Availability and utilization of ict-based facilites in the teaching of biology co…

Education, School

This study employs ex-post factor research design to investigate the level of Availability and Utilization of ICT-Based Technology among biology teachers in Ekiti state secondary schools. In this survey, 36 biology teachers were randomly selected from boarding and day public secondary schools in Ekiti state. Two instruments were developed, validated and reliability scores obtained using Cronbach alpha method. Simple percentages, weighted average and chi-square were used in data analyses. In all, two research questions and three hypotheses were addressed and tested. The findings revealed low level of availability of ICT-Based facilities as well as low level of utilization of ICT-Based facilities by teachers of biology. The study also revealed that the non-availability of these facilities is responsible for its low level of utilization. Hence, it was recommended among others that, more funds be made available to procure these ICT-Based facilities, and teachers should be trained on their usage to enhance the utilization of these facilities.

Introduction

Technological revolution has influenced every aspect of human endeavour, including our social life, and especially, the way and manner we handle information. This has also crept into education and researches have indicated its potentials in changing instructions and instructional media. Patrick (2003) noted that when properly used, ICT can make a significant impact on education.

To this end, a survey by Fast Response Survey System (FRSS), 1999, in United States of America and noted by Mujibul (2007) shows that ICTs can be adapted into education by teachers in the following ways; to create

instructional materials, gather information for planning lesson, administrative record keeping, research and best practices for teaching, preparing multimedia presentation for class, and accessing model lesson plan. Information and Communication Technology has carved a niche for itself in the teaching and learning of science. Thus, it remains a viable pathway to the realization of nation’s aims, goals and objectives of education in general and science education in particular as well as in the attainment of scientific sophistry. Ige (2003) maintained that “ the introduction of computers in schools opens up opportunities for changes and reform in science”.

This global phenomenon-ICT- has permeated every aspect of human endeavour. Haastrup (2004) and cited by Aderogba (2007) noted that perhaps the greatest achievement of the 20th and 21st centuries was the development and application of ICTs to all facets of human endeavour. In a similar vein, Okafor and Umoinyang (2008) submitted that “ Information and Communication Technology has comprehensively impacted its benefits on every society as the greatest change agent of human development” Biology, one of the core subjects enumerated in the National Policy on Education (NPE, 2004: 16) and entrenched in the Nigeria Secondary School Science Project (NSSSP), (Adesoji 2002) cannot be debald of the waves that transverse the teaching and learning of science. Ige (2003) while supporting the use of multimedia packages in biology positioned that “ the use of multimedia learning packages which incorporate computer simulation of biological process may expose the students to what happens in real life

situation". In a related vein, Potyrala (2005) while working on ' ICT Tools in Biology Education' concluded that biology teacher has numerous possibilities of applying ICT tools to lessons both in theory and practice.

For the purpose of this study, two research questions and three hypotheses were developed. R. Q 1: What is the level of availability of ICT facilities in the teaching of Biology in schools? R. Q 2: What is the teachers' frequency level of ICT facilities utilization? HO 1: There is no significant difference in the level of availability of ICT facilities between boarding and day schools HO 2: There is no significant difference in the level of utilization of ICT facilities between boarding and day biology teachers HO 3: There is no gender difference in the level of utilization of ICT facilities among biology teachers Methodology

The study employs an ex-facto type of survey research design. Sample and Sampling Technique

For the first target population of this study (i. e boarding senior secondary schools), a simple random sampling was employed to select six (6) schools. Thereafter, three (3) biology teachers were randomly selected from each of the sampled boarding schools. Also for the second target population, a simple random sampling was adopted to selected six (6) non-boarding senior secondary schools. Thereafter, three (3) biology teachers were randomly selected from each of the sampled schools. The overall sampled size for the study was 36.

Instruments for Data Collection

1. Inventory on Availability of ICT Facilities (IAIF)

This instrument was developed and validated by the researchers. It has two sections A and B. Section A contains demographic data, while section B contains 11 items to elicit information on the availability of ICT-based facilities for the teaching of biology in schools. A reliability alpha value of 0. 87 was obtained using Croubach alpha method. 2. Teachers' Utilization of ICT Facilities Questionnaires (TUIFQ) An instrument also developed and validated by the researchers with two sections A and B. Section A contains demographic data while section B contains 13 items to elicit information on the teachers' utilization of ICT-based facilities in the teaching of biology. A reliability alpha value of 0. 89 was obtained using Croubach alpha method.

Findings from this study showed that the level of availability of ICT-Based Technology in the teaching of biology concepts is very low. This suggests that the traditional method of interaction between teacher and students still thrive in our schools- a pointer to the aged-long dominance of classroom by teachers. This is further corroborated by Ajayi et al (2009) that " facilities to support full application of ICT were lacking in schools". It can be deduced from the study that most schools now have computer suits, yet, they are grossly under-utilized as evident in the low level of utilization of computer-related facilities such as the use of simulation packages and over-head projector.

This low level of utilization of ICT-Based facilities by teachers may partly be due to a show of complacency with the traditional method of teaching and partly owing to lack of requisite training to utilize these facilities. Studies by Okafor and Umoinyang (2008); Olagunju A. M (2003); and Ajayi I. A et al

(2009) all corroborated the above assertion. The finding from this study revealed a general low level of utilization of ICT-Based Technology in both gender of biology teachers. This is similar to the earlier finding of Olagunju (2003) where the mean scores obtained by both gender on the level of utilization of ICTs are lower than the weighted mean score.

Recommendations

1. Honest effort should be made by government, religious groups, PTA, NGOs, and corporate organizations providing required ICT-Based facilities to schools, knowing fully well that, products of an educational system are consumed by the economy of that society. 2. Where these facilities are available, a bar of improvement can only be raised on the level of utilization through aggressive but honest in-service training for teachers. Biology teachers should be sponsored to workshops and conferences on the use of ICT-Based facilities in enhancing teaching and learning of the subject. “ Only computer literate teachers can effectively use the vast electronic information available in the world for teaching improvement”. 3. Software learning packages should be made available for use in schools. In this regard, academic researchers should focus more on the development and validation of these software packages. 4. Also, government should establish centres at local and state levels wherein these software learning packages are developed by competent hands, thus, making it more accessible for utilization. 5. Computer suits in schools should be connected to the internet and all barriers such as epileptic power supply, time and technical constrains among others should be attended to.

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