research parks publishing

International Journal on Integrated Education (IJIE)

e-ISSN 2620 - 3502
p-ISSN 2615 - 3785

Volume: 7 Issue: 4 | December 2024
https://journals.researchparks.org/index.php/IJIE

Availability of Information and Communication Technology (ICT) Facilities and Strategies in Enhancing Teaching and Learning of Economics in Colleges of Education in North Central States, Nigeria

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Abstract

The main purpose of this study was to find out the availability of Information and Communication Technology facilities and strategies for enhancing the teaching and learning of Economics in Colleges of Education in North Central States, Nigeria. The study was guided by two purposes, two research questions and two null hypotheses. The researcher adopted a descriptive survey research design. The study was carried out in the North Central States, Nigeria. The population comprised 140 Economics Lecturers and 87) NCE III students from selected Colleges of Education in the North Central States. A stratified sampling technique was used to draw a sample size of 114 NCE III students and the 140 lecturers were retained. Observation Checklist on Available ICT Facilities for Teaching and Learning Economics and a structured questionnaire were used for data collection. The reliability of the instrument was ascertained using Cronbach Alpha and an overall reliability coefficient of .97 was ascertained. Frequency, percentage, mean and standard deviation were used to answer research questions while an independent sampled t-test was used to test null hypotheses at a 0.05 level of significance. The Findings of this study revealed lecturers and students agreed that computer-assisted instruction, computer-aided design, performance monitoring, problem-solving, video lectures and use of individualized instruction were used to a high extent as ICT strategies for enhancing teaching and learning in the college of education. Computer-assisted instruction and computer-aided instruction have been found to be useful in teaching and learning Economics content in colleges of education especially where students are equipped with required skills. Therefore, to improve the teaching of Economics in Colleges of Education in North Central State, Nigeria, it is imperative to establish robust ICT infrastructure and upgrade existing facilities.

Keywords: Availability, Information Communication Technology, Teaching, Learning.

Introduction

Education is an essential agent of transformation and the foundation of industrial development as well as socio-economic growth. Education can be said to be the greatest venture a country can undertake for the swift growth of its socio-political, technological, human and material resources. The unique power of education acts as a catalyst for the wider development goal of any nation. The development goal can only be fully realized, if education is equitable beyond mere enrollment or completion rates but to meet the Sustainable Development Goals (SDGs). It is therefore vital that

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nations' priority should be on the quality of learning and instruction in the classroom throughout the education lifecycle (Global Monitoring Report, World Bank, 2015). To meet the SDGs through the power of education is a serious financial investment which is currently beyond the reach of developing countries like Nigeria but innovative solutions such as those offered by Information and communication technology (ICT) can help in closing the gap (United Nations Educational, Scientific and Cultural Organization ((UNESCO, 2014).

In the past, teachers have been considered as reservoirs of knowledge. This implies that students sit in the class and listen to the teacher who is directing and passing the information to the audience (students) via the chalkboard, while the student may take their notes and listen passively. This mode of teaching is not encouraging anymore. Nowadays teachers are regarded as facilitator and their major role is to help the student to learn on their own with little guidance. Student are organize in groups and each group doing something different from the other, while some are engaged in writing task some are engage practical activities, some may be in the class and some outside the class using professional equipment, finding something in the library. This learning process is individualizing because student may be at different stages in the task which suit individual abilities and competence. However, with advancement in science and technology, the world is moving at a very fast speed (Zare-ee, 2011). Importantly, technology involves information and communication which may be seen as the gathering and processing of information for use by way of communication and electrical equipment such as computer, cameras, telephones, etc (Ozoji, 2003). Akbay (2005) defined Information and communication technology as a broad term that encompasses any communication equipment or appliances/application ranging from radio tape, hardware and software, satellite system, television, phones, network and computer etc, also the different activities and function related with them, such as distance education and use of video-conferencing. These electronic systems can be employed for transmitting, telecommunications and various types of computers assisted communications including teaching and learning in a classroom. Adoni (2010) noted that Information and communication technology centered education covers the application of computers, optical fiber technologies, on-line self-learning packages, satellites, radio, interactive CDs, tele-presence systems and all types of information technology hardware and software in learning and instruction. In the past, teachers have been considered as reservoirs of knowledge. This implies that students sit in the class and listen to the teacher who is directing and passing the information to the audience (students) via the chalkboard, while the student may take their notes and listen passively. This mode of teaching is not encouraging anymore. Nowadays teachers are regarded as facilitator and their major role is to help the student to learn on their own with little guidance. Student are organize in groups and each group doing something different from the other, while some are engaged in writing task some are engage practical activities, some may be in the class and some outside the class using professional equipment, finding something in the library. This learning process is individualizing because student may be at different stages in the task which suit individual abilities and competence. However, with advancement in science and technology, the world is moving at a very fast speed (Zare-ee, 2011). Importantly, technology involves information and communication which may be seen as the gathering and processing of information for use by way of communication and electrical equipment such as computer, cameras, telephones, etc (Ozoji, 2003). Akbay (2005) defined Information and communication technology as a broad term that encompasses any communication equipment or appliances/application ranging from radio tape, hardware and software, satellite system, television, phones, network and computer etc, also the different activities and function related with them, such as distance education and use of video-conferencing. These electronic systems can be employed for transmitting, telecommunications and various types of computers assisted communications including teaching and learning in a classroom. Adoni (2010) noted that Information and communication technology centered education covers the application of computers, optical fiber technologies, on-line self-learning packages, satellites, radio, interactive CDs, tele-presence systems and all types of information technology hardware and software in learning and instruction

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In this context, information and communication technologies refer to electronic devices, including computers, telecommunications, and audio-visual systems, that help in the collection, processing, transportation, and delivery of information and communication services to users. In this context Information and Communication Technologies: refers to electronic devices which including computes, telecommunication and audio-visual systems that help in the collection, processing, transportation and delivery of information and communication services to users.

The use of technologies in information management, production, amassing, processing, recollecting, transmitting, and so on. is essential in this digital era. Hence, the use and application of information and communication technology in learning and teaching are at the center of discussion and issues of concern in current educational programs and policies. (Thierer, 2002). The need for the application of information and communication technology in learning and instruction is helpful for training students and staff to be totally engaged and creative members of a globe that has been in existence and will keep on moving by technology (Gregorian, 2002). In relation, Gregorian states that roughly every facet of learning, from investigation to distribution of information or ideas, has been affected by technology in the humankind of tertiary education. It means that through information and communication technology, it is likely to immediately view important ideas and information that will improve the learning and teaching of economics through the internet (Bakac 2011).The use of technologies to information management, production, amassing, processing, recollecting, transmitting and so on. is essential in this digital era. Hence, the use and application of information and communication technology in the learning and teaching is at the centre stage of discussion and issues of concerned in current day educational programme and policies. (Thierer, 2002). The need for the application of information and communication technology in learning and instruction is helpful for training students and staff to be totally engaged and be creative members of a globe that has been in existence and will keep on moving by technology (Gregorian, 2002). In relation, Gregorian states that roughly every facet of learning, from investigation to distribution of information or ideas has been affected by technology in the humankind of tertiary education. It means that through information and communication technology, it is likely to immediately view important idea and information that will improve learning and teaching of Economics through internet (Bakac 2011).

Economics is among the subjects offered in colleges of education in Nigeria by students. According to Dwivedi (2004), economics is the study of how people make a choice on what is to be produced, how it should be produced, and for whom to produce goods, which are material commodities like steel and strawberries, and render services, which are activities such as message or life performance that are guzzled or taken pleasure in only at the moment they are manufactured or produced. He went further to say that the question of what, how, and for whom to produce is either answered by a central planning agency or by the price mechanism, depending on the economic system practiced by a country. Also, Davies (2003) sees economics as the study of how man allocates limited resources among alternative wants. The specific objectives of economics as outlined by the Federal Republic of Nigeria (FRN, 2004) include furnishing students with the basic ethics of economics necessary for useful living and higher education; preparing and encouraging students to be wise, efficient, and clever in the administration of limited resources; and increasing value for the dignity of effort and their admiration of the socio-economic and cultural value of society. In view of this research work, economics is the study and management of scarce resources. An economics teacher is a person who studies economics at the university level and teaches economics, especially one employed by a school.

The College of Education is the unit of tertiary education in Nigeria saddled with the responsibility of training teachers to obtain non-degree but qualitative professional certificates in education. The origin of Nigerian colleges of education dates back to the 1950s. In the report of the Ashby Commission of 1959, it is evident that there was a need to provide middle-level teachers to meet Nigerian desires in the area of teaching manpower. It was observed that many teachers were not certified and trained. This observation was followed by a suggestion for greater expansion of

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intermediate education for intermediate teachers, which was targeted at upgrading the existing teaching force (Isiyaku, 2007). The commission recommended the establishment of Advanced Teacher Training Colleges (A.T.T.C.'s) in Nigeria. The recommendation led to the founding of ATTC's at Owerri, Ondo, Lagos, and Zaria between 1961 and 1962; Kano in 1964; and Abrakain in 1968, with both institutions named Colleges of Education (Isiyaku, 2007). The Advanced Teachers Colleges (ATCs), according to Isiyaku (2007), turned out graduates who obtained the Nigeria Certificate in Education (NCE), a nondegree but qualitative professional certificate in education.

The review of the NCE curriculum has selected computer education as mandatory. In the new national curriculum that was launched in October 2010, all College of Education students are expected to achieve minimum technology standards as a mandatory component in pre-service programs. However, lecturers in colleges of education have been identified as key players in developing ICT skills in students by the National Commission for Colleges of Education. Hence, literacy and proficiency in ICT have been made compulsory for all lecturers in Nigerian Colleges of Education since the 2004–2005 academic session. Lecturers in these colleges are required to incorporate ICT into their classroom activities. ICT proficiency is the ability of lecturers to use ICT properly to access, administer, incorporate, and appraise information, develop new understandings, and communicate with others in order to contribute effectively to society (Ministerial Council on Education, Employment, Development, and Youth Affairs, MCEECDYA, 2008).

Evidence abounds that ICT facilities can be used to effectively facilitate teaching and learning. A report on the effective use of ICT facilities in the teaching and learning of economics in colleges of education in north-central states, however, remains unknown. Noteworthy, the presence of ICT technology and facilities alone will not stimulate significant changes in learners without a teacher. Teachers are important in the implementation of ICT policies in education. Without the teachers, students may not be able to effectively enjoy the potential inherent in ICT on their own.

Also, there is a dearth of evidence on the ability of economics teachers and learners to teach and learn using ICT facilities. The gains inherent in using ICT facilities to support learning (of economics) in the classroom are many. On the basis of the foregoing, the researcher is concerned with finding out the availability of information and communication technology and strategies for enhancing the teaching and learning of economics courses in colleges of education in North Central State, Nigeria.

Purpose of the Study

The specific objectives are to:

1. Find out the ICT facilities available for teaching Economics in Colleges of Education in North Central State, Nigeria.
2. Identify the strategy for enhancing the use of ICT facilities for teaching and learning of Economics in Colleges of Education in North Central State, Nigeria

Research Questions

1. What ICT facilities are available for teaching and learning of Economics in Colleges of Education in North Central State, Nigeria?
2. What are the strategies for enhancing the use of ICT in teaching and learning in colleges of Education in North Central State, Nigeria?

Hypotheses

This study was guided by the following null hypothesis and tested at 0.05 level of significance

1. There is no significant difference in the opinion of Economics students and lecturers on the availability of Information and Communication Technology facilities for teaching Economics in colleges of education in North Central State Nigeria

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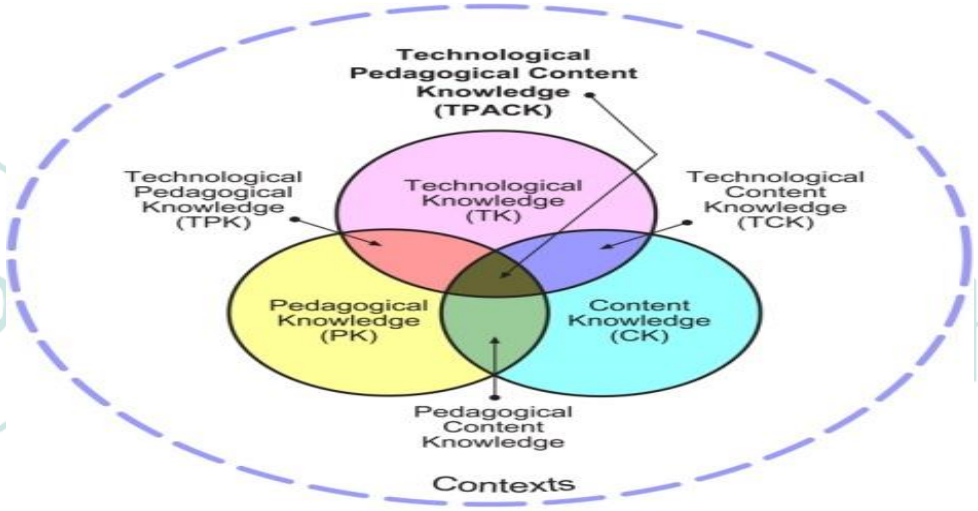
2. There is no significant difference in opinion of Economics students and lecturers on the strategies for enhancing teaching and learning in colleges of education in North Central State, Nigeria.

Theoretical Framework

The Technological Pedagogical and Content Knowledge (Mishra and Koehler, 2006).

This study is based on the theory of "Technological Pedagogical and Content Knowledge" (TPACK) developed by Mishra and Koehler (2006). The TPACK framework is based on the principle that while addressing the complex multifaceted and situated nature of teacher's knowledge, proper integration of technology in teaching by teachers requires essential qualities of knowledge (Mishra and Koehler, 2006). Evidence abounds that computers can not make any meaningful difference in teaching and, rather, the pedagogical method the teacher applies when instructing the computer will make the difference. (Clark, 2001). Therefore, TPACK provides better feedback for incorporating technology in classroom teaching and learning processes than the Sensory Stimulation Theory (SST) which has some limitations as stated above. The TPACK diagram is shown below:

TPACK Theory Diagram



The TPACK Model (Koehler & Mishra, 2006) Technological Pedagogical and Content Knowledge (TPACK) emerged from understanding the interaction of content, pedagogy and technology knowledge, underlying true meaningful and deeply skilled teaching with technology. TPACK is the basis of effective teaching with technology and requires an understanding of the representation of concepts using technologies, pedagogical techniques that use technology in constructive ways to teach content; knowledge of what makes concepts difficult or easy to learn and how technology can help redress some of the problems that students face, such as students prior knowledge (Koehler and Mishra, 2006).

Methodology

The researcher adopted a descriptive survey design. The area of study consists of all the North Central State comprising of Plateau, Niger, Kwara, Benue, Kogi, Nassarawa, and Federal Capital Territory. Within the state, the study is also delimited to Colleges of Education in North Central State, Nigeria. The population of this study comprised all the Economics lecturers and the NCE III students in six Colleges of Education in the North Central State of Nigeria, The population consist of Hundred and Eighty-Nine (189) Economics Lecturers and One Thousand Two Hundred and Three (1203) NCE III students from six (6) Colleges of Education in North Central State with a sample size of three hundred and nine (309) respondents which are 189 lecturers and 120 NCE III students. The 189 lecturers in the population were retained, while ten per cent (10%) of the NCE III students were used.

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The instrument used in gathering data for this study is a structured questionnaire. The questionnaire was adapted and necessary modifications were made to suit the study area. Section A of the instrument contains the personal information of the respondents, while section B contains thirty (30) items aimed at enquiring about different issues on the research questions. The items will be closed-ended. They are placed on a 4-point rating scale and a two-point rating scale of Strongly Agree (SA), and Agree (A). Disagree (D) and Strongly Disagree (SD), Very High Extent (VHE), High Extent(HE), Low Extent (LE) Very Low Extent (VLE) and Available (A), Not Available (NA) respectively which will be scored as follows: SA=4, A=3, D=2, SD=1. And A=2, B=1

To ensure the face validity of the questionnaire, the researcher submitted the drafted questionnaire items to two senior lecturers in the Measurement and Evaluation department and one senior lecturer in the Social Science Education Department of the University of Nigeria, Nsukka. The questionnaire items were subjected to thorough scrutiny and proofreading by these experts to ensure that their contents were in line with the research questions.

In order to ascertain the reliability of the questionnaire, a pilot study was conducted. A pilot study was carried out with fifteen (15) lecturers and Fifteen (15) NCE III students of the Economics Department, College of Education Osugbe, Enugu State. The internal consistency of the instrument was ascertained by using Cronbach Alpha. an overall reliability of .97 for the two clusters used for the research work was found, indicating that the instrument is reliable. Cronbach Alpha reliability coefficient was desired to establish the reliability of the instrument because the items were dichotomously scored.

RESULTS

Research question 1: What ICT facilities are available for teaching and learning Economics in Colleges of Education in North Central State, Nigeria?

Table 1: frequency and percentage of respondents on the available ICT facilities for teaching and learning Economics in the College of Education

S/N	Items	A	%	N	%	Remarks
1	Internet-connected Desktop Computers	235	76.5	72	23.5	A
2	Internet Connected Laptop	147	47.9	160	52.1	NA
3	Institutional/Departmental Cyber café	221	72	86	28	A
4	Institutional Virtual Library	171	55.7	136	44.3	A
5	Departmental Computer Library	237	77.2	70	22.8	A
6	Computer networking (Local Area Network)	61	19.9	246	80.1	NA
7	Computer networking (Wide Area Network)	129	42.0	178	58.0	NA
8	Overhead projector	92	30.0	215	70.0	NA
9	Overhead transparencies	186	60.6	121	39.4	A
10	Whiteboard	168	54.7	139	45.3	A
11	Electronic class roll (ECR)	89	29.0	218	71.0	NA
12	Multimedia classroom (Audio visual centre)	107	34.9	200	65.1	NA
13	Smart board	119	38.8	188	61.2	NA
14	Computer screen reading software	28	9.1	279	90.9	NA
15	Loud speaker	214	69.7	93	30.3	A
16	Printers	185	60.3	122	39.7	A
17	Fax machine	122	39.7	185	60.3	NA
18	Photocopying machine	127	41.4	180	58.6	NA
19	Magnetic disc	189	61.6	118	38.4	A
20	Magnetic DVD	99	32.2	208	67.8	NA
21	Flash drive	146	47.6	161	52.4	NA
22	Optical disc	75	24.4	232	75.6	NA

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23	Read Only Memory (ROM)	153	49.8	154	50.2	NA
24	Video compact disc (VCD)	149	48.5	158	51.5	NA

Data in Table 1shows frequency and percentage of responses of the respondents on available ICTs facilities for teaching and learning of Economics at secondary school. In this cluster, 24 items were presented to the respondents, in which items 1, 3, 4, 5, 9, 10, 15, 16 and 19 were available while 2, 6, 7, 8, 11, 12, 13, 14, 17, 18, 20, 21, 22, 23 and 24 were not available. The respondents identified that available ICT facilities are internet-connected to desktops, Cyber café, virtual libraries, computer libraries, Overhead transparency, whiteboards, smart boards, loudspeakers, Printers and Magnetic discs. Items not available include Laptops, Local Area Networks, Wide Area Networks, overhead projectors, ECR, Multimedia classrooms, Smartboards, Computer screen reading software, Fax machines, Photocopying machines, Magnetic DVDs, Flash drives, Optical discs, (ROM) and RAM.

Research question 2: What are the strategies for enhancing the use of ICT in teaching and learning in colleges of Education in North Central State, Nigeria?

Table 2: mean ratings and standard deviation of respondents on strategies for enhancing the use of ICT in teaching and learning in colleges of education.

S/N	Items	Respondents	Mean	Std. Deviation	Remarks
1	Use Computer Assisted Instruction (CAI)	Lecturers	3.40	.729	HE
		Students	3.40	.738	HE
2	Computer-Aided Design (CAD)	Lecturers	3.42	.686	HE
		Students	3.45	.672	HE
3	Performance Monitoring	Lecturers	3.30	.795	HE
		Students	3.25	.891	HE
4	Problem-solving strategies	Lecturers	3.37	.679	HE
		Students	3.35	.657	HE
5	Video lectures	Lecturers	3.19	1.003	HE
		Students	3.05	1.076	HE
6	Use of individualized instruction	Lecturers	2.96	.819	HE
		Students	3.00	.840	HE

Data in the table above shows the responses of the respondents on strategies for enhancing the use of ICT in teaching and learning in colleges of education. Mean ratings of all the items in this cluster are above 2.50 with moderate and high standard deviations. In other words, computer-assisted instruction, computer-aided design, performance monitoring, problem-solving, video lectures and use of individualized instruction were used to a high extent as ICT strategies for enhancing teaching and learning in the College of Education.

Discussion of the Findings

The discussion of the findings of this study will be presented in line with the purpose of the study **ICT facilities are available for teaching and learning of Economics in Colleges of Education in North Central State, Nigeria.**

With respect to research question 1, which explored available ICT facilities for teaching and learning Economics in colleges of education? This study identified that available items are internet-connected to desktops, Cybercafé, virtual libraries, computer libraries, Overhead transparency, whiteboard, smart board, loudspeaker, printers and magnetic disc. items not available include laptops, local area network, wide area networks, overhead projectors, ecr, multimedia classroom, smart board, computer screen reading software, fax machine, photocopying machine, magnetic DVD, flash drive, optical disc, (ROM) and RAM. These unavailable items which are very vital for day-to-day academic activities are not available in most schools due to lack of funds. Some of the school attributes the unavailability of these items to hoodlums who vandalize school properties. In

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consonant with this finding, Egomo, Enyi, and Tah (2012) revealed that the availability and utilization of ICT tools for effective instructional delivery is significantly low. Cyber Cafes, internet connectivity and the use of laptops are common phenomena among institutions and lecturers in conformity with Egomo, Enyi and Tah, Yusuf, Maina and Dare (2013) revealed that there is a dearth of ICT facilities in secondary schools in Kaduna as there are only very few of such facilities available in most of the schools visited. Mathevula and Uwizeyimana (2014) revealed that, with the exception of TVs, photocopiers and laptop/desktop computers, there is a scarcity of ICT resources available at schools for ICT integration, and that the teaching and curriculum administration functions of most teachers have been negatively impacted by a lack ICT equipment and/or insufficient use of these ICT resources for those schools who have them. Also, Amuchie (2015) revealed that the extent of availability of ICT resources in secondary schools in Ardo-kola and Jalingo is very low and the extent of utilization of ICT resources in teaching and learning is equally very low. With respect to research question 1, which explored available ICT facilities for teaching and learning Economics in colleges of education? This study identified that available items are internet-connected to desktops, Cybercafé, virtual libraries, computer libraries, Overhead transparency, whiteboard, smart board, Loudspeaker, Printers and Magnetic disc. Items not available include Laptops, Local Area Network, wide Area Networks, overhead projectors, ECR, Multimedia classroom, Smart board, Computer screen reading software, Fax machine, Photocopying machine, Magnetic DVD, Flash drive, Optical disc, (ROM) and RAM. These unavailable items which are very vital for day to academic activities are not available in most schools due to lack of funds.

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Strategies for enhancing the use of ICT in teaching and learning in colleges of education in North Central State, Nigeria

To explore the strategies that could enhance the use of ICT in teaching and learning, lecturers and students agreed that computer-assisted instruction, computer-aided design, performance monitoring, problem solving, video lectures, and the use of individualized instruction were used to a high extent as ICT strategies for enhancing teaching and learning in colleges of education. Computer-assisted instruction and computer-aided instruction have been found to be useful in the teaching and learning of economics in colleges of education, especially where students are equipped with the required skills. The major challenge is when lecturers and students are not equipped, as Yusuf, Maina, and Dare (2013) revealed that most teachers were not competent in the use of these facilities, as the management of these facilities requires training and re-training. Problem solving, video lectures, and the use of individualized instruction were confirmed by respondents as strategies for enhancing the use of ICT in teaching and learning based on their ability to incorporate ICT components as part of the instructional method.

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Conclusion

Information and communication technologies play a vital role in the teaching and learning process in different colleges of education. It refers to all electronic devices, including computers, telecommunications, and audio-visual systems, that help in the collection, processing, transmission, and delivery of information and communication services to lecturers and students. The findings of the study revealed that the ICT facilities available are internet-connected desktops, cybercafés, virtual libraries, computer libraries, overhead transparency, whiteboards, smart boards, loudspeakers, printers, and magnetic discs. Items not available include laptops, local area networks, wide area networks, overhead projectors, ECRs, multimedia classrooms, smart boards, computer screen reading software, fax machines, photocopying machines, magnetic DVDs, flash drives, optical discs (ROMs), and RAM. Also, lecturers and students agreed that computer-assisted instruction, computer-aided design, performance monitoring, problem-solving, video lectures, and the use of individualized instruction were used to a high extent as ICT strategies for enhancing teaching and learning in colleges of education. Computer-assisted instruction and computer-aided instruction have been found to be useful in the teaching and learning of economics in colleges of education, especially where students are equipped with the required skills.

Recommendations

Based on the conclusion the study recommended that:

1) Establish and Upgrade ICT Infrastructure: To improve the teaching of Economics in Colleges of Education in North Central State, Nigeria, it is imperative to establish robust ICT infrastructure and upgrade existing facilities. This recommendation includes ensuring reliable internet connectivity, providing sufficient numbers of computers and other digital devices, and maintaining up-to-date software relevant to economic analysis and research. By prioritizing investment in these areas, educational institutions can create an enabling environment that supports the integration of ICT in the Economics curriculum, facilitating enhanced learning outcomes and research capabilities.

2) Professional Development and ICT Integration Training: Another critical recommendation is to implement ongoing professional development programs focused on the integration of ICT in teaching Economics. This strategy should encompass training educators on the effective use of digital tools and resources, such as economic databases, simulation software, and online collaborative platforms. By equipping teachers with the necessary skills and knowledge to integrate ICT into their pedagogy, colleges can foster more interactive, engaging, and effective learning experiences for students, ultimately enhancing the quality of Economics education in the region.

REFERENCES

1. Abbot, B. G & Chris, N. N (2021) *Information and Communication Technology in Changing Education*. London: Continuum Press.
2. Adelabu, O. A & Adu, E. O. (2014). Assessment of accessibility and utilization of information and communication technology (ICT) for effective teaching of biological science in secondary schools. *Mediterranean Journal of Social Sciences (MCSER)*, 5(23), 1439-1444.
3. Adelabu, O.A., Adu, E.O. & Adjogri, S.J. (2014). The Availability and Utilization Of E-Learning Infrastructures For Teaching And LEARNING. In J. Viteli & M. Leikomaa (Eds.), *Proceedings of EdMedia 2014--World Conference on Educational Media and Technology*. Tampere, Finland: Association for the Advancement of Computing in Education (AACE).
4. Adomi, E. E. & Kpangban, E. (2010). Application of ICTs in Nigerian secondary schools. *(e-journal).* Retrieved on 27/08/15 http://digitalcommons.unl.edu/libphilprac /345.

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5. Ajayi, G. O (June 14, 2002). African Response to the Information and Communication Technology Revolution. ATPS special paper no. 8. Retrieved from http./www/atspsnet.org/ajayi.ptdf
6. American Psychological Association (2009).Publication Manual. Washington: Mifflin.
7. Amuchie, A. A. (2015). Availability and utilization of ICT resources in teaching and learning in secondary schools in Ardo-Kola and Jalingo,Taraba States. *Journal of Poverty, Investment and Development,* 8 ,94-100.
8. Bakaç, M., Taşoglu, A. K., & Akbay, T. (2011). The effect of computer assisted instruction with simulation in science and physics activities on the success of student: *Electric current. Eurasian Journal of Physics and Chemistry Education, (Special Issue),* 32-42
9. Dwivedi, D. N (2004) *Management Economics. (6th edition)*. London: Martins Press Inc.
10. Egomo, J .E, Enyi, B. I & Tah, M .M .(2012). Availability and utilization of ICT tools for effective instructional delivery in tertiary institutions in Cross River States, Nigeria. *Global Advanced Research Journal of Educational Research and Review*, 1(8), 190-195.
11. Ekundayo, H. T., & Ajayi, I. A. (2009). Towards Effective Management of University Education in Nigeria. *International NGO Journal,* 4, 342-347. http://www.academicjournals.org/INGOJ
12. Ezekwesili, O. (2020). An addressed delivered by Minister of Education as the guest of Honour at opening ceremony of the 19th Annual Conference of Nigerian Association of Teachers of Technology (NATT), held on 7th 2006 at Rivers States College of Education, Ilorin
13. Federal ministry of Education (2008) *Economics for senior secondary school*. Nigerian Educational research and development council (NERDC)
14. Federal Republic of Nigeria (2006).National Policy on Education. Nigeria: Federal Printing Press
15. Isiyaku, K. (2007). The training of NCE teachers in Nigeria, how far, how well. *Nigerian Journal of Professional Teachers* (Vol. 2007).Teacher Registration Council of Nigeria.
16. Ministerial Council on Education, Employment, Development, and Youth Affairs, MCEECDYA, (2008**). Creative Education**, Vol.6 No.23, December 30, 2015
17. National Commission for Colleges of education (NCCE) [2020] Minimum Standards for Nigerian Certificate: A Summary of Minimum Standards for NCE Teachers (3rd Edition) Garki Abuja.
18. Nigerian National Policy on Education, (2004).Yaba, Lagos, NERDC Press, Nigerian National Policy on Information and Communication Technology. (2010). Yaba, Lagos, NERDC Press.
19. Nworgu, B. G. (2015). *Educational research: Basic issues and methodology* (3rd ed). Nsukka: University of Nigeria
20. Odera, F. Y. & Ugwoke (2011). Problems of utilization of ICT in teaching: A case study of its use in selected institutions in Nyanza Province. Kenya.
21. Osei, T. A. (June 28, 2007). Information Communication Technology for Education in Nigeria; Retrieved from www.http//ictfornigerianteachers.org
22. *Ozoji*, E.D. (*2013*) a regional study on inclusive education was conducted. ... (PhD Emeka Desmond ***Ozoji***, PhD Isuwa Jikuka Jurmang) 11:00 – 11:10:
23. Thierer A (2002). *Divided over the digital divide, Washington*, DC: Heritage Foundation.

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24. UNESCO (2011). UNESCO ICT Competency Framework for Teachers. Paris, France: Place de Fontenoy, 75352.

25. UNESCO (May 4, 2008). ICT Competency Standards for Teachers Implementation Guidelines. Version1.

26. Wikipedia (2010).Information and Technologies for Development. Retrieve from Wikipedia, the free encyclopedia. Jump to Navigating, search

27. Zare-ee, A. (2017), Universities teachers views on the use of ICT and teaching and research. *Turkish Journal of educational Technology*. 10 (3), 318 – 327

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