	I share information through circulars	1	2	3	4
4.3	I share information through memorandums	1	2	3	4
4.4	I share information through official visits	1	2	3	4
4.5	I share information telephonically	1	2	3	4
4.6	I share information on own website	1	2	3	4
4.7	I share information through meetings	1	2	3	4
4.8	Employees have access to Gauteng Department of Education website	1	2	3	4
4.9	Learners have access to Gauteng Department of Education website	1	2	3	4
4.10	Communities/parents have access to Gauteng Department of Education website	1	2	3	4
4.11	Mobile phones are used for official communication	1	2	3	4
4.12	I connect through Wan/Lan	1	2	3	4
4.13	I connect through 3 G	1	2	3	4
4.14	I connect through modem	1	2	3	4
4.15	I connect through Wifi	1	2	3	4

QUESTION 5: COMPUTER/PROGRAM AND INTERNET TRAINING

		Never heard of it	Sometimes	Usually	Always	Own development
5.1	Departmental training opportunities were available on Microsoft Word	1	2	3	4	5
5.2	Departmental training opportunities were available on Microsoft Access	1	2	3	4	5
5.3	Departmental training opportunities were available on Microsoft Excel	1	2	3	4	5
5.4	Departmental training opportunities were available on Microsoft Outlook	1	2	3	4	5
5.5	Departmental training opportunities were available on SA-SAMS	1	2	3	4	5
5.6	Departmental training opportunities were available on Edupack	1	2	3	4	5
5.7	Departmental training opportunities were available on Microscope	1	2	3	4	5
5.8	Departmental training opportunities were available on Gauteng Department of Education website usage	1	2	3	4	5
5.9	Departmental training opportunities were available on Sci-Bono website usage	1	2	3	4	5
5.10	Departmental training opportunities were available on Microsoft Education Desk usage	1	2	3	4	5
5.11	Departmental training opportunities were available on Gauteng on Line	1	2	3	4	5
5.12	Departmental training opportunities were available on Thutong website usage	1	2	3	4	5
5.13	Departmental training were available on Gauteng Department of Education Information Technologies policies	1	2	3	4	5
5.14	Departmental training opportunities were available on how to use Gauteng Department of Education Intranet	1	2	3	4	5
5.15	Departmental training were available on how to use different social platforms	1	2	3	4	5
5.16	Departmental training opportunities were available on how to access administration support systems electronically.	1	2	3	4	5
5.17	Departmental training were available on how to utilize search engines for administrative support	1	2	3	4	5

QUESTION 6: SOCIAL PLATFORMS FOR COMMUNICATION

		Never heard of it	Never	Sometimes	Usually	Always
6.1	I use Facebook	1	2	3	4	5
6.2	I use WhatsApp	1	2	3	4	5
6.3	I use Mxit	1	2	3	4	5
6.4	I use MySpace	1	2	3	4	5
6.5	I use Black Berry Messenger Service	1	2	3	4	5
6.6	I use Twitter	1	2	3	4	5
6.7	I use Wiki's	1	2	3	4	5
6.8	I use foursquare	1	2	3	4	5
6.9	I use Yahoo	1	2	3	4	5
6.10	I use Mashable	1	2	3	4	5
6.11	I use Gowalla	1	2	3	4	5
6.12	I use SCVNGR	1	2	3	4	5
6.13	I use Aardvark	1	2	3	4	5

QUESTION 7: OWN EXPERIENCE WITH CONNECTIVITY

		Never	Sometimes	Usually	Always
7.1	I experience password problems	1	2	3	4
7.2	I experience log on problems	1	2	3	4
7.3	I experience e-mail problems	1	2	3	4
7.4	I receive e-mails on time	1	2	3	4
7.5	I experience internet connectivity problems	1	2	3	4
7.6	I experience a lot of down time due to connectivity problems	1	2	3	4
7.7	I have difficulty with spam e-mails	1	2	3	4
7.8	I have difficulty with keeping programs updated with new security releases	1	2	3	4
7.9	I am satisfied with the virus protection programs	1	2	3	4
7.10	I am satisfied with IT personnel call responses	1	2	3	4
7.11	I have access to all relevant programs to perform within my scope of work	1	2	3	4
7.12	There are strange messages on my computer	1	2	3	4
7.13	Servers are on line	1	2	3	4
7.14	Regular backups are done on the servers and computers	1	2	3	4

7.15	Replacement or repairs on my computer is done promptly	1	2	3	4
7.16	I know the procedures to log a call for computer problems.	1	2	3	4
7.17	IT personnel is knowledgeable within their scope of work	1	2	3	4

Thank you for the time and returning the questionnaire to:

Johan Knuppe

Tel: (016)440-1819

Fax: (016) 440-1789

E-Mail: Johan.Knuppe@gauteng.gov.za

APPENDIX B:

Approval of engagement with target population



GAUTENG PROVINCE

Department: Education
REPUBLIC OF SOUTH AFRICA

Enq: PJ Knuppe
Tel: (016)440 – 1819
Fax: (016) 440-1789
Fax to e-mail: 086 588 0213
E-mail: Johan.Knuppe@gauteng.gov.za
Ref no: FA0587/2011

SEDIBENG EAST DISTRICT OFFICE

TO: ALL PRINCIPALS
PUBLIC SCHOOLS: SEDIBENG EAST

FROM: DISTRICT DIRECTOR: SEDIBENG EAST

DATE: 20 SEPTEMBER 2011

SUBJECT: EVALUATION OF E-GOVERNMENT AS SUPPORT SYSTEMS

Attached please find a questionnaire with regard to an evaluation of E-Government as a support system to public schools.

The attached questionnaire will be used for dissertation purposes and will only take ten (10) minutes of your time.

Completed questionnaires must be returned to Johan Knuppe at the District Office.

Your co-operation by returning the questionnaire as soon as possible will be highly appreciated.

Kind regards.

A handwritten signature in black ink, appearing to be 'D. Moloi', written over a horizontal line.

MRS. D MOLOI
DISTRICT DIRECTOR: SEDIBENG EAST
DATE: 20/09/2011

Making education a societal priority

OFFICE OF THE DISTRICT DIRECTOR: SEDIBENG EAST

Sanlam Building, 14 Joubert Street, Vereeniging, 1930
Private Bag X 05 Vereeniging, 1930 Tel: (016) 440 1700 Fax: (016) 440 1789
Email: Dorahm2@gpg.gov.za
Website: www.education.gpg.gov.za

APPENDIX C:

Data sheet based on feedback from respondents

DESCRIPTION	HAND OUTS	% OF SAMPLE	RECEIVED	% RECEIVED
Public Schools	76	100	30	39.47
Institution Development and Support Officer	13	100	5	38.46
Curriculum Support	65	100	28	43.08
Human Resource	20	100	10	50.00
Financial Management and Administration	38	100	32	84.21
Information Technologists	6	100	4	66.67
TOTAL	218	100%	109	53.65

APPENDIX D:
Letter from language editor

Wednesday, November 16, 2011



TO WHOM IT MAY CONCERN

Re: Letter of confirmation of language editing

The MBA mini-dissertation "*An evaluation of E Government as a support system in Public Schools*" by Peter Johan Knuppe was language, technically and typographically edited. The sources and referencing technique applied was checked to comply with the specific Harvard technique as per North-West University prescriptions.

A handwritten signature in black ink, appearing to read 'Antoinette Bisschoff'.

Antoinette Bisschoff
Officially approved language editor of the NWU