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Access to information and communication technology (ICT) for quality delivery of higher education in rivers state

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KEY WORDS

Access, information and communication technology (ICT), quality, delivery, higher education.

ABSTRACT

The study focused on the access to Information and Communication Technology (ICT) for quality delivery of higher education system in Rivers State. The study investigated the extent of lecturers' and students access to ICT for quality delivery of Higher Education in Rivers State. The population of the study comprised of five higher institutions in Rivers State. A simple random sampling was used in the selection of 750 lecturers (470 male and 280 female) and 1200 students (750 male and 450 female) from the five higher institutions in Rivers State. The data for the study was gathered with a questionnaire titled "Access to ICT for Quality Delivery" (AIQD) Questionnaire designed using the four points rating scale of Strongly Agree (SA), Agreed (A), Disagree (D) and Strongly Disagree (SD) weighted as 4, 3, 2 and 1 respectively. The instrument was validated and its reliability co-efficient established at 'r'0.72. The questionnaire consisted of 17 items that elicited relevant information to the problems investigated. Data was analyzed using simple descriptive statistics as means and standard deviation. A criterion mean of 2.50 was established by dividing the sum of the weights with 4. Responses with grand mean of 2.50 and above were accepted (A) while responses below 2.50 were not accepted (NA). The hypotheses posed for the study was tested using the Z-test statistics at 0.05 level of significance. The findings revealed that there is a significant difference between male and female lecturers on access to ICT for Quality delivery of Higher Education. Again, a significant difference was established between male and female students on access to ICT for Quality delivery of Higher Education in Rivers State. It was recommended that government should increase on the funding of higher institutions, provide more internet facilities, ensure constant provision of power supply to higher institutions to aid the use of internet facilities and lecturers should encourage the students on the use of internet to solve their problems.

1. Introduction

The educational system round the globe is under increasing pressure to have access on the new Information and Communication Technologies (ICTs). This pressure is as a result of the important put on ICT towards bringing changes to classroom teaching and learning is the education system. The role of Information and communication technology (ICT) on Higher education is of paramount importance for economic and social development. It gives people access to knowledge and the tools for increasing and diversifying their knowledge, expanding people's productivity, as well as national capacity and competitiveness. It is widely acknowledged that ICTs can be used to improve the quality of teaching and learning in any tertiary institution. The prevalence and rapid development of ICTs has transformed human society from the information technology age to the age of knowledge. In fact ICTs are becoming natural part of man's daily life, thus the use in education by staff and students is becoming a necessity. The information society demands a workforce that can use technology as a tool to

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increase productivity and creativity. This involves identifying reliable sources of information, effectively accessing these sources of information, synthesizing and communicating that information to colleagues and associates (Alibi, 2014).

The trend towards a knowledge-based economy has emphasized the importance of higher institutions as repositories of valuable human capital to help secure shares in the global market. The accelerating shift to high-technology and information technology economies requires sustained human resource development and training. Driven by globalization and pressures to teach and train knowledgeable, skilled and competitive professionals, higher institutions face a huge challenge to increase access to higher education and improve the quality of higher education against the stark reality of decreasing resources. Cuban (2016) notes that, in recent years there has been a great interest on how computers and the Internet can best be harnessed to improve the efficiency and effectiveness of education at all levels. But ICTs are more than just these technologies; older technologies such as the telephone, radio and television, although now given less attention, have a longer and richer history as instructional tools. For instance, radio and television have for over forty years been used for open and distance learning, although print remains the cheapest, most accessible and therefore most dominant delivery mechanism in both developed and developing countries. Potashnik and Capper (2018) also indicated that the use of computers and the Internet is still in its infancy in developing countries due to limited infrastructure and the attendant high costs of access.

Information and communication technology (ICT) is a force that has changed many aspects of the way we live. Information is a key resource for undergraduate teaching, learning, research, and publishing. This brings the need for effective methods of information processing and transmission (Nwosu & Ogbomo, 2022). This has paved way for change not only the way society accesses knowledge but also transform and restructure traditional models of higher education. Information technology is one skill area that is now essential for young people to gain a foot hold in the labour market in developed and increasingly in developing countries (Laura & Brown, 2015). Presently, higher institutions of learning have been focusing on e-learning environment and much less on traditional methods as a result of the newly acquired capacity for students and teachers to have access to the internet any point in time. ICT help teachers and students become actively engaged together in online collaborative work to enhance traditional learning methods (Oliver, 2021).

Higher education historically has included economic development as part of its core mission. The colleges and universities can serve the country by allocating fiscal and human resources to create entrepreneurship systems within the institutions so as to advance economic development (Bloom, Canning & Chani, 2015). Higher institutions are designed to create a quality workforce by growing, training, and attracting the finest talent; support current business and industry; improve learning and teaching from pre-school through graduate school; take strong and visible roles in regional initiatives; disseminate research and promote technology transfer; enhance the technology infrastructure; promote liveable communities; and employ a diverse workforce (Myamoto, 2020). The use of ICT in educational settings will act as a catalyst for change in this domain. ICTs by their very nature are tools that encourage and support independent learning. Students using ICTs for learning purposes become immersed in the process of learning and use computers as information sources and cognitive tools (Reeves & Jonassen, 2016).

In this age of information and communication technology (ICT) educators in this part of the world cannot afford to lag behind in the committee of nations. They should be able to compare favourably with their colleagues across the globe, so that they can be able to produce graduates who are capable of securing jobs anywhere in the world. Haddad and Draxier (2020) indicates that ICT contributed to effective learning through expanding access, promoting efficiency, improving the quality of learning and improving management systems. According to Obeng (2014), ICT is now regarded as a utility such as water and electricity and hence has become a major role in education for learning and research in areas such as agriculture, health, commerce and even in poverty alleviation by generating or creating new jobs and investment opportunities.

Sampson (2019) opines that, to remain in a competitive economy technologically in light of the prevalent changes around the globe, countries will need to improve productivity and adopt an innovative spirit to these changes through ICT. Higher education has the capacity, knowledge, and necessary research help to achieve these goals. Sachs and McArthur (2018), assert that man is living in an age of remarkable technological change that is forcing us to think very hard about the linkages between technology and economic growth. The harder we think about it, the more we realise that ICT is almost certainly the key driver of long-term economic growth. The creation of high skilled information technology work force has been a great challenge to world economy. This work force will be a key component in a growing economic sector. More importantly, it would produce graduates who fill jobs in a job market that is crying out for more computer specialists, web designers, network managers 'and other IT' specialists.

There have been a number of factors impeding the uptake of ICT in education across all sectors. These have included such factors as a lack of funding to support the purchase of the technology, a lack of training among established teaching practitioners, a lack of motivation and need among teachers to adopt ICT as teaching tools (Starr, 2018). The problems of quality and lack of resources have also been compounded by the new realities faced by higher education institutions battle to cope with every increasing student's numbers. Not only have higher education systems expanded worldwide, the nature of the institution within these systems has also been shifting through a process of differentiation. Consequently, Pelgrum (2020) observes that, obstacles for ICT implementation includes insufficient number of computers, teachers' lack of ICT knowledge/skills, difficult to integrate ICT to instruction, scheduling computer time, insufficient peripherals, not enough copies of software, insufficient teacher time, not enough simultaneous access, not enough supervision staff and lack of technical assistance. But in recent times, factors have emerged which have strengthened and encouraged moves to adopt ICTs into classrooms and learning settings. The role of ICT to higher education is seen as a major drive to economic development as well as technological advancement which will increase further changes in technology, globalisation, and demography impacts on the world. Professional orientation for educators is required, so as to keep them abreast of time in knowledge and technological skills. Educators should make the contents of their course materials up to date, relevant and challenging to students.

The problem

In the past students in higher institutions were very comfortable with learning through training and presentation of the information that forms the curriculum. The growing use of ICT as an instructional medium is changing and will likely continue to change many of the strategies employed by both teachers and students in the learning process. Information and communication Technology (ICT) has paved the way to change not only the way society accesses knowledge but also transform and restructure traditional models of higher education. Presently, many universities and colleges have been focusing on e-learning environment and much less on traditional methods as a result of the newly acquired capacity by students and teachers in order to have access to the internet anywhere and anytime. Just as technology is influencing and supporting what is being learned in higher institutions, it also support changes in the way students are learning. Through technology-facilitated approaches, contemporary learning settings now encourage students to take responsibility for their own learning in an accessible, effective and efficient higher education system, particularly when governments are counting on higher institution graduates to be competitive in creating wealth for their respective countries. The pace of change brought about by the new technologies has had a significant effect on the way people live, work and play worldwide. New and emerging technologies challenge traditional process of information use and dissemination and the ways information is managed. Easy worldwide communication provides instant access to a vast array of data, rapid communication, challenge assimilation and assessment skills, plus increased access to ICT at home, work and in educational establishment. It is in the light of this that the paper investigated

the access of Information and Communication Technology (ICT) for quality delivery in higher education system.

Purpose of the study

The purpose of the study is to:

1. Find out the extent of lecturers' access to ICT for Quality delivery of Higher Education in Rivers State.
2. Find out the extent of students' access to ICT for quality delivery of Higher Education in Rivers State.

Research Questions

1. What is the extent of lecturers' access to ICT for Quality delivery of Higher Education in Rivers State?
2. What is the extent of students' access to ICT for quality delivery of Higher Education in Rivers State?

Hypotheses

1. There is no significant difference between male and female lecturers on access to ICT for Quality delivery of Higher Education in Rivers State.
2. There is no significant difference between male and female students on access to ICT for Quality delivery of Higher Education in Rivers State.

Methodology

The study adopted a descriptive research design. The population of the study comprised of five higher institutions in Rivers State. A simple random sampling was use in the selection of 750 lecturers (470 male and 280 female) and 1200 students (750 male and 450 female) from the five higher institutions in Rivers State. The data for the study was gathered with a questionnaire titled "Access to ICT for Quality Delivery" (AIQD) Questionnaire designed using the four points rating scale of Strongly Agree (SA), Agreed (A), Disagree (D) and Strongly Disagree (SD) weighted as 4, 3, 2 and 1 respectively. The instrument was validated and its reliability co-efficient established at 'r'0.72 using the Pearson's Product Moment Correlation. The questionnaire consisted of 17 items that elicited relevant information to the problems investigated. The researcher personally administer the instrument on the lecturers and students with the help of four research assistants who were briefed before the commencement of the instrument administration and all instruments were collect back upon completion.

Data was analyzed using simple descriptive statistics such as means and standard deviation. A criterion mean of 2.50 was established by dividing the sum of the weights with 4. Responses with grand mean of 2.50 and above were accepted (A) while responses below 2.50 were not accepted (NA).The hypotheses posed for the study was tested using the Z-test statistics at 0.05 level of significance.

Presentation and analysis of data

The results of the data analysis led to the findings of the study.

Research Question 1. What is the extent of lecturers' access to ICT for Quality delivery of Higher Education in Rivers State?

Table 1. Extent of lecturers' access to ICT for quality delivery of Higher Education.

s/n	Variables	Male Lecturers = 470		Female Lecturers = 280		Mean set	Remarks
		X1	SD	X2	SD	X1X2	
1	The school has an ICT centre.	3.62	0.48	3.64	0.43	3.63	Agree
2	Lecturers have access to the ICT centre in the school.	3.41	0.43	3.09	0.41	3.25	Agree
3	Lecturers have computers in their offices.	1.62	0.43	1.86	0.40	1.74	Disagree
4	An internet facility is connected to all the offices in the school.	1.88	0.30	2.12	0.29	2.00	Disagree
5	Lecturers' offices are connected to the internet.	1.72	0.43	1.78	0.44	1.75	Disagree
6	The school has a web site.	3.76	0.50	3.24	0.46	3.50	Agree
7	Lecturers use the internet to carry out their research work.	3.42	0.43	3.08	0.39	3.25	Agree
8	Lecturers have e-mail addresses.	3.51	0.48	3.23	0.44	3.37	Agree
9	Electricity is always available in the school.	2.06	0.50	1.94	0.48	2.00	Disagree
Grand Mean		2.78	0.41	2.66	0.38	2.72	

Results on table 1 shows that items 1, 2, 6, 7 and 8 had weighted mean scores above the criterion mean ($\bar{x}$) of 2.50 and were agreed on as the extent of lectures' access to ICT for quality delivery of Higher Education while item 3, 4, 5 and 9 had a weighted mean scores below the criterion mean ($\bar{x}$) of 2.50 and were disagreed as the extent of lecturers' access to ICT for quality delivery of Higher Education. However, with an aggregate weighted mean set of 2.72 above the criterion mean of 2.50, it is evident that male and female lecturers agree on the extent of lectures' access to ICT for quality delivery of Higher Education in Rivers State.

Research Question 2. What is the extent of students' access to ICT for quality delivery of Higher Education in Rivers State?

Table 2. Extent of students' access to ICT for quality delivery of Higher Education.

s/n	Variables	Male Students = 750		Female Students = 450		Mean set	Remarks
		X1	SD	X2	SD	X1X2	
10	Students have access to ICT centre in school.	3.32	0.41	2.68	0.44	3.00	Agree
11	Students are provided with laptops in school.	1.23	0.81	1.17	0.72	1.20	Disagree
12	Internet facility is connected to the library for student use.	1.79	0.78	1.81	0.86	1.80	Disagree
13	Students use the internet to solve their academic problems in school.	3.22	0.60	2.78	0.66	3.00	Agree
14	Students are given internet based assignment in school.	2.98	0.43	3.02	0.48	3.00	Agree
15	Students use the internet to exchange information with students from other schools.	3.01	0.44	2.99	0.41	3.00	Agree
16	Students use the internet to carry out their research work.	2.87	0.57	3.13	0.61	3.00	Agree
17	Students have e-mail addresses.	3.21	0.60	2.79	0.63	3.00	Agree
Grand Mean		2.70	0.58	2.55	0.60	2.63	

Results on table 2 shows that items 10, 13, 14, 15, 16 and 17 had weighted mean scores above the criterion mean ($\bar{x}$) of 2.50 and were agreed on as the extent of students' access to ICT for quality delivery of Higher Education while item 11 and 12 had a weighted mean scores below the criterion mean ($\bar{x}$) of 2.50 and were disagreed as the extent of students' access to ICT

for quality delivery of Higher Education. However, with an aggregate weighted mean set of 2.63 above the criterion mean of 2.50, it is evident that male and female students agree on the extent of students' access to ICT for quality delivery of Higher Education in Rivers State.

Hypotheses 1. There is no significant difference between male and female lecturers on access to ICT for Quality delivery of Higher Education in Rivers State.

Table 3. Difference between male and female lecturers on access to ICT for Quality delivery of Higher Education in Rivers State.

Variables	N	Mean	SD	Z- cal.	Z- crit.	df	Level of significance	Decision
Male	470	2.78	0.26	4.04	1.96	748	0.05	Ho Not accepted
Female	280	2.66	0.32					

$p > 0.05$

The data on Table 3 shows that the z-calculated value of 4.04 > z-critical of 1.96; $p > 0.05$ level of significance with $df=748$. The null hypothesis is rejected. This means, there is a significant difference between the male and female lecturers on access to ICT for Quality delivery of Higher Education in Rivers State.

Hypotheses 2. There is no significant difference between male and female lecturers on access to ICT for Quality delivery of Higher Education in Rivers State.

Table 4. Difference between male and female students on access to ICT for quality delivery of Higher Education in Rivers State.

Variables	N	Mean	SD	Z- cal.	Z- crit.	df	Level of significance	Decision
Male	750	3.03	0.38	25.25	1.96	1198	0.05	Ho Not accepted
Female	450	2.67	0.06					

$p > 0.05$

The data on Table 4 shows that the z-calculated value of 25.25 > z-critical of 1.96; $p > 0.05$ level of significance with $df = 1198$. The null hypothesis is rejected. This means, there is a significant difference between the male and female students on access to ICT for Quality delivery of Higher Education in Rivers State.

Discussion of Findings

The findings revealed that there is a significant difference between male and female lecturers on access to ICT for Quality delivery of Higher Education. It further revealed that the schools have ICT centres; lecturers have access to the ICT centres, the schools have web sites, lecturers use the internet to carry out their research work and they have e-mail addresses all with a criterion mean above 2.50. It indicates that, lecturers' access to ICT can bring about quality delivery of the higher education systems. Sampson (2009) notes that, to remain in competitive economy technologically in light of the prevalent changes around the globe, countries will need to improve productivity and adopt an innovative spirit to these changes through ICT. Myamoto (2010) reiterates that, higher institutions are designed to create a quality workforce by growing, training, and attracting the finest talent; support current business and industry; improve learning and teaching from pre-school through graduate school; take strong and visible roles in regional initiatives; disseminate research and promote technology transfer; enhance the technology infrastructure and employ a diverse workforce. Higher education has the capacity, knowledge, and necessary research help to achieve these goals.

The findings also revealed that there is a significant difference between male and female students on access to ICT for Quality delivery of Higher Education in Rivers State. It further revealed that students have access to ICT centre in school, use the internet to solve their academic problems, given internet based assignment, use the internet to exchange information with students from other schools, use the internet to carry out their research work and have e-mail addresses all with a criterion mean above 2.50. It indicates that, students' access to ICT can produce quality out-put in the higher education systems. Laura & Brown (2015) notes that, information technology is one skill area that is now essential for young people to gain a foot hold in the labour market in developed and increasingly in developing countries. Oliver (2021) reiterates that, ICT help teachers and students become actively engaged together in online collaborative work to enhance traditional learning methods. It is in the light of this that Reeves & Jonassen (2016) notes that, students using ICTs for learning purposes become immersed in the process of learning and use computers as information sources and cognitive tools. In this age of information and communication technology (ICT) there is need to encourage lecturers and students in higher institutions on use ICT so they can be able to compare favourably with their colleagues across the globe, in addition, produce graduates who are capable of securing jobs anywhere in the world.

Conclusion

Invariably, with the ease of access to ICT facilities, one is bound to have more access to knowledge, tools for increasing, diversifying and expanding people's productivity as well as national capacity and competitiveness. It is evident from the findings that, lecturers and students through access to ICT will ensure quality delivery of the higher education system in Rivers State.

Recommendations

1. There is need for government to increase on the funding of higher institutions.
2. There is need for government to provide more internet facilities to higher institutions.
3. Lecturers should encourage the students on the use of internet to solve their problem.
4. Government should ensure the constant provision of power supply to higher institutions to aid the use of internet facilities.

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