PERCEPTIONS OF SECONDARY SCHOOL PRINCIPALS IN NAIROBI ON THE IMPACT OF COMPUTER TECHNOLOGY ON JOB EFFECTIVENESS

BY

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DECLARATION

This Research Project is my original work and has not been presented for any degree or diploma in any other university.

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This Research Project has been presented for registration with my approval as university supervisor.

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DEDICATION

To Doreen: Your love, support, patience and encouragement gave me the will and

determination to complete this work in time.

ABSTRACT

The purpose of this study was to determine perception of secondary school principals in Nairobi on the impact of computer technology on job effectiveness. Additionally, the study analyzed what computer software principals used to perform their duties. Lastly the study examined principals' perceptions based on the computer technology available to them.

Specifically, the research sought to answer the following questions: (1) Which tasks and responsibilities do secondary school principals most frequently use computer technology? (2) What computer software do secondary school principals use in school management? (3) Does gender, number of years as principal, age or school size have any effect on how school principals perceive that computer technology impact their efficiency as principals? (4) To what extent do secondary school principals perceive that computer technology impacts their effectiveness and efficiency as principals?

The researcher explored perceptions of principals regarding the impact of computer technology through quantitative and qualitative methods. The information was gathered through the use of a questionnaire. The data gathered allowed the researcher to look critically at the uses, impact and perceptions on computer technology on the effectiveness of secondary school principals.

A review of related literature included information on the uses of computers by secondary school principals. This included a review of the literature as it relates to technology in the following areas; leadership; training and standards; growth of technology schools; basic competencies; technology in management; decision making

and professional development. The findings of the study indicated that computer technology in administration is rapidly picking up and having a positive impact on the performance of secondary school principals as administrators.

The recommendations made were as follows:-

1).   Secondary school principals should be provided with professional opportunities in the area of computer technology through regular courses, workshops and seminars.

2).   Institutions that train teachers should use this study to evaluate how teachers are being prepared to be educational administrators in the 21st century. There is a clear need to incorporate technology in current administration programmes in colleges and universities.

3).   The Ministry of Education should develop a policy to guide the use of computers in school management so that we have a standardized management procedure with regard to the use of computers in school administration.

4).   The government should find ways of making internet connectivity affordable to all so as to achieve the stated goal of industrialization by 2020.

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LIST OF ABBREVIATIONS

MOEST   Ministry of Education, Science and Technology

TSC   Teachers Service Commission

KIE   Kenya Institute of Education

PTA   Parents Teachers Association

BOG   Board of Governors

KNEC   Kenya National Examinations Council

IT   Information Technology

ICT   Information and Communication Technology

VCR   Video Cassette Recorder

CHAPTER ONE

1.0   Background of the Study

The job of secondary schools principal today is a highly complicated one due to the emerging challenges that have arisen as a result of rapidly changing technology. According to Okumbe (2001) the principal is charged with the task of managing curriculum and instruction, staff, school plant, finances and school community relations. These tasks pose major challenges to school principals since with rising numbers of students and staff in the schools, they have to plan carefully on how to utilize resources (both human and physical) available to them in order to achieve the goals of the institutions.

Schools, especially in urban centres in Kenya like Nairobi have seen an explosion in the use and availability of Information and Communication Technology (ICT). ICT includes equipment such as computers, radios, television, videocassette recorders (VCRs) and digital cameras that can be used by teachers to support their work (Guerand, 2001). Technological advancement in the form of television, film and most recently the internet has made students to be more informed about what is happening around them and in other parts of the world. The principal is expected to deal with students who are exposed to a lot of information. In order to meet the increased demands of their jobs, principals are relying more and more on the use of technology.

The computer is one such technology that if used correctly can greatly enhance and improve the work of principals. A computer is an electronic devise with   the ability to

accept user – supplied data, execute programmed instruction, perform mathematical and logic operations and output processed data according to user – specification. The computer consists of hardware and software. The hardware consists of the parts you can touch, hold and move. This includes the monitor, keyboard and the mouse. Other pieces of the hardware that can be attached to a computer as peripheral devises include printers, disk drives and scanners. A computer in itself is useless unless it is given instructions. These instructions come in the form of software. The software are the programs that instruct a computer to process data and how the programs should be used (Dougherty, 2000).

Aduda (2003) reports that during a headteachers' meeting in Nairobi, Education Minister Prof. George Saitoti challenged school heads to embrace computer technology since computer technology is increasingly being introduced globally in the schools to bring new challenges to the education system. Principals being the implementors of policy decisions, they must prepare for the Information and Communication Technology of the 21st century. Schools are increasingly being influenced by the influx of computers. As such the perceptions and actions of the principals on computer technology is becoming more relevant and important to the management of education programmes in secondary schools (Bennet, 1996).

To date secondary schools principals are always being challenged in various educational fora like seminars and headteachers' meetings to embrace and utilise computer technology. It is therefore important to investigate their perceptions on how the use of computer technology impacts on their effectiveness. The perceptions of the

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principals in the use of computers in schools includes their enduring feeling, behavioural and evaluation tendencies towards the technology. This study intended to find out how principals evaluate computer technology and what opinions they hold in terms of using computer to help them perform their managerial duties effectively.

The use of computer technology in Kenyan schools has had a remarkable support from various fronts in the country. In the Gachathi Report of 1976, the teaching of basic computational skills in mathematics was advocated. Equally, the Mackay Report of 1981 pointed at the importance of incorporating Information Technology (IT) in the secondary school curriculum. The report recommended the use of microcomputers as a teaching resource in the appropriate school topics and using appropriate IT to improve the quality of school administration.

It was through these recommendations that the government mandated the Kenya Institute of education (K.I.E.) to come up with a computer studies syllabus. The aim of the secondary education computer studies was to provide the learner with a firm foundation of computer literacy to enable him appreciate the use of computers in different areas of applications (Republic of Kenya, 1996). The Koech report of 1998 also recommended that computer studies be entrenched in the curriculum.

Indeed in the current development plan (2002 to 2008) it is stated that Kenya plans to make 2,500 primary and secondary schools ICT readily annually. In addition the government intends to initiate an in-service teachers programme to train 43,000 teachers by the end of the planned period. It is quite evident that since principals implement decisions from the government, they need to be equipped with the right

principles in the use of I.T. Equally it is stated in the development plan that Kenyan education and training institutions are responding to the need of the education sectors by involving user – driven courses and curriculum in ICT.

Computer usage has been rising rapidly over the years while their cost has been falling. This is mainly attributed to the reduced import tariffs and falling import prices. Indeed during the Kenya budget of the fiscal year 2003/2004,import duty on computer products were zero-rated (Muchiri, 2003).This made it possible for many schools to be able to afford computers. Earlier computers were very large, generated a lot of heat and required special air-conditioned rooms. Today because of technological advances, they can comfortably fit on a desk and perform even better functions (Dogherty, 2000).

Computers can help principals to manage, plan and allocate physical resources more effectively (Kasim and Tahir, 2000). There are computer software for school managers like those dealing with pupil numbers including attendance, the school curriculum, time scheduling, examination preparation and analysis of results, teachers records of work, school budgets, allocations, commitments and expenditure among many other activities in the school.

Initiatives like the Computer for Schools in Kenya (CFSK) which is based at the Starehe Boy's Centre in Nairobi helps in placing computers in schools as well as offering training to principals. CFSK is a non-profit, non-governmental organisation whose mission is to provide Kenya's youth with access to modern information technology through the donation of computers to Kenyan public secondary schools.

The organization works closely with the Ministry of Education Science and Technology (MOEST) as well as local and international partners to make computer literacy a reality in our secondary schools (CFSK, 2003). It is hoped that by having computers in schools the principals will champion IT education in their schools and society at large .It is also hoped that information will be available for sharing through the internet and e-mail among different schools. Finally using computers in the management of schools will translate to efficiency and cost effectiveness especially in communication.

From the foregoing it is imperative that principals must understand and utilise technology available to them. Hawleridge (1990) states that almost all teachers and principals using computers in developing countries never trained to do so during their initial training and only had a brief in-service course relating to computers. In addition most of the research on computer technology in schools focuses on computer for teaching and learning with some comments on the importance of principals understanding the role of computer technology in the school environment. However not much is said about the principals' perceptions on the use of computers to improve their effectiveness. It is against this background that the researcher intended to examine the perceptions of secondary schools principals in Nairobi on the impact of computer technology on job effectiveness.

1.1. Statement of the Problem

The use of computers can have a direct impact of the way high school principals do their jobs (Schemeitzer, 2000). Computers are today regarded as a fundamental factor of job performance in diverse fields such as education management, banking and engineering. The job of the Secondary school principal has become more demanding making the ability to use computers technology more important (CFSK, 2003).

Various Computer software can give principals a wide range of options in performing different tasks that they must complete on a daily basis. In line with this Odera (2002) in an unpublished PhD thesis found that the Kenya government formulated a computer education policy in the support of the use of computer at the secondary schools for purpose of instruction and management. Among the objectives of computer studies in secondary schools was for the learner to appreciate the use of computers in different areas of application and to appreciate the importance of computer technology in society (Republic of Kenya, 1996). Most schools in Nairobi have acquired computers through the help of the Parents Teachers organizations (PTA's) and Board of governors (BOG's), while others have benefited from the initiative by the Computers for Schools in Kenya.

Available research shows that secondary school principals must understand and utilise technology available to them (Bennet, 1996). However very little is said about Kenyan Secondary schoolprincipals' perceptions on the use of computer technology to improve their performance. The questions about the impact of computer technology

on job performance and the principals' perceptions of its effectiveness is one that needed to be answered.

1.2. Purpose of the Study

The purpose of the study was to determine the perceptions of public secondary school principals in Nairobi on the effectiveness of computer technology in aiding their performance as managers of schools. Additionally, the study intended to find out the type of software that the principals used to perform the requirements of their jobs.

1.3. Objectives of the study

The objectives of the study were to:

(i)   Establish the tasks that secondary school principals do using computer technology.

(ii)   Determine the computer software that secondary school principals use in managing their schools.

(iii)   Determine whether gender, number of years as principal, age or school size has any effect on how school principals perceive that computer technology impacts their effectiveness and efficiency as school principals.

(iv)   Assess the perceptions of principals towards various aspects of computer usage like word processing Internet, spreadsheets and databases on job effectiveness.

1.4. Research Questions

The research questions of the study were:

(i)   Which tasks and responsibilities do secondary school principals most frequently use computer technology?

(ii)   What computer software do secondary school principals use in school management?

(iii)   Does gender, number of years as principal age or school size have any effect on how school principals perceive that computer technology impact their effectiveness and efficiency as principals?

(iv)   To what extent do secondary school principals perceive that computer technology impacts their effectiveness and efficiency as principals?

1.5. Significance of the Study

This study could help to generate knowledge regarding the perceptions of public secondary school principals in Nairobi on computer technology and how it affects their jobs. Principals could use this information to determine if they are using computer technology to their advantage as school managers.

The findings can be useful to curriculum developers at the Kenya Institute of Education and at the universities to develop and entrench an IT curriculum in colleges that prepare teachers for secondary schools. This can help prepare trainees to transfer skills later on to be used in their teaching and managerial duties. The Ministry of Education can use the findings to develop a policy to guide the use of computers in school management. The findings of this study is likely to be beneficial to the

Teachers Service Commission (TSC) as it may assist in selecting and appointing school managers with the requisite IT skills.

The Kenya National Examination Council (KNEC) can use the findings to help them come up with a standardized method of measuring the quality of training in computers at various levels. Since the Board of Governors (BOGs) and the Parents Teachers Association (PTAs) are the decision makers who manage schools in Kenya and principals are answerable to them, the findings can help sensitise them on the importance of IT in management. This would make them invest in computers both for instruction and administrative work in the schools.

1.6. Limitations of the Study

There were two main limitations in this study:

(i)   The first limitation of the study was the sample size. The public secondary school principals in Nairobi is a very small proportion of the national population. The findings were therefore generalised on the on the area of study only although a number of findings can have valid implications for the whole country.

(ii)   Literature on this area of study in Kenya was not easy to find for not much research has been done on the area of Computers in educational administration.

1.7. Delimitation of the Study

The study was restricted to public secondary schools in Nairobi having computers. This deliberate choice was reached because in Kenya, Nairobi is likely to have the highest concentration of computers because as an urban centre the infrastructures for

computer sustenance like electricity and telephones are easily available. In addition, public secondary schools have standardised administrative procedures which are stipulated in the code of management by MOEST.

1.8. Basic Assumptions

The basic assumptions of the study were that;

(i)   Public secondary schools in Nairobi have computers.

(ii)   Secondary schools principals were conversant with the various computer uses in school management.

(iii)   Secondary schools principals were conversant with the idea that computer technology could enhance the realisation of school and organisational effectiveness.

1.9. Organisation of the study

The study was organised into five chapters. Chapter One consisted of the Background of the study, Statement of the problem, Purpose of study, Significance of study, Limitation, Delimitations, Basic assumptions, Definitions of significant terms and Organisation of the study. Chapter Two will consisted of literature review. Chapter Three described the research methodology it include: instrument validity, instrument reliability, data collection procedures and data analysis techniques. Chapter Four consisted of the data and description of the findings and chapter five consisted of the findings, conclusion and recommendations

1.10 Definitions of Significant Terms

Computer Technology: Computer hardware, software ad accessories that are used to accomplish tasks.

Hardware: Computer equipments such as the monitor, keyboard, mouse, printer, disks drive and scanner.

Software: Programs that instruct a computer to process data and how these programs should be used.

Internet: An information-gathering tool utilising the world – wide web using search engines and http address. Connection is made through a phone or cable line.

Information Technology (IT): The science of managing and processing information using computers.

Information and Communication Technology (ICT): Equipment such as computer, the internet, CD Rom, and other software, radio and television, video and digital cameras that can be used by teachers to support their work.

Principal tasks: The duties performed by secondary schools principal on a daily basis, including but not limited to supervision, curriculum matters, public relations and staff development.

Perception: An individuals enduring evaluation, feeling and behavioural tendencies or attitude towards computer technology.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.0. Introduction

The purpose of this chapter is to review related literature to provide a framework of answering the research questions identified in the study. This framework explores the uses of computers by secondary school principals. This includes a review of the literature as it relates to technology in the following areas:

- Leadership, vision and planning for principles in relation to technology.

- Uses technology

- Training and standards

- Basic competencies

- Technology in management

- Decision-making and

- Professional development.

Much has been written and researched about the influx of technology in our society. This research has developed as modern society has become one in which the technological environment has been accepted as a part of life, (Morton, 1996). Education is one of the many institutions in which the potential of the computer has been touted (Crouse, 1997). At the current time, most of this research is focused on the impact technology is having on students. Many studies have looked at how teachers

are using technology in their individual classrooms. Studies have also focused on problems faced by schools integrating technology.

The role of secondary school principals has become more diversified over time. Given the high expectations placed on schools and school leaders, the diverse number of stakeholders with whom they must work and the complexity of schooling, serving as a principal is a demanding and stressful role (Hausman, Cow & Sperry 2000).

Principals are now asked to perform many complicated tasks as they perform their daily job responsibilities. Principals are expected to be education leaders, experts on matters involving diversified curriculum, key decision-makers and public relations experts. These tasks make the job of principals difficult. As the job become more diversified so are the people doing the job. Present day principals must be well versed in many leadership theories as well as most educational issues. Another area in which principals must be proficient is the area of technology (Gettys 1994).

There has been much debate about the effectiveness of technology in the field of education. A lot of resources, including funding and man-hours, have been poured into the field of education in to regard technology. Although most of the fundings and have gone into use of technology for student gains, a major portion has also gone into teacher and administrative use of technology (Musili, 2003).

Most principals in Nairobi work in an environment that gives them on-site technical support; access to adequate hardware and software; and long term, sustained staff development and in-service. (Musili, 2003). School principals are now expected to be technologically proficient and are being asked to use the desktop computer for a

variety of tasks. Crouse (1997) stated that for school administrators, the most difficult part of building a bridge to the 21st century is building it with microchips. This bridge must be built so that school can keep up with ever changing needs of the students they serve. As schools are increasingly influenced by the influx of new technologies into society, school administrators, attitudes and actions become more important than ever to the future of education (Bennet, 1996). The history of education has reached a point where radical change is possible and the possibility for that change is directly tied to the impact of computers (Dwyer,1994).

2.1. Leadership, Vision and Planning for Principals in Relation to Technology

2.1.1. Leadership

Most of the research related to school principals use of technology centred on technology as a leadership tool. The idea of using technology to improve leadership was directly related to the vision of the principal regarding the use of technology on a school wide basis and to the planning by the principal for the integration of the available technology. Numerous authors detailed ways in which leadership was vital to the overall success of the principal in providing a quality workplace of employees and a quality for students.

Bennet (1996) held to the belief that principals are among those who have elected to take a leadership role in education reform measures that may lead to more effective schools. The role of the principal as a leader involves getting things done through people (Okumbe 1998). Working through people involves communication team

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building and motivational skills (Krug, 1993). The idea that the principal must be an effective leader in order to be successful was consistent throughout the literature. Goldman (1998) stated that in a learning environment, leadership style says everything about the leaders deeply held educational beliefs and that these are mirrored in the culture of the school.

Before the issue of better leadership through technology is addressed, a discussion of the idea of leadership is necessary. Much of the literature reviewed defined the role leadership plays in the principalship.

Hoffman (1996), in his article on educational leadership and technology, stated that leadership is pivotal to any effort to change organisations. In his study (Krug 1993) suggested that the skills of leadership lie more in the thought behind the leader's actions than in the actions themselves. In Bennets (1998) article, he stated that leadership style is determined by deep-seated values and beliefs about how people learn.

Hausman et al (2000) agreed with the idea that a principal must have a clear understanding of himself or herself in order to be an effective leader. Their article outlines what makes an 'ideal principal.' In their study, they narrowed the focus of what good principals do to three things. They are as follows:

1. Understand the context

2. Understand themselves

3. Focus on what is best for their students

These three keys to becoming an 'ideal principal' are crucial to the development and maintenance of effective schools.

Principals must establish themselves as educational leaders in order to positively impact the schools in which they work. Most of the literature describes the impact that positive leaders have on the schools where they operate. Although the idea of technology as a leadership tool is a relatively new one, some research has explored the concept. A large potion of this research comments on the importance of principals understanding the role technology plays in leadership. The importance of technology and computers has increased tremendously in the last few years as administrators have been pressured to buy new equipment and connect everything to the network (Sharp & Walter, 1997). Administrators who are informed and comfortable with technology become key players in leading and supporting technology in schools (Ritchie, 1996).

Odera (2002), in her study commented that as instructional leaders, it is important for administrators to demonstrate understanding and familiarity with features and capabilities of technological devices. Bennett (1996) in his study of administration and technology as it relates to change, stated strongly that principals cannot succeed by using management and leadership strategies that do not support the integration of technology.

Beach and Vacca (1985) contend that studies have shown that knowledgeable school administrators contribute significantly to the proper integration of technology. This contribution makes those administrators effective leaders in their schools.

The concept of an administrator as an education leader through the integration of technology is becoming more prevalent. This can be best explained through Mclesters (2001) statement that strong technologically savvy school leaders are more in demand at this moment than ever before. The idea that the ability to access and use technology makes one a better leader shows that importance of technology for administrators.

Principals as educational leaders are not a new concept. What is relatively new is the idea that technology, specifically the computer can aid the principal in a leadership role. Although seemingly obvious, the computer as a tool for leadership was mentioned in the research reviewed.

Sager (1999) states how the computer shapes the form and context of the principals work. He concludes that principals who use the computer as a tool for better communication can become more involved in the complex world of educational leadership through dialogue with other school principals and community leaders.

Bozeman et al (1991) reiterated the point Sager (1999) made in their article on applications of computer technology to educational administrators. They stated that basic technology skills remain essential for administrators who want to assume a technology leadership role.

Yee (1998) furthered the idea that educational leaders must continue to improve their technology skills to improve themselves. His belief was that an important leadership competency regarding technology is to want to continue to learn with staff members, students and community members. It is important for students and staff members to

see principals learning to work comfortably with technology as a model for their own learning.

The school principal plays a very important role in the field of education. This is especially true of those principals who take a strong leadership role in their respective schools. Schmetzer (2002) commented that the fastest way to effect change through school is through strong leadership. When leaders have a vision of what is possible, they can establish reasonable expectations for themselves and their staff. This is especially true if the principals incorporate technology into their vision of strong leadership.

2.1.2. Vision

All the literature that discusses the idea of leadership shares one common thread. This thread is the idea that all effective leaders have a strong vision about where they want their organisation to go. This is not different in the area of technology as it relates to school administrators. The vision of the principal for the organisation must take into account the direction in which the principal wants the schools to go. It must also allow for an understanding of the educational process and its impact as the school community. This is made clear by the idea that there is need for the principal to understand the nature of the educational processes and their impact on teachers and students (Hausman et al, 2000).

With a clear understanding of the educational process a principal's vision can incorporate the many uses of technology. Bennet (1996) stated that as instructional leaders, principals must act on their own vision of technology in education.

Schmelzer (2001) further noted that technology can help administrators deal with some of the challenges they face but only if they have the vision and know-how to harness it and make it part of the fabric that supports the teaching and learning in schools. By using and acting on their vision of technology and using it to be more effective, school principals can become positive role models in the use of technology. The first and sometimes most difficult step in this process is articulating one's vision in building a technology culture (Ritchie,1996).Once this vision is articulated, principals must become models of technology use. Ritchie went on to say that administrators must lead by example in the uses of technology.

Rockman and Sloan (1993) noted that in a rapidly changing information and communication age, it is essential that principals as administrative and educational leaders, become role models as technology users. If principals maintain a strong vision towards the use of technology in their schools and model this use, they can have technology be a 'revolutionary force' that instigates and supports change by administrators at the school level (Goldman, 1998).

2.1.3. Planning

The concept of principals as educational leaders is certainly not a new one; neither is the idea that a strong vision makes for more effective leadership. However, the concept that a leader must infuse technology into the role of leader and the vision of

leadership is relatively new. Many examples of how to incorporate technology into the concept of leadership have made their way into the literature and research on the principalship. The idea that principals need to plan for the integration of technology was prevalent in the literature reviewed. Much of this information detailed concepts ranging from understanding the impact of technology to team building and mentoring.

Schmeltzer (2001), in his article on training administrators to be technology leaders, described specific ways for principals to plan for and incorporate technology into their schools as instructional leaders.

Skills such as word processing, and other daily use applications are important, but in order to be truly effective technology leader, they need a much broader set of experiences. Administrators must understand how technology can improve instructional practices and develop strategies to help teachers use technology in their classrooms. They must also make team-building and mentoring skills a priority to create a system of ongoing support for the entire educational community as it moves forward in using new technology. Above all, administrators must be able to understand how technology can be successfully implemented in schools and how to set reasonable expectations for its use. (p.1).

Administrators are faced with increased responsibility for infusing technology into their schools in order to do this, principals must understand their needs and plan accordingly. Schoeny, Heaton and Washington (1999) in their article on the perceptions and educational needs of school administrators stated that school administrators must constantly plan for and implement uses of technology

McLester, (2001) states that technology is no longer a luxury but a necessity. This no longer affords the principal the opportunity to choose to use technology. Instead, the school principal must now plan for the best way to integrate and use the technology available. To do this, principals must support the many uses of technology by developing a technology use plan (Houffman, 1996). This plan can be an approach to action rather than a specific set of practices (Krug, 1993). The principal as an educational leader must develop an action plan that incorporates the vision mentioned previously.

Much of the literature reviewed for the study emphasised the importance of the principal as an educational leader. The idea of leadership focused on two important concepts relating to technology, one being the principal needing a clear vision of the role technology plays in overall education process and the other being the need to plan for all phases of technology has a plane in educational leadership.

2.2. Training and Standards

Training activities and standard for the use of technology by principals was a strong focus of the literature reviewed. Most of the literature discusses the lack of training and standards in the area of technology for administration. The first area that was reviewed was the area of training administrators in the use of technology in schools. Pelgrum and Plomp (1993) studied the use of technology in schools. Their most dramatic conclusion was that training in the use of computers need to be considered for the effectiveness of using computers in school. Telem (1991) further noted that

with training, there is the possibility of using technology as an aggressive leadership and practice management tool.

The concept that training in the use of technology leads to technology being used more is evident throughout the literature. However, the literature also noted reasons why technology is not widely used by school administrators. In his study, Ritchie (1996) offered that one reason for the reluctance of school administrators to embrace the benefits of educational technologies is that most received their education at a time when computers were not yet incorporated into the educational arena and they may have limited experience with technologies. Lloyd and Gressard (1984) offered that several factors influence the attitude to use of computers. Factors such as gender, age, training, family background, access to computers, skill and experience in using computers all influence how people use computers. Kearsley and Lynch (1994) described how current administrative technology training focuses on how to use technology with little emphasis on the conceptual or strategic skills required of effective leaders. The lack of access to computers and computer training are also important factors in determining the attitudes of school administrators towards the use of computers (Tollet, 2000).

In order for administrators to use technology effectively, they must have the proper training. Porter (1993) found that introducing administrative technology requires user participation in its planning and implementation. Sufficient time and training must be granted to administrators for the successful implementation of technology.

Much of the literature discusses the importance of training administrators to use the technology available to them. Odera (2002) stated that although teachers take courses in leadership, management and the challenges of special education at the college level, none require administrators to be technologically competent.

However, this may be changing. The computers for schools in Kenya (CFSK) is a non-profit, non-governmental organisation based at the Starehe Boys Centre whose mission is to provide Kenya's youth with access to modern information through the donation of computers to Kenyan public secondary schools. It works closely with the Ministry of Education Science and Technology (MOEST) as well as local and international partners to make computer literacy a reality in our secondary schools (Musili, 2003).

Placing computers in schools is easy but having these computers used for the purposes that they are intended in not easy. Making sure that these tools are managed properly and actually help in the management of other facilities is definitely a new concept in our schools. Introducing a faster, easier and more cost-effective way of communicating in these schools brings new breath to administrators. The programmes are intended to achieve the above objectives and are categorised as under:

- Computer sensitisation for Board of Governors (BOG) and PTA (Parents Teachers Associations)
- Introduction to computing (Stage I, II and III) for principals.
- Basic PC hardware maintenance principles for IT teachers.
- Computer literacy in schools for other non-IT teachers.

The BOG and PTA members are the decision-makers who manage schools in Kenya. Every school head is answerable to the board and decisions can only be implemented after a consensus from the above. They also happen to be prominent members of the wider society and decision-makers in other areas. As part of its programme CFSK invites these members to a one-day sensitisation workshop on the need of computers in our schools. During this workshop, they are able to acquaint themselves with the CFSK programme and staff in order to better understand what CFSK programme and staff in order to better understand what CFSK is doing to bridge the digital divide in our country.

The three stages of training that the principals undergo are:

- Principals stage 1 (Introduction to Microcomputers, Windows and Word).

- Principals Stage 2 (Spreadsheets and Excel).

- Principals Stage 3 (Databases in Access and PowerPoint).

Telem (1991) suggested that if administrators are to perform the tasks of technology co-ordinators, instructional technology must become an integral part of the curriculum of universities and other institutions that are preparing school administrators. Ritchie (1996), offered that administrators with limited technology experience often need support to deal with new technologies. Hands on practice time, a low risk environment, individualised instruction or small group projects and instruction based on learning styles should be offered whenever possible. Finally, Charp (1989) found that if broad use of technology in teaching and learning is expected to occur, programmes for administrators must be included to enhance their awareness of technological literacy and their competence in planning for technology utilisation.

Much has been written about training of school administrators in the uses of technology. This training is related directly to the idea that standard for school administration in the uses of technology, although currently lacking, may be necessary in the future.

2.3. Growth of Computers in Schools

The use of computers in Kenyan secondary school dates back to the eighties. Then, they were used mainly for instruction, (Makau, 1990). The first schools to own computers were the few rich private and public schools. Some of these were beneficiaries of the computer in the Computer in Education of the Aga Khan (CEAK). In 1980, Starehe Boys Centre also introduced awareness course for students.

The government motto of the 21st Century is to disseminate IT to all school. Ogolla (1999) observes that computer initiative was left to individual secondary schools. However, through initiatives by the computer for schools in Kenya (CFSK) many schools have since joined the club of computer owners.

The objective of introducing computer knowledge to students in secondary schools is (a) to develop in their skills in the use of computers, and (b) for further training. Little is currently mentioned of the use of computers for administrative purposes. There is need to rekindle this idea in the minds of educational officials and teachers sire the computer is a powerful tool and is there to stay.

2.4. Uses of Technology

Several issues regarding the use of technology by administrators were reflected in the literature. These issues manifested themselves in the following three areas:

1. Benefits and factors regarding the use of technology,

2. Hardware and software issues and

3. Direct application and day to day uses of technology by administrators.

Much of the literature made reference to the benefits of administrators using technology in their daily work. An important factor regarding technology is its influence on those who use it. Mehelinger (1996) suggested that technology is not only a product of a given culture; it also shapes culture. By shaping the culture of a school, technology becomes more than a tool. Instead it becomes an integral part of the process of education. This idea is best summed up by Dougherty (2000) who suggested that to ignore the presence of technology in society is a disservice to the students.

Having access to a computer is important regarding principals' attitudes towards technology and how it is used. In their study, Kassim and Tahir (2000) noted that school administrators with access to computers on a daily basis have a much higher confidence regarding technology than those without access.

It is clear that principals who have access to computers can use them in a variety of ways. These uses go beyond the management tools used by most principals. Instead, the literature reflected a number of ways the use of computers can use them in a variety of ways. The use of computers could impact the school community. Kassim

and Tahir (2000) described how the usage of computers can help administrators manage, plan and allocate human and physical resources more effectively.

Morton (1996) insisted that principals should want to use computers as tools to support their efforts. Mehlinger (1996) mentioned one such use in his article. He suggested that the ability to connect computers through networks helps principals work together and share information. This networking allows for an elaborate system of technology. These systems in schools should be viewed as structured learning environment with complex and comprehensible capabilities to access and manipulate information (Morton, 1996). In order for this system to aid principals, the principals themselves must be concerned with the acquisition of technology. Once acquired, principals can then concern themselves with how to use it (Brooks, 1997).

Finally, Kearsley and Lynch (1994) noted that when technology usage is incorporated in daily practices such as using e-mail rather than filling mailboxes with paper, it not only provides a model by which teachers measure themselves but also helps establish an unstated policy that technology is not simply a luxury but a desirable strategy.

Another issue that emerges in the review of literature in reference to principals using technology was the issue of hardware and software. According to Hope et al (2000), electronic devices and software can perform more efficiently and in less time many tasks previously performed by pencil and paper. The many different tasks that can be accomplished efficiently make using technology a realistic advantage.

In order for administrators to use computers to become more efficient, principals must understand many facets of the technology process. Mecklenburger (1989) suggested

that administrators must understand both the capabilities and limitation of technology. Only then can they plan for, budget for, purchase carefully, install properly, maintain dutifully, schedule adequately, distribute appropriately and replace systematically the electronic technology best suited for their needs. Principals must also keep in mind two critical points regarding computers. It is up to them to select the data to be put into computer, and they must choose with care how the computers are used (Sizer, 1984).

Last, the literature suggests that it is important that administrators be able to use hardware and software used by schools. It is important that they be provided with simple, flexible, user-friendly hardware and software as well as information on how to use it (Hadley & Sheingold,1993).

The last issue involving the uses of technology is the applications and day-to-day uses of technology by administrators. In his article on computer literacy, Doughesty, (2000), defined computer literacy by uses in eight areas. They include the following:

(i)   Word Processing

(ii)   Databases

(iii)   Spreadsheets

(iv)   Presentation programmes

(v)   Online Service Access

(vi)   E-mail

(vii)   Troubleshooting the most common computer problems and

(viii) Use and evaluation of software.

The literature reviewed included a number of surveys that directly addressed how principals use these eight areas in areas in their day-to-day operation. Porter (1993) found that three sets of technology applications were of particular interest to administrators. They are as follows:

(i)   Computer-based communication – Mail and computer networking

(ii)   Management information system (MIS) – access to management information such as databases and

(iii)   Word processing, Spreadsheets, desktop Publishing etc.

The literature also directly addresses the way principals should use technology in their role as administrators. Hope et al (2000), stated that technology has influenced administrative processes necessary for a school to function. Budget preparation, information storage and retrieval and reporting to and communicating with stakeholders have been more efficient by technology. Specifically, technology is being used to word-process documents, manipulate number in a database and retrieve information from other computers. It can also be applied to problem solving and other productivity situation including:

- Collecting, organising and analysing data,

- Using data to make informed decisions,

- Using programmes to allow for efficient data collection and communication,

- Using technology to enhance communication with students, teachers, parents, community members and officials and

- Using programmes to facilitate scheduling.

Wolf (1993) suggested that the principals' use of technology is found in general administrative areas. These areas consist of office administrative uses, office word processing, budget and maintenance records. In his article on the benefits of information technology Kosakowski (1998) maintained that administrators use computers and information technologies to improve their roles in the education process. Examples include using computer tools to streamline record-keeping and administrative tasks. Heaton and Washington (1999) found that in an everyday work situation, technology-using principals use technology for several uses including Spreadsheets for tracking budget information and other applications. All these studies point to the many applications used by principals in the day-to-day operations of their schools.

2.5. Basic Competencies

Many school in Kenya have definitely seen an increase in the availability of computers in the last five years. As previously mentioned, the movement towards technology standards for school administrators is still at its infancy in Kenya. However, some research has been done elsewhere regarding administrators having basic competencies in the area of technology. Mclester (2000) acknowledged that efforts to have technology standards for administrators are starting to increase. This fact makes it important to understand some predicators in the area of usage, some reasons why principals may not use technology and areas in which competencies are needed.

First, Carter (1997) suggested that there are three predicators that determine computer usage by principals; computer experience, training and available resources. Second,

although access to computers may be improving, Dibee (1998) noted that one of the potential reasons that some administrators may not utilise computer technology has to do with the lack of access to computer hardware and software.

The increase in availability may make principals more comfortable with technology; however, if technology is available, principals must possess skills and knowledge appropriate to their responsibilities. Sager (1999) took this idea one step further. He found that school principals need to have computer technology for a variety of reasons. Included in these reasons are the following:

(i) Principals need to know how to access data and use it for accountability and decision-making purposes.

(ii) Principals must be able to access large amount of educational information on the Web.

(iii) Principals must model the practice of using computer for purposes of teaching and learning.

Couts (1996), survey examined the question of whether or not principals are computer-phobic. One thousand principals completed the Computer Attitude Scale (CAS). The CAS measured computer attitudes based on responses to 40 items. Of the 484 respondents, the following data was collected:

(i) 35% of the respondents used computer technology for fewer than two applications a week.

(ii) The most common uses included Word Processing (75%) and E-Mail (43.4%).

(iii)   Among these principals who did not use the computer, strong correlations existed among the variables on non-use, age and number of years of experience.

(iv)   A strong correlation was also found to exist between computer attitude and computer availability.

These results show the importance of principals gaining confidence in using computers. Basic competencies in the area of technology were stressed to increase the use of applications, access to computers and training available.

2.6. Technology in Management

Much of the literature regarding the role of the principal focuses on the principal as an educational leader. However, the principal also plays the role of manager in an organisation. The role of the principal as an organisational manager is highlighted in the literature reviewed. In the area of technology, the computer is discussed as a tool to help the principal as a manager most of the literature discusses the applications used by computers to help principals.

According to Bennet (1996) present-day administrators must be knowledgeable users of technology themselves and effective managers of technology in their schools. In order to understand the role of technology in the principals role as a manager, a definition of management must be established. Okumbe (1998) defines management as the process of designing, developing and effecting organisational objectives and resources so as to achieve the pre-determined organisational goals.

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Porter (1993) defined management as an integrated process. It involves decision-making conditions of uncertainty; communicating imperfect information in multiple channels and endless rounds of planning, acting and evaluating. Porter stated that technology can improve the management role of the principles. He offered that increased efficiency in the work organisation function comes from electronic communications and ready access to Management Information System (MIS) data and desktop software for carrying out tasks.

The concept of MIS improving the management skills of the principal was discussed in the research reviewed. Hoy and Miskel (1987) believed it to be an important piece of organisational and educational research. They stated that research on the effect of MIS on educational administration is an area in which theory development and research efforts could yield highly significant results for better understanding organisations and their administrators.

Hicks (1990) defined MIS as a formalised computer information system that can integrate data from various sources to provide information necessary for management decision-making. Visscher, Spuck, and Bozeman (1991) suggested that school management systems are being installed to provide support for the principal and other school employees in their daily activities and to improve their performances. Telem and Buvitski (1995) stated that school management systems assist the school principal at the clerical level, management control level (decision-making and follow up), and strategic level (long-range planning and objectives).

The introduction of school management systems has allowed principals to use the computer for many of the tasks required to manage an organisation. Bennett (1996) notes that there are three main types of computer software utilised for administrative tasks. These are:

(i) Word Processing and Communication

(ii) Database Management and

(iii) Spreadsheet system

He maintains that technology allows administrators to manage information and track progress of students more easily. Database management programmes perform such tasks as keeping school attendance records, generating grade reports, and maintaining permanent student records. In his study on the use and perceives practically of computers in general for elementary and middle-school principals, Booker (1994) found that over 50% of the principals surveyed agreed with the following statements:

(i) Computers play an important role for those management functions that a principal must complete.

(ii) A PC adds to a principal's effectiveness

(iii) In order to use computer skills effectively a computer should be located in the principal's office.

In order for school management systems to be effective, schools must allow access to technology for their administrators. The potential for technologies to enhance school administration is widespread, but the majority of schools have yet to implement

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technologies beyond a basic level (Ritchie, 1996). Ritchie went on to say that reasons for the lack of technology in schools include the following:

- Inadequate technical support;

- Low quality of, quality of and access to computers,

- A lack of funds and personnel to maintain equipment and

- The non-establishment of a broad participatory clientele to establish a technology culture.

Much of the literature reviewed focused on the principal as the manager of an organisation. This review dealt with the role technology can play in management specifically the role that school management can have on the daily tasks completed by principals.

2.7. Decision-making

One of the key elements of management by the principal is decision-making. The literature reviewed briefly mentions the impact of technology on the decision-making process for school principals. Wolf (1993) concluded that the practice of using technology to communicate with teachers is essential. He stated that this causes the school environment to rely on technology as an essential, irreplaceable learning tool. By using technology as a communication tool, principals can increase their ability to incorporate shared decision-making as a general practice. Hausman et al (2000) stated that technology aids the decision-making process by allowing the inclusion of new groups of stakeholders in the decision-making process. This has made participative leaders with well-developed interpersonal skills necessary.

One reason why administrators do not use technology in the decision-making process is they lack the expertise and time to plan and implement a system that allows for the use of technology in the decision-making process (Crouse, 1997). Porter (1993) suggested that introducing administrative technology requires user participation in its planning and implementation. Sufficient time and training must be granted to administrators for the successful implementation of technology in the area of organisational management. The literature allows for the fact that computers can help in the decision-making process if time and planning are allowed to implement administrative technology.

2.8. Professional Development

In order for principals to implement technology into their roles as organisational leaders and managers, they must plan for the use of technology. This plan must not only look at the here and now but also the future. One component of this plan must be in the area of professional development. Okumbe (2001) defines development as the process of providing senior teachers and managerial staff with conceptual skills for performing general duties.

Beckner (1990) concluded that a critical component of principals' professional development is familiarity with technology for both instructional and administrative usage. Beaver (1991) surveyed school administrators and of the respondents, 70% said that computers were very important to the success of their jobs. This percentage compares to 73% of the same respondents who indicated having little or no technological competencies and 77% who reported that they had not participated in

technology training. This data led Beaver to conclude that if administrators are expected to provide the visions and understanding needed to guide the development of instructional computing programmes, they must be encouraged to increase their computer competence. Further, administrators have to develop the experiential base they will need to guide their instructional computing programmes. One part of that foundation includes the hands-on experiences that a course on administrative uses of computers can provide. Finally, administrators need to develop the understanding necessary to guide their instructional programmes and to have the hands-on experience that training on administrative uses can provide.

For those principals already trained in other areas of leadership, these hands-on technology experiences can come in the form of professional development. Hope, Kelly and Kinard (1997) concluded that the technology professional development needs of school administrators (principals) have received less attention and it appears as though school administrators (principals) are also neglected in the technology standards movement. Doughery (2000) stated that principals need more in the way of professional development in technology so they can model the correct use of technology. This is the best way to increase the use of technology by staff members because they then see a model for the correct use of technology.

2.9. Theoretical Framework

One approach to school management is the systems approach. A system is a set of elements or parts which pose some degree of dependence or identity but at the same time form an integral part of a larger whole (Katz, 1966).

An educational system may be considered like a huge service system of a company in terms of its budget and number of people involved. From this standpoint, administering the system is an important task because it has or should have the aim of getting many benefits from the immense resources devoted to the system. When one looks at the educational system in terms of its connections with the economic social macro-system the school principal features as a key character (Katz, 1966) He is in charge of a team of teachers in direct contact with the system's raw material namely children and is in continual dealings with very foundation of the society, families and the community. These complex interrelations make the work of the principal very challenging. Here is where the computer can assist in meeting these challenges.

Education is one of the many institutions in which the potential of the Personal Computer (PC) has been touted since its inception Crouse (1997). Although most of this potential has been researched from the perspective of student achievement, some work has been done in the area of technology and educational administration. These studies have covered a wide range of ways in which computers can be used by school principals.

A report by McCormick and Andersen (1996) noted that for most principals, the use of a computer in their workday has become as a common as paper and pencil. McCormick and Andersen noted that the level of usage varies from principal to principal. Their research has shown this level of usage ranges from none at all to near paperless environment in which almost all aspects of data analysis and communications are done with computers.

The integration of technology has gone from a luxury to a necessity and schools must continue this trend. Schools are no longer faced with the choice of if they will use technology but how they will use it (Republic of Kenya, 2002). Regarding the principalship, Sharp and Walter (1997) noted that the importance of computers has increased tremendously in the last few years as administrators have been pressured to buy new equipment and hire computer instructors. Mclester (2001) supported this idea in his study. He stated that strong technologically savvy school leaders are more in demand now than ever before. The same can be said of schools in urban centres in Kenya where computers are now becoming commonplace.

Other research has shown the importance the computer can have in daily tasks of the principal. Sager (1999) concluded that principal who use computers as tools for better communication can become more involved in the complex world of educational leadership. Bozeman, Raucher and Spuk (1991) stated that basic technology skills remain essential for administrators who want to assume a leadership role.

The area of technology and computers has been researched greatly in the field of education. Although few of these studies have focused on administration, some of the research has shown the important of school leaders being technologically competent (Schmelzer, 2001).

In Kenya there has been a rapid increase in the use of computers in schools for curriculum and administrative work. most of the available literature focuses on computers for teaching and learning. It is against this background that the researcher intended to study perception of school principles in Nairobi on the impact of comuter technology is having on their job effectiveness.

2.10 Conceptual Framework of The Study.

Fig 1 shows the five tasks that the principal performs in school. The principal is charged with the ultimate responsibility of ensuring the school runs smoothly and that all the goals set are met.

Fig. 1 also shows that the use of computer technology can greatly enhance his effectiveness in discharging his duties thus ensuring that the primary mission of any school (teaching and learning) is done successfully.

Conceptual Framework of The Study.

Figure 1.

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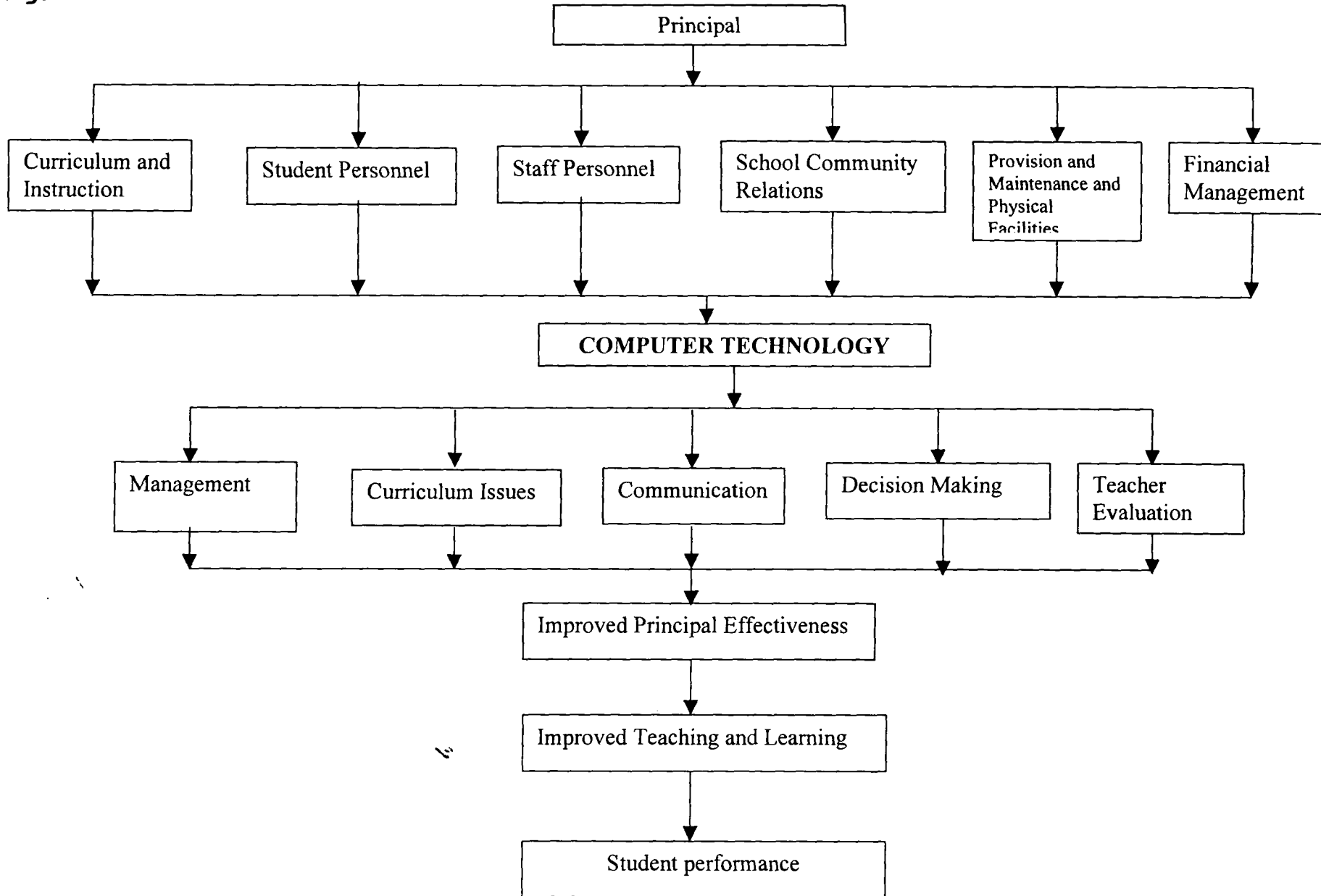
CHAPTER THREE

RESEARCH METHODOLOGY

3.0. Introduction

The research methodology outlined the following: Research Design, Target Population, Sample and Sampling Procedure, Research Instrument, Instrument Validity, Instrument Reliability, Data Collection Procedure and Data Analysis.

3.1. Research Design

The design selected for this study was ex-post facto research. Ex-post facto research is defined by Kerlinger (1973) as:

> "A systematic empirical inquiry in which the scientist does not have direct control of independent variables because their manifestations have already occurred or because they are inherently not manipulable. Inferences about relations among variables are made without direct intervention from concomitant variation of independent and dependent variables."

The ex-post facto design was specifically selected for this study because apart from collecting and describing the data, this study intended to establish the existence of certain relationships among variables under investigation. Variables such as age, sex, administrative experience and size of the school are not manipulable.

For example, an analysis was made of the relationship between the principals' perception scores and the impact of their management effectiveness when using

computers. This was determined with the selected variables. The selected variables are age, gender, number of years as principal and school size.

In ex-post facto research, it is not possible to control the independent variables.. This is due to the fact that most educational research problems do not lend themselves to experimentation, although many of them do lend themselves to controlled inquiry of ex-post facto kind (Kerlinger, 1973).

3.2. Target Population

The target population is defined as all the number of a real or hypothetical set of people event or objects to which a researcher wishes to generalise the result of the research study (Borg and Gall, 1989). The target population in the study consists of principals of public secondary schools in Nairobi province. Among the public secondary schools were 18 mixed day schools, 10 boys day schools, 7 girls boarding schools, 7 girls day schools, 4 boys boarding schools, 2 mixed day schools and 2 boarding and day schools for girls. The target population for this study therefore consisted of 48 principals of secondary schools in Nairobi.

3.3. Sample and Sampling Procedure

Borg and Gall (1989) state that sampling is a research technique for a given number of subjects from a target population as representative of the population. They go on to define purposive sampling as a sampling technique that allows a researcher to use cases that have the required information with respect to the objectives of the study.

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In this study, the population was purposively sampled to include all principals of public secondary schools in Nairobi Province that have computers. According to the table for determining sample size provided by Mulusa (1990), if there are about 48 subjects in a population, the sample should consist of 40 subjects. The researcher therefore used a sample of 40 schools.

The principals of private secondary school were systematically left out since they have different management procedures from their public counterparts and this could have influenced their responses.

3.4. Research Instrument

After a thorough review of literature pertaining to principals and computer technology the researcher developed the " Perception of secondary school principals on computer technology and job effectiveness questionnaire". Other instruments were also reviewed in the development of this questionnaire. The questionnaire attempted to answer the five research questions developed by the researcher. The questionnaire was divided into three parts

The first part of the instrument elicited demographic information about the principals. This included information on gender, age, category of school, size of school, number of years as principal, number of years in current position and highest qualification earned.

The second part of the instrument elicited information about the principals' use of computers including the extent of their access to computers and use of, software like

word processing and spreadsheets. In addition information on time spent on the computer on a daily basis and how long they have been using computers in their work setting was elicited.

The third part of the instrument elicited information on a number of items related to the tasks and role of their jobs including how often they used computer software to perform the daily functions of their jobs and how these software aided them in their roles as principals.

A four-point scale was used. One of the following four responses was requested: 'Never', 'rarely', 'sometimes' and 'often.' Each of these categories was listed on the instrument. An observation checklist was also used to record whether the principals had a computer on his desk or if it is with secretary or at both places

3.5. Instrument Validity

The study used content validity. Content validity is a measure of degree to which data collected using a particular instrument represents a specific domain of indicators or content of a particular concept (Mugenda and Mugenda 1999). The researcher arrived at content validity through the results and comments of the pilot study. The instrument was pre-tested using principals of five public secondary schools. The researcher attached a blank piece of paper at the end of the questionnaire on which each principal commented about the instrument. The comments obtained were systematically scrutinised to make the necessary changes in the questionnaire. The instrument was also reviewed by two university lecturers who are specialists in the area of study.

After this alterations were made on items found to be ambiguous or irrelevant. The schools that were used in the pilot study were excluded from the main study.

3.6. Instrument Reliability

In order to obtain an indication of the reliability of the perceptions of technology on job effectiveness questionnaire, a pilot study was administered to 5 principals randomly selected from 40 schools in Nairobi.

The internal consistency of data was then determined from scores obtained from a single test administered by the researcher to the sample of 5 subjects. A Chronbach Alpha test on the responses returned were then run on a Computer (Devellis,2000) This test provided a reliability of 0.91. Therefore the perceptions of technology on job effectiveness Questionnaire was found to be a reliable tool in measuring perceptions of secondary school principals in Nairobi on the impact of Computer technology in Job effectiveness.

3.7. Data Analysis

A number of statistical methods were utilised to analyse data. This included the quantitative analysis done with SPSS. The data was analysed by each question asked using the following information:

- Respondents age

- Respondents work setting

- Respondents' years as principal

- Gender

Data was analysed using percentages of respondents mean score, standard deviations, and total scores. The data was also analysed using chi-square tests for yes/no responses and ANOVAs were run for question involving a rating scale.

CHAPTER FOUR

DATA ANALYSIS, INTERPRETATION AND DISCUSSION

The purpose of this chapter was to present, analyze and discuss the findings of the study. The data was presented through the use of descriptive statistics and tables. The following were research questions:-

1. Which tasks and responsibilities do secondary school principals most frequently use computer technology?

2. What computer software do secondary school principals use in school management?

3. Does gender, number of years as principal, age or school size have any effect on how school principals perceive that computer technology impacts their effectiveness and efficiency as principals?

4. To what extent do secondary school principals perceive that computer technology impacts their effectiveness and efficiency as principals.

4.1 DEMOGRAPHIC DATA OF THE PRINCIPALS

The data presented in this section was obtained from completed "Perceptions of Technology on Job Effectiveness" questionnaires by secondary school principals in Nairobi. The questionnaires were responded to by 40 principals. Out of these 5 were used for pilot study leaving out 35 for the main study. Frequencies and percentages were used to describe the demographic data of the demographic data of the principals who were selected for this study.

Table 1 represents the gender while table 2 represents the ages of the principals.

Table 1

Gender of Principals

Sex	Frequency	Percent
Male	21	60
Female	14	40
Total	35	100

Table 1 revealed that of the 35 principals, the males were 21 (60%) while the females

were 14 (40%). More males headed mixed schools as compared to females.

Table 2

Ages of the Principal

Age	Frequency	Percent
31-35	4	11.4
36-40	7	20.0
41-45	9	25.7
46-50	11	31.4
51-55	4	11.4
Total	35	100

The number of principals varied in the age brackets as shown in table 2 with the bulk

of the principals being in the age group 41-45 (25.7%) and 46-50 (31.4%). Only 4

principals (11.4%) were below 36 years of age. The study indicated that principals'

appointment by TSC was done at advanced ages presumably because of the vast

experience such principals had gathered in their earlier teaching careers. There was no

principal in the 26-30 age group. Table 3 represented the academic qualifications

attained by the principals.

Table 3

Academic qualifications of principals

Qualifications	Frequency	Percent
EACE/KACE A-level with diploma	3	8.6
BA/BSc with PGDE	5	14.3
B.Ed	24	68.6
M.Ed	3	8.6
Total	35	100

The table revealed that a majority of the principals were holders of the Bachelor of

Education degree (68.6%). Very few principals had diploma qualifications (8.6%)

while an appreciable number (8.6%) had Master of Education degree. This could be

explained by the fact that principals in Nairobi are taking advantage of opportunities

for higher learning provided by institutions like the University of Nairobi whereby

One can opt for evening studies without having to take leave of absence from the TSC.

14.3% of the principal had Bachelor of Science or Arts degree with post- graduate

Diploma in education.

Table 4

Administrative experience

Experience in years	Frequency	Percent
1-5	10	28.6
6-10	12	34.2
11-15	9	25.7
16-20	4	11.4
Total	35	100

Table 4 indicated that various years of experience were well represented. The most frequent experience was between 6-10 years. Above 71% of the principals had experience of between 6-20 years. This is an indication that the principals surveyed had a lot of experience.

Gender of the student body

The gender of the student body indicated that there were few girls' schools in the sample 8(22.9%) and that the number of boys schools was the highest at 17(48.6%) with mixed schools being 10(28.6%)

Table 5

Number of students

Number of students	Frequency	Percent
Below 200	1	2.9
201-360	2	5.7
361-540	17	48.6
541-720	6	17.1
721-1100	9	25.7

The table indicated that the majority of schools in the sample 17(48.6%) had a student population of between 361-540. there were 6 schools with a population of between 721-1100. only one school has a population of less than 200 students meaning that it was a relatively new one.

4.2 COMPUTER USAGE

Access to computer technology

Respondents were asked if they had access to a computer in their offices or whether they accessed the same elsewhere in school or at a cyber café. Table 6 shows the results of the questions.

Table 6

Access to computer facility

	Frequency	Percent
Access to computer in the office	33	94.3
Access to computer in the lab within school	2	5.7
Access at cyber cafe	0	0.0
Total	35	100

This data was not analyzed by groups (gender, number of years s principal, age and school setting) due to the almost unanimous number of principals who had access to computer technology in their offices. The data showed that because the computer facilities were in their offices they were making use of them personally.

4.22 Access to computer software

The principals were asked the extent to which they had access to software application in their work area (see table 7)

Table 7

Access to computer software

	N	% yes
Word processing	35	100
Spreadsheets	35	100
Databases	35	94.7
Publishing software	35	94.7
Presentation software	35	21.1
Internet access	35	7.9
E-mail	35	5.3

It is clear from this table that the principals had access to almost all the computer software listed. Computers had clearly become a tool used by principals in their daily duties especially for word processing, spreadsheets and databases. The low usage of the internet and the E-mail attests to the very high costs of getting connected to the internet in Kenya. Of the principals surveyed only 3 reported having access to internet and e-mail in their schools. These were mainly the large schools with student population of over 700 students.

4.23 Computer and keyboarding skills

The respondents were also asked to rate their overall computer literacy skills and keyboarding (typing skills). They utilized a 5-point scale: (5) proficient (4) above average (3) average (2) fair and (1) poor   (See table 8)

Table 8

Overall level of computer literacy and keyboarding skills

	% proficient	% above average	% average	% fair	% poor	% valid cases	Mean	SD
Overall computer literacy skills	7.9	18.4	31.6	23.7	18.4	35	3.11	0.49
Overall keyboarding skills	10.5	15.8	34.2	23.7	15.8	35	3.42	0.53

The mean of 3.11 and 3.42 respectively for computer literacy and keyboarding skills showed that the principals were on average comfortable using computers in general and it reinforced the idea that their responses to software and computer applications were valid. By being confident in their computer and keyboarding skills, the respondents illustrated that they did in fact use the computer in their daily tasks.

The next tables show the analysis of variance for principals on their perceptions of their overall level of computer literacy skills and keyboarding skills.

Table 9

Analysis of variance of perceptions of principals' computer literacy skills by gender

Source of variation	DF	Sum of squares	Mean of squares	F-ratio
Between groups	2	933	933	626
Within groups	33	49.238	1.492	
Total	34	50.1171		

Critical value f = 3.32

Based on data in table 9, it was evident that the computed F-ratio of .626 was smaller than the critical value of 3.32. This indicated that there was no significant difference in

the perceptions of the principals' computer literacy skills and gender. Any difference was due to chance and therefore not significant.

Table 10

Analysis of Variance of Perception of Principals' Computer Literacy Skills by Gender

Source of variation	DF	Sum of squares	Mean of squares	F-ratio
Between groups	1	2.976	2.976	2.923
Within groups	33	33.595	1.018	
Total	34	36.571		

Critical value f = 4.17

Table 10 shows that the computed F- ratio of 2.923 is smaller than the critical value of 4.17. This indicated that there was no significant difference in the perception of the principals keyboarding skills and their gender. Any difference is due to chance and therefore not significant.

Table 11

Analysis of Variance of Perceptions of Principals' Computer Literacy Skills by Age

Source of variation	DF	Sum of squares	Mean of squares	F-ratio	y
Between groups	4	10.009	2.502	1.869	
Within groups	30	40.163	1.339		
Total	34	50.171			

Critical value f = 2.69

Table 11 shows that the computed F – ratio of 1.869 is smaller then the critical value of 2.69. Again this indicated that there was no significant difference in the perception of the principals' computer literacy skills and their age. Any difference is due to chance and therefore not significant.

Table 12

Analysis of Variance of Perceptions of Principals' Keyboarding Skills by Age

Source of variation	DF	Sum of squares	Mean of squares	F-ratio
Between groups	4	7.325	1.831	1.879
Within groups	30	29.246	975	
Total	34	36.571		

Critical f = 2.69

Table 12 shows that the computed f – ratio of 1.879 is smaller than the critical value of

2.69. This indicates that there was no significant difference in the perceptions of the

principals' keyboarding skills and their age. Any difference is due to chance and

therefore not significant.

Table 13

Analysis of Variance of Perceptions of Principals' Computer Literacy Skills by

Experience

Source of variation	DF	Sum of squares	Mean of squares	F-ratio
Between groups	3	5.603	1.868	1.299
Within groups	31	44.568	1.438	
Total	34	50.171		

Critical value f = 2.92

Table 13 shows that the computed f – ratio of 1.299 is smaller than the critical value of

2.92. This indicates that there was no significant difference in the perception of the

principals' computer literacy skills and experience. Any difference is due to chance

and therefore not significant.

Table 14

Analysis of Variance of Perceptions of Principals' Keyboarding Skills by Experience

Source of variation	DF	Sum of squares	Mean of squares	F-ratio
Between groups	3	6.185	2,062	2.103
Within groups	31	30.386	980	
Total	34	36.571		

Critical value f = 2.92

Table 14 shows that the computed f – ratio of 2.1103 is smaller than the critical value

of 2.92. This indicates that there is no significant difference in the principals'

keyboarding skills and their experience. Any difference is due to chance and therefore

not significant.

Table 15

Analysis of variance of Principals' Computer Literacy Skills by Size of the school

Source of variation	DF	Sum of squares	Mean of squares	F-ratio
Between groups	4	5.645	1.411	951
Within groups	30	44.526	1.484	
Total	34	50.17		

Critical value f = 2.69

Table 15 shows that the computed F – ratio of . 951 is smaller than the critical value

of 2.69. This indicates that there was no significant difference in the perception of the

principals computer literacy skills and the size of the school. Any difference is due to

chance and therefore not significant.

Table 16

Analysis of Variance of Principals' Keyboarding Skills by Size of the school

Source of variation	DF	Sum of squares	Mean of squares	F-ratio
Between groups	4	4.624	1.156	1.085
Within groups	30	31.948	1.065	
Total	34	36.572		

Critical value f = 2.69

Table 15 shows that the computed F – ratio of 1.085 is smaller than the critical value of 2.69. This indicates that there was no significant difference in the perception of the principals keyboarding skills and the size of the school. Any difference is due to chance and therefore not significant.

Overall, the secondary school principals in Nairobi believed that they had good computer literacy skills. Most respondents rated themselves as having average to above average computer literacy skills. The same was true for keyboarding skills. In general, the respondents stated that their keyboarding skills were between average and above average. The fact that the respondents were confident in their computer and keyboarding skills adds credibility to their responses on applications and uses of the computer.

The number of principals with access to a computer in Nairobi is quite high, and this shows that the computer has become a tool used in the daily tasks of a large majority of principals. Applications such as word processing, spreadsheets and databases were available to every principal who responded to the questionnaire. However internet and e-mail is only available to those who can afford the very prohibitive costs of installation hence only 3 of the schools surveyed had it.

4.3 UTILIZATION OF SOFTWARE APPLICATION FOR WORK-RELATED TASKS

The second research question addressed the issues of software application that principals use. The software applications identified were word-processing, database, spreadsheets, the internet, e-mail and presentation software.

Frequency of use of software

In completing the instrument "Perception of Technology of Job Effectiveness" each respondent was asked to indicate the degree to which they used the six software applications in their daily tasks as principal. Respondents stated the frequency of their use of software application by completing a 4-point scale ranging from (1) "never" to (4) "often". The items with the higher mean scores reflected more usage of the software application.

Table 17 lists the software applications along with the frequency of responses and mean scores with standard deviations.

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Table 17

Software Application Usage

	% often	% sometimes	% rarely	% never	Mean	S.D
Word processing	100	0.0	0.0	0.0	4.0	0.0
Spreadsheets	77.1	17.1	5.7	0.0	3.71	0.57
Databases	22.9	37.1	22.9	17.1	2.66	1.03
Presentation software	0.0	0.0	14.3	85.7	1.17	0.71
Internet	0.0	5.7	0.0	94.3	1.17	0.47
E-mail	0.0	5.7	0.0	94.3	1.11	0.47

of the various types of software and the gender of the principals. Any difference is due

to chance and therefore not significant.

Table 19

Analysis of Variance for Principals' Usage of Software by Age

		df	Sum of squares	Mean of squares	F-ratio
Database	Between groups	4	4.091	1.023	.965
	Within groups	30	31.795	1.060	
	Total	34	35.886		
Spreadsheet	Between groups	4	1.132	.283	.848
	Within groups	30	10.011	.334	
	Total	34	11.143		
Internet	Between groups	4	1.257	.314	.600
	Within groups	30	15.714	.524	
	Total	34	16.971		
E-mail	Between groups	4	.559	.140	.600
	Within groups	30	6.984	.233	
	Total	34	7.543		
PowerPoint	Between groups	4	.519	.130	1.034
	Within groups	30	3.766	.126	
	Total	34	4.286		

Critical value f = 2.69

Table 19 shows that the computed f – ratio for each type of software was smaller than

the critical value of 2.69 meaning that there was no significant difference in the usage

of the various types of software and the age of the principals. Any difference is due to

chance and therefore not significant.

Table 17 showed that most of the respondents used the computers most often for word processing, spreadsheets and databases. Very few principals used the computer for internet and e-mail.

Tables 18 shows the analysis of variance on each sub-group of principals in their use of software application by gender, number of years as principal, age and school size. Word processing was not included because it was used often by every principal who was surveyed.

Table 18

Analysis of Variance for Principals' Usage of Software by Gender

		df	Sum of squares	Mean of squares	F-ratio
Database	Between groups	1	.171	.171	.158
	Within groups	33	35.714	1.082	
	Total	34	35.886		
Spreadsheet	Between groups	1	.476	.476	1.473
	Within groups	33	10.667	.323	
	Total	34	11.143		
Internet	Between groups	1	.686	.686	1.389
	Within groups	33	16.286	.494	
	Total	34	16.971		
E-mail	Between groups	1	.305	.305	1.389
	Within groups	33	7.238	.219	
	Total	34	7.543		
PowerPoint	Between groups	1	.119	.119	943
	Within groups	33	4.167	.126	
	Total	34	4.286		

Critical value f = 4.17

Table 18 shows that the computed f – ratio for each type of software was smaller than the critical value of 4.17 meaning that there was no significant difference in the usage

Table 20

Analysis of Variance for Principals' Usage of Software by Experience

		df	Sum of squares	Mean of squares	F-ratio
Database	Between groups	3	1.681	.560	.508
	Within groups	31	34.205	1.103	
	Total	34	35.886		
Spreadsheet	Between groups	3	1.666	.555	1.816
	Within groups	31	9.477	.306	
	Total	34	11.143		
Internet	Between groups	3	2.040	.680	1.411
	Within groups	31	14.932	.482	
	Total	34	16.971		
E-mail	Between groups	3	.906	.302	1.411
	Within groups	31	6.636	.214	
	Total	34	7.543	.776	.676
PowerPoint	Between groups	3	.263		
	Within groups	31	4.023	.130	
	Total	34	4.286		

Critical value f = 2.92

Table 20 shows that the computed f – ratio for each type of software was smaller then

the critical value of 2.92 meaning that there was no significant difference in the usage

of the various types of software and the experience of the principals. Any difference is

due to chance and therefore not significant.

Table 21

Analysis of Variance for Principals' Usage of Software by Size of the school

		df	Sum of squares	Mean of squares	F-ratio
Database	Between groups	4	5.232	1.308	1.280
	Within groups	30	30.654	1.022	
	Total	34	35.886		
Spreadsheet	Between groups	4	1.656	.414	1.309
	Within groups	30	9.487	.316	
	Total	34	11.143		
Internet	Between groups	4	.501	.125	.228
	Within groups	30	16.471	.549	
	Total	34	16.971		
E-mail	Between groups	4	.223	.565	.228
	Within groups	30	7.320	.244	
	Total	34			
PowerPoint	Between groups	4	.260	.489	.484
	Within groups	30	4.026	.134	
	Total	34	4.286		

Critical value f = 2.69

Table 21 shows that the computed f – ratio for each type of software was smaller than

the critical value of 2.69 meaning that there was no significant difference in the usage

of the various types of software and the size of the school of the principals. Any

difference is due to chance and therefore not significant.

Principals responded that they used word processing most often in their daily tasks as

principals. Spreadsheets, databases, presentation software, internet and e-mail

followed in that order. The lowest mean score was for e-mail. Its mean score was 1.11

with a standard deviation of 0.47. This could be attributed to the unavailability of this

software due to the high telephone costs in the country. However the other

applications listed were used consistently among the various categories. It could be

argued that principals who used computers used the software applications consistently, regardless of gender, age, number of years as principal or the size of the school. The fact that principals used word processing most supported the findings that principals view the computer as impacting their ability to communicate as this application with the highest use aid in communications.

4.4 Principal Job Tasks and Roles Utilizing Computer Technology

The first research question analyzed the extent to which computer technology was used in some of the traditional job tasks and responsibilities of principals. The survey instrument contained a number of questions related to utilization of computer technology for specific purposes.

4.41 Utilization of computer technology in completing duties

The survey instrument asked the principals to rate the extent to which the computer assisted them in their work. The instrument listed 8 tasks that principals traditionally complete throughout the course of their duties. Principals stated the extent to which the computer assisted them in these tasks.

Table 22 displays the responses to the 8 tasks listed in the instrument. The responses are listed in order of the greatest mean score.

Table 22

Utilization of computer technology for principals' duties

	N	Mean	S.D
Writing appropriately for various audiences such as teachers, students and parents	35	3.69	53
Planning and scheduling one's and others work so that resources are used appropriately and short and long term priorities are met.	35	3.41	74
Gathering data, facts and impressions from a variety of sources about students, parents and staff members.	35	2.91	85
Assessing and creating professional development need of staff.	35	2.66	77
Identifying important elements of a problem situation by analyzing relevant information.	35	2.46	66
Reaching logical conclusions and making high quality timely decisions given the best available information.	35	2.44	56
Provide guidance and input to teacher evaluation.	35	2.41	73
Seeking knowledge about policies, rules and laws, precedents or practices.	35	2.34	64

This data supported findings that technology that facilities communication was

consistently rated higher by principals. Tasks involving writing for various audiences,

gathering data for various stakeholders, and planning to meet goals using various

resources were seen as the most helpful use of the computer for the principals.

4.5 Utilization of Computer Technology in Completing Specific Work-related Tasks

Respondents were also asked to rate how often they used specific computer

technology in their daily tasks as principals. These tasks included attendance taking,

finance, discipline, newsletters, memos to staff, letters to students, letters to parents,

data collection, internet research, teacher evaluation, curriculum issues and policy issues.

A 4-point scale was used to rate use of computer applications (1 = never to 4 = often). Therefore the items with the higher mean scores reflected greater usage of that computer technology (See table 23)

Table 23

Specific usage of computer technology for work related tasks

	Often	Sometimes	Rarely	Never	Valid cases	Mean	S.D
Memos to staff	55.3	42.1	2.6	0.0	35	3.86	0.65
Letters to parents	68.4	26.3	2.6	2.6	35	3.82	0.45
Curriculum issues	42.1	36.8	13.2	7.9	35	3.72	0.73
Discipline	52.6	26.3	13.2	7.9	35	3.62	0.67
Letters to students	26.3	50.5	21.1	2.6	35	3.36	0.79
Newsletters	39.5	28.9	13.2	18.4	35	3.34	0.12
Teacher evaluation	26.3	10.5	15.8	47.4	35	3.12	0.83
Finance	18.4	34.2	28.9	18.4	35	2.54	0.21
Data collection	18.4	21.1	13.2	47.4	35	2.14	0.72
Attendance taking	34.2	10.5	26.3	28.9	35	2.07	0.54
Policy issues	13.2	21.1	10.5	55.3	35	1.78	0.31
Internet research	0.0	5.3	2.6	92.1	35	1.23	0.63

The principals responded that the computer aided them most in communication. Principals listed the tasks of memos to staff and letter to parents as the most common use of the computer in their daily tasks. This was followed by curriculum issues and matters to do with discipline, letters to students and teacher evaluation. These scored a

relatively high mean of above 3.0 meaning that the computer aided them more in these tasks.

However, keeping track of finances, data collection and attendance taking were tasks that the computer did not help them in on a regular basis. Internet research was the facility least used because only 3 schools had the facility. Overall, the principals responded that the computer was used for many of their daily tasks especially those that involved communication with their school community.

4.6 Perceptions of the Impact of Computer Technology on Effectiveness and Efficiency

The final research question investigated the use of computer technology and applications in relation to secondary school principals' job effectiveness and efficiency. The instrument "Perceptions of Technology on Job Effectiveness" was utilized to elicit principals' perceptions of the impact of the computer on their job effectiveness. First, the principals were asked whether or not specific technologies of word processing, spreadsheets, e-mail, internet access, databases, presentation software and publishing software helped them to be better principals. The survey also asked whether computer technology in total made them more efficient. Lastly, the survey gathered. Perception of the impact of technology on six important roles of the principalship: leadership, decision making, communication, management, curriculum issues and teacher evaluation.

4.7 Perceptions of the Impact of Computer Technology in the work of the Principal

Respondents were asked whether or not the specific applications of e-mail, word processing, internet access, database, presentation software and publishing software helped them to be better principals. The percentage of "yes" responses are shown in table 24.

Table 24

	N	% Yes
Word processing	32	91.4
Databases	32	91.2
Publishing software	31	88.2
Spreadsheets	26	74.3
PowerPoint	6	17.1
E-mail	3	8.6
Internet	3	8.6

Tables 25 to 29 show the extent to which principals in various group believed that a computer application enhanced their job effectiveness. This was investigated using a chi – square analysis.

Table 25

Use of Word processing by Principals related to Job Effectiveness for all Principals by Gender, Number of years as principal, Age and School size.

	N	Yes	X^2	df	P
All principals	35	91.4			
Gender			2.187	1	2.125
Males	21	85.7			
Females	14	100			
Number of years as principal			2.487	3	.478
1-5	10	90.9			
6-10	11	100			
11-15	8	88.9			
16-20	3	75.0			
Age categories			4.922	4	.295
31-35	3	75.0			.295
36-40	6	85.7			
41-45	9	100			
46-50	11	100			
51-55	3	75			
School size			11.606	4	.021
Below 200	1	100			
201-360	1	50			
361-540	17	100			
541-720	4	66.7			
721-1100	9	100			

Table 25 shows that the computed chi in all the categories is greater than the p-values at 0.05 level of significance. Hence there was no significant difference between the use of word processing and the gender, experience, age or the size of the school of the principals. Any difference is due to chance or sampling error.

Table 26

Use of Databases by Principals related to Job Effectiveness for all Principals by Gender, Number of years as Principal, Age and School size.

	N	Yes	X^2	df	P
All principals	31	91.2			
Gender			2.303	1	2.235
Males	17	85.0			
Females	14	100			
Number of years as principal			3.364	3	.687
1-5	10	100			
6-10	10	909			
11-15	7	77.8			
16-20	4	100			
Age categories			2.723	4	.581
31-35	3	100			
36-40	6	86			
41-45	9	100			
46-50	10	90			
51-55	3	75			
School size			1.308	4	.581
Below 200	1	100			
201-360	2	100			
361-540	16	94.1			
541-720	4	80			
721-1100	8	89			

Table 26 shows that the computed chi in all the categories is greater then the P–values at 0.05 level of significance hence there was no significant difference between the use of databases and the gender, experience, age or size of the schools of the principals. Any difference is due to chance or sampling error therefore not being significant.

Table 27

Use of Publishing Software by Principals related to Job Effectiveness for all Principals by Gender, Number of years as principal, Age and School size.

	N	Yes	X^2	df	P
All principals	30	88.2			
Gender			.490	1	.484
Males	17	85			
Females	13	92.9			
Number of years as principal			6.063	3	.109
1-5	9	90			
6-10	11	100			
11-15	6	66.7			
16-20	4	100			
Age categories			5.173	4	.270
31-35	4	100			
36-40	4	66.7			
41-45	9	100			
46-50	10	90.9			
51-55	3	75.0			
School size			3.762	4	.439
Below 200	1	100			
201-360		50			
361-540	14	87.5			
541-720	6	100			
721-1100	8	88.9			

Table 27 shows that the computed chi in all the categories was greater than the P –
values at 0.05 level of significance. This indicated that there was no significance

difference between the use of publishing software and the gender, experience, age and

size of the school of the principals. Any difference is due to chance or sampling error.

Table 28

Use of Spreadsheets by principals related to Job Effectiveness for all Principals by

Gender, Number of years as Principal, Age and School size.

	N	Yes	X^2	df	P
All principals	26	74.3			
Gender			.224	1	.432
Males	15	71.4			
Females	11	78.6			
Number of years as principal			1.686	3	.640
1-5					
6-10	8	72.7			
11-15	6	66.7			
16-20	4	4			
Age categories			6.449	4	.168
31-35	1	25			
36-40	5	71.4			
41-45	8	88.9			
46-50	9	81.8			
51-55	3	70.0			
School size			3.453	4	.485
Below 200	1	100			
201-360	1	0			
361-540	14	82.4			
541-720	3	50			
721-1100	7	77.8			

Table 28 shows that the computed chi in all the categories was greater than the P –

values at 0.05 level of significance. This indicated that there was no significance

difference between the use of spreadsheets and the gender, experience, age and size of

the school of the principals. Any difference is due to chance or sampling error.

Table 29

Use of PowerPoint by principals related to job effectiveness for all principals by gender, number of years as principal, age and school size.

	N	Yes	X^2	df	P
All principals	6	17.1			
Gender			2.956	2	.228
Males	5	23.8			
Females	1	7.1			
Number of years as principal			5.942	6	.430
1-5	___	___			
6-10	3	27.2			
11-15	2	22.2			
16-20	1	22.5			
Age categories			6.324	8	.611
31-35	1	25			
36-40	2	28.6			
41-45	1	11.1			
46-50	2	18.2			
51-55					
School size	___		4.263	8	.833
Below 200					
201-360	1	50			
361-540	2	22.2			
541-720	___	___			
721-1100	3	17.6			

Table 29 shows that the computed chi in all the categories was greater than the p – values at 0.05 level of significance. This indicated that there was no significance difference between the use of PowerPoint and the gender, experience, age and size of the school of the principals. Any difference is due to chance or sampling error.

4.8 Perception of the impact of computer technology on efficiency

The survey instrument contained a question that asked respondents whether or not they believed that computers made them more efficient principals. Respondents were given the choice of "yes" or "no" for this question.

The extent to which principals believed that computers made them more efficient principals (percent who responded "yes") are shown on table 30.

Table 30

Use of computers by principals related to efficiency for all principals and by Age

	N	Yes	X^2	df	P
All principals	30	86	224	1	.636
Age categories					
31-35	4	100			
36-40	7	100			
41-45	8	88			
46-50	10	90			
51-55	1	25			

Table 30 shows that the computed chi was less than the p – value of .636 at 0.05 level of significance. This indicated that there was a significant difference between the age of the principals and their perceptions of whether computer technology makes them more efficient principals. Principals who were aged between 31 and 40 most believed that the computer made them more efficient. Conversely principals aged over 45 saw the computer as having less impact on their efficiency.

4.9 Technology impact on certain aspects of the principal's job

Principals were asked to rate the extent to which computers had an impact on each of these six aspects on their jobs. (see table 31)

- Communication

- Management

- Teacher evaluation

- Curriculum issues, and

- Decision making

Table 31

Impact of computer technology on job roles as principal

	High impact	Moderate impact	Little impact	No impact	Valid cases	Mean	S.D
Communication	77.1	11.4	11.5	0.0	35	3.66	.68
Management	42.9	45.7	8.6	2.9	35	3.29	.75
Curriculum issues	31.4	42.9	17.1	5.7	34	3.06	.78
Teacher evaluation	31.4	42.9	17.1	5.7	34	3.03	.87
Leadership	28.6	37.1	22.9	11.4	35	2.83	.98
Decision making	25.7	34.3	22.9	17.1	35	2.69	1.05

Principals saw the computer as having the most impact on their ability to communicate. They also believed the computer aided them in the management aspects of their job and curriculum issues. Teacher evaluation was also listed as being affected moderately by computer. Decision making was least impacted by the use of the computer according to the respondents.

Table 32 shows the analysis of variance for each group of principals as their perceptions of the impact that computers had on communication.

Table 32

Analysis of Variance of the Perceptions of Principals on the Impact of Computer

Technology on six aspects of their Job by Age

	Source of variation	df	Sum of squares	Mean squares	F – ratio
Leadership	Between groups	4	8.565	2.141	.2632
	Within groups	30	24.406	.814	
	Total	34	32.971		
Decision making	Between groups	4	9.422	2356	2.513
	Within groups	30	28.120	.937	
	Total	34	37.543		
Communication	Between groups	4	1.351	.338	.696
	Within groups	30	14.535	.484	
	Total	34	15.886		
Management	Between groups	4	5.805	1.451	3.264
	Within groups	30	13.338	.445	
	Total	34	19.143		
Curriculum issues	Between groups	4	6.615	1.654	3.615
	Within groups	30	13.268	.458	
	Total	34	19.882		
Teacher evaluation	Between groups	4	8.342	2.085	3.637
	Within groups	30	16.629	.573	
	Total	34	24.971		

Critical value = 2.69

Table 32 shows that the computed f – ratio for 3 aspects of principals jobs (leadership,

decision making and communication) was smaller than the critical value of 2.69

meaning there was no significant difference in perceptions of the principals on the

impact of computer technology on leadership, decision making and leadership by age.

However there was a statistical significance on the perceptions of the principals on the

impact of computer technology on management, curriculum issues and teacher

evaluation by gender. The computed f – ratios were greater than the critical value of

2.69.

Table 33

Analysis of variance of the Perceptions of Principals on the Impact of Computer

Technology on Six aspects of their Job by Administrative Experience

	Source of variation	df	Sum of squares	Mean squares	F – ratio
Leadership	Between groups	4	8.565	2.141	2.632
	Within groups	30	24.406	.814	
	Total	34	32.971		
Decision making	Between groups	4	9.422	2.356	2.513
	Within groups	30	28.120	.937	
	Total	34	37.543		
Communication	Between groups	4	1.351	.338	.697
	Within groups	30	14.535	.484	
	Total	34	15.886		
Management	Between groups	4	5.805	1.451	3.264
	Within groups	30	13.338	.445	
	Total	34	19.143		
Curriculum issues	Between groups	4	6.615	1.654	3.615
	Within groups	30	13.268	.458	
	Total	34	19.882		
Teacher evaluation	Between groups	4	8.342	2.085	3.637
	Within groups	30	16.629	.573	
	Total	34	24.971		

Critical value = 2.69

Table 33 indicates that the computed f – ratio for 3 aspects of principals job

(leadership, decision making and communication) were smaller than the critical value

of 2.69. This indicates that there was no significant difference in the perceptions of

principals on the impact of computer technology on leadership, decision making by

administrative experience. However, there was a statistical significance on the

perceptions of the principals on the impact of computer technology on management,

curriculum issues and teacher evaluation by the administrative experience of the

principals.

Table 34

Analysis of Variance of the Perceptions of Principals on the Impact of Computer
Technology on Six aspects of their job by Gender

	Source of variation	df	Sum of squares	Mean squares	F – ratio
Leadership	Between groups	3	4.870	1.623	1.791
	Within groups	31	28.101	.906	
	Total	34	32.971		
Decision making	Between groups	3	4.268	1.423	1.325
	Within groups	31	33.275	1.073	
	Total	34	37.543		
Communication	Between groups	3	2.408	.803	1.847
	Within groups	31	13.477	.435	
	Total	34	15.886		
Management	Between groups	3	1.506	.502	.883
	Within groups	31	17.636	.569	
	Total	34	19.143		
Curriculum issues	Between groups	3	2.931	.977	1.729
	Within groups	30	16.951	.565	
	Total	33	19.882		
Teacher evaluation	Between groups	3	4.854	1.618	2.413
	Within groups	30	20.116	.671	
	Total	33	24.971		

Critical value = 2.92

Table 34 indicates that the computed f – ratio for all the aspects of the principals' jobs
were smaller than the critical value of 2.92. This indicates that there was no significant
difference in the perceptions of principals on the impact of computer technology on
the listed aspects of their jobs by their gender. Any difference is due to chance or
sampling error.

Table 35

Analysis of Variance of the Perceptions of Principals on the Impact of Computer

Technology on Six aspects of their job by School size

	Source of variation	df	Sum of squares	Mean squares	F – ratio
Leadership	Between groups	4	2.373	.593	.582
	Within groups	30	30.598	1.020	
	Total	34	32.971		
Decision making	Between groups	4	.928	.232	.190
	Within groups	30	36.614	1.220	
	Total	34	37.543		
Communication	Between groups	4	2.082	.520	1.131
	Within groups	30	13.804	.460	
	Total	34	15.886		
Management	Between groups	4	.725	.181	.295
	Within groups	30	18.418	.614	
	Total	34	19.143		
Curriculum issues	Between groups	4	.556	.139	.209
	Within groups	29	19.326	.666	
	Total	33	19.882		
Teacher evaluation	Between groups	4	3.644	.911	1.239
	Within groups	29	21.326	.735	
	Total	33	29.971		

Critical value = 2.69

Table 35 shows that the computed f – ratio for all the aspects of the principals' jobs

were smaller than the critical value of 2.69. This indicates that there was no significant

difference in the perceptions of principals on the impact of computer technology on

the listed aspects of their jobs by the size of the schools. Any difference is due to

chance or sampling error.

In summary, principals viewed technology as having an impact on their effectiveness

as principals. Word processing, databases and spreadsheets continued to be items that

the respondents stated impacted them most in their daily jobs as principals. The fact

that the respondents ranked the computer as having the most impact on communications parallels the findings that most principals used the computer for word processing. Another aspect with high impact was management.

4.91 Summary

This chapter presented the data generated by the 35 secondary school principals in Nairobi who completed and returned the questionnaires. These results showed that the majority of the principals had access to a computer in their offices. Computers have clearly become a tool used by principals in their daily duties especially for word processing.

The respondents were comfortable using computers in general, which reinforced the idea that the responses to software and computer applications were valid. By being confident in their computer literacy and keyboarding skills, the respondents illustrated that they did in fact use the computer in their daily task. The respondents stated that their keyboarding skills were average. The fact that the respondents were confident in their computer and keyboarding skills adds crédibility to their responses on applications and uses of the computer.

Principals responded that they used word processing most often in their daily tasks as principals. Spreadsheets, databases, presentation software, e-mail and internet followed in that order. Each application was seen as useful to the principals who responded to the survey instrument. The lowest mean score was for internet. Its mean score was 1.06 with a standard deviation of 0.38. It could be argued that principals

who used computers used the software applications consistently, regardless of gender, number of years as principal or school setting.

When the data was analyzed in groups (gender, age, administrative experience and size of the school, there was no noticeable difference in the use of computer applications among various groups.

A high number of respondents believed that computers made them more effective principals. Principals who were aged between 31-40 most believed that the computer made them more effective principals. Conversely, principals aged over 45 saw the computer having les impact on the effectiveness.

Principals saw the computer as having the most impact on their ability to communicate. They also believed that the computer aided them in the management aspects of their job. Decision making was the least impacted by the use of the computer according to the respondents. When the data was analyzed by groups, the perceptions of the principals on the impact of computers on management, curriculum issues and teacher evaluation by age category was statistically significant. Impact on management in relation to age was statistically significant, with a p value of 0.025. Curriculum issues in relation to age was statistically significant with a p – value of 0.017 while teacher evaluation in relation to age was statistically significant with a p – value of 0.016.

In summary, principals viewed technology as having an impact on their effectiveness as principals.

CHAPTER FIVE

5.0 SUMMARY, FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

This chapter consists of four sections. The first section provides a summary of research. The second reviews the findings of the research. The third section presents some conclusions based on the findings. The final section provides recommendations and recommendations for further research.

5.1 Summary

The purpose of this study was to determine the perceptions of secondary school principals in Nairobi on the impact of computer technology in aiding their job performance. Additionally, the study analyzed which computer applications the principals used to perform their jobs. Lastly, the study examined the principals' perceptions based on the computer technology available to them.

The responses of the principals were also analyzed based on the following:

- Age of the respondent
- Gender
- Number of years as principal
- Size of the school

Specifically, the research answered the following questions;

1) Which tasks and responsibilities do secondary school principals most frequently use computer technology?

2) What computer software do secondary school principals use in school management?

3) Does gender, number of years as principal, age or school size have any effect an how school principal perceive the computer technology impact their effectiveness and efficiency as principals?

4) To what extent do secondary school principals perceive that computer technology impact their effectiveness and efficiency as principals?

The researcher developed the '' perceptions of technology on job effectiveness'' questionnaire (see Appendix B) to provide relevant data to the research. The questionnaire was developed by reviewing relevant research in the field of technology and school administration.

The population from which the sample was drawn was public secondary schools in Nairobi province

5.2 Findings

The first research question which the research answered was, *Which tasks and responsibilities do secondary school principals most frequently use computer technology?*

It was found out that the respondents stated that the computer had most impact on tasks such as writing to appropriate audiences, planning and scheduling and gathering facts. The respondents ranked making decision, providing guidance and input to teacher evaluation and seeking knowledge about policies, rules and precedents as tasks impacted the least by the computer.

It is not surprising that the principals used the computer for tasks that could be done in a short time period. For example, most principals used the computer to write memos, write teacher evaluations or to parents. Most respondents seemed to

view computers as a tool to aid themselves in tasks that they complete on a regular basis.Schools do use computers with financial programs, discipline programs and attendance taking programs; however, respondents did not see these applications as important to their effectiveness.

The fact that respondent ranked the impact of computers so low for decision making as a bit surprising. This could be due to the fact that very few had access to the internet or because the various decision making models used by the respodents did not justify using the computer to aid them in this task.

In Schmeltzers(2001) research, he stated that skills such as word processing and e-mail are important daily applications. However, he saw truly affective leaders as needing a broader understanding of technology as an educational tool. The data provided by the principals effectiveness survey showed the need for principals to increase their use of technology past the basics.

The second research question addressed was *what computer software do secondary school principal use in school management?*

The principals responded that they used word processing most often in their daily task as principals. Spreadsheets, database, presentation software ,internet and e-mail followed in that order. Each application was seen as useful to principals who responded to the survey instrument. It could be argued that principals who used computers used the software application consistently regardless of gender, age, number of years as principal or school size.

The fourth research question addressed the question of *to what extent do secondary school principals perceive that computer technology impacts their effectiveness and efficiency as principals?*

When the respondents were asked if they believe the computer made them more effective principals, a high number of respondents believed that computer made more effective principals.

Younger principals most believed that the computer made them more effective principals conversely principals aged over 45 years saw the computer as having less impact on their effectiveness. This could be explained by the fact that computers in administration is fairly recent in Kenya and most of these people started their teaching careers without having handled a computer. Not surprisingly the younger principals had higher mean perception scores underlying the fact that they were just starting their careers as educators when computers became prevalent in schools as teaching and learning tools.

Overwhelmingly respondents stated that computers did make them more effective principals. Although this was not surprisingly it was surprising that this seemed to be a product of using computers as a communication tool. Specifically word processing was ranked higher in terms of computer usage and effectiveness. Presentation software and database were seen as less beneficial. These findings suggest that principals equated effectiveness with the ability to communicate. Most respondents also stated that they had been using a computer between 2 to 3 years. This shows that computer technology in Nairobi schools has witnessed a phenomenal growth since that start of the new millennium

In relation to this most principals stated that they had average computer literacy and keyboarding skills. Clearly, principals in Nairobi believe that they possess the necessary skills to use computer as a tool in their job performance. The basic technology skills are essential for administrators in a leadership role (Bozeman et al, 1991).

5.3 Conclusions

Clearly the computer has become a tool used by principals in secondary school in Nairobi on a daily basis. The principals now rely on the computer to accomplish a number of tasks which hitherto consumed a lot of time and energy. Tasks such as writing scheduling planning and gathering facts can now be done an a shorter time using computer software like word processing, spreadsheet and presentation software. However it is evident from the study that most of the principals are using only a small fraction of the full potential of the computer. They therefore need further training to sharpen their skills .

It is gratifying to note an the other hand that most of the principals perceive computer as having a positive impact an their managerial duties. This is an indicator on the way forward in educational administration as we embrace new technologies in the 21st century it means that as a country we must strive to bridge the digital divide as we aim at industrialization by 2020 as espoused by our development plans

5.4 Recommendations

In light of the findings and conclusions of the study the following recommendations were made;

1) It was recommended that secondary school principals should be provided with professional opportunities in the area of computer technology through regular courses, workshops and seminars. This recommendation was made in the view that majority of the principals used the computer most often for word processing (writing memos and letters) leaving other uses like finance, data collection and attendance taking underutilized. The data provided showed the need for principals to increase their use of technology past the basics.

2) It was further recommended that institutions that train teachers (colleges and universities) should use this study to evaluate how teachers are being prepared to be educational administrators in the 21st century. There is a clear need to incorporate technology in current administration programmes in colleges and universities.

3) It was also recommended that based on those findings, the ministry of education should develop a policy to guide the use of computers in school management so that we have a standardized management procedure with regard to the use of computers in school administration.

4) The research indicated that many schools had computers but were not connected to the internet because of the prohibitive costs involved. They were thus not exploiting the full potential of computer technology. In order for the country to achieve the goal of industrialization by 2020, it is strongly recommended that the

government find ways of making internet connectivity affordable to the majority of Kenyans.

5.5 Suggestions for further research

The following suggestions were made for further research;

1) Further research be conducted to areas outside Nairobi. More data on rural and smaller schools may provide relevant data on how schools with smaller technology budgets are utilizing computers.

2) A similar study focusing on the use of computers by high school teachers would also be interesting. Teachers also have access to computers and use them for many tasks. A study into how teachers use computers and whether or not they believe it makes them more effective would allow one to analyze the impact of technology in teaching and learning.

3) A study could be done that explores the amount of money spent on computer and its use by various stakeholders. This information could allow schools analyze their computer spending and productivity of its users.

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APPENDIX A

Letter of introduction to the Respondents

University of Nairobi

P.O. Box 30197,

Nairobi.

25th June 2004.

Dear Sir/Madam,

RE: A QUESTIONNAIRE ON PERCEPTIONS OF SECONDARY SCHOOL PRINCIPALS ON THE IMPACT OF COMPUTERS ON JOB EFFECTIVENESS

I am a Postgraduate student from the University of Nairobi pursuing a Master of Education degree course. Currently I am carrying out a research entitled "*Perceptions of Public secondary School Principals in Nairobi on the Impact of Computers on Job Efficiency.*" The purpose of the study is to determine the secondary school principals' perceptions on the effectiveness of computer technology in aiding their job performance. The study intends to find what applications the principals use to perform the requirements of their jobs. Lastly, the study will examine the principals' perceptions on the use of computer technology for their daily school management activities.

Results of this study will only be used for my academic purpose and not otherwise.

Yours faithfully,

ODHIAMBO FREDRICK

Perceptions of Technology on Job Effectiveness Questionnaire

Instructions

This questionnaire is designed to gather general information about the perceptions of secondary school principals on technology and job effectiveness in Nairobi. You are assured that your answers will be kept confidential. Do not write your name or that of your school anywhere in the paper. Please indicate the correct options by putting a tick [√] on one of the options. You are kindly requested to respond to all items.

PART A
Demographic Information

1. Indicate your gender

    (a)   Male .... [   ]

    (b)   Female .... [   ]

2. Indicate your age by placing a tick [√] in the most appropriate box.

    26 – 30 [   ]   41 - 45 [   ]

    31 – 35 [   ]   46 – 50 [   ]

    36 – 40 [   ]   51 - 55 [   ]   55 + [   ]

3. What is your highest academic qualification?

    PhD .... [   ]

    MA .... [   ]

    M. Ed. .... [   ]

    B. Ed .... [   ]

    BA/BSC With PGDE .... [   ]

    EACE/KACE (A – Level with Diploma) .... [   ]

4. Indicate your administrative experience as a principal in years.

   1 – 5 years...[   ]

   6 – 10 years...[   ]

   11 – 15 years...[   ]

   16 – 20 years...[   ]

   Over 20 years..[   ]

5. Please indicate the number of Students currently enrolled in your school

   Below 200...[   ]

   201 - 360..[   ]

   361 - 540..[   ]

   541 - 720..[   ]

   721 - 1100..[   ]

   1100+...[   ]

6. What is the type of your school?

   Day ....[   ]

   Boarding ....[   ]

   Day and boarding ....[   ]

   Day and Private Hostel..[   ]

7. What is the gender of the students body

   Male ....[   ]

   Female ....[   ]

   Mixed ....[   ]

PART B

Computer Usage Information

8. Do you have access to a computer in your office?

   Yes ....[   ]

   No ....[   ]

9. If **No**, where do you access computer facilities?

   (i)   In the computer lab within the school.....................[   ]

   (ii) At a cyber café ....[   ]

Please **tick**) **Yes** or **No** for each item you have access to in your work area.

10. Internet access .... Yes [   ]   No [   ]

11. E-mail .... Yes [   ]   No [   ]

12. Word Processing .... Yes [   ]   No [   ]

13. Spreadsheets .... Yes [   ]   No [   ]

14. Databases .... Yes [   ]   No [   ]

15. Presentation software (PowerPoint)   Yes [   ]   No [   ]

16. Publishing software (for creating newsletters etc)   Yes [   ]   No [   ]

17. Do you use the computer everyday for your management work?

   Yes [   ]   No [   ]

18. If **Yes**, how many hours a week do you use the computer for school related tasks?

   1 – 5 [   ]   21 – 25 [   ]

   6 – 10 [   ]   26 – 30 [   ]

   11 – 15 [   ]   31 – 35 [   ]

   16 – 20 [   ]   36 – 40 [   ]   40 + [   ]

19. (a) For how long have you used computers in your work setting ....

(b) When did you first use a computer?

I used a computer first in: 19.........

(c) Where did you first use a computer?

In school or during pre-service teacher training........ [   ]

At school as a teacher.. [   ]

At school during in-service teacher training .... [   ]

At home... [   ]

Elsewhere (Please specify) .... [   ]

Part C

Software used, tasks of the principals and roles in relation to computer usage

How often do you use the following software? Please indicate with a **tick** [√] the extent to which each of these statements applies to you in the relevant columns.

Key: Often = Oft, Sometimes = Som, Rarely = Rar, Never = Nev.

		Oft	Som	Rar	Nev
20.	Word Processing				
21.	Databases				
22.	Spreadsheets				
23.	Internet				
24.	E-mail				
25.	Presentation software (PowerPoint)	✓			

How often do you use the following computer tasks in your daily tasks as principal?

		Oft	Som	Rar	Nev
26.	Attendance taking				
27.	Finance				
28.	Discipline				
29.	Newsletters				
30.	Memos to staff				
31.	Letters to students				
32.	Letters to parents				
33.	Data collection				
34.	Internet research				
35.	Teacher evaluation				
36.	Curriculum issues				
37.	Policy issues				

By placing a **tick** [√] Rate each statement using the scale below"

Scale: a – Proficient, b – Above average, c – Average, d – Fair, e – Poor

38. Your overall computer literacy skills

     a [   ]   b [   ] c [   ] d [   ] e [   ]

39. Your keyboarding/typing skills

     a [   ]   b [   ] c [   ] d [   ] e [   ]

Using the scale below, rate the impact that computer software (including internet access, e-mail, word processing, spreadsheets, databases and presentation software) have had on the following aspects of your principalship. (**Tick** [√] the appropriate response)

Scale: a – High Impact, b – Moderate Impact, c – little impact, d – No impact,

40. Leadership   a [   ] b [   ] c [   ] d [   ]

41. Decision-making   a [   ] b [   ] c [   ] d [   ]

42. Communication .... a [   ] b [   ] c [   ] d [   ]

43. Management .... a [   ] b [   ] c [   ] d [   ]

44. Curriculum issues .... a [   ] b [   ] c [   ] d [   ]

45. Teacher evaluation .... a [   ] b [   ] c [   ] d [   ]

Does use and knowledge of the following areas of computer technology enable you a better principal? (**Tick** [√] the appropriate response).

46. Internet access   Yes [   ]   No [   ]

47. E-mail ....   Yes [   ]   No [   ]

48. Word Processing ....   Yes [   ]   ⸙ No [   ]

49. Spreadsheets ....   Yes [   ]   No [   ]

50. Databases ....   Yes [   ]   No [   ]

51. Presentation software (PowerPoint)   Yes [   ]   No [   ]

52. Publishing software (for creating newsletters etc) Yes [   ]   No [   ]

Please **Tick** [√] the appropriate response for each of the following items using this scale

Key: **Often = Oft, Sometimes = Som, Rarely = Rar, Never = Nev.**

The use of computer technology assists my work as principal in:

		Oft	Som	Rar	Nev
53.	Gathering data facts and impressions from a variety of sources about students, parents and staff members.				
54.	Seeking knowledge about policies, rules, laws, precedents or practices.				
55.	Identifying important elements of a problem situation by analysing relevant information.				
56.	Reaching logical conclusions and making high quality, timely decisions given the best available information.				
57.	Planning and scheduling one's own and others work so that resources are used appropriately and short and long-term priorities and goals are met.				
58.	Assessing and creating professional development needs of staff.				
59.	Provide guidance and input to teacher evaluation.				
60.	Writing appropriately for various audiences such as teachers, students and teachers.				

61. Do you believe that the use of computers has made you a more effective principal?

Yes.. [ ]

No.. [ ]

THANK YOU FOR YOUR CO-OPERATION

MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY

Telegrams: "SCHOOLING", Nairobi

Telephone: Nairobi 333551

When replying please quote

**PROVINCIAL DIRECTOR OF EDUCATION
NAIROBI PROVINCE
NYAYO HOUSE
P.O.BOX 74629,
NAIROBI**

Ref   NP/GA/13/11

Date: 21ᵗʰ October 2004

To Whom It May Concern:

Ref: RESEARCH AUTHORISATION

The bearer of this letter Fredrick Oloo Odhiambo, I.D No 11044986 has been authorized by the MOEST to conduct research on "The Perceptions of Secondary School Principals in Nairobi on the impact of Computer Technology on Job Effectiveness"

You are kindly requested to give him all the necessary assistance.

**KENNETH P. PAKIA
FOR: PROVINCIAL DIRECTOR OF EDUCATION
NAIROBI PROVINCE**

MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY

Telegrams: "EDUCATION", Nairobi
Telephone: Nairobi 334411
When replying please quote

Ref. No. **MOEST 13/001/34C 361/2**
            and date

JOGOO HOUSE "B"
HARAMBEE AVENUE
P.O. Box 30040–00100
NAIROBI

18th October, 2004, 20......

Fredrick Oloo Odhiambo
University of Nairobi
P.O. BOX 30197
NAIROBI

Dear Sir

RE: RESEARCH AUTHORISATION

Following your application for authority to conduct research on "the perceptions of Secondary School Principals in Nairobi on the impact of Computer Technology on Job Effectiveness,". I am pleased to inform you that you have been authorised to conduct research in Nairobi Secondary Schools for a period 30th March, 2005.

You are advised to report to the Provincial Commissioners, the Provincial Director of Education Nairobi and the Principals of the Secondary Schools you will visit before embarking on your research project.

Upon completion of your study, you are expected to deposit two copies of your research findings to this Office.

Yours faithfully

B. O. ADEWA
FOR: PERMANENT SECRETARY

Cc
The Provincial Commissioner
Nairobi

The Provincial Director of Education
Nairobi

The Principals
Secondary Schools
Nairobi