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ADEQUACY AND UTILIZATION OF INFORMATION AND COMMUNICATION TECHNOLOGIES BY COMPUTER SCIENCE LECTURERS IN TERTIARY INSTITUTIONS IN LAGOS STATE

By

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Abstract

This study determined the extent to which ICT resources are adequately provided and utilized by computer science lecturers for instructional delivery in Nigerian tertiary institutions. Thirty science educators were randomly selected from the faculties of science and science and technology education in two universities in Lagos state. Teacher' utilization of ICT resources questionnaire was used for data collection. Data were analyzed using bar chart and percentage. The finding shows that ICT resources are not adequate and many of the educators rarely use the available ICT resources for relevant instructional delivery. Suggestions were made for improvement.

Key words: ICTs, utilization, and instructional delivery.

Introduction

Information and communication technology has produced changes in the economic, political and educational sphere of our daily lives such that the use of ICT has become so important that it is one of the significant indices of national and economic development. It is becoming the basic building block of modern society.

Globally, the ICT world has initiated a transition of emphasis from analogous educational research based technological development to that of digital knowledge based technological development in education (Jude & Dankoro, 2012). ICT has also become the strategic alternatives for Universities all over the world to enhance the delivery of quality education effectively and efficiently (Ruthven, Hennessy & Brindley, 2004). The advancement which ICT resources offer higher education can be evident through accessibility to quality resource material and utilization in instructional delivery, particularly when teachers are competent in the use of these resource materials because productive instructional delivery enhances learners' creativity and intellectual development.

In the era of information explosion and technological development, the inclusion of ICT in the teaching and learning of science cannot be overemphasized (Ozaji, 2003) especially in the area of science education programmes wherein it enables interactivity and helps to focus students' attention and understanding and not just reading and copying textbooks. It is believed that it will help teachers acquire better skills of imparting knowledge effectively (Oye, Shallsuku & Lahad, 2012). The internet is expanding access to resources such as e-books, journals, expanded abstracts, and periodicals to both students and teachers such that no institution can rely only on traditional printed materials to perform effectively (Etebu, 2010; Pulkkinen, 2007; Ebijuwu, 2005; Anyakoha, 2005).

As a tool for presentation, ICT resources can be used to facilitate learner' creativity and intellectual development as learners are able to focus on patterns, connections between

multiple representations and interpretations of representations (Godwin & Surtherland, 2004; Umoren, 2006; Condie & Munro, 2007). Despite the benefit of ICT in education, problems exist. Yusufu (2005) says that most teachers do not have the needed experience and competences to use ICT for educational purposes. Also, ICT facilities are not utilized in the teaching and learning processes (Afolabi, Adedapo & Adeyanju, 2005). Ekukinam (2002) on the other hand says that teachers are not extrinsically motivated to use ICT resources due to non-availability of ICT resources in the educational institutions.

The aim of this study was to assess the availability of ICT resources provided in our higher institutions and the extent to which these resources are used by teachers in these institutions with emphasis on those responsible building the ICT capacities for the country.

Statement of problem

The trend in the world today is the electronic facilitation of almost every aspect of human endeavour, for example e-banking, e-commerce and e-government, because with automation ICT has become integrated in knowledge management (COM, 2003). Its' usefulness especially in the education sector cannot be overemphasized, which is subject to addressing the following questions: are ICT resources available?, where they are available, are they accessible?, are the lecturers competent to use them?, to what extent are the resources utilized in our institutions?, what are the challenges faced by the lecturers in the utilization of these ICT resources for instructional delivery? This study sought to find plausible answers to these questions.

Objectives of the study

This study sought to explore the availability, accessibility and utilization of ICT resources in our tertiary institutions. The study addressed three research questions:

- Are ICT resources adequate for instructional delivery?
- What are the levels of utilization of ICT resources for instructional delivery?
- What are the constraints against the use of ICT resources for instructional delivery?

Methodology

This study is of descriptive survey design. Thirty lecturers were randomly selected from the Faculty of science and Department of science and technology education of University of Lagos and Lagos State University.

Teachers' utilization of ICT resources for instructional delivery questionnaire was the instrument used for data collection. The questionnaire consists of two sections (A & B). Section A sought the demographic profile of the respondents, while section B sought information relating to adequacy or otherwise of listed ICT resources, utilization and level of utilization of these resources and the factors that militate against the use of these ICT resources.

The responses were on a multiple level scale, such as very adequate, adequate, partially adequate, inadequate, and very inadequate. Others include yes or no, and never, at least once in a semester, weekly, and daily.

The instrument was subjected to a reliability testing using SPSS version 15, yielding an alpha coefficient 0.875. The questionnaire was personally administered by the researchers who visited the institutions.

Findings and Discussions

Table 1: Demographic Profile of Respondents

Gender	Frequency (N)	Percentage (%)
Male	23	76.7
Female	7	23.3
Institution		
Lagos State University	15	50
University Of Lagos	15	50
Status		
Lecturer	20	66.7
Senior Lecturer	10	33.3
Qualification		
M.Sc	21	70
Ph.D	9	30
Years of Experience		
1-5yrs	15	50
6-10yrs	8	26.7
11-15yrs	3	10
Above 15yrs	4	13.3

Table 1 shows the demographic profile of the respondents. The table shows that 76.7 percent are male, 66.7% below senior lecturer, 70% holds at least M.Sc degrees while their years of working experience ranges from 6-10yrs (26.7%) and others above 10yrs of working experience.

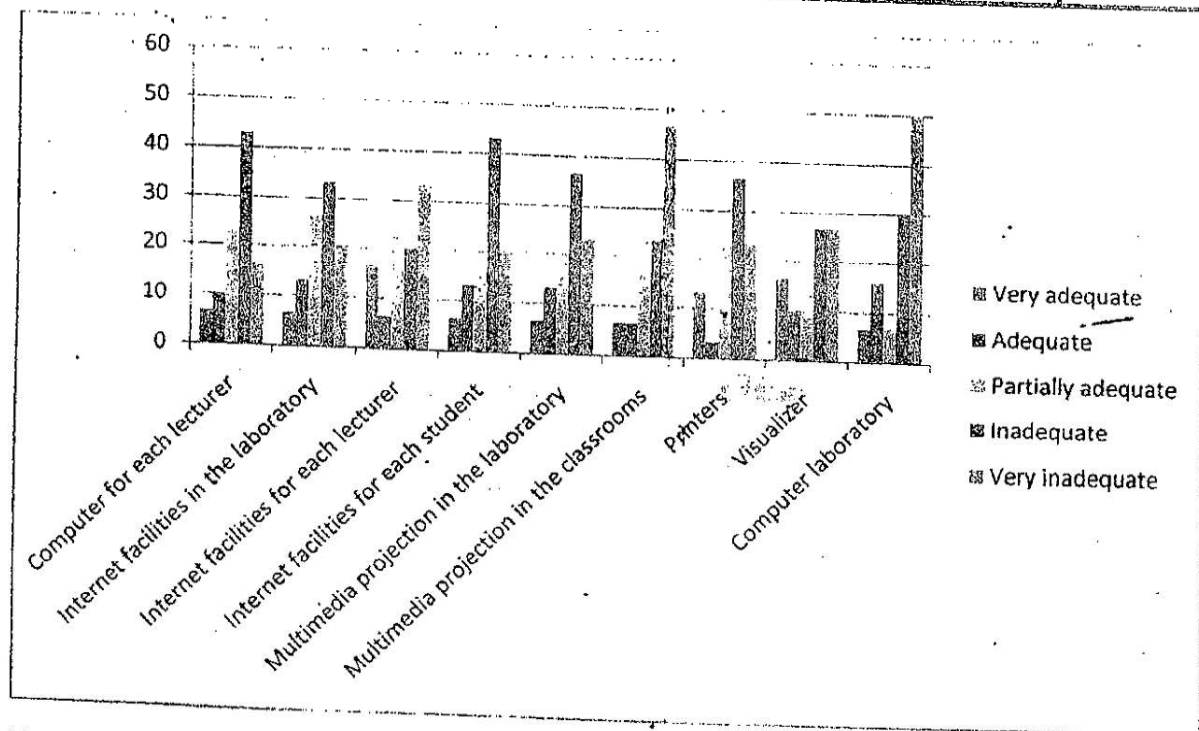


Fig.1: Adequacy of ICT resources in the Universities.

Fig. 1 shows the adequacy or otherwise if the ICT resources for instructional delivery. The figure shows that majority of respondents reported the ICT resources available are not adequate (53%-80%).

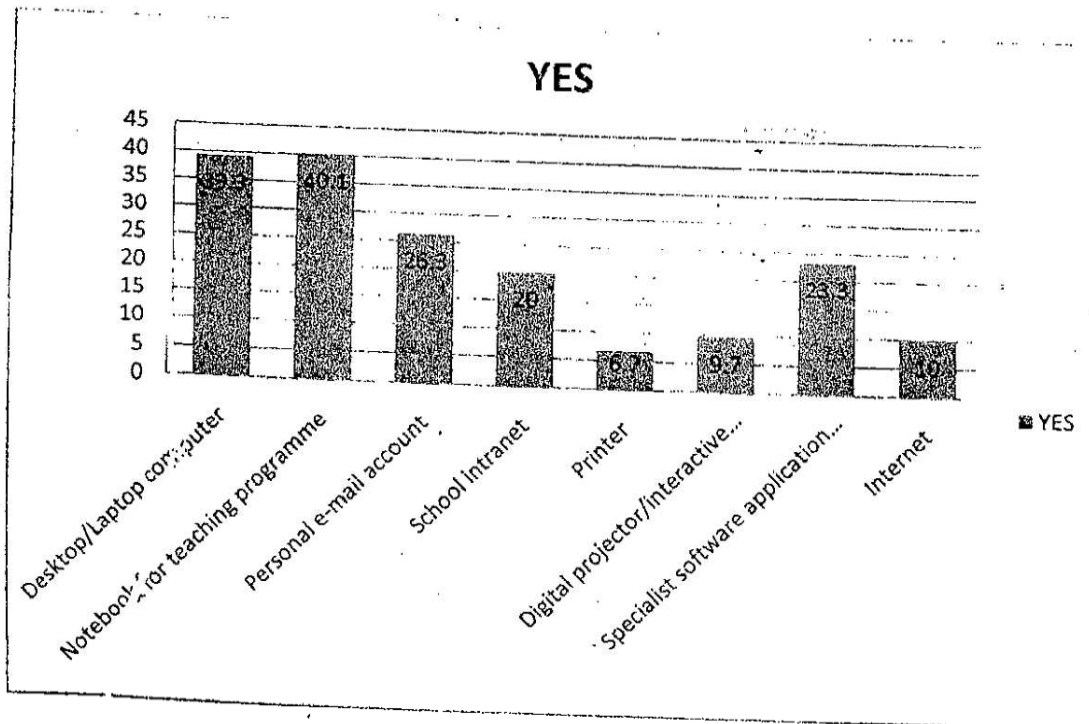


Fig.2: Utilization of ICT Resources by Lecturers

The utilization of ICT resources for instructional delivery was enquired about. Fig.3 shows that many of the resources were hardly used for instructional delivery (internet, 10%; digital projector/ interactive board, 9.7%; desktop/laptop computer, 39.3%).

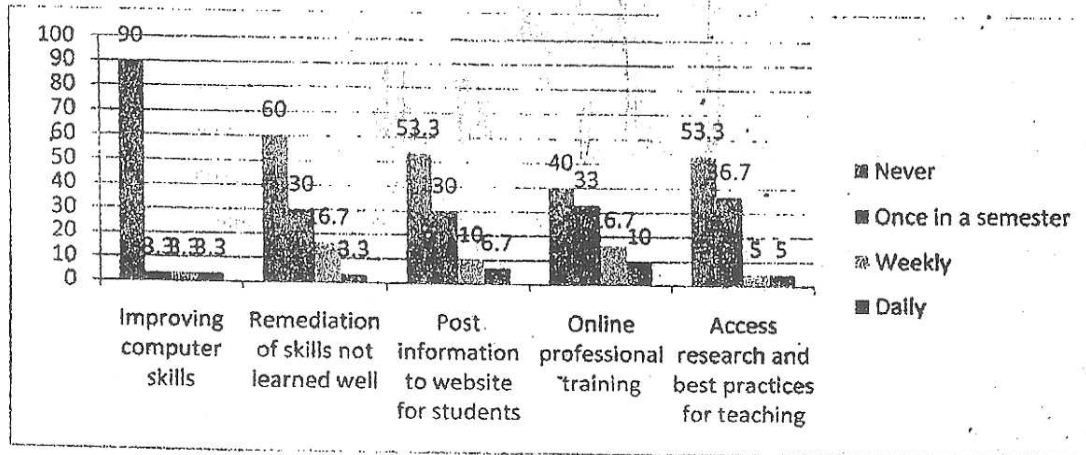


Fig.3: Extent of utilization of ICT resources

Fig.3 depicts the extent to which ICT resources are used for instructional delivery. It shows that the respondents agree that the ICT resources were never used to improve students computer skills(90%); remediation of skills not learned well (60%); post information to website for students(53.3%); online professional training (40%); and access research and best practices for teaching (53.3%).

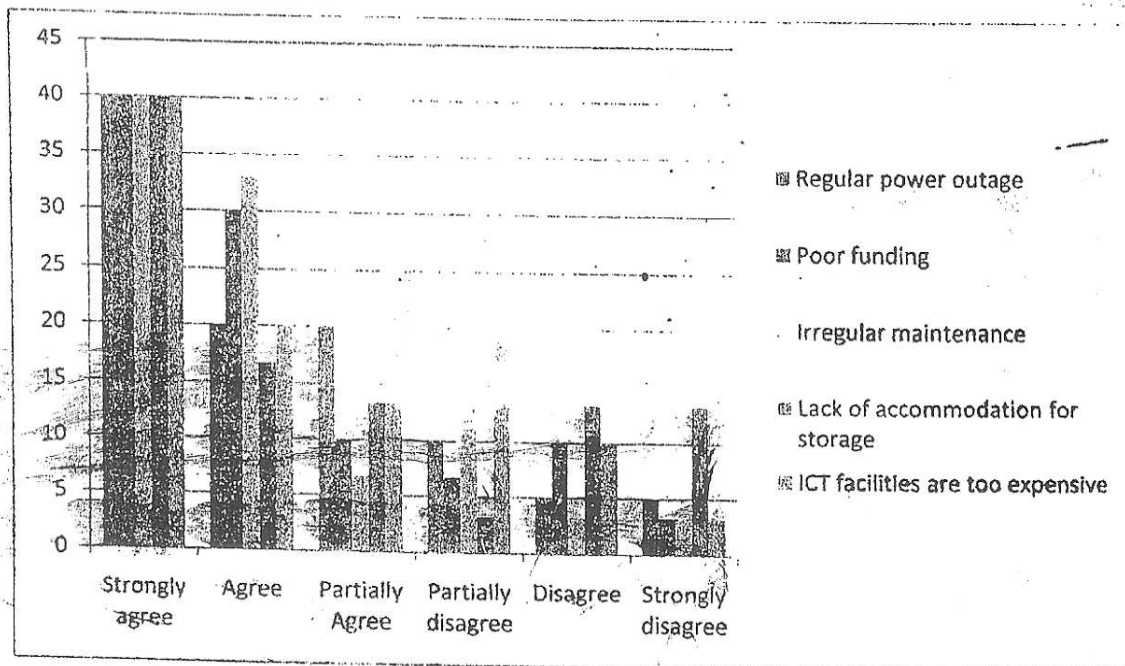


Fig. 5: Problems militating against the use of ICT resources

Majority of the respondents (fig.4) agreed that regular power outages, poor funding, irregular maintenance, lack of accommodation for storage and that ICT facilities are too expensive are the factors limiting the utilization of ICT resources for instructional delivery.

Summary and discussion of findings

The study found that 76.7 percent are male, 66.7% below senior lecturer, 70% holds at least M.Sc degrees while their years of working experience ranges from (50%), 6-10yrs (26.7%) and others above 10yrs of working experience(table 1).

Also, majority of the available ICT resources were not adequate (fig.2), were hardly used (fig.3) and when used were never used for remediation of skills not learnt well (fig.4) and that regular power outages, poor funding are among the factors limiting the utilization of ICT resources for instructional delivery (fig.5).

These findings agree with Cuban (2001) who says that teachers do use computers for research purposes rather than for teaching in the classroom. And those ICT resources were not available but where they are available and were not used for instructional delivery (Idoko & Aremu, 2010; Fakeye, 2010; Jude & Dankoro, 2010).

Conclusion

Productive instructional delivery is believe to enhance learner's creative and intellectual development through the use of ICT resources particular in the use of multimedia images, graphics, audio, text and motion. ICT provides can be used to explore, investigate, solve problems, interact, reflect, reason and learn concepts in the classroom. But since the finding of this study shows that ICT resources were not adequate, not regularly used for instructional delivery our quest to be a major player in the information age may be a mere dream.

Recommendations

The world of work is changing from labour intensive to technology driven economy. Thus ICT for education is more critical today than it has ever been as such concerted effort must be put together to improve its use in the education sector particularly in tertiary institutions. The government must improve upon provision of infrastructure that will facilitate integration of ICT across curriculum. Educators in our tertiary institutions must make use of the available ICT resources in our higher schools.

Students should be encouraged to use ICT while sourcing for materials and for home work

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