

Abstract

In many developing countries, integration of information and communication technology (ICT) is a key component in an educational reform agenda. These countries draw largely on a tradition of research in the developed world on factors determining integration of ICT in education. This study investigates the extent to which ICT is integrated in the teaching process in selected colleges of education (CEs) and the effect of integration. The theory that teaching and learning using ICTs in schools around the world are in four broad stages; emerging, applying, infusing and transformation (UNESCO, 2002), provided the theoretical framework for this study.

To obtain primary data, an online questionnaire, the monkey survey package, with both objective and open ended questions was administered to lecturers in 13 CEs throughout Zambia, FGD were held with ICT coordinators in CEs and interviews were held with MOE and CDC officers. Secondary data was collected from various publications from both print and electronic media. The reviewed literature highlighted different viewpoints on ICT integration in education. The findings revealed ICT equipment in CEs was inadequate; most lecturers were in the emerging stage of ICT integration and were keen to integrate ICTs in their teaching but faced a myriad of problems that included lack of training on effective use of ICTs and lack of policy by MOE on ICT integration in the curriculum.

Introduction

Zambia's ICT policy advocates for effective integration of ICT within the entire education sector to support administration, teaching, learning and research (MOE, 2006). However, it is not known the extent to which ICTs are integrated in the teaching process in Colleges of Education in Zambia and the effect of the integration.

Purpose of the study

The purpose of the study was to determine the extent to which ICTs are integrated in the teaching process in Colleges of Education in Zambia.

Objectives of the Study

- To identify the types of ICT equipment used in the teaching process in colleges of education.
•To establish the role of ICTs in the teaching process.
•To determine the factors that affect the use of ICTs in the teaching process.
•To investigate the extent to which ICTs are integrated in the classroom situation
•To assess the effect ICT has made in colleges of education where it is used in the teaching process.

Research questions

- What are the types of ICT equipment used in the teaching process in colleges of education?
•What is the role of ICT in the teaching process?
•What factors affect the use of ICTs in the teaching process?
•To what extent are ICTs integrated in the classroom situation?
•What effect has ICT made in colleges of education where it is used in the teaching process?

Significance of the study

Greater knowledge on the realities of teaching and learning with ICTs in Zambia's educational institutions will enhance the potential for national development and international socio-economic development in today's globalized world. ICTs are not only a tool for teachers and learners in educational institutions, but also a compulsory skill for participation in a more global, international knowledge society. The findings of this study will enlighten policy makers, lecturers and other stake holders on effective integration of ICTs in the teaching process in colleges of education and in other learning institutions. The findings may also add to the existing literature and provide valuable information for further research.

Methodology

Research Design

The research design that was used in this study is descriptive survey. The study aimed at collecting information from lecturers in CEs. Both quantitative and qualitative data was collected. Primary data was collected using questionnaires, interviews and Focus Group Discussions(FGDs), while secondary data was collected from various publications such as textbooks, journals, government policy documents and internet.

Target population

The study targeted lecturers and principals of CEs, MOE HQ ICT coordinators, Teacher education and specialized services (TESS) officers, and CDC officers

The study sample consisted of 110 purposively sampled lecturers, 76.4 per cent (84) male and 23.6 per cent (26) female, 13 principals, 23.1per cent (3) female and 76.9 per cent (10) male, 1 MOE officer, 1TESS officer and 1CDC officer. The total sample size was 126.

Research instruments

To obtain primary data an online questionnaire, survey monkey package, with both objective and open ended questions was used. Focus Group Discussions were held with ICT coordinators in CEs; interviews were held with principals, MOE and CDC officers. Secondary data was collected from various publications such as text books, journals, government policy documents and internet.

Table with 3 columns: Response, Response Percent, Response Count. Rows include 'this totally doesn't apply to me' (14.4%, 15), 'this rather doesn't apply to me' (5.9%, 6), 'this sort of applies to me' (11.5%, 12), 'this rather applies to me' (12.5%, 13), 'this totally applies to me' (55.8%, 58). Summary: answered question 104, skipped question 3.

Figure 1: Lecturers responds to an online questionnaire (Survey monkey)



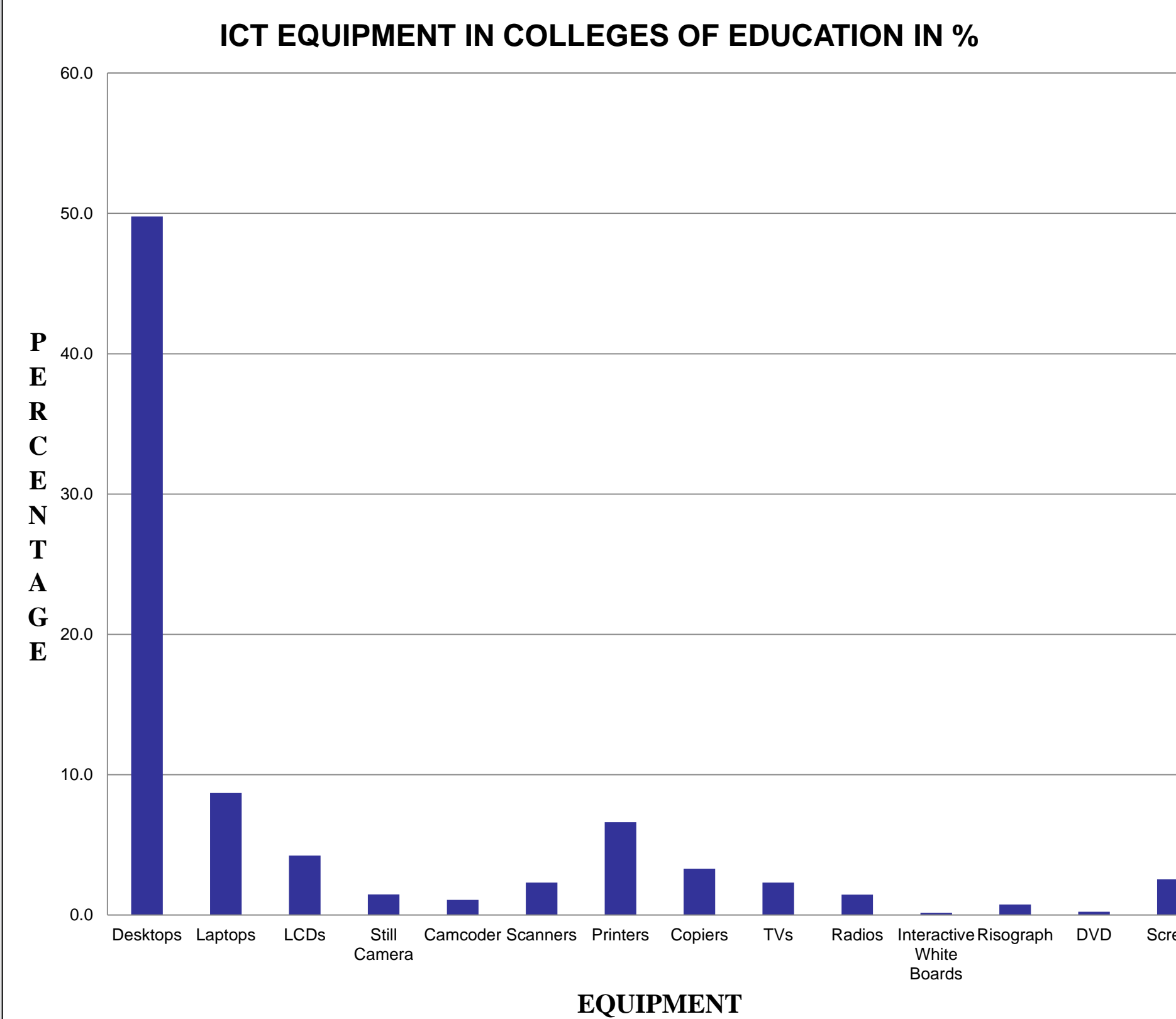
Figure 2:FGD with ICT Coordinators (Focus group discussions)

DISCUSSION OF FINDINGS

ICT equipment used in the teaching process

The ICT equipment in CEs were desktops (49.8%), laptops (8.7%), LCDs (4.2%), printers (6.6%), photocopiers (3.3.%); still cameras (1.5%), video cameras (1.1%), TVs (2.3%), radio (1.5%), DVDs (0.2%), screens (2.6%) and interactive white boards (0.2%), Risographs (0.8%).

The ICT equipment frequently used in the teaching process were desktops, laptops, LCDs, screens. Laptops were more convenient to use compared desktops because they were more portable.



Role of ICT in the teaching process

- increases motivation of the learner
•provides an insight into new and different learning and teaching environments

Factors that influence the use of ICTs in the teaching process

- Lack of clear policy and curriculum on ICT integration
•Inadequate training on effective use ICTs for subject integration
•High cost of: ICT equipment /maintenance/ internet service
•Inadequate ICT equipment

Extent to which ICTs are integrated in the classroom situation

- Use of PowerPoint during lesson presentation
•Use of interactive packages such as exe.eLearning and moodle
•Accessing information online during lesson presentation

Effect of ICT in CEs where it is used in the teaching process

- Improvement in the quality of the learning/teaching materials teachers produce for their students
•Improvement in the quality of the content of the students' assignments due to research on internet (most libraries lack up to date materials and are poorly stocked)
•Research on internet provides quick access to wide range of to date information
•Ease of presentation of material (PowerPoint) , communication and resourcefulness

CONCLUSION

There is a general lack of adequate knowledge on effective use of ICTs in the teaching process. Majority of lecturers who integrate ICTs in their teaching only use it in PowerPoint presentations. ICT equipment is inadequate in most colleges of education and internet connectivity is unreliable. Most lecturers in CEs are in the emerging stage of ICT integration in the teaching process. Countries that have made significant advances in ICT integration in education have policies in place and well defined curricula on ICT integration.

RECOMMENDATIONS

The absence of an approved policy on ICT in education by MOE and lack of clear curriculum does not motivate many lecturers to integrate ICTs in their teaching. MOE should put in place a policy on ICT in education with a clear curriculum for CEs. Lecturers need to be trained on effective use of ICT in education; introduction of a course on ICT in education with emphasis on subject integration for teacher educators. Lecturers in CEs embracing ICTs in their teaching, should not just end at using PowerPoint presentations, but should explore other effective and interactive ways of integrating ICT in their teaching process. The mobile phone, which is owned by majority of the students, should be frequently used effectively as an ICT tool for educational purposes. For instance, an audio lesson can be recorded and uploaded on a mobile phone and be exported in MP3 format which student can listen to instead of just always listening to music. There should be networking within and between colleges that can promote exchange of information to enhance the teaching/learning process. MOE HQ, provincial, district offices and CEs should have websites with updated information. Further research should be done on the impact of ICT on the learner in CE

Acknowledgements

I would like to express my heartfelt appreciation and gratitude to the following people for their contribution towards this study. Dr. Vitalicy Chifwepa, and Mr. Joshua Msango my supervisor and co-supervisor respectively, and Dr. Alfred Kakanda, course coordinator, for their advice and guidance. My wife Francisca, for her support and encouragement. My course mates, Mr. Alfred Mbobola, Mrs. Margaret Sakala and Mr. Edward Kalumba for their encouragement and inspiration. The principal of NISTCOL, Mr. Plyson Muzumara, and the entire college staff for sponsoring me to study at UNZA and Mr. Paul Chisekula for always finding time off his busy schedule to share his ICT expertise. Special mention is made to the Flemish Association for Development Cooperation and Technical Assistance (VVOB) in general and Mr. Bart Cornille in particular for the financial support to enable me visit the colleges where they offer technical support. Last but not least to all respondents in the sampled colleges and MOE departments who contributed to making this research possible.

References

Anderson, J., and Glenn, A. (2003), Building Capacity of Teachers/Facilitators in Technology and Pedagogy Integration for Improved Teaching and Learning. Bangkok: UNESCO
Apkan, J. P. (2002), Which Comes First: Computer Simulation of Dissection? Electronic Journal of Science Education. Vol. 6, no 4 [Online] unr.edu/homepage/crowther/ejse/akpan2.pdf [Accessed 26 September 2010]
Bell, J. (1987), Doing your research project. A guide for first time researchers in education and social sciences. Milton Keynes: Open University Press.