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TOPIC

AN INVESTIGATION INTO THE USE OF INFORMATION COMMUNICATION TECHNOLOGY (ICT) IN THE TEACHING OF GEOGRAPHY AT 'O' LEVEL IN MHONDORO NGEZI DISTRICT SECONDARY SCHOOLS.

BY

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DEDICATION

This dissertation is dedicated to God and my entire family (Muwani)

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I am indebted to my friends and colleagues in this dissertation. Special people who need mention is my supervisor who provided with wise counsel. Her encouragement, suggestions and ideas inspired me to continue with the research. I also want to thank my wife (Isabel Muwani) who sometimes made some sacrifices financially for me to be where I am now. I would like also to express my tribute to God who gave me time to continue with the study.

Finally I want to thank my family for encouraging me.

ABSTRACT

The purpose of this study was to investigate into the use of Information Communication technology in the teaching of Geography at 'O' level in Mhondoro Ngezi District Secondary Schools. Descriptive survey design which utilized mixed approach method was used. Questionnaires were administered to thirteen teachers teaching Geography at selected schools. School heads of three schools were interviewed. Purposive sampling technique was used to select teachers for study. The findings revealed that teachers lack knowledge and skills in the use of ICT tools in Geography. They also have no access to ICT tools. In addition there is lack of ICT policy in schools and also no professional development for teachers pertaining the topic. Some schools are not electrified hence execution of ICT is hindered in Geography lessons. There is also scarcity of infrastructure such as computer laboratories and computers. The study recommends that school heads must familiarize themselves with the national ICT policy in a bid to implement it in schools. The government must increase in service training programmes on use of ICT tools in geography lessons.

Conclusions from the study indicated that teachers are still having problems in using technological tools like computers, projectors , internet, email and other softwares like global positioning softwares commonly in use in other countries like Australia , Malaysia, China and South Africa.

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CHAPTER 1: RESEARCH PROBLEM

1.0 Introduction

Information communication technology is now vital in both developed and developing countries. Despite its importance there are some areas where there are still some drawbacks in the use of ICT in teaching Geography at 'O' level. For the country to change economically and socially there is need for teachers to shift from primitive way of teaching and focus on the use modern methods like the use of ICT tools in teaching. The first chapter briefly discusses the background of the study, statement to the problem, research questions, significance of the study, assumptions, delimitations and limitations.

1.1Background to the study

The education sector is currently facing a series of changes and reforms and Geography as a discipline has not been spared in this revolution. Numerous teaching strategies have been developed which corresponds to the accommodation of students' needs and diverse learning methods. One such strategy which is being advocated by the government is the inclusion of Information Communication Technology (ICT) as a tool for teaching the new curriculum framework. If embraced correctly, ICT can make Geography teaching more versatile and goal oriented and will motivate and activate students to be highly creative**.** It is therefore noble to investigate the use of Information Communication technology in teaching Geography at 'O' level. Information Communication Technology can be defined as the different technological tools that one may think of which may include computers, boosters, radios , televisions and cellphones to name a few as they are many. The tools above are very important in disseminating information. ICT tools are effective that if integrated successfully forms a key pillar of education training Tomar and Kumari(2005). According to BuebengAndoh (2012) a swift in the use of

information communicationtechnology result in remarkable transformation in teaching and learning.

According to Pelgrim(2004) the use of Information Communication Technology (ICT) in education and training was introduced first in most European countries during the last century ,but progress was uneven. UNESCO(2008) postulated that western countries integrated ICT into their education system because of its effective implications such as making teachers and students to be able to interact with environments. Unwin,(2004) asserted that computers and internet can be used to increase teachers' basic skills in geography and it also provide resources in the classroom such GIS software's. In addition, a geography teacher familiarizes himself/herself within instructional approaches. Privateer(1999) opines that ICT is supposed to add value to education and to support more effective pedagogy to provide knowledge for learners and by enhancing communication that promotes learning. In addition, as ICT spreads computer based equipment is integrated into every aspect of schools operation, having an influence on the student's performance. The introduction of shared computing overcomes the challenge by enabling the teacher to monitor and interact with learners from the computer station as the enterprising teacher in Lesotho remarked:"Children who are slow learners often feel embarrassed about asking questions in class and may stop coming to school. Truancy has stopped since we deployed the solution because I do not have to disrupt the rest of the class or call attention to the slowest learners." Angwin(2013)

Lim and chai(2008) pointed out the need to create an environment which is conducive for the effective integration of ICT in teaching and learning by linking the computers to the learning and socio cultural environment. Indeed the above issue needs more attention in terms of management of classroom.Pelgrum (2004) demonstrated the effectiveness of using wireless laptops in the

USA schools in teaching mathematics, science and geography thereby making learning meaningful through project based learning. Low maintenance costs and affordable solutions were sought to enable students to access the technology to support research and collaboration for learning.Pelgrum (2004) however, noted that there were obstacles to the integration of ICT in education. For Pelgrum to note what hinders the use of ICT in education system he judged the results in Geography from a worldwide perspective. Sandholtz (1997) argued that the use of ICT creates cognitive skills which make students of today to fit in the global world of education. Kozma (2000) asserted that ICT plays a pivotal role in changing education reforms today. This can be entirely seen in its coordination with changes in curriculum, pedagogy, teacher training and assessment which include formative and summative.

1.2 Statement of the problem

In most countries especially in the western countries it has been noted that computers are now widely used in schools. Schools are now depending much on the use of computers for easy teaching of students. Researches carried out across Zimbabwe have indicated that there are ICT amenities in the secondary schools such as computers, computer laboratories and internet connections. Most secondary schools in Kadoma are in peri-urban as well as rural areas thus they face a number of challenges including; high levels of poverty, limited rural electrification and lack of in service training due to inaccessibility of the area, inadequate connectivity and network infrastructure to name but a few. This creates a digital split between schools of the same district resulting in a gulf between them. The study sought to investigate into the use of ICT tools in the teaching of Geography at 'O' level inMhondoroNgezi District Schools. Therefore, the problem identified by the researcher however, originates from the fact that in spite of a large pool of ICT devices, telecollaborative projects and facilities in schools, most teachers' still use traditional or

ancient methods of teaching instead of changing towards the more advanced ICT methodologies in the teaching of Geography. Many studies revealed the failure to incorporate ICT into educational systems.

1.3 Research questions

1. What ICT tools are being used by teachers in the teaching of Geography?

2. How knowledgeable are Geography teachers in use of ICT tools?

3. What support systems should be put in place for the effective use of ICT tools in the teaching of Geography at 'O' level?

1.4Significance of the study

This study is set to benefit quite a number of stakeholders in education. The Ministry of Education would use the findings to formulate the appropriate ICT policies in line with the Zimbabwe New curriculum of 2017. The curriculum developers known as CDU in Zimbabwe would find the result of the study important in curriculum that would increase the potential of ICT in education. Learners shall also gain knowledge and skills for computer application in Geography at 'O' Level. The research will also raise awareness on how ICT is currently being used in secondary schools. Such information will motivate strategies for improving the use of ICT in teaching geography. The school development committee, parents and also sponsors shall also be driven to assist schools with ICT tools and also fund in in-service training for teachers.

1.5 Limitations of the study

The research was limited by time and also finance. Since the researcher used simple random sampling in MhondoroNgezi District Schools , the findings of the researcher may not represent the whole Zimbabwe. In addition some targeted 'O' Level Geography teachers did not have that aptitude to comprehend some of the issues under inquiry. In addition, some schools are far apart and therefore, the long distance associated with poor road network within the district negatively affected the study.

1.6 Delimitations of the study

The study was carried out in MhondoroNgezi District in Kadoma. Itfocused on three schools which were Ngezi Barracks, Block 4 and Rimuka 3 High School . Target population constituted Headmasters and 'O'level Geography teachers of those schools. The researcher did not choose students at 'O' level doing Geography because its time consuming.

1.7Assumptions of the study

The study was based on the following assumptions:

Geography teachers know ICT tools which they should use to teach geography. In addition, teachers need training on the use of ICT tools in teaching geography. Training equip teachers with basic knowledge on the use of ICT in teaching. The researcher also assumed that all schools nowadays have computers and teachers teaching in schools are qualified.

1.8Definition of terms

1. Teaching - the act or process of imparting knowledge or skills to students.

2. Learning - the act or process of acquiring knowledge or skill by study, instruction and or experience.

3.Information Technology (IT)-UNESCO(2008) considered information technology as "Scientific,

technological and engineering disciplines and management techniques used in information handling and processing, their application, computers and their interaction with men and machines, and associated social, economic and cultural matters". In other words IT can be defined as the use of computer hardware and software for efficient management of information, i.e. storage, retrieval, processing, communication, diffusion, and sharing of information for social, economic and cultural upliftment.

4.Information Communication Technology- It encompasses the range of hardware (desktop and portable computers, projection technology, calculators, data logging and digital recording equipment), software applications (generic software, multimedia resources) and information systems (intranet, internet)

5.Investigation – to find out possible causes

1.9 Summary

This chapter looked at the background of the study, research questions, justification of the study to different stakeholders, statement of the problem, some limitations and delimitations. It was the researcher's conviction that the stakeholders will put their heads together to make the above identified problem a problem of the past. The background from chapter I introduced chapter II where the researcher is going to look at literature review

CHAPTER 2: REVIEW OF RELATED LITERATURE

2.0 Introduction

This chapter shall shed light on the contributions, weaknesses and gaps in knowledge on the use of ICT tools in the teaching of Geography at 'O' level. Information by scholars in this chapter shall later be used in chapter four for discussions of findings.

2.1 Theoretical Frame Work.

The theoretical framework guiding this project is based on learning theory of constructivism. The major proponents of constructivism are Jerome Bruner, Levy Vygotsky and David Ausubel Atherton (2013). Bruner (1966) argues that learning is an active process in which the learners construct new knowledge, ideas or concepts based upon their past and current knowledge. Relying on cognitive structure, the learner selects and transforms information, constructs hypotheses and makes informed educational decisions. Constructivism learning theory suggest that the learner is much more actively involved in ajoint enterprise with the teacher of creating ("constructing") new meanings and the teachers role is simply to guide and help along the way (Brooks 1993).

The fundamental principles of constructivism argue that one of the first things a teacher must do when considering how to teach students is to acknowledge that each student does not learn in the same way. The teacher cannot reach every student on the same level during one lesson, but implementing a variety of teaching and learning styles throughout the course allows all students to have a chance to learn in at least one way (Brooks 1993). It was observed that some students respond better to visual and audio stimuli of lecture instead of that which is lecture and text based.

Learning is interactive, building on what the student already knows. Teachers have a dialogue with students, helping students construct their own knowledge. Students work primarily in

groups. Assessment includes student works, observations, and points of view, as well as tests. Process is as important as product. Knowledge is dynamic, ever changing with our experiences and also that student questions and interests are valued.

2.2 Information Communication Technology tools used by teachers in teaching Geography

Researches done by most scholars have shown that information communication technology is the medium of today. Yambo (2012) posited that learning resource are important such that every school should make an effort to put them in place for both teachers and students use for better and improved performance. It is the medium of young people and it already plays a pivotal role in almost every aspect of their lives. Therefore, its use in a classroom/learning environment ropes the delivery of geography in a way that is engaging. In America ICT has provided teachers and students with topical geographical information and our highly interconnected world. It is a vibrant medium which, when used properly, can significantly reinforce and expand geographical knowledge and understanding as never before.

Moreover, it has been shown that students often sustain concentration levels more fully when given the opportunity to support their learning through the use of ICT. The internet and email enable pupils to interact with peers and other communities, to access and research information and exchange details of weather, environment and culture in Kenya. This brings otherwise unreachable localities into the classroom. This can help to develop worldwide citizenship and awareness of the sameness, differences and multiplicity in the cultures of the world.Education is in the process of a major change, where through innovations in technology and teaching methodology, academic institutions are being given an opportunity to work for the benefit of the student ,Bunyi (2013). In this research the researcher took the following ICT tools as important in teaching geography at all levels. These include Scientific calculators ,email, Computers

,Cellphones , Televisions, Radios ,Internet, geospatial technologies which include a range of ICTs including:Global Positioning System (GPS),Geographic Information System (GIS) and Remote sensing (aerial and satellite image).In Zimbabwe when students get the requisite knowledge on the above tools then really the society change within a short space of time.

2.2.1Functions of Information Communication Technology tools in Geography

Computer

A computer can be defined as a high speed electronic device used to manipulate data into information. This ICT tool has four functions which are input, process, storage and output. In Malaysia computers in schools enabled teachers to engage and motivate learners about geographical concepts to a greater extent, Taylor (2003). The other advantages that the computer has in the teaching of geography are audio and visual learners are catered for.

The teacher can also make use of computers when researching and doing schemes of works in Geography. In addition , detailed lesson plans can be also done using computers. Information for use in teaching can be stored in a computer and retrieved when required for use. Information which can be stored include time tables and work plans. If the teachers make use of computers effectively in teaching Geography results for 'O' level will improve. In east Africa many countries like Tanzania, Rwanda and Kenya used computers in their education system and it is reported by many scholars like Ratemo (2009) that results improved at 'O' level.

Therefore it is imperative for teachers to make use of computers in Zimbabwe to improve its education system. Computerization programme by the government of Zimbabwe helped much in rural schools of Makoni District as it improved the pass rates in geography, Kachembere

(2012). It is indeed of the paramounting importance for all schools in Zimbabwe to make use of computers in teaching.

Internet

Internet is a network of networks formed when global computers are joined together for the purpose of communication. For the connection the user need to subscribe to the internet service provider, telephone line, modem or web browser. Teachers use internet to access authentic geographical data and information system, Taylor (2003). In America internet became a widely used ICT tool in teaching of geography and other science subjects. In Zimbabwe if teachers have access to internet there shall be growth in terms of quality of education , above all students who will be produced fit in the global technological world.

Geographic information system softwares

GIS enables pupils to test hypothesis ,to analyze large quantities of data and to recognize that the interpretation of large quantities of data is multifaceted and yields a range of possible answers.GIS has the aptitude to store, retrieve, manipulate and analyze a wide variety of spatially related data in order to produces maps. With GIS the teacher may ask questions of the information related to the map search for patterns and distribution and investigate the causal relationships between different sets of data. Provide mapping amenities very speedily, a teacher may take hours to complete by hand. However regardless of the above merits it has been established that there is still a long way to go before it is accepted.

2.3 Teacher knowledge and skills.

In education teacher knowledge and skills play a critical role in shaping the life of a student. When the teacher teaches he or she use his knowledge gained from training to assist the student

in developing his assumed knowledge. However it is a sad note if a teacher lacks knowledge and skills while teaching. Knowledge and skills are obtained from educational training, seminars , workshops and also other in service training. Many researches have been carried out in countries like Turkey, Australia, Saudi Arabia, Europe on the importance of teacher knowledge and skills in using ICT tools in teaching Geography at 'O' level. However there are reports done in countries like South Africa, Botswana , Zambia and Zimbabwe these have shown that use of ICT tools is slowly developing.

It is imperative to note that the great challenge in integrating ICT in teaching Geograpghy is knowledge and skills (Becta 2004). The research done in Austalia by Newhouse (2002) suggested that many teachers across the world who are teaching geography at all levels lack knowledge and skills in using ICT tools like computers and in addition they are not enthusiastic about this paradigm shift of using computers in teaching geography.

However it was discovered by scholars like Pelgrum who suggested that level of this barrier varies with regions. Pelgrum,(2004) and Al-Oteawi,(2002) postulated that in developing countries like Zimbabwe, Namibia and Botswana teachers lack technological competence therefore there is weak integration in these countries. Albirini(2006) also did some research in Syria where he cited technological competence as the main barrier to integration of ICT in teaching Geography. It was also discovered by scholars like Al-Alwani(2005) and Almohaissin (2006) that in Saudi Arabia the biggest obstacle in ICT integration in teaching geography and science is knowledge and skills. From the report that was done by Empirica (2006) in twenty seven European countries it is frankly indicated that teachers who do not use ICT tools in teaching are those that are not conversant with them, 'lack of skills" a constraining factor. Denmark is a country that is developed but it was discovered by scholars like Balanskat et al

(2006)that there are some teachers who are still lagging behind in use of ICT tools in teaching Geography the reason being that they lack skills. However the same scholar asserted that in Netherlands ICT knowledge and skills are a thing of past when it comes to teaching. Therefore one can suggest that lack of knowledge and skills in using ICT cause teachers in Geography to resist change.

In the education system teachers are agents of change resulting in the improvement of the education system. Therefore according to (Tin 2002) the teacher should be provided with enough in-service training for proper integration of ICT in the education system in any country. A number of scholars suggested that there is need for inservice training in ICT tools to those teachers that still need to stay in the education sector Albirini(2006) ,Beggs (2000), Özden (2007), Schoepp(2005), Sicilia (2005) ,Toprakci(2006) Ghavifekr& Wan Athirah (2015). Studies done by Pelgrum(2001) showed that teachers do not have enough training opportunities in ICT therefore their weak integration in a classroom set up. As suggested by Beggs (2000) ICT training lacks in school therefore this is resulting in teachers failing to cope with modern technologies. Some research done by Ozden (2007) highlighted that insufficient amount of in service training in ICT is the third barrier to integration of ICT in teaching Geography at 'O' level in Turkey.

However , Becta (2004) asserted that the issue to do with in-service training is quite complex as it consider several issues such as time for training and skills training to ensure that all teachers are familiar with ICT tools in teaching Geography at 'O' level. Gomes (2005) postulated that lack of training in digital literacy, lack of pedagogic and didactic training in how to use ICT in the classroom and lack of training concerning technology use in specific subject areas were obstacles to using new technologies in classroom practice.

In South Arabia it has been reported by scholars like Almamd, Alotaibi, Motwaly and Zyadah (2004) that lack of teacher training in ICT result in teachers failing to integrate educational technology in their teaching of geography at all levels. Becta (2004) argued that use of ICT tools is very critical when it comes to teaching of geography at 'O' level. In addition he stated that pedagogical issues must be of paramounting importance to teachers hence they must focus much on them during their training. Cox et al. (1999) asserted that though teachers do some professional development courses they have limited knowledge in use of ICT tools in classrooms, they just have knowledge on use of computer as well as a printer. This is so because only basics in ICT are taught and little concentration is put on pedagogical aspect. Balanskat et al. (2006) supported Cox etal (1999) in his research, he postulated that lack of proper training in using ICT tools in classroom is causing high failure rate in subject like Geography as teachersare failing to prepare detailed lesson plans and schemes of work using ICT tools. Fundamentally, when there are new tools and approaches to teaching, teacher training is essential Osborne and Hennessy, (2003) indicated that if there is new pedagogy it must be known to depth by all teachers across the world as teaching is the same regardless of regions. Balanskat et al. (2006), highlighted that inadequate or inappropriate training leads to teachers being neither sufficiently prepared nor sufficiently confident to carry out full integration of ICT in the classroom. According to Newhouse (2002) teachers must not be only computer literate but they must be in a position to use them in teaching.

It is imperative that all teachers in the education system are equipped with ICT so as to empower students with enough technological skills. Buchmann (1999) argues that ICT literacy is necessary for proper performance that can enhance school performance. He adds that today's

teachers are expected to be familiar with ICT to be able to cope with emerging technological changes.More so, according to UNESCO,(2012) the teacher's duty is to establish the classroom environment and preparing the learning opportunities that facilitate students' useof technology to learn, and communicate.When teachers are doing their educational courses they need to be trained in ICT so that when they get in the classroom they apply that subject area making learning to be easier (Tin 2002).

If teachers do not have competency in ICT then it means they cannot use it as a tool for teaching and learning across the curriculum. Teachers should be confident users of hardware and software's especially those in geography today. Teaching becomes a process to initiate, facilitate, and sustain students' self-learning and self-actualization; therefore, teachers should play a role as a facilitator of students' learning. Teacher's main objective is generally seen as to motivate students to think, act and learn. It has been noted out with concern that many teachers in Zimbabwe still offer resistance to change from the traditional way of teaching to a point where the student can make meaning out of something. Preparing students for real life in our technological and diverse world requires teachers that embed ICT in significant learning experiences,Braun &Kraft(1995).

2.4 Support systems for effective use of ICT in teaching Geography

In education there is a lot that needs to be done to improve and support the whole system. Many researchers have found out that for effective use of ICT tools in schools support systems are critical. These include policies that encourage the use of ICT tools, buildings that are electrified/ computer laboratories just to name but a few. Leech (2008) asserted that ICT is the principal driver of improved economic, social and political developed therefore it is imperative for any school across the board to consider the use of ICT tools in classroom.

Educational ICT policies were put in place in countries like Rwanda, Tanzania, Uganda and Kenya. In Kenya ICT policy was launched in 2006. It was put in place for the purpose of improving the livelihoods of people in Kenya. The policy ensured the availability of accessible and reliable ICT tools in schools. Therefore it is imperative to say ICT policy play a pivotal role in the use of ICT tools in teaching.

The main objective of ICT policies as according to Farrell (2007) was to make sure that all schools, colleges and universities improve the quality of education by using ICT tools across all subject areas. In the report that was written by Farrell ICT policy in Europe promoted the use of e-learning by both teachers and students, this address the needs of secondary institutions as well as primary institutions. In Kenya it has been noted that the use of e-learning resources to both teachers and students promoted the digitalization of new curriculum, Ratemo (2009).

New curriculum in Kenya was widely accepted by many teachers and students due to the availability of e- learning resources. The policy of e-learning further promoted the use of ICT tools in teaching Geography at 'O' level. In this regard , strategies in using ICT tools were outlined in a simple way that could make teachers understand better. Some of these strategies included the development of an integrated e-learning curriculum to support ICT in schools, promoting of distance education and virtual institutions , the establishment of national ICT centre which can accommodate a number of people and the building of structures which are electrified to support the use of e-learning resources ,promotion of the development of content to address the educational needs of primary, secondary, and tertiary institutions, awareness of the opportunities offered by ICT as an educational tool to the education sector, sharing of e-learning resources among institutions, exploitation of e-learning opportunities to offer Kenyan education programmes for export and integrate e-learning resources with other existing resource. Each

strategy depends on each other as an example for e-learning to take place to its full capacity buildings which have electricity are needed.

In addition the government of Kenya in order to promote the use of ICT tools in teaching much was done to equip teachers with skills and knowledge on how to use ICT tools. A number of workshops and some in service training were done sponsored by the government so as to make sure all teachers integrate the use of ICT tools in their teaching. Government of Kenya also came up with some ways to develop the curriculum of both primary of secondary education, these include adaptation of the pedagogical materials and give them to schools and encourage secondary schools to create their e-content, Farrell (2007).

The creation of e-content helped much in distance learning and or in collaborative learning. In addition to the above, Kenya Institute of Education mobilized funds in support of ICT policy. A number of ICT tools were availed in secondary schools so as to make teaching of the new curriculum easier, that is more computers were distributed to schools, internet installed in computer laboratories across the country. In addition to the above, in all teaching colleges and universities, ICT was made compulsory to make sure that every student teacher get the requisite knowledge in using ICT tools.

Ratemo(2009 asserted that many technicians were deployed in schools that is in Ghana and Rwanda for the purpose of assisting teachers, students and repairing computers. In South Africa teachers had problems in teaching but when the government employed technicians teaching became easier. Barriers in using ICT tools included failing to connect to internet, get in some websites and even printing detailed lesson plans, schemes of work and material for use in lessons, Silica (2000). Therefore this means that technicians can help in the effective use of ICT

tools in schools. The ICT Board established by the government in Kenya, Rwanda, Tanzania helped secondary schools availing quality and affordable technical support. In countries like Tanzania technical experts were hired from countries like Britain and America. Technical experts' role was also to make sure that there is implementation of new software's, upgrading of softwares. They also liaise with internet providers to provide their services when need arises.

According to Cuban, (1993) the position of computers within the reach of school teachers is very significant so that they improve their ICT potential as well as students. It is important that the school avail computers, projectors and internet to teachers so that they become used to them and when it comes to use in teaching there will no problems. The perception was supported by Preston and Cox, (1999) in their study carried out to examine factors relating to the uptake of ICT in learning. The findings depicted that teachers who are used to ICT tools have confidence when it comes to teaching in the classroom. Many educational institutions in Zimbabwe are increasingly seeing ICT as the omitted jigsaw piece in the hunt of qualitative development of their pupils. This insight is based on the understanding that ICTs can considerablyimprove the social, technological, and psychological development of their pupils (Victoria, 2012). Whilst ICTs drastically improve the quality of the pupil, they also give the student a spirited edge ahead of others on the job market.

The Zimbabwean government adopted a national ICT policy in 2005 that was informed by both Havard University guided E-readiness survey which suggested the country was not uniformly E-ready and by a host of preceding general and sectorial policies including vision of 2020, the national science and technology policy adopted in 2002 and the Nziramasanga Education Commission Report which in 1999 recommended the promotion of the educational use of

computers for teaching and learning in educational institutions. The policy's vision is to transform Zimbabwe into a knowledge based society by 2020 (Zimbabwe National Information and Communication Technology Policy Framework. December 2005) Most secondary schools have adopted the use of internet in learning areas such as computer science and geography as the government of Zimbabwe through the initiative of the Head of State and Government, His Excellency President R.G Mugabe embarked on the schools national computerization programme. However, there is still an on-going debate in other schools on whether they adopt the use of internet or not in teaching geography

According to Anderson and Dexter, (2012) schools should carry out some professional developments or in-service training in ICT to teachers. This upgrades teacher knowledge and skills in using ICT tools. Unlimited access to training at a school result in failure by teachers to use ICT tools at a school. It is the duty of the school to make sure that there are professional developments at school or in-service training. As observed by scholars above strong leadership is imperative to ICT execution at a school. However, many leaders and administrators are not ICT knowledgeable and thought they have gained little data or knowledge that make use of computers merely for basic functions such as word processing and PowerPoint presentation.

For winningincorporation of ICT in teaching and learning there has to be appropriateplanning at the school level. This is because the school is expected to provide the necessary ICT resources for the teachers and the students to use. An ICT integration plan provides a detailed plan of the steps and methods required to interpret the school ICT dream into reality ,Afshari(2009). A plan is a guide to action not analternate for it; the existence of a written ICT sketch and policy does not guarantee the comprehensive use of ICT in schools, nor does the absence of an ICT plan

necessarily equate to the lack of ICT integration in a given school, Bryderup andKowalski (2002).

2.5. Summary

It is imperative for one to conclude from this chapter that if efforts are made in the use of information communication technology then fail rates in Geography will be a thing of the past. Efforts include upgrading of teachers knowledge and skills in ICT and support systems by different stakeholders.

3.0 RESEARCH METHODOLOGY

3.1Introduction

This section shows how the research was carried out. It discussed on the research design, population and sampling technique, data gathering instruments, data collection procedures and also data analysis.

3.2 Research design

This study was conducted using a descriptive survey design. This design was chosen because it is concerned with accuracy in assessments of the situation as it is on the ground. According to Kothari (2005), this design is aproficient method of collecting descriptive data regarding the characteristics of populations, current practices and conditions or needs and make intelligent plans for improving them.The above design gathers information on present issues/ current affairs. It is the most one used in educational researches. In this regard the researcher used it to investigate on the use of ICT in the teaching of geography at 'O'level in MhondoroNgezi District Secondary Schools Kadoma. Through using the research design the research was able to employ both qualitative and quantitative data. This was meant to describe the problem more completely. However there is a problem of confidentiality in using this research design Cohen (2006). Participants chosen may not give things that they feel, they are too personal. To curb the above problems the researcher decided to use the information that helpful and relevant to the topic under study and ignore data which is of no use.

3.3 Population

In my research target population were Headmasters and teachers teaching Geography in the following schools in MhondoroNgezi District Kadoma, Ngezi Barracks High, Rimuka 3 High and Block 4 Secondary School. They were three (3) headmasters and (13) thirteen teachers in

my population of study. Population is very important in any research. If one has no population then there is no research. Furthermore the research chooses the study after reading different articles on ICT in education in different areas. Shumbayaonda (2011) asserts that target population is a group which one can come up with conclusions from it after a period of investigation

3.4 Sampling technique

The researcher used purposive sampling technique. This is a non-probability sampling technique. Participants are chosen either by handpicking or personal judgment.

Personal judgment was used in selecting participants from the staff members to be observed and who were interviewed. The researcher focused on Geography teachers since they were ones who make decision whether to use ICT or not depending on their perception. Administrators (headmasters) were used since they are the ones who make school policy, supervisor teachers and buy school material. This was done to enhance reliability and objectivity of information obtained from the questionnaires and interviews.

3.5Sample size

A sample can be defined as a subset of the entire population. It is from this sample that the researcher can be able to generalize his findings. A sample can be taken from groups, individuals and even organizations. By choosing a sample the researcher has to look at the type of the sample, does it have relevance to the information under study.All Geography teachers at each school shall be investigated. In this research sample was composed of thirteen teachers (13) teachers and three (3) headmasters. According to Babie (2002) selection of few participants saves time for the researcher.

3.6Research instruments

According to Leedy and Ormod (2004) research instruments are devices or tools that can be used in gathering data which answers the research questions of the study. Instruments are essential because they measure skills, knowledge and attitude of the population under study. The researcher to come up with results which are helpful questionnaires and interviews were used as data gathering instruments.

Questionnaire

Questionnaire is a set of coherent questions presented to a respondent for answers. Castillo (2005) defined a questionnaire as a method of obtaining information about a defined problem.In this study the researcher used questionnaires with open ended and closed ended questions to obtain data that can quantified. The researcher drafted questionnaires for teachers. The questionnaires were drafted in such a way that the participants were assured of confidentiality as no identification was required. Simple questions were used to avoid ambiguity. Close-ended question were used to enable the participants to answer questions quickly without much thinking whereas open ended questions solicit opinion from the participants. The questions were few, short and precise to secure relevance and encouraged the participants to respond in objective manner. The questionnaire method enabled the participants (teachers), to show how much they know about the use of ICT in teaching geography at 'O' level. The researcher used the questionnaire method because the participants feel very free in completing questionnaires as they did it alone and at their own time without undue influence normally caused by the presence of the interviewer.

However the disadvantages of using questionnaires are the researcher can be delayed by respondents and some can even tore questionnaires /fail to return themwhen due for submission

Interviews

An interview is a dialogue between two or more people. It may took place face to face or over the phone where questions are asked by the interviewer and the interviewee responds to questions asked instantly. The interviewer may draft a series of questions for an interviewee. Farrant (1980), Leedy (1997) and Best and Khan (1994) view interviewing as the art of acquiring information orally from someone. The interview method was used to collect data from headmasters because it is flexible since the researcher repeated or rephrased questions so that the participants understood what was meant by a particular question. Interviews also, enabled the researcher to observe non-verbal responses like facial expressions. The other reason for selecting the interview method was that direct interview eliminated personal barriers as the researcher and participants are very close. This made the study more fruitful. Interviews enabled the researcher to get an in-depth understanding of the use of ICT in the teaching Geography at 'O' level in MhondoroNgezi District Secondary Schools.

3.7Data collection procedures

The first thing that the researcher does was to inform the participants on the research to be carried out. The researcher then drafted questionnaires and interview guide and sought permission from the supervisor after some wise counsel. Permission was also sought from the Faculty of Education at Midlands State University. The researcher wrote a written application letter to the Provincial Education Director (PED) to collect data in his schools. After three days the researcher was then asked to come to Chinhoyi to collect his letter of acceptance. One copy from the PED was issued to District Schools Inspector and other letters to Heads of schools seeking for permission to carry out my study. After being given the permission the researcher

collected data from the schools selected in MhondoroNgezi District Kadoma. Interviews for Headmasters were conducted at free periods. Teachers also answered questionnaires during their free periods to avoid inconveniencing students learning.

3.8Data analysis plan

According to Anderson (1990) data analysis procedure is just a process of finding what the information collected means. The data were analyzed in a systematic manner. The researcher considered the following in handling his data from **qualitative studies**:

The data were organized in a manner that is easy to work with. This gave the researchera clearpicture of the complete set of data. Since qualitative data is non-numeric this will also help the researcher to put the data under its themes or categories. The second step was that of organizing data into categories of the same traits.

Quantitative data analysis

Data from questionnaires is quantitative,the researcher coded the data for easy analysis.After coding it the researcher used calculations to find the frequency and percentages. Tables, bar graphs and pie-charts were used in the presentation of data.

3.9 Summary

This chapter covered research design, sampling methods used,sampling procedure, data collection instruments which included questionnaires and interviews. The chapter also highlighted the procedures used in collecting data.

CHAPTER 4; PRESENTATION , ANALYSIS AND DICUSSIONS

4.0 Introduction

This chapter presents the data analysis procedures employed to investigate on the use of ICT tools in teaching Geography at 'O' level in MhondoroNgezi District Schools. Data in this chapter is presented thematically under the following themes. Theme 1 ICT tools used by teachers in the teaching of Geography, theme 2 teacher knowledge and skills and theme 3 support systems that should be put in place for the effective use of ICT tools in the teaching of Geography at 'O' level. Pie charts, tables and bar graphs were used in the presentation of quantitative data while qualitative data was presented verbatim

4.1 DEMOGRAPHICAL INFORMATION

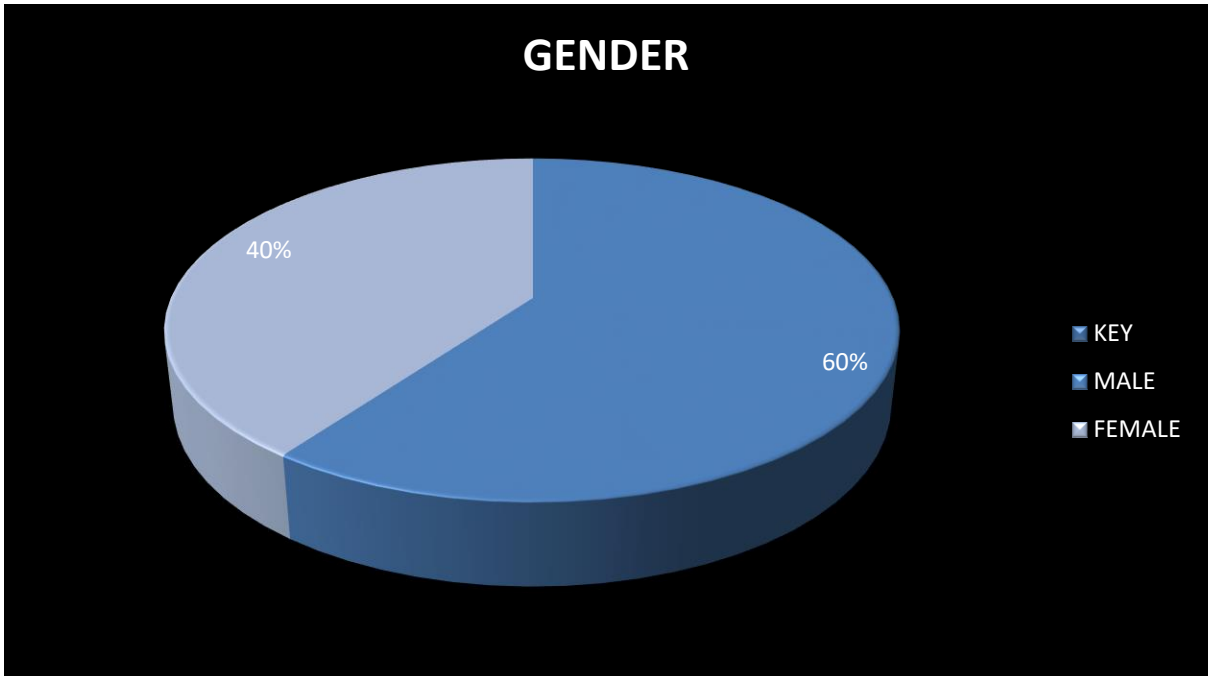

FIG :4.1 shows the distribution of teachers teaching Geography in school by gender

The pie chart above is showing the sample which researcher used in his study. The diagram above is depicting that in geography there are more males than females. Males constitute 60% of

the total population sampled and only 40% are females. This trend might be because of fear by females to do sciences and they tend to go for commercials and arts. In addition, this can be an indication that females have little knowledge in use of ICT tools in Geography. Many teachers who went to colleges period between 1980 and 2000 specialized in commercials and arts. Sciences were done maybe by those who were of the elite class and brilliant.

Experience of teaching is essential in determining knowledge of teachers.

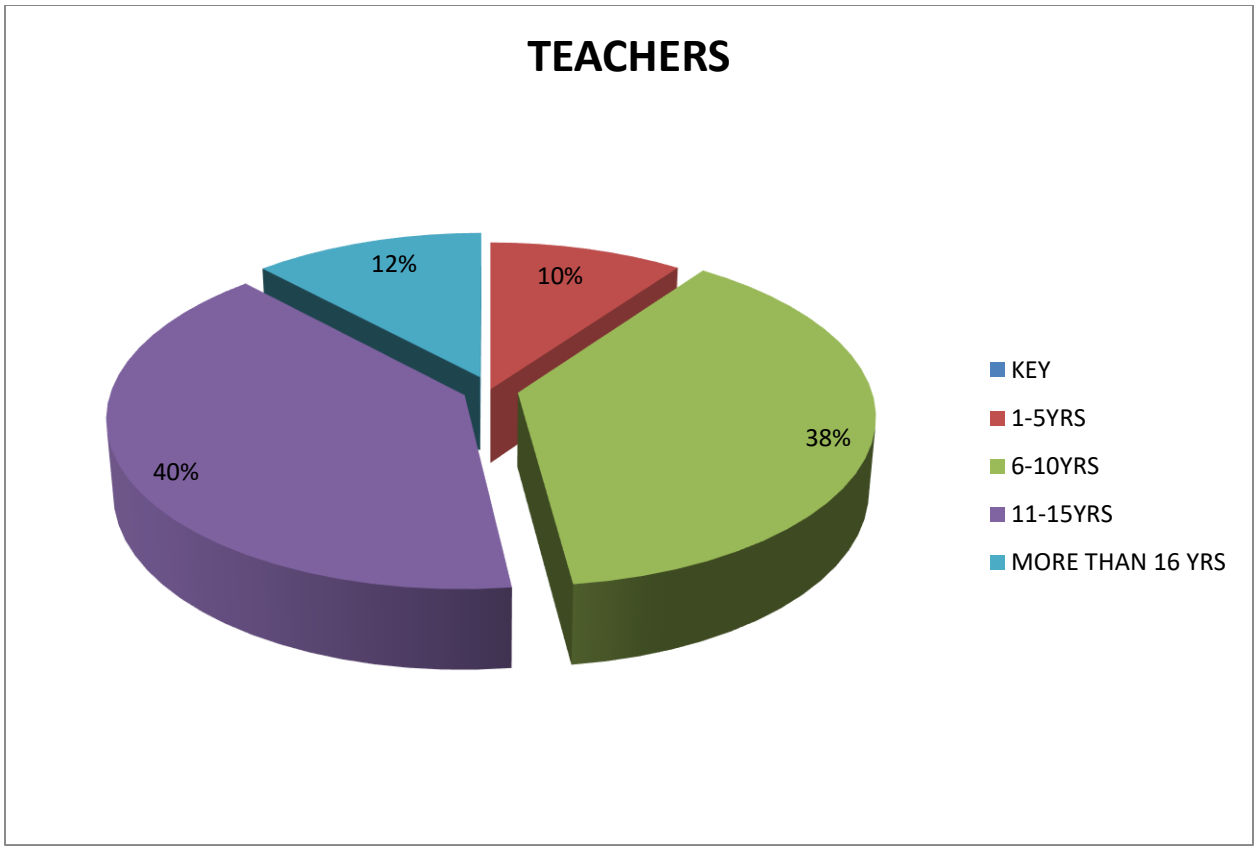

Fig 4.2 shows experience of teachers in the field of Geography

From the diagram above it can be seen that most teachers are in the range of 11-15 years experience in teaching Geography, it shows a percentage of 40 of the sample population

followed by those falling in the range of 6-10 years with 38% . This gathered information is relevant to the researcher as it shows how knowledgeable teachers are in teaching Geography. More years indicate more experience and knowledge. This sample population which the researcher chose has also pundit of information under study, that is data to do with use of ICT tools in teaching geography. A few teachers have more than 16 years with a percentage of 12% these are experts in teaching geography they know much about ICT tools , which is a good benefit to the researcher.

The bar graph below shows qualifications of teachers who responded to questionnaires

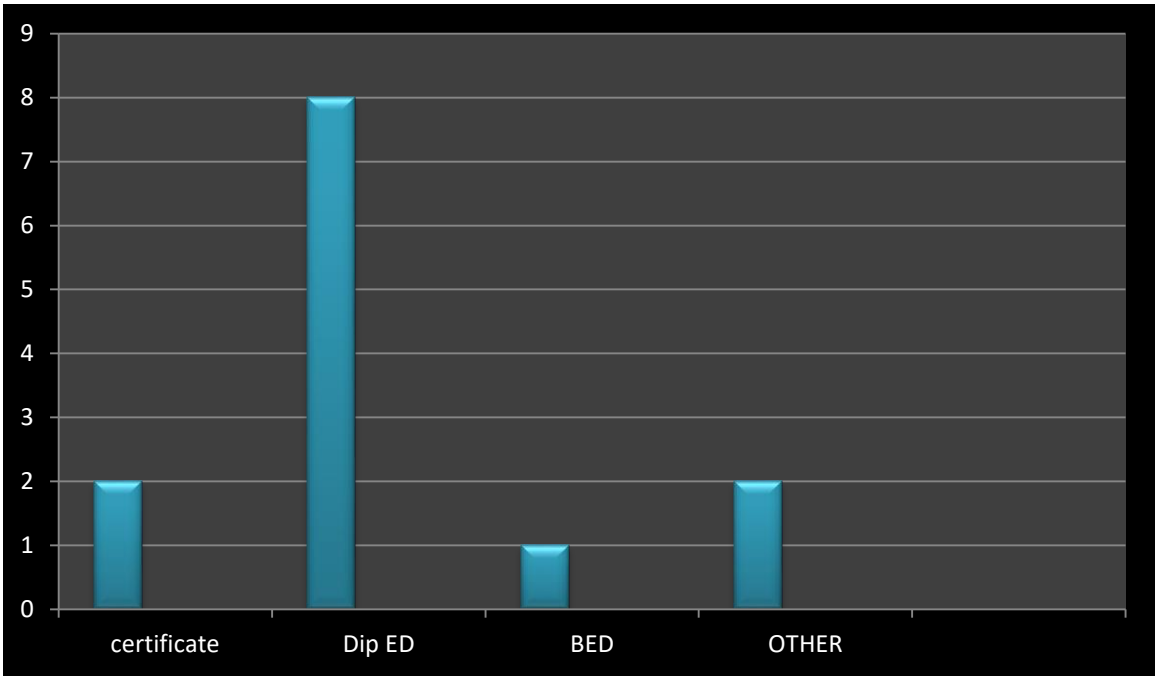

FIG :4.3 professional qualifications

The bar graph above shows that many teachers teaching geography have Diplomas in Education. From the graph above those with Diplomas were eight followed by those with certificates and others with Bachelor of Science honors in Geography and environmental studies.Only one from

the respondents has a Bachelor of education honors in Geography. It is clear that the above selected sample have knowledge on some issues under study.

4.2Theme 1: Information Communication Technology tools being used in teaching Geography

On this theme the researcher wanted to find out ICT tools that are being used in teaching Geography.

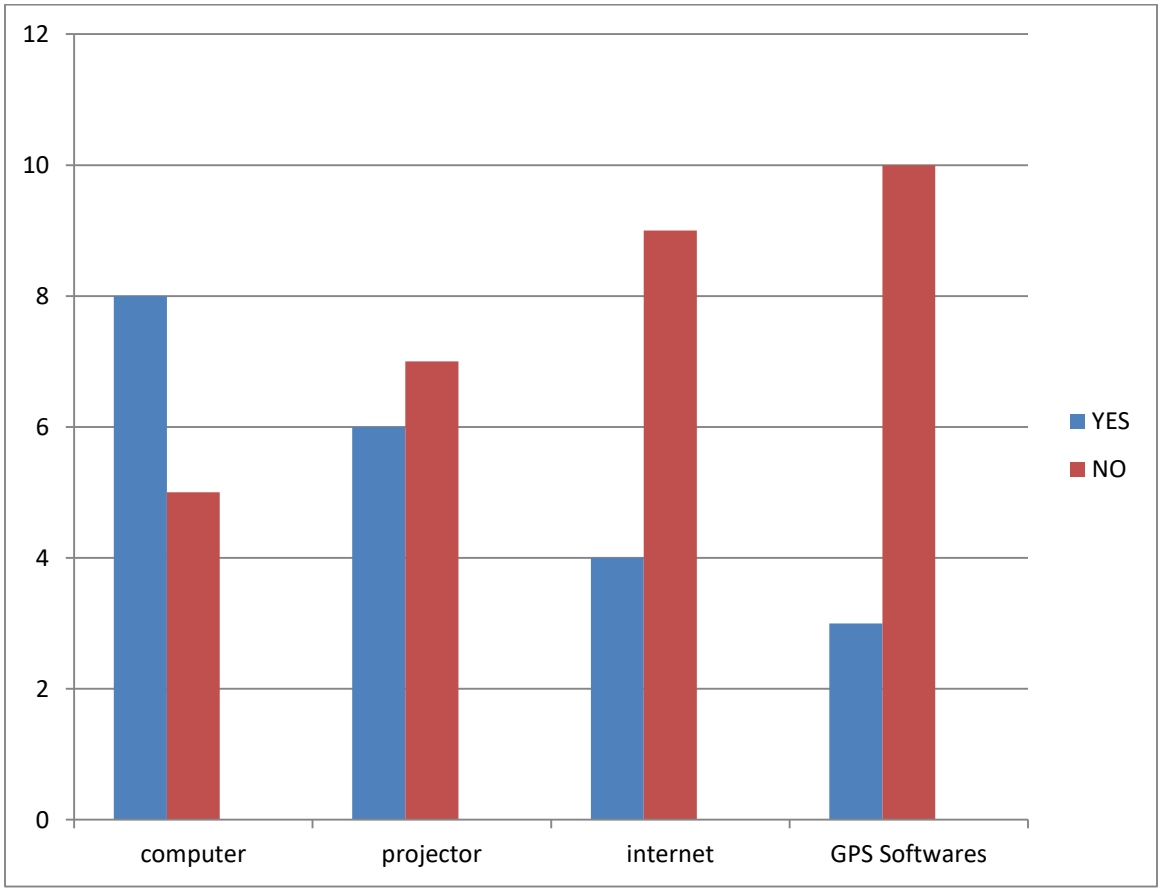

Fig: 4.4 Teacher responses on ICT tools used in Geography lessons at 'O' level.

Results have shown that 61.5% of the teachers under study used computers in teaching Geography. 46% constitute teachers who are conversant with the use of projectors, 31 % and

23% with internet and global position softwares respectively.Therefore the information given by teachers show clearly that most teachers do not use global positioning softwares in teaching Geography.After looking at what teachers responded to research question one which is theme 1 , the researcher went on to present data from school heads on the same theme. The following are their interview responses:

Head 1: said, ‘ *computers , internet , projectors and GPS software's are very important in teaching Geography nowadays , there are the most important technological tools that any teacher in Zimbabwe must be conversant with.*’

Head 2: said, ‘ *we are still using traditional methods of teaching where the student imbibes knowledge while the teacher teaches. Teachers sometimes improvise for learning to take place.’*

Head 3: said , ‘*ICT tools that are used by geography teachers here at my school include internet and computers. Three computers are in the department of Geography. However we still have shortfalls are in computers, projectors and other softwares that might be wanted by the department.*

This shows that only a few are able to use new technological tools in teaching geography since there are not conversant with them at all. In addition it can also be a clear indication that most teachers are still using primitive methods of teaching Geography hence this is resulting in high fail rate in those particular schools.

Frequency of using ICT tools also helps to determine the tools that in use in teaching Geography.

FREQUENCY	NO OF TEACHERS USING ICT TOOLS	PERCENTAGE USAGE
Once a week	1	8
Twice a week	2	15
Once per fortnight	3	23
Not at all	7	54
Total	13	100

Table: 1

(Source: primary data)

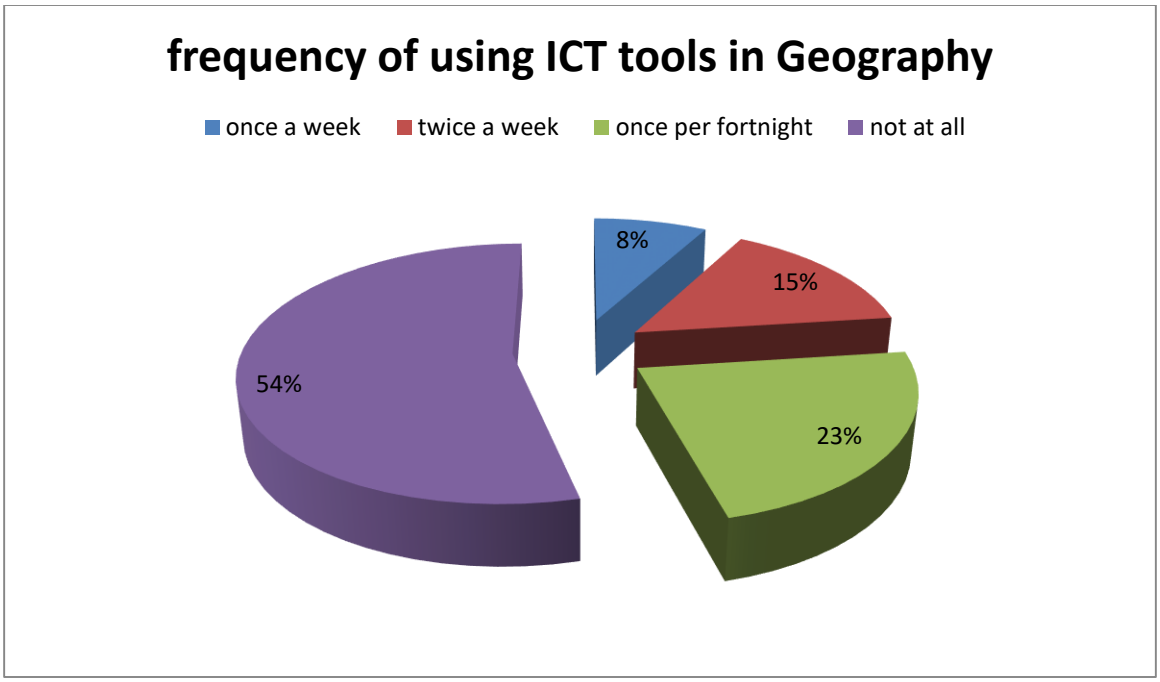

Fig 4.5: showing frequency of using ICT tools in percentage.

From the pie chart above it can be seen clearly that 54% do not use ICT tools in teaching geography, 23% of the total population surveyed use once per fortnight, 15% use twice a week and 8% use ICT tools once a week. Therefore the pie chart above is showing that there is low frequency in using ICT tools in teaching Geography at 'O' level. Many teachers reported that there do not have enough access to those ICT tools responsible for teaching geography

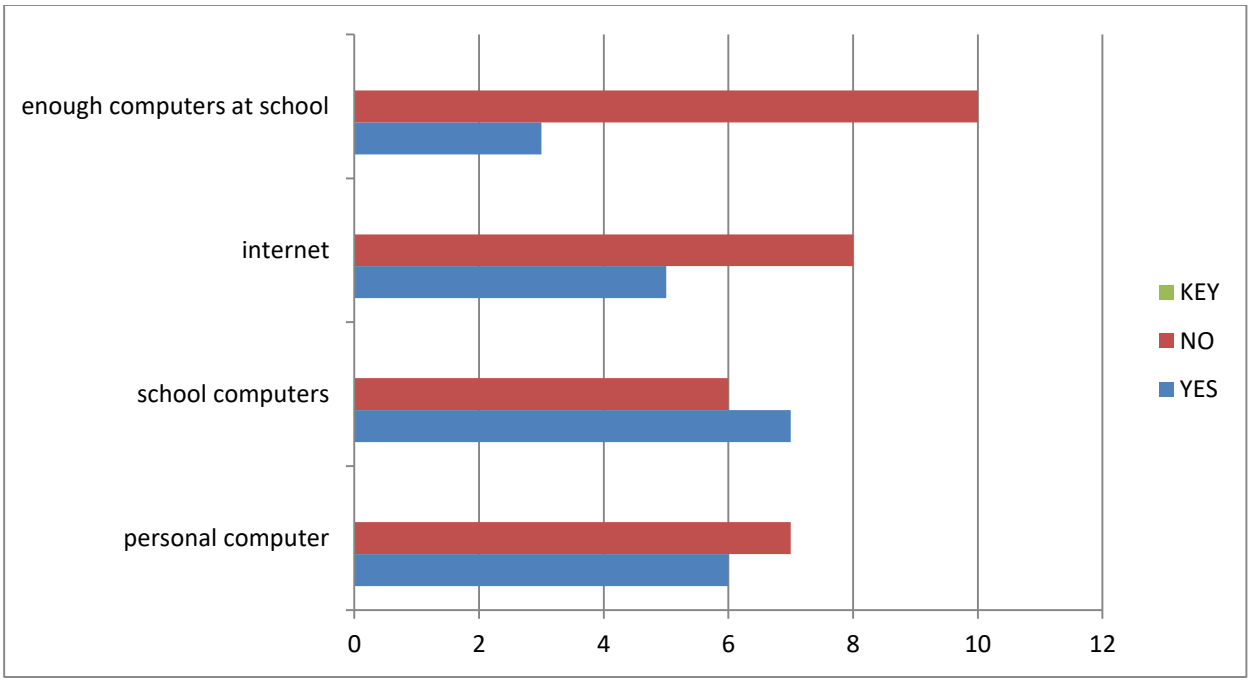

Fig :4.6shows teachers access to ICT tools in teaching Geography

Only 6 teachers out of 13 respondents reported that they have personal computers which mean that 7 found teaching to be difficult since cannot research information on internet using computers. In addition six again has access no access to school computers which means teaching is now difficult to teachers due to the invent of new technology.

It is highlighted in chapter two by scholars like Newhouse (2002) that the biggest challenge that hinder the use of ICT tools in teaching geography is the access to ICT tools. As shown by the above diagram it can be noted that every teacher has at least access to one of the above ICT tools. In schools of MhondoroNgezi District it seems as if the government is working towards the effective implementation of ICT in teaching and learning of geography. It is trying its best to avail ICT tools to both teachers and students in schools though it may not be able to supply all schools with enough ICT tools like computers, satellites and internet. The researcher found out that from all the schools sampled only one school had enough computers. This means that more

has to be done to increase ICT tools both by the government and non-governmental organizations. From the graph one can assert that,to the schools that have limited ICT tools the pupil ICT tool is automatically high and learning is difficulty.

Head 2: said the following, *' lessons using ICT tools are conducted once a week because of lack of resources, the teacher and students can use one computer in classroom'* this means that teachers are struggling in teaching because of limited ICT tools in schools.Teaching today has been made easier by gadgets like computers, a teacher now simply download a video on volcano when teaching on volcanoes and students just see and usually they won't forget a volcano. Therefore the researcher has noted that the use of ICT tools in teaching Geography at 'O' level is low since a few number of respondents in MhondoroNgezi Schools have personal computers. On the use of internet in teaching Geography, eight out of the total population sampled reported that there are not conversant with the use of internet in teaching Geography. Two schools one located in the urban and the other in the peri- urban use internet in their teaching sessions, thus a positive response to new technological methods of teaching.

Head3: interviewed at a school in urban areas has this to say concerning ICT tools, *' in our district I think there are about five schools which have ICT tools like internet , computers and boosters, here at my school I have internet and computers which the teachers make use of when researching and teaching.*

The data above revealed that ICT tools are not availed to schools to meet the demands of the technological world , some schools are still legging behind as suggested by some headmasters. Yambo (2012) cited in the literature review suggested that efforts should be made as much as

possible to avail technological tools to teachers teaching Geography so that the geography remains one in the world.

4.3 Theme2: Teacher knowledge and level of skills in using ICT tools

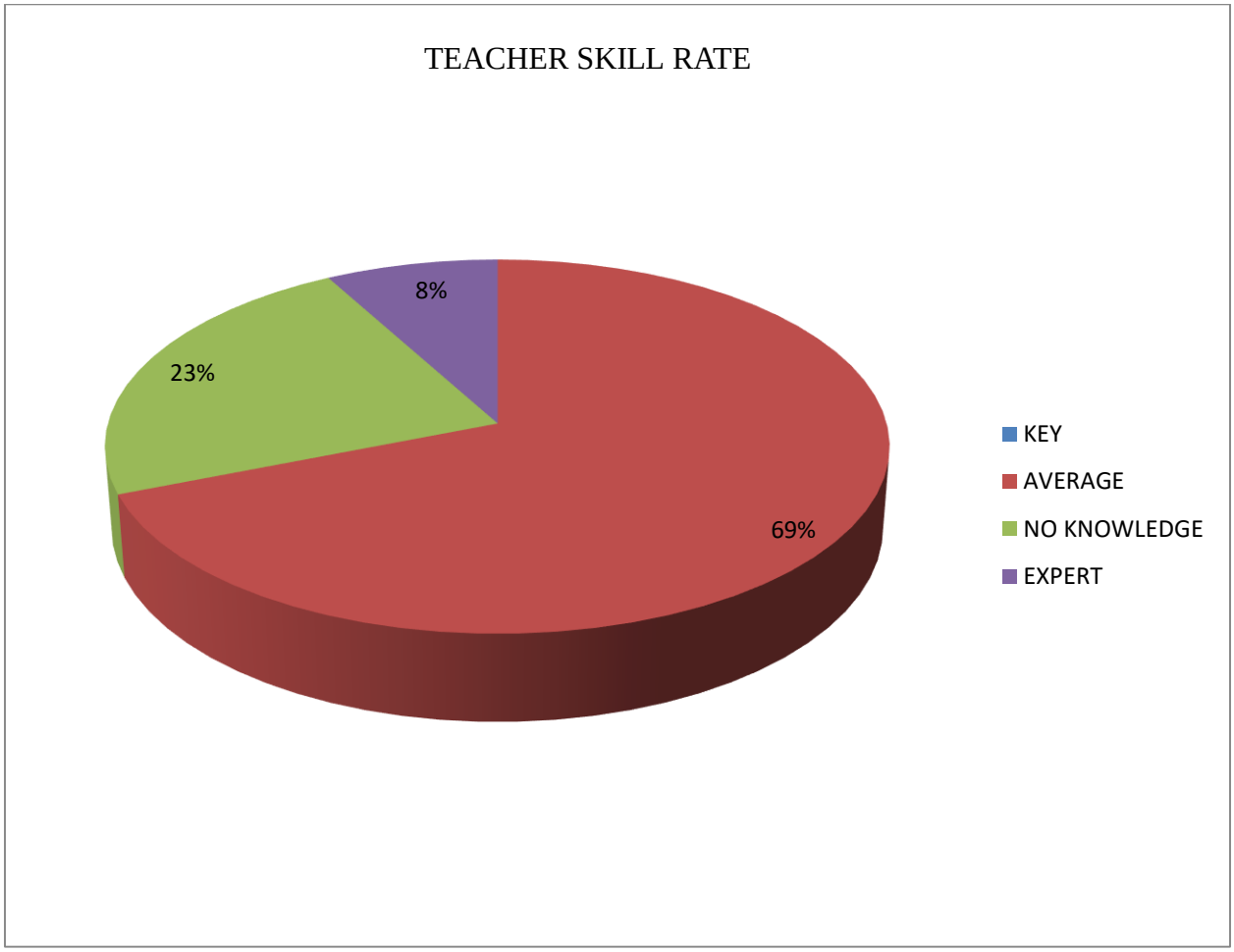

Fig :4.7 Showing skill rate for teachers and knowledge

As shown by the pie chart above a number of teachers have average skills in using ICT tools , they constitute 69% of the surveyed sample population. This means that as teachers attend more and more workshops on the use of ICT tools in teaching Geography they become more experienced than what there are. However, one can see to it from the pie chart that there are still some teachers teaching geography with no knowledge in the use of ICT tools in classrooms.

These constitute 23% of the population studied. 8% constitute teachers who are experts in using ICT tools like computers when teaching geography at all levels.

Head 1: has the following to say on knowledge and skills, ‘ *when our teachers where trained they were not taught about ICT , it is a new thing in teaching…… , they don’t have knowledge and skills in the application of ICT tools.’*

Head 2: said the same as head 1,*‘ tools might be provided yes but teachers need to be trained so that they have knowledge and skills in using those tools’*

Head 3: said, ‘*teachers lack skills in teaching, some are not even conversant with the new technological era. There are still using primitive methods of teaching, where the teacher used togive the knowledge to the learner and the student just imbibe.*

From the above responses by heads it is evident that lack of skills is causing hindrance in using ICT tools in teaching. This is supported by Becta (2004) who asserted that the great challenge teachers face in using ICT when teaching is lack of skills. High skill rate motivate the teacher in using ICT tools. The population sampled had the information critical to the topic under study as it shows that most teachers who are teaching Geography are not having skills in using ICT toolssuch as projectors and internet. As supported by Tin (2002) proper integration of ICT in education system needs knowledge and skills. The researcher noted that for teachers to be able to use ICT tools in Geography more needs to be done in terms of educating teachers. Contract to the above, Ozden (2007) highlighted that the main barrier to ICT integration in teaching is lack of skills and knowledge. The information also given by heads were supported by Albirini (2006) who purported that technological competence slows the integration of ICT tools in teaching Geography.

4.4 Theme 3: Support systems that should be put in place for effective use of ICT tools in teaching Geography.

Table 2 shows responses by teachers on support systems to be put in place to ensure maximum utilization of ICT tools in teaching. (N=13)

Response	Number of teachers	percentage
workshops	5	39%
electrification	2	15%
Pre-service training	2	15%
Funding of schools in building computer labs	1	8%
ICT policy in schools	2	15%
Having technicians in schools	1	8%
Total	13	100%

Results in the table indicate that 39% of all the teachers suggested for workshops to be conducted in schools on ICT training, 15% goes for electrification of schools, 15% again suggested for pre-service training , they are of the view that teachers should be equipped first before go in teaching, 8% for funding of schools in building computer laboratories, 15% advocated for ICT policy as a measure to ensure maximum use of ICT tools in teaching and 8% were of the view that if technicians are employed in schools , teaching using ICT tools will be easier since these will be there for repairing computers and helping teachers when using gadgets like projectors and some softwares.

Other suggestions by teachers:

- Incentives to attract international bodies to invest in ICT in schools.
- Creating an ICT application, content and domesticating technology through a conscious RRD strategy.
- Introduction of electronic computer system in teaching

The responses given by teachers have shown that much has to be done for effective use of ICT tools in teaching Geography at 'O' level. After the presenter , presented information for teachers he went also to look at what heads said when they were interviewed.

Head 1: reported that in order to implement ICT in teaching many things has to be done in rural schools. The following are some of his suggestions, ' *the first thing the government should do is to make sure that all schools in peri-urban and as well as rural are electrified, without rural electrification of schools teaching of the new curriculum becomes impossible. Here at my school as you have seen we don't have any computer lab but still the government is advocating for the implementation of the new curriculum which require the use of many of these ICT tools'*

Head 2: encouraged the government to give funds to those teachers moving around teaching other teachers on the use of technological tools in teaching. He said that, '*when they are given some tokens they become motivated as result they work very hard to achieve their objectives.* The other thing that he suggested is that the government must have an initiative in building computer laboratories in schools, he said that, '*fees that are paid by the parents are not adequate, there is much to be done in building'.*

Head3 : said, ‘ *government must increase workshops on the use of ICT tools and also give more computers to schools. In addition there must be also technicians to help teachers when teaching their lessons’.*

Heads’ views were in line with what were said by the teachers, they were advocating for the building of computer laboratory, in-service training ,electrification of schools, increase of computers, projectors and application softwares like GIS software.

Therefore from the information suggested above it can be seen that a lot need to be done to ensure that there is improvement in the use of ICT tools in teaching geography at ‘O’ level. This is in line with what has been said by authors like Farrell (2007 who asserted for ICT to be fully integrated in schools there is need for support systems like professional developments and ICT policies in schools. Above information was also supported by Ratemo (2009) who said that many technicians need to be deployed in schools for the purpose of helping teachers and repairing computers.

In addition Anderson and Dexter(2012) reported in literature review that unlimited access to training result in teachers failing to integrate ICT tools in teaching Geography. This is indeed in the same vein with what teachers and heads said. Dexter also supported the view of having workshops in schools for effective use of ICT tools in teaching Geography at ‘O’ level. Afshari (2009) advocated for an ICT integrated plan at school which makes all teachers to effectively use ICT tools in teaching. The information given by teachers and heads were in line with what Afshari suggested.

4.5 SUMMARY

This chapter clearly revealed findings from teachers and heads which were in questionnaires and interviews respectively. Data were presented systematically, starting with that from questionnaires ending up with data from interviews. The investigator therefore concludes that the interplay of factors have negatively influenced and slowed the use of ICT tools in teaching Geography in secondary schools. These include lack of skills and knowledge, support systems to improve the use of ICT in teaching like in service training or professional developments and lack of access to ICT tools. Therefore there has been limited use of ICT tools in teaching geography at ‘O’ level in secondary schools. The next chapter shall focus on summary , conclusions and recommendations of the topic under study.

CHAPTER 5 :SUMMARY, CONCLUSIONS AND RECOMMENDATIONS.

5.0 Introduction

Chapter five give an overview of chapter one to four. This chapter focused on the summary, conclusions and recommendations on the use of ICT tools in teaching Geography. The recommendations that the research draw are based on the findings of the research.

5.1 Summary of chapters

Chapter one of the project looked at the background to the study where the researcher used the funnel approach , countries which were included in this approach include Malasyia, America, ,Australia , Rwanda ,China , Uganda and South Africa they are benefiting a lot from maximum utilization of ICT tools in teaching, statement of the problem which show exactly where the problem is and what is really causing the problem, significance of the study to the researcher, teachers, headsand Ministry of education, research questions, limitations and delimitations. The topic under study was based on the following research questions which are:

- What ICT tools are being used by teachers in teaching of geography?
- How knowledgeable are geography teachers in the use of ICT tools?
- What support systems should be put in place for the effective use of ICT tools in the teaching of geography at 'O' level?

Chapter two was focused on the use of ICT tools in teaching Geography at 'O' level. Under chapter two were three research questions named above. Tools which are being used in teaching Geography were highlighted and explained. Related literature showed that teachers need knowledge and skills in ICT for them to be able to fully use them in teaching. The third research question looked at support systems that should be put in place for effective use of ICT tools in teaching. These support systems include ICT policies, workshops / in-service training, technical support and electrification of schools.

More so, chapter three looked at research methodology and research design used in collecting data. The researcher used descriptive research design to collect data from heads and teachers on the use of ICT tools in teaching Geography at 'O' level. The sample was selected from the population. Mixed methods approach , both quantitative and qualitative methods were used. The researcher used questionnaires to gather data from teachers and interviews for headmasters of the three schools under study which were Rimuka 3 High , Block 4 and Ngezi Barracks High school.

Chapter four was on the presentation, analysis and discussion of the findings from data collected from both headmasters and teachers. To answer research questions clearly tables, pie charts and bar graphs were used. Data was presented following each research questions. Findings revealed in chapter four depicted that teachers still have challenges in using ICT tools in teaching Geography. Knowledge and skills are limited in teachers and there is also scarcity of ICT tools like computers in schools as opined by teachers and heads. Suggestions were given by both teachers and heads on what should be done to effectively use ICT tools in teaching.

5.2 Conclusions

The conclusions that follow were drawn from research questions in chapter one.

5.2.1 What ICT tools are being used in the teaching of Geography at 'O' level?

The research findings on this research question has highlighted that some ICT tools that must be in use when teaching Geography are not being used due to a number of factors. Tools include internet, projectors, computers, email and GPS softwares. Therefore information from teachers and heads showed that Zimbabwe education system is faced by a plethora of challenges and these have greatly and adversely affected the smooth running of the system. A number of teachers are not using the above ICT tools at all.

The research findings also showed that there is no way for our society to go except in the direction of more science and more introduction of technologies. If our schools throughout the country are to maintain maximum educational standards, they should be provided with adequate funds, infrastructural facilities in terms of modern classrooms equipped with electronic computer system which are connected to internet, well equipped laboratories, workshops, libraries, instructional materials and highly qualified personnel.

5.2.2 How knowledgeable are Geography teachers in using ICT tools?

The research study revealed that in schools most teachers are not knowledgeable in ICT tools. A few are experts in using ICT tools in Geography. A number of teachers are on average, they know the ICT tools that must be used but the problem is skills. Some of the tools like projectors and the use of global position softwares in Geography require skills. Therefore the research here has shown that most teachers have learnt via ICT instead of learning ICT in pre-service training.

In this research question some of the teachers reported that they do not have access to ICT tools. Tools in schools are limited due to lack of funds so some of the tools like projectors they may not know much about them.

5.2.3 What support systems should be put in place for effective use of ICT tools in the teaching of Geography at 'O' level?

From the research findings, the researcher concluded that in-service training, workshops, school ICT policy, technical support , electrification of schools by the government , building of computer laboratories and increase of computers help much in the use of ICT tools in schools. The research findings from teachers and heads has highlighted that the use of ICT tools in schools is patchily because of the above limitations. Therefore from the information given by respondents it is clear that a lot need to be done by the government to ensure maximum utilization of ICT tools in schools.

5.3 RECOMMENDATIONS

The major focus of the study was to probe on the use of Information Communication Technology in teaching Geography at 'O' level in MhondoroNgezi District Secondary Schools. Based on this investigation, it is considered very important to make the following recommendations:

- Government should continue with the computerization programme in schools started by comrade R. G Mugabe in 2005 since some schools are yet received any one since the programme started. Schools that have not benefited are those that are especially at the periphery of towns and those in rural areas. In addition government and non-governmental organizations should avail funds to schools to increase their ICT tools for use in teaching.

- Those teachers that are not ICT compliance but already in schools should be encouraged to study further in order to meet up with the new demand andonly qualified and competence Geography teachers in ICT from colleges and universities should be employed to teach in our secondary schools.
- Conferences, seminars and workshops and relevant programmes should be organized by professionals of ICT to teach Geography teachers. In addition to the above, since ICT largely depends on electricity the government should embark on programmes that promote electrification of schools. Above all, the heads should have their own ICT policies at their schools that promote the use of ICT tools.

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Appendix A.Teacher questionnaire

My name is MuwaniAdonia, a student at Midlands State University doing a bachelor of Education Honours Degree in Geography. I am carrying out a study on the use of ICT in 'O' level geography in Kadoma ,MhondoroNgezi District. Feel free to add any relevant information pertinent to the topic. Your name and the name of the school will not be required hence the information provided will be confidential and anonymous. You are further asked to respond to all questions below by ticking in the appropriate box or writing in the spaces provided.

SECTION A. Personal details

1. Gender male ☐ female ☐

2. Experience teaching Geography

1-5yrs ☐ 6-10yrs ☐ 11-15yrs ☐

More than 16yrs ☐

3. Highest professional qualification

C.E ☐ DipEd ☐ BED ☐ Med ☐

Other ☐

SECTION B.

4. Rate your skill in using ICT tools

No knowledge	Average	Expert

5. Complete the following table

Access to ICT tools		**YES**	**NO**
a)I own a PC (personal computer)			
b)I use school PCs			
c)I have internet			
d)School has enough PCs			

6. Are you using the following tools in teaching Geography?

ICT tool	YES	NO
a)Computer		
b)LCD projector		
c)Internet		
d)Global positioning system Softwares		

7. How often do you use ICT in the teaching and learning of Geography…….....
.....

8. What training have you received to use computers in teaching Geography…….....

9. Are you able to integrate computers in your Geography new curriculum? Yes/no If yes to what extent.....

10. What in your opinion, are the benefits of ICT in the teaching and learning of Geography?.....
.....

11.Does your school have ICT policy in the teaching and learning of Geography?.....

…….

12. What support systems should be put in place to improve the use of ICT in the teaching and learning of Geography?

…….....

……..

Appendix B. Interview guide for school heads

1.What ICT tools are being used by teachers in the teaching of geography?

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2. How knowledgeable are geography teachers in the use of these tools?

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3.What support systems should be put in place for the effective use of ICT tools in the teaching of Geography at 'O' level?

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