

The Impact of Ict on Teaching and Learning of Biological Concepts among Post Graduate Students in Port Harcourt, Rivers State.

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Abstract: *This study was conducted to find out the impact of ICT on teaching and learning of biological concepts among post graduate students in Rivers State. three research questions were raised and answered. Descriptive survey of process evaluation design was used. The population of the study consists of all lecturers and students in the Biological Science Depts. in the universities in Rivers State. A sample size of thirty (30) lecturers and seventy (70) students were sampled, therefore, a total number of hundred (100) respondents were used for this study. The instrument used for data collection was a questionnaire containing thirty (30) items, the instrument was validated for face and content validity. The result shows that all the respondents agreed that ICT is indeed relevant to the teaching and learning of Biological concepts with 27.8% agreeing to a great extent, 41.1 % agreed to a considerable extent and 31.1 % agreed to a moderate extent. The result also shows that 21.1% agreed to a great extent, 33.3 % reacted to a considerable extent, 36.7% believed to a moderate extent, while 8.9 % agreed to a low extent or not at all that lecturers use ICT in the teaching It also shows that 35% agreed to a great extent, 32% agreed to a considerable extent, 25% agreed to a moderate extent, while 8% low extent that students do have relationship with the ICT in enhancing their knowledge and understanding of Biological Concepts .The researcher concluded that, ICT indeed has a great impact to enhance a better knowledge and understanding, lecturers should engage in the use of ICT facilities for the post graduate students. students should also make use of ICT facilities made available for them. It was then recommended that educators should blend their teaching of curriculum contents, using ICT facilities.*

Keywords: *Biological Concept, ICT, Impact, teaching and learning.*

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I. Introduction

Communication and Information Technology (ICT) is changing our world and everything therein. The rate of such transformations affects lives in every ramification. Cohen and Prussak (2001) stated that, to be to connect with people to talk, interact, understand, share opinion, depend, develop, teach and learn from one another, then you have to make available information and communication technology (ICT).

Clamour for global interconnectivity is on the increase and the need to make world a global village cannot be over emphasized. Computer-driven technologies are propelling forces for human activities in the world today. Internet has made communication very easy and information dissemination has become faster and more efficient (Rosen, Whaling, Carnier & Rokkum, 2013).

The need of using ICT in teaching and learning of Biological Concepts is fast becoming very significant and also becoming generally accepted by the Educational System since it enhances learning and better understanding of the subject matter. Billions of Educational videos, which includes videos of some concepts in biology are watched on YouTube which shows that Education is in the process of transitioning to the interactive age from the informative age. Moran, Seaman, & Tinti-Kane, (2011).

Obanya (2009) opined that post graduate education should make effort to meet the 21st Century challenges of providing students with education that is relevant, valuable to meet up with the world standard, which is driven by information and communication technology (ICT).

Research study conducted by Morian, et al (2011) shows that more than 90% of Professors uses ICT to teach their classes because they give support for school related tasks and improves students' literacy, and biology is not an exception.

Learners of higher post graduate education seek information and so require a lot of ICT skills to be able to get this information via the use of technology. Such information, among other things, tends to develop concepts, rules, skills, procedure, theories and general knowledge for solving Biological Practical problems. It also emphasizes the ability to differentiate real Biology practical from alternative to Biology practical.

It is quite obvious that, the Information and Communication Technology Centre (ICTC) in many of the leading Universities are well equipped but are not optimally utilized by the Students due to the fact that they study at their own convenient which is also a characteristic of the digital learners, and only those who have access to ICT are privileged to use ICT to enhance their learning.

For effective learning, the NUC (2004) advised that each learning institute should make the following ICT available to both Lecturers and Students: computer set with internet facility.

Statement of the Problem

The advent of Information and Communication Technology (ICT) has introduced important changes in the worldwide educational system. The knowledge boom in the 21st century is an era of computer age which has made knowledge more dynamic such that if one is not continually developing oneself, one would be left out in the abyss of knowledge obsolescence. Therefore, post graduate educational institutions are constantly being advised to face new challenges.

In spite of the emergence of ICT as instrument of change in this present dispensation, a driven force in the educational uplift, it appears that the traditional methods of teaching and learning of some biological concepts /practical via the use textbooks and practical manuals remain a predominant method of teaching and learning in most of our universities in Nigeria. In our university education, there is little evidence of utilization of the emerging information and communication technologies (ICT).

In addition to lack of modern teaching aids, the pedagogical approach generally adopted in teaching Biological Concepts is grossly inadequate and unacceptable because it lacks creativity, and does not encourage in depth analysis and detailed representation of Biological Concepts. Most often, Lecturers rely exclusively on the use of Manuals and Textbooks which has obviously become the compelling choice because of the intimidating class size in most biology classes.

Similarly, the biology curriculum is not structured in a way that the use of ICT which equip students to address the modern day challenges, is encouraged. This throw some questions like; what are the basic issues associated with the implementation of ICT in Universities in Rivers State? Is ICT relevant in the teaching and learning of Biological Concepts? How often do Lecturers use ICT in the teaching and learning of Biological Concepts? It is in view to answer these questions that prompted this study.

Aims and Objectives

The aim of the study is to ascertain level of impact of ICT on the teaching and learning of Biology Concepts among post graduate students in Rivers State, to establish how the use of ICT enhances better knowledge and understanding in learning of Biology Concepts among post graduate students in Rivers State. Specifically, the objectives of the study are to

1. Identify the relevance of ICT in teaching biological concepts.
2. Determine the extent to which lecturers use ICT in the teaching and learning of biological concepts.
3. Examine the relationship between students and the use of ICT in the learning of Biology Concepts.

Research questions

1. What is the relevance of ICT in teaching Biology Concepts?
2. To what extent do lecturers use ICT in teaching and learning of Biology Concepts?
3. What is the relationship between students and the use of ICT in the teaching and learning of biology Concepts?

II. Methodology

The design of the study is a descriptive survey of process evaluation design to ascertain the impact of ICT on the teaching and learning of biological Concepts among post graduate students in Rivers State, also since the researcher is not comparing any of the variables of the study, the design of the study is described as descriptive survey of process evaluation.

The population of the study consists of all lecturers and students in the Biological Science Depts. in the Universities in Rivers State, which is estimated to a total number of Sixty (160) Lecturers and all Post Graduate

Students in the Departments of Animal and Environmental Biology, Micro Biology and Plant Science and Biotechnology, which are also estimated to Two hundred & Ninety (390) Students.

Purposive sampling techniques was used to sample thirty (30) lecturers from across all the Biological Sciences Departments mentioned above. A total number of Seventy (70) Students were sampled across the Departments using random sampling techniques. Therefore, a total number of Hundred (100) respondents were used for this study

The instrument used for data collection was a questionnaire containing thirty (30) items to show the impact of ICT on the teaching and learning of Biological Concepts among Post Graduate students in Rivers State. The instrument is divided into 3 sections of 10 items each. The 1st section contains items verifying the relevance of ICT in the teaching and learning Biological Concepts among Post Graduate students. The 2nd section contains questions/items to find out if lecturers use ICT in the teaching and learning of Biological Concept among Post Graduate students other than the usual textbooks and manual. Finally, the 3rd section comprises 10 questions/items to find out how well students use ICT to enhance their learning Biological Concept among Post Graduate students, with. It was constructed to a great extent, to a considerable extent, to a moderate extent and to a low extent or not at all. The instrument also has a yes or no section.

The instrument was validated for face and content validity. The instrument was distributed personally by the researcher who is also a staff of one of the universities. A total number of (90) were returned. Frequency distribution and percentage statistics was used to analyze the data collected on tables.

Analyses and discursions

Research Question 1: To what extent is ICT relevant in teaching/learning of Biological Concepts among post graduate students?

Table 1: Respondents view on the relevance of ICT in teaching/learning of Biological Concepts among post graduate students.

S/N	RESPONDENTS	FREQUENCY	PERCENTAGE (%)
1	To a great extent	25	27.8
2	To a considerable extent	37	41.1
3	To a moderate extent	28	31.1
4	To a low extent or not at all	0	0
	Total	90	100

From the table above, 25 of the respondents comprising of 27.8% agreed to a great extent, 37 (41, 1) % agreed to a considerable extent and 28 (31.1) % of the respondents agreed to a moderate extent. From the table above, all the respondents agreed that ICT is indeed relevant to the teaching and learning of Biology Concepts among post graduate students.

Research question 2: To what extent do lecturers use ICT in teaching and learning of Biological Concepts among post graduate students.

Table 2; Respondents view on the use of ICT by lecturers in the teaching and learning of Biological Concepts among post graduate students.

S/N	RESPONDENTS	FREQUENCY	PERCENTAGE (%)
1	To a great extent	19	21.1
2	To a considerable extent	30	33.3
4	To a moderate extent	33	36.7
5	To a low extent or not at all	8	8.9
	Total	90	100

From Table two above, 19 respondents agreed to a great extent that lecturers use ICT in the teaching and learning of Biological Concepts among post graduate students with 21.1%. 30(33.3)% of the respondents reacted to a considerable extent. 33(36.7)% believed to a moderate extent that lecturers use ICT while a total number of 8 of the respondents agreed to a very low extent or not at all that lecturers use ICT to enhance teaching and learning at the post graduate level with 8.9%.

Research question 3: to what extent does ICT enhances students learning and understanding of Biology concepts at post graduate level?

Table 3: The relationship between students and the use of in enhancing their knowledge and understanding of biological concepts

S/N	RESPONDENTS	FREQUENCIES	PERCENTAGE (%)
1	To a great extent	21	35
2	To a considerable extent	19	32
4	To a moderate extent	15	25
5	To a low extent or not at all	5	8

	Total	60	100
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From the table above, 21 respondents reacted to a great extent with 35%, 19 (32%) of the respondents shows to a considerable extent that students do have relationship with the ICT in enhancing their knowledge and understanding of biological concepts while 15 respondents reacted to a moderate extent with 25% . finally, only very few of the students thinks that the relationship of students and the use of ICT is to a low extent or not at all with 8%.

III. Discussion and findings

The findings of this study shows that both the lecturers and students in the Biological Science Departments at the post graduate level, agrees to the fact that ICT has great impact in one way or the other in enhancing the teaching and learning of Biological Concepts at the post graduate level. This finding agrees with the work done by Olaniyan et al (2009).

In research question one (1) on Table 1 above, all the respondents agreed to the fact that ICT is relevant in the teaching and learning, and in enhancing their knowledge and understanding of biological concepts. In research question two and three (2&3) all respondent quite agreed with the fact that, Lecturers use ICT in teaching some Biological Concepts to a great extent, a quite number of the students affirmed that they might not bring the ICT facilities to class, but often teach with printed materials from online and also make reference to materials online for better understanding. Students on their own also agreed to the fact that they use ICT a lot, especially in surfing for materials, in doing assignment, reading journals online, assessing e-library, looking for seminar topics and so many other things. Only a very few of the students have a different view about this.

IV. Conclusion

Based on the findings, the researcher concluded that, ICT indeed has a great impact in the teaching and learning of Biological concepts to enhance a better knowledge and understanding of Biology Concepts. The Basic issue connected to the implementation of ICTC in Universities in Port Harcourt, Rivers State is that most of the students at graduate school level make provisions of the ICT themselves and so access it at their convenient time, so also are most of the lecturers. A few of the students, who are not privilege to own theirs, and also do not possess the necessary ICT skills, have difficulties in accessing the ICT. A quite number of them don't even know that they have right to use the University's ICTC and the e-library since they have paid their fees which includes the right to use the Information and Communication Technology Centre (ICTC) of the University.

RECOMMENDATIONS

1. It's recommended that new graduate students be given proper orientation on facilities that are available for them including ICTC.
2. Government should allocate adequate funds to universities to equip every post graduate class with ICT facilities including internet.
3. The University in turn should restructure the post graduate curriculum to enable the use of ICT in Biological Sciences classes and other courses as well.
4. Lecturers should encourage more of students' relationship with ICT by giving students assignment to surf the net, for more materials for a better understanding. There are a lots of Ph.D students that are not able to assess the internet because they lack the necessary communication skills.
5. Lecturers should sometimes make teaching more interesting by using power point presentation to teach concepts in Biology; this will enable students get the experience and develop more confidence in their individual presentations too. Many of the failure recorded during presentations and final defense, are due to tension and lack of confidence. Some of the PhD students have never held a pointer before; talk more of standing and talking before a screen. If it is embedded in the cause of teaching, the students will develop skills and have more confidence in the use of such communication technologies.

References

- [1]. Cohen, D & Prusak, L. (2001). In Good Company. How social capital makes organization works, Boston: Harvard Business School.
- [2]. Gusen, J. (2001), The Information Technology Education in Nigeria. A challenge for the classroom teacher. A paper presented in a maiden conference organized by colleges of education staff union, FCE Pankshin.
- [3]. Kinyemi, K. (2007), Computer in Education. A gun and I. Imogri (eds) fundamentals of educational technology. Ibadan.
- [4]. Maier, P. and Warren, A. (2000). Integratory technology in learning and teaching: A practical guide for Educators. London UK: kogan page
- [5]. Moran, M., Seaman, J., & Tinti-Kane, H. (2011). Teaching, Learning, and Sharing: How Today's Higher Education Faculty Use Social Media. Babson Research Group.
- [6]. NUC. (2004). Report on the performance of the federal university system in 2002. Presented at the special meeting convened by the Honourable Minister of Education on Thursday, December 12.

- [7]. Nwanekezi A.U. & Arokoyu A.A.(2016) Science Education: theory and research. Bengoddy prints, Port Harcourt. Nigeria.
- [8]. Nwankwo O.C. (2013) A Practical Guide t Research Writing, for students fifth edition, University of Port Harcourt Press. Nigeria.
- [9]. Obanya, P (2009), Dreaming, Living and Doing Education. Ibadan: Education Research and Study Groups
- [10]. Ogunsola, L.A. (2005). Information and Communication Technologies and the Effects of Globalization: Twenty-first century "Digital Slavery for Developing Countries " Myth or Reality? <http://southernlibrarian.icaap.org>.
- [11]. Olaniyan, D.A and Olabanji E.O. (2006). Globalization and Nigerian Educational System. Opportunities and Challenges. International Journal of African and African-American Studies, Vol. V, No. 2, July 2006
- [12]. Rosen, L.D., Whaling, K., Carrier, N.A., & Rokkum, C. (2013). The media and technology usage and attitudes scale: An empirical investigation. Computers in Human Behaviour, 29, 2501-2511.

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