

## **IMPLEMENTATION OF INFORMATION COMMUNICATION TECHNOLOGIES (ICTS) IN THE PROCESS OF TEACHING AND LEARNING IN PRIMARY SCHOOLS IN ZIMBABWE: THE SURVIVAL STAGE RAGES ON.**

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### **Abstract**

This study explored the state of preparedness of primary schools to use ICTs during the process of teaching and learning and the extent to which the primary schools are using ICTs in Zimbabwe. Quality education in the 21<sup>st</sup> century can be achieved if teachers infused ICTs in the teaching and learning process. A survey of ten primary schools in Manicaland province indicated that separate computer rooms have been set up where pupils from grade three to seven received basic computer appreciation lessons once a week at allocated times from a 'specialist teacher'. Five teachers from each of the schools were interviewed, and ninety percent (90%) of them were not computer literate. Only ten percent (10%) of the teachers had acquired basic computer skills during teacher training and were all young teachers but did not use computers in their day-to-day teaching. Traditional pedagogic practices continued as the means of transmitting knowledge, skills and attitudes to pupils. The study also showed that although teachers were aware of the various learning opportunities to be realised by ICTs, and computers in particular, they lack the knowledge and skills on how to use ICTs to enhance quality learning. Most schools do not have the necessary ICT equipment and Internet connectivity is poor, non-existent or too expensive for most rural schools where the majority of the students learn. The study recommends that the use of computers as a tool in the teaching and learning process in the classroom can make learning student centred and the teacher assumes a new role of becoming a facilitator.

**Keywords:** quality education, computer literacy, traditional pedagogic practices, active participants.

## Introduction

Many countries have come to regard Information Communication Technologies (ICTs) as key to modernisation and development. ICTs and Internet use bring skills and abilities for students to become lifelong learners and the ability to work and learn from experts and peers in a connected global village. The dramatic increase in the use of computer-aided instruction in education has become more to the point that the use of ICTs and Internet is now part of a student's basic learning toolkits as far as taking notes; researching, doing assignments or reading texts is concerned. The 21<sup>st</sup> Century that is a digital society demands a workforce that can use ICTs and Internet technologies as tools to increase productivity and creativity in order for the workforce to be able to compete on the world markets. This involves identifying reliable sources of information, effectively accessing these sources of information, synthesising and communicating that information to colleagues and other associates locally and globally.

As an acknowledgement of the central role of ICT to development, many nations including Zimbabwe instituted Information and Communication policies as a framework for the integration of ICT in all facets of the society. The framework of the ICT should clearly state its bases before implementation. Sharma (2003) points out that introducing a new technology into an existing curriculum requires strong support from the government, the implementers and the recipients (students) themselves. The ICT and Internet framework offers institutes of learning a structured approach to using ICT and Internet in curriculum and assessment by identifying the types of learning with ICT and Internet (including knowledge, skills and attitudes) appropriate for students during the period of compulsory education for ICTs and Internet use (NCCA 2007). There is an assumption in this endeavour that teachers in the schools have computer skills and are able to integrate ICT in classroom.

There is need to integrate ICTs into classroom teaching and learning process instead of treating ICT as a separate subject. The modern era of technology challenges teachers to be innovative, creative and pro-active by fusing ICTs in their everyday teaching approaches.

## Background

### The ICT Policy in Zimbabwe.

Different authors have different ideas about the ICT policy in Zimbabwe. Isaacs (2007) is of the opinion that Zimbabwe has a dedicated national ICT policy that was adopted in 2005 and it makes significant references to the adoption of ICTs in education including pedagogical use in educational institutions. Chindaro (2012) agrees, and further states that the Ministry of Information and Technology (MICT) produced the first National Information and Communication Technology Policy Framework in 2005. Isaacs (2007) adds that the Zimbabwean government adopted a national policy in 2005 that was informed both by a Harvard University-guided e-readiness survey, which suggested the country was not uniformly e-read. Isaacs (2007) conflicts his ideas when he says that one of the constraining features is that Zimbabwe does not have a dedicated specific national policy on ICTs in education. How far the policy has been implemented is the question asked by many people.

Musarurwa (2011) says that the government of Zimbabwe, together with the University of Zimbabwe Department of Teacher Education, unveiled a policy in 2007 in which IT in education was made mandatory for every student at a teacher training college. This is in line with NCCA (2007) who postulated that the ICT and Internet framework offers institutes of higher learning a structured approach to using ICT and Internet in curriculum and assessment by identifying the types of learning with ICT and Internet (including knowledge, skills and attitudes) appropriate for students during the period of compulsory education for ICTs and Internet use.

In planning for ICT integration in education, policymakers need to begin by clarifying the overall national education policy objectives, as this should serve as the rational and road map for technology integration in the education system. The policy should have a clearly outlined action plan for its implementation. There are possible factors that might hinder the implementation of the policy cited by various authors. Ndlovu (2009) points out that there are some key elements that affect ICT, Internet penetration and telephone usage in Zimbabwe, such as appropriate infrastructure, knowledge, skills, attitude and personnel with relevant training. UNESCO (2003) is of the same view, arguing that although the policy may be clear, and specific, without the infrastructure and training at the colleges, it is likely that the incorporation of ICTs and Internet in the teaching and learning process will remain on the

drawing board. Thus, the policy framework shows a vision on ICTs as tools to be used for classroom teaching and learning purposes.

According to the European Commission, the importance of ICTs lies less in the technology itself than in its ability to create greater access to information and communication. In essence, the use of ICT in education entails using multiple digital media in the teaching and learning process. The very expression “Information and Communication Technology,” has lots of ideas in it. It is not just using gadgets. The focus is on what is being transacted through this medium. We have information technology (The means to gain/ access/ create information) and communication technology-how to relay/ pass on/ exchange/ receive information). It is a very comprehensive expression. It is not limited to the computers or the Internet. It ranges from the use of FM radio to the use of satellite for communication. It includes both the form and essence of communication. ICT has the potential to make learning more experiential. Moreover, the large amount of data, visuals available on any topic can be brought to the classroom from all over the world. Hence ICT has the potential for making the teaching and learning process more meaningful and exciting.

## **Literature Review**

### **Barriers to ICT adoption in Developing countries.**

**Teacher Education:** In most Developing countries teacher training is not giving emphasis to the use of Advanced Educational Technologies within the classroom. This is due to the fact that teachers in general will be working in schools without computers and any other forms of Advanced Educational Technologies. Therefore, most many teachers their complete teacher training without or with little of the necessary skills to use Advanced Educational Technologies. According to Dawes (2000), teachers who have little or no confidence in using computers in their work will try and avoid them. This has contributed to the little or no use of Advanced Educational Technologies in the classroom since it has not be developed as a habit

during teacher training. When these teachers are at a school where computers are available for example, they do not appreciate the importance of using them during the process of teaching and learning. Teacher training should empower teachers with the skills needed for using Advanced Educational Technologies.

**Electrical power:** Most Advanced Educational Technologies use electrical power. In Developing countries some parts do not have power supply or it is not constantly supplied and the use of computers become difficult. Those schools that do not have power supply from the main grid cannot use solar power because putting up a solar system at a school in these countries is very expensive. This has made most areas remain without power. Schools within these areas have no option but to use Traditional Educational Technologies that do not require power such as the blackboard, chalk and charts. Teachers and students will only need to rely on information from outdated text books and they do not have the opportunity to use the internet due to lack of power. Power is critical for use during the process of teaching and learning when using Advanced Educational Technologies such as the smart boards which makes learning interactive, interesting and creates a student centred approach. Access to Internet is also dependent on power and if it is not available it means students and teachers cannot use it. President Obama on June 30, 2013 announced Power Africa, an initiative to double the number of people who will be able to access electricity on the continent. This goes on to show the magnitude of the power problem in Developing countries. Non-availability of power has had a negative impact on the adoption or use of Advanced Educational Technologies in Developing countries.

**Teachers' working conditions:** In Developing countries teachers' working conditions in general are poor. Lack of proper housing, power supply, good water supply and poor road networks in the rural areas are some of the factors that cause rural areas not to have skilled and well trained teachers. Well-trained and skilled teachers like to work in the urban areas

where most facilities are available such as banks, good housing and well-equipped schools. This has had a negative impact on the adoption of Advanced Educational Technologies in rural schools even though the school may have the basic infrastructure. Teachers shun these schools because of the working conditions in the rural areas where most of the population lives in Developing countries live.

**Sustainability:** Advanced Educational Technologies by nature are very expensive in Developing countries. Any new technology on the market is viewed as for the elite. Generally, rural schools, that constitute the majority of the schools, are poor. Hence, even when Advanced Educational Technologies are donated to them, they cannot afford to maintain them. Backup services are very expensive and things like spare parts may need to be imported. In most cases, these Advanced Educational Technologies are only in use for a few months or years because of backup support problems. Skilled manpower responsible for repairing and maintaining these Advanced Educational Technologies is located in towns and calling them to rural areas which have poor road and communication network is very expensive. In most cases the infrastructure just crumbles due to lack of service because it is not sustainable.

**Government policies:** Lewins and Stuart (1991) emphasised that in Developing countries, educational provisions were limited due to their governments' failure to recognise and address the issues of access, culture and the gender gap that affect the poorer population groups. In Developing countries rural educational systems are isolated, under-resourced and schools are neglected, with many unqualified teachers and little or no access to information and are prepared least for change, (Lewins,1991). This means that the Advanced Educational Technologies may not reach these areas or the school may not even have information about the latest changes that will be taking place in terms of Educational Technologies. This results

in these schools or institutions relying on old outdated Educational Technologies that might not give the desired results during the process of teaching and learning.

**Digital divide:** The social and economic inequalities among different classes of people in a given population in their access to, use of, or knowledge of information and communication technologies is referred to as digital divide. In simple terms it is the gap between those who have computers with Internet access and those who do not, as well as those who can use a computer and those who cannot. In Developing countries this is well pronounced especially in the rural areas. In the rural areas access to Internet is very limited and in most cases non-existent. Those schools that do not have access to Internet are more likely not to use these Advanced Educational Technologies since some of them require Internet in order to be used effectively and efficiently. Some of the machines require software updating from time to time and this won't be possible without Internet access. Computers for example require software updates. Since the rural schools mainly have unqualified teachers who in most cases are not trained to use these Advanced Educational Technologies this will result in these technologies not being used in the classroom. Digital divide may include as well the difference between Developed and Developing countries in term of the availability of Internet. In developing countries Internet is very expensive and very few schools can afford it.

### **Purpose of the study**

The main objectives of the study were.

1. To determine the state of preparedness of schools to use ICTs and Internet during the process of teaching and learning in primary schools.
2. To determine the extent to which primary schools are using ICTs in the process of teaching and learning.

## Methodology

This research is a descriptive research since it mostly focuses at ICTs and Internet Usage at primary schools. Trochim (2006) defines a descriptive research as a grouping that includes research methodologies and procedures such as observations, surveys, self- reports and test and points out that descriptive research describes, interprets and clarifies what is in the present and it is often done in surveys, observations or questionnaires.

A descriptive research is flexible and it deals with contemporary topics for example the Use of ICTs and Internet in education and it can collect data from a wide range. Descriptive research is also called Statistical Research by some other authorities. The main goal of this type of research is to describe the data and characteristics about what is being studied.

In this study, qualitative techniques were used to collect data. Whilst on teaching practice supervision, the researchers took the opportunity to observe computer rooms in use, interview teachers, school administrators and some student teachers. The researchers designed the questionnaire and administered the interviews. The questionnaire had ten questions that sought demographic data, qualifications as well as the views of the participants on the state of ICTs implementation in primary schools in Manicaland. Teachers in the selected schools filled in a questionnaire before interviews were conducted. In addition to the questionnaire and interviews, some observations were made on the state of the computers, the computer labs and software in the computers as well as the connectivity to the Internet of the computers. Also of interest was the availability of ICTs and Internet equipment besides the computers. The results obtained in this research were summarised and presented as findings. The response rate from the questionnaire was 100% and the results can be view as valid and reliable as representing the population of schools with ICTs and Internet in selected Manicaland schools.

## Results

From the study, it was established that 90% of the schools under study are not using ICTs in the teaching and learning process. Teachers were still using the traditional pedagogies for teaching and learning purposes. All rural schools (100%), in this study are not connected had no Internet connection and (80%) do not have electricity. On the state of preparedness of the schools to embrace ICT technologies, there has been very little with no formal training of teachers in the use of ICTs for teaching and learning purposes especially in the older teacher

group. Only 10% of teachers in this study had acquired some skills in the use of computers during teacher training and these were only the young teachers, see Table 1 for teachers' challenges with ICTs.

**Comment:** You may need to mention numbers too, so that when you mention percentages the reader has an idea of the numbers involve.

**Table 1 : Challenges faced by teachers.**

Challenges	Percentage (%) & N
Lack of training	80 N here
Shortage of resources and facilities	90 “
Lack of knowhow	90 “
Negative attitude from students	20 “

## Discussion

The research findings show that most schools especially in the rural areas are not electrified. The government intends to have solar power installed to enable computer and Internet use for teaching and learning purposes. Not every school has ICT equipment such as projectors, TVs, Radios, DVD players, cameras and interactive white boards. Lack of ICT skills and appropriate attitudes by the teachers has had a negative impact on the implementation of ICT in the process of teaching and learning. Failure to use ICTs in the teaching and learning process where facilities exist could be also be due to resistance to change, especially where teachers feel threatened by the new role they must now assume in the digital classroom, that of being a facilitator. The advent of new technologies in the 21<sup>st</sup> century poses challenges in the education system in Zimbabwe. Classroom teaching and learning strategies have to adapt to the digital classroom if quality education is to be achieved and maintained. The paradigm shift from traditional teaching and learning pedagogies to digital pedagogies requires training (pre-service and in-service) of teachers so that they keep abreast with the global technological changes in education. Teachers must be capacitated with appropriate knowledge, skills and

attitudes needed in the digital classroom so that they can use ICTs meaningfully across the curriculum.

### **Conclusion**

Despite the benefits that ICTs bring to the process of teaching and learning, Zimbabwean educators still lag behind in the use of these technologies due to a number of factors. These factors include digital divide, power supply, training, government policies, sustainability, teachers' working conditions, and poverty among others. It is important to address these issues in order for the process of teaching and learning in Developing countries to be at par with that of Developed countries. If these barriers remain in place it will be very difficult for educators and learning institutions in Zimbabwe to use or adopt the use of ICTs in the process of teaching and learning. All stakeholders such government, teacher training institutions, rural communities, parents and all others need to work together in order for the adoption of ICTs in the process of teaching to be a success.

### **Recommendations**

This study recommends that:

- a) Pre-service training of teachers should focus more on using ICTs for the teaching and learning purposes across the primary school curriculum. In-service training of qualified teachers is of paramount importance, although technophobia to some, especially the long-serving ones, could block this paradigm shift to fuse traditional methodologies with digital pedagogy, emphasis should be made such that they see the risk they are causing to the pupils who are referred to as 'the natives of technology'.
- b) There is need to provide schools with sufficient Advanced Educational Technology resources such as Internet computers etc.
- c) Incorporating ICT-based learning into teacher preparation and in-service training is be strongly considered.
- d) There is need to use computers as a tool in the teaching and learning process in the classroom and this can make learning student centred and the teacher assumes a new role of becoming a facilitator.

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