Factors affecting use of computer technology in rural secondary schools by ODL students who are secondary school teachers in Mbire district of Mashonaland Central Province of Zimbabwe.

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Abstract

There is compelling evidence that the use of ICT in the teaching and learning positively influences learners' academic achievement. Its benefits occur across all socio-economic classes. In spite of its significance, the implementation of ICT appears to be of great importance to ODL students who have to use it in their learning at the university and also in the teaching and learning. This study was therefore designed to analyse factors affecting use of computer technology by ODL students studying at an Open and Distance learning university at the same time teaching in secondary schools. The study used the mixed methodology approach and descriptive survey design. The population of the study comprised 78 ODL students who are secondary school teachers. Systematic random sampling and purposive sampling were used to select 40 respondents and 5 participants. Data were collected and generated through the questionnaire, the interview and observation techniques. Frequency tables, graphs and descriptive statistics were used to present quantitative data while qualitative data was presented as transcripts and in themes. The study established that there is unavailability of material and infrastructure resources. There is lack of expertise on part of the teachers/facilitators. There is minimal usage of computers to enhance professional work by teachers. Teachers' attitudes towards teaching using computers have a bearing on implementation of the innovation. Schools are facing financial problems to outsource computer gadgets and to construct computer laboratories. The study therefore recommends that ODL students need to embark on in-service training sessions or even attend computer short courses. Out dated computers, need to be replaced with modern ones which have more capacity. Schools should be subsidised by the government to acquire and built infrastructure Schools and the community need to be staff developed on ways of income generation

Key words: *Teaching; learning; computers; innovation; factors*

Conceptual framework

Information technology is defined as the technological applications (arti-facts) of informatics in society. It is a combination of informatics technology with other, related technologies, specifically communication technology. This definition implies that ICT will be used, applied, and integrated in activities. ICT permeates the business environment, it underpins the success of modern corporations, and it provides governments with an efficient infrastructure. At the same time, ICT adds value to the processes of learning, and in the organization and management of learning institutions. The Internet is a driving force for much development

and innovation in both developed and developing countries. Countries must be able to benefit from technological developments-learning is a concept that covers a variety of applications, process and learning methods. E-learning is also referred to the use of information and communication technologies to facilitate the access to online learning/teaching resources and to provide students with collaborative environments and tools.

Background of the study

In the context of the World Wide Web, the information and communication technologies profoundly enhance communication opportunities (Rossi 2009). Worldwide research has shown that ICT can lead to improved student learning and better teaching methods. A report made by the National Institute of Multimedia Education in Japan, proved that an increase in student exposure to educational ICT through curriculum integration has a significant and positive impact on student achievement, especially in terms of "**Knowledge・Comprehension**" ・ "**Practical skill**" and "**Presentation skill**" in subject areas such as mathematics, science, and social study.
Information Communication Technology students gain knowledge and skills needed to effectively apply, use and manage technology when solving problems specifically related to information and communication. ICT is an enabling tool to drive economic growth. **NEW:** ICT is excited to announce their new track-Information Studies. The information studies track allows students to learn how information can be created, communicated, stored, and/or transformed to benefit individuals, organizations, and society. In our information based society, it enhances teaching practical skills for analysing, processing, managing information that will allow learners to create technology-based solutions using a user-centered approach and evaluate the roles of information in a variety of organizational settings. ICT is a valuable skill that is currently sought by employers.

The use of ICT cuts across all aspects of economic and social life. Technological developments in ICT are very rapid. Technology quickly becomes obsolete requiring new skills and knowledge to be mastered frequently. Adaptation is only possible when based on a sound under-standing of the principles and concepts of ICT. Technological developments lead to changes in work and changes in the organization of work, and required competencies.

Main advantages of ICT tools for education

1 Through ICT, images can easily be used in teaching and improving the retentive memory of students.

2 Through ICT, teachers can easily explain complex instructions and ensure students' comprehension.

3 Through ICT, teachers are able to create interactive classes and make the lessons more enjoyable, which could improve student attendance and concentration.

4.Through ICT professionals gain the following competencies:

- critical thinking,
- generalist (broad) competencies,
- ICT competencies enabling expert work,
- decision-making,
- handling of dynamic situations,
- working as a member of a team, and
- communicating effectively

Purpose

This research sought to establish the factors that are affecting the use of computers in the teaching and learning process in secondary schools by ODL students.

Research Objectives

- To identify computer facilities in Mbire secondary schools.
- To establish level of computer literacy among ODL students who are qualified teachers and are teaching various subjects in secondary schools.
- To determine ICT resources available in Mbire secondary schools.
- To identify strategies that can be used to improve use of computer technology in Mbire secondary schools.

Methodology

The study used the mixed methodology approach and descriptive survey design. The population of the study comprised 78 ODL students who are secondary school teachers. Purposive and simple random samplings were used to select 40 teachers. For data collection and generation questionnaires, interviews and observation techniques were used to collect and generate data. To enable clear interpretations, data were presented in tables and transcripts.

Findings

Teachers were asked their teaching experience

Table1. **Teachers 'response on length of service**

Response	**Number**	**Percentage**
1-5 years	2	5
6-10 years	4	10
11-15 years	12	30
16-20 years	22	55
Total	40	

The table above shows that 2(5%); 4(10%) are in the age range of 1-10 whilst 12 (30%) and 22(55%)–of teachers are in the range of 11-20 years This is an indication that the majority of teachers are not recently trained and escaped the computer era. Considering that the majority of teachers escaped the computer era, induction being conducted by the university and workshops conducted by the government are not enough and comprehensive since ICT requires massive hands on as a result this impacted negatively on use of ICT in the teaching and learning in secondary schools.

Table 2 Observational tour on ICT Resources in schools

Name of school and enrolment	Connected to National Grid	Computer lab	No of Computers
A= 270 learners	Yes	No	1
B= 380 learners	No	No	1
C= 520 learners	No	No	1
D= 750 learners	Yes	No	4

ICT Resources in Secondary schools

Table 2 reveals that all the schools have computers ranging from1-4 and yet they have enrolments ranging from 270- students sharing 1computer School A has 270 learners sharing 1computer, school B has 380 learners sharing 1computer, School C has 520 learners sharing 3 computers whilst School D has 750 learners sharing 4 computers. Due to over use by artificial demonstrations, most of the computer gadgets are broken and are not working. This may have been necessitated by lack of electricity and technical know-how on repairing these ICT gadgets .In one of the schools the computer is gathering dust.

Data collected from the interview revealed that although 1out of the 4 schools are connected to the national electric grid, classrooms are not connected to electricity but only the head's office. Lack of access to electricity was therefore one of the major impediments to enhance ICT skills so as to fully implement ICT in the teaching and learning in secondary schools. ICT related tools such as smart boards and internet infrastructure require electricity to operate. It was observed that the schools not connected to the national grid use alternative energy sources like solar power in the heads' offices only. All the schools have computer laboratories which are existing as plans for futuristic school projects.

Books on ICT.

Table 2 reveals that schools have books with an average of book pupil ratio ranging from 1is to 50 to 1is to 100. This adversely affects implementation of ICT in secondary schools of Mbire district

The majority of teachers are computer illiterate. It was indicated that lack of computer teachers who are computer literate further constraints students who will be in need of

acquiring basic computer skills. The majority of teachers because of lack of know how resist using computers.

Attitudes towards acquisition of ICT skills and their implementation.

The researcher sought to ascertain the attitudes of the ODL students who are teaching towards their efforts to acquire ICT skills and to teach using them. The following transcribed verbatim responses were obtained from participants.

Participant 1

"Parents are already struggling to pay levies for their children hence it would not be a noble idea to ask them to build a computer laboratory and pay connection fees and buy electricity gadgets. Where would they get the money or resources for that? After all we are a rural school that is at the border of Zimbabwe no one cares about what happens here."

Participant 2

Another participant who is an acting head gave the following opinions towards the implementation of ICT at her school

"In as much as we would want to implement ICT at this school, it's a real challenge as we have much more pressing issues to attend to, such as ensuring adequate housing for the teachers. I hardly think an ill housed teacher will be moved to implement ICT in the classroom'

Participant 3

One of the interviewed participants alluded that "What is needed is for every school teacher to be trained in ICT especially considering we were trained long ago and the syllabus did not cover ICT, we are the old cohort who grew up in a world without computers. Computer training would assist us as ODL students who are expected to type and upload our assignments online and register using online and teach using ICT. It's a noble idea we are making cash cow for local businessmen at Mbire district centre'.

Some teachers were asked what should be done to improve the situation. Sentiments revealed that there is need for continuation of teacher capacity building to train all teachers on ICT skills since they are unable to type for themselves, register for themselves and disseminate information to learners. They also alluded that their learning experience has been disadvantaged by slow progression of ICT tools and gadgets in their schools and lack of computer labs and books.

Discussion

From this study it was quite evident that participants who are ODL students did not have any other qualification besides either certificate or diploma in education. Observations made indicate a gross lack of any ICT tools where ODL students are teaching. This contradicts the admonition by Mitchel (2004) who argues that the new competences and skills needed for

knowledge based society demand the continuous change of educational practices. Learners who grow in the digital age are far more experienced and able to process information rapidly than their predecessors. However in the absence of an enabling environment, learners will not be at par with their counterparts from enabling environments.Pahar,2006 and Vassallo(2001)advocate that ICT in schools or college ensure competence to participate in the technologically advanced world. This is buttressed by Jeynes (2005) who states that the use of computers is associated with high student achievement outcomes. On part of the teachers they would continue to pump a lot of money so as to meet the demands of their studies. It was noted that lack of computer literacy contradicts with Peresuh who advocates that the use of computers commands highest priority globally as the world is increasingly moving towards the sole use of ICT. This is serious reflection on ODL students considering they are required to embark on eLearning and to teach using ICT to move with technological advancement. ICT curriculum. Indeed, introducing any new curriculum calls for care-full preparation, management, resourcing, and continuing support The study established that most of the ODL teachers can minimally do online registration type documents and store information. The internet was mainly used for researching data for personal assignments at the regional campus with much assistance of the ICT technician.

Conclusion

There was minimal usage of computers to enhance professional work, Factors attributed to this were computer illiteracy, financial costs associated with purchasing computers in schools, servicing the existing computers, hardware and software failure and electricity power challenges.

Recommendations

Basing on the findings this study therefore recommends that:

- More in service training to be embarked on.to cope with ICT implementation.
- Remote schools should be subsidised by the government to acquire and built infrastructure.
- There is need to increase connectivity of electricity, internet accessibility, affordability, and coverage for all rural secondary schools.
- Schools and the community need to be staff developed on ways of income generation even attend computer short courses.
- Out dated computers need to be replaced with modern ones which have more capacity.

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