Status of Teachers' Use of Educational Technology: a case of Some Schools in South African Semi-Urban Locations

Moses Makgato

Tshwane University of Technology, Department of Educational studies

Abstract. There is a need for more research in developing countries to assess the integration of educational technologies into the implementation of school curriculum. Although the policies for the use of ICT in education is in place in most developing countries, the integration of educational technologies into curriculum is slow. The study aimed at investigating the type of educational resources used by teachers at some schools in the Northen Pretoria, South Africa, as well as the frequency of use. The study used a sample of 57 teachers at two schools at the semi-urban area. Questionnaire was used to collect the information. Descriptive and SPSS statistics were used to analyse the data.

Keywords: Educational Technology Use, ICT, Teaching Experience, Computer Literacy, South Africa.

1. Introduction

The global demand for computer literacy emanates from the dominance of information and communication technologies in different aspects of our modern life (Oliver, 2002). Computer literacy has evolved overtime as technology improved and society became more dependent on computers. In a modern technological society, basic computer literacy is compulsory and is emphasised in every educational institution (Ezziane, 2007). Aviram and Eshet-Alkalai (2006) argues that Information and Communication Technology (ICT) is important for 'mindful learning' in the information technology society. Students, teachers and employees acquire their computer or technology-literacy formally by means of formal courses or informally at home, from friends (Ezziane, 2007). According to Vrana, (2007); Macleod, (2005); Wims and Lawler, (2007) the use of ICT was found to be helpful in reducing the problems of 'isolation' and empowering the developing countries and marginalised groups. The use of ICT are proving to be powerful tools for 'poverty-alleviation' and 'economic-development' in developing countries (Nawaz, and Kundi, 2010; Hammed, 2007).

2. ICT policy and Implementation in South Africa

Developing countries like South Africa, have entered into 'international and national partnerships to capitalise on global ICT- resources. According to the World Economic Forum (WEF) *Global Information Technology Report,*South Africa has the most modern and best developed telephone system in Africa and avibrant ICT sector with an annual investment of USD$9.6 billion. The current ICT in education policy framework has been evolving since 1996 and is embedded within a broader national government economic, social, and development strategy which includes: (1) Attention at the highest level in government to the role of ICTs in the promotion of economic growth, job creation, social development, and global competitiveness (2) A dedicated policy on the transformation of learning and teaching through the use of ICTs, particularly in the formal schools and FET college sectors (Isaacs, 2007*).* The Department of Communications (DOC) leads all ICT initiatives in South Africa through its Electronic Communications and Transactions Act (ECA) of 2002, which is an extension of its Telecommunications Act of 1996 and 2001 and which promotes the establishment of a Universal Service Agency (now referred to as the Universal Service and Access Agency of Southern Africa (USAASA),17 a Universal Service Fund, an Education Network (EduNet), and an "e-rate," all of which serve at least conceptually to support access to and use of ICTs in education institutions. In 2001, the National Department of Education and the Department of Communication jointly released a Strategy for Information and Communication Technology in Education, which is believed to have laid the basis for the e-Education White Paper adopted in 2004. The goal of the policy is that every learner in the primary and secondary school sectors should be ICT capable

to be developed into e-schools consisting of a community of both teachers and learners. E-schools are further defined as having (1) Learners who utilise ICTs to enhance learning (2) Qualified and competent leaders who use ICTs for planning, management, and administration (3) Qualified and competent teachers who use ICTs to enhance teaching and learning (4) Access to ICT resources that support curriculum delivery.

A draft ICT for Education Implementation Plan reports that of the 25,582 public schools in South Africa, 5,778 have computers used for teaching and learning and 13,011 have one or more computer for administrative purposes (Isaacs, 2007). Less than 5% of schools can afford Internet connections and are integrating Internet for teaching, learning, communication, and collaboration. In implementing this policy several initiatives have been established, both from government, NGOs and businesses. These initiatives includes the following: Technology Access Programmes; *E-Schools' Network; Gauteng Online;* Khanya Project; Meraka Institute; Microsoft Schools Agreement and ASTIC; NEPAD eSchools Initiative; Shuttleworth Foundation; Microsoft Partners in Learning (PiL); Thutong Portal (Isaacs, 2007) .In the mist of all these initiatives it is interesting to assess the status of the use of technology at schools, particularly by teachers and learners for learning purses. This paper is based on a small scale survey of schools in two semi-urban areas, to assess the status of the use of technology for teaching and learning.

3. Educational Technologies as Teaching and Learning Tools

The use of ICT for learning is currently associated with computers and internet to facilitate teaching and learning (Mbah, 2010). Using ICTs for teaching and learning includes the technologies used in conveying and storage of data, emailing browsing the internet looking for information (googling), emailing, twittering. According to Mbah, (2010), educational technologies provide an array of powerful tools to transform the present teacher-centered and text-bound classrooms into rich, student-centered, intereactive knowledge environments. It is important for higher education institutions and schools should embrace the new technologies and ICT tools for learning. Most of universities have started with compulsory computer literacy courses. Computer literacy has evolved over time as the use of technologies improved and society became more dependent on computers (Nawaz, and Kundi, 2010; Hammed, 2007). With changes in technologies, the contents of computers literacy are constantly changing to include the latest technological developments (Martin and Dunsworth, 2007). The most common educational technology used at schools include computer hardware, software, video-player and the internet. According to Iyamu and Ogiegbaen (2008) ,these forms of technology provide teachers and students with vast quantities of information in an easily accessible way that can be used as a teaching tool.

This country has one of the best policy on the use of ICT in education. As shown in the literature many initiatives costing lot of money was put in place to assist with the implementation of the policy. There are several computer literacy programmes at universities and other learning institution to help teachers in the integration of ICT in teaching and learning. Computers have been delivered to many schools in semi-urban areas over the past years. In most cases these computers are locked in the storeroom or in the computer lab centers. In many schools the computers are only used for administration purposes such as entering marks, typing tests and very little use for teaching and learning. There is a potential for educational technology to improve education in the schooling process in the country. This study is therefore aimed at finding out the proportion of teachers who use technology for teaching and learning, and the frequency of use.

4. The purpose of the Study

The study aimed at investigating the types of educational technologies used by teachers at two secondary schools in Northern Pretoria and how frequent is their use.

5. Methodology

The study used a sample of 57 teachers from two secondary schools who were purposefully and conveniently selected in the Northern Pretoria, South Africa. The instrument used for data collection was the questionnaire. The questionnaire contained questions pertaining to the frequency and type of educational technology use. The other part of the questionnaire contained the teaching experience of teachers. Descriptive and SPSS statistics were used to analyse the data.

6. Results and Discussions

Table 1. Demographic profile of respondents in term teaching experience

Teaching experience	Frequency	Percent	Valid Percent
less than 2 years	1	1.7	1.7
4-5 years	3	5.3	5.3
6 - 10 years	20	35.1	35.1
more than 10 years	33	57.9	57.9
Total	57	100.0	100.0

Table 1 shows that majority (57.9%) of teachers had more than ten year of teaching experience. More than quarter (35.1%) of the respondents had 6-10 years of teaching experience. Very few teachers (1.7%) had less than 2 years of experience. Nawaz, and Kundi, (2010) found that users of ICT behave according to their demographic characteristics of age, educational level, cultural background and experience. Although the results of this study cannot significantly correlate experience and use of technology in teaching it is commonly known that some older teachers used to teachers-centeredness method are reluctant to use modern technologies to teach. However, Saddam, Pardillo and Ruales (2012) found that age has a significant negative relationship with the use of ICT, in that as age increases frequency of ICT use decreases.

Table 2. Frequency of technology use by teachers (n = 57)

Technology type	Never	Daily	Weekly	Monthly
Computers in classroom	(64%)	(10.5%)	(14%)	(10.5%)
Computers in school lab	(49%)	(10.5)	(12%)	(28%)
Video/TV network	(49%)	(17.5%)	(14%)	(19%)
Internet	(42%)	(16%)	(26%)	(16%)
Emails	(46%)	(17.5%)	(26%)	(10.5%)

From the analysis of data in table 2, the largest number of respondents said they never use computers in classrooms, while less than a quarter of said they use computers in the classroom. About half (49%) of the respondents said that they never used computers in the lab, while 28% of them said they use computers in lab monthly. Looking at table, majority (49%, 42%, 46%) of respondents reported that they never used video/TV network, internet and emails, while few of them said that they used those technologies either daily, weekly or monthly. The results in this study are not very much different from finding of the study done in Western Nigeria (Iyamu, and Aduwa, 2008), whereby 92 % of Social Studies teachers reported that never used computers for teaching and learning. In the mentioned study it was worse because none of the teachers used the computers weekly or daily. However, in a study done in China (Li, G & Ni, X. 2011), it was found that majority (74.3%) of primary teachers used the internet daily, while 70% of them used computers in their classrooms.

7. Conclusions

The results of this study indicate that majority (64%) of teachers never use computer technologies with their students. Majority (49%, 42%, 46%) of respondents reported that they never used video/TV network, internet and emails, while few of them said that they used those technologies either daily, weekly or monthly. It is clear that the rapid economic development of any country depend on the technological literacy of the citizen. Although there are several factors, such as socio-economic level to the rapid use of educational in the classroom, particularly in the developing countries, teachers should take initiative effort   to use educational technologies in the teaching and learning of their students. This study implies that educational technologies such as computers, internet, emails are yet to be fully integrated into the teaching and learning in South African schools. Computer literacy should be intensified for teachers to acquires the skills of using educational technologies in their classrooms with students.

8. Reference

[1] Aviram, A. & Eshet-Alkalai, Y. (2006).Towards a theory of digital literacy: three scenarios for the next steps. European Journal. Open, Distance e-learning. [online]

[2] Ezziane, Z. 2207. Information Technology Literacy: implications on teaching and learning. Journal of education technology society. 10 (3): 175-191.

[3] Hammed, T.(2007). ICT as an enabler of socio-economic development. [online]

[4] Iyamu, E.O.S & Aduwa, S.E. (2008). Assessment of the use of educational technology by social studies teachers in secondary schools in Western Nigeria. Media. Vol (35), Issues 3, pp329-339.

[5] Isaacs, S. (2007). Survey of ICT and education in Africa: South Africa Country Report. [online]. Available from www.infodev.org/en/Document. (accessed 08 April 2012).

[6] Li, G & Ni, X. (2011). Primary EFL teachers' technology use in China: patterns and perceptions. RELC Journal 42(1) 69-85.

[7] Macleod, H. (2005). What role can educational multimedia play in narrowing the digital divide? International Journal of Education and Development using ICT, 1(4). [online].

[8] Mbah, T.B. (2010). The impact of ICT on students' s study habits. Case study: University of Buea, Cameroon. Journal of Science and technology education research vol. 1(5), pp. 107 -110. Available online http://www.academicjournals.org/JSTER.

[9] Martin, F. & Dunsworth, Q. (2007). A methodical formative evaluation of computer literacy course: what and how to teach. Journal of Information Technology Education. [online] . available from : http://wwww. Jite.org./documents/vol6/

[10] Nawaz,A and Kundi, G.M. (2010). Digital literacy: an analysis of the contemporary paradigms. Journal of Science and Technology Education Research Vol. 1 (2) pp. 19 – 29. July 2010.

[11] Oliver, O. 2002. The role of ICT in higher education for the 21st century: ICT as a change agent for education.

[12] Saddam,C.B., Pardillo, G.F. and Ruales, S.T.P. (2012). Status of students' perceptions and self-efficacy on the use of ICT. International proceedings of Economic Development and Research- international conference on Education and Management Innovation, IPEDR vol. 30. 2012. 145-149.

[13] Vrana, I. (2007). Changes required by ICT era are painful sometimes. In proceedings of CAUSE98, an EDUCAUSE conference, [online]

[14] Wims, P. & Lawler, M. (2007). Investing in ICTs in educational institutions in developing countries: an evaluation of their impact in Kenya. International Journal of Education and Development using ICT, 3(1). [online].