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Information and Communication Technology Infrastructures and Tertiary Institution Governance in Kogi State, Nigeria: An Assessment

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Abstract:

Information and Communication technology is significantly changing almost every sphere of human endeavor, and can conveniently be said to be the culture of the 21st century. The changes it has brought, with regards to ease and speed of doing hitherto cumbersome and time consuming tasks is one of the reasons why segments and various professional divides seem in a haste to reform their rules of engagements leveraging on the potentials of ICTs. Tertiary educational institutions in Kogi State have made a handful of attempts at mainstreaming ICTs in delivering their mandate. This paper therefore assesses the Effectiveness of Information and Communications Technology infrastructures in the Kogi State University Anyigba, the Federal Polytechnic Idah, and Kogi State College of Education, Ankpa. The study adopts a Cross-sectional survey research design, guided by the technophile Model, and a target population of 2,360, from which a sample size of 346 respondents was drawn Using the Krejcie and Morgan sampling table. Data was collection through the use of self-administered questionnaire and interviews. Analyses was completed using simple percentages and frequency tables. The findings attest to obsolete and inadequate ICT facilities in the institutions under investigation. Particularly, internet connectivity (wifi), power supply to aid effective utilization of ICTs in these institutions, internet radios in Schools/Faculties, Departments and Units in institutions under studies are poor, and in most cases dilapidated and out of use. Besides, functional staff e-mail services for effective communication in these institutions were either not provided for, or not functional. It was equally found that most members of staff lack the requisite knowledge for the application of ICT in the discharge of official responsibilities, among others. The study recommends that all staff and students of the institutions should be given ICT trainings to aid their performance in this dynamic and technology oriented 21st century. Obsolete ICT infrastructures should be replaced with new and modern ones. There should be steady and uninterrupted power supply. Tertiary institutions should make the institution accessible to the internet so that, all staff and student should access the internet in their closet even if it will attract more funds. Mild user charges may be compulsorily levied. Such charges could be made a component of the tuition fee of students and drawn on the salaries of members of staff, from source. This would also insulate the institution from directly incurring more running cost, while at the same time ensuring efficiency.

Keywords: Information and communication technology, infrastructure, tertiary institutions

1. Introduction

Information and Communication Technology (ICT) can be described as a new entrant in Nigeria, if one considers when the country adopted a policy on ICT. The country got a National Policy for Information Technology in March 2001, establishing the Nigerian National Information Technology Development Agency (NITDA) in April 2001 but got an enabling law giving legal recognition to the Agency in April 2007 (Iboma, 2007; Okonji, 2007). This state of affairs explains the novelty of ICT in Nigeria. Interestingly, the National Policy for Information Technology is explicit on using ICT as the bedrock for national survival and development. In its mission statement the policy adopted to use ICT for "education" in its quest to contribute to the developmental strives of the country. The policy even proposed to make the use of IT mandatory at all levels of educational institutions through adequate financial provision for tools and resources (National Policy for Information Technology, 2007). With such national stance, a research into the implantation of this concept in tertiary Institutions can be justified.

The use of ICT could be an effective tool in attaining any goal set by Tertiary Institutions, the Society and the Government. Many investigations and researches have revealed that ICT is an important fulcrum on which modern society revolves around. This mean it is an effective instrument in bringing change which could lead to faster advancement in every sector of human life, most especially if effectively and efficiently managed. Historically, when modern technology

emerges first in other parts of the world including Africa and precisely Nigeria, traditional systems of instruction was common before the recent replacement with a new one that is ICT-based, some of the changes introduced were partly adopted while some were wholly adopted in schools, most especially in the developing countries, Nigeria inclusive. These adoptions or uses were visible in almost all levels of education system- pre-primary, primary, secondary, and Tertiary Institutions (Umar 2015).

2. Conceptual Framework

2.1. Information and Communication Technology (ICT)

ICT means Information and Communication Technology. It is a broad concept that combines telecommunications, computing and broadcasting devices. It covers any product that will store, retrieve, manipulate, transmit or receive information electronically. These include communication devices and applications like television, radio, computer, cellular phones, satellite systems, network hardware and software, and the various services and applications associated with these, including video conferencing.

However, like most such broad concepts, there has not been a generally accepted definition for ICT. This implies that there are varieties of definitions of this concept. But the Organization for Economic Cooperation and Development (OECD, 2004) stipulates benchmarks for a product to be considered as ICT. According to OECD, for a product of a manufacturing or a service industry to be considered as ICT, it must meet the following criteria: it should be intended to fulfil the function of information processing and communication including transmission and display; it should use electronic processing to detect, measure and/or record physical phenomena or to control a physical process; the components primarily intended for use in such products should also be included; it should enable the function of information processing and communication by electronic means; the service provided must go beyond simply the supply of goods (OECD, 2004).

Moreover, in the words of Akir (2006), ICT is a term that refers to standalone computers, networked devices and telecommunication technologies with multimodal interface, mobile phones/devices with capability to perform data communication, and other technologies that allow multimodal and interactive communication. The National Policy for Information Technology (2007) sees ICT as computers, ancillary equipment, software and firmware (Hardware) and similar procedures, services (including support services) and related resources. This, according to the policy, "includes any equipment or interconnected system or subsystem of equipment that is used in the automatic acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission or reception of data or information. In the same vein, citing computers, the internet, broadcasting technologies (radio and television), and telephony as examples, Tinio (2002) defines ICT as diverse set of technological tools and resources used to communicate, and to create, disseminate, store, and manage information.

It has been mentioned that ICT is a broad field. The definitions above are obvious attempts to incorporate this wide-ranging concept into one definition. This leaves the definitions with keywords that depict the different aspects of ICT. The different aspects of ICT can be discerned from its definitions as the definitions are obvious attempts to incorporate the wide-ranging nature of the concept into one designation. Aspects of ICT therefore transverse devices used in telecommunications, computing and broadcasting sectors. These include devices and applications like television, radio, computer, cellular phones, satellite systems, network hardware and software, and the various services and applications associated with these, including video conferencing (Tinio, 2002). Furthermore, Nkanu (2006) identified computers, photocopiers, CD-ROM Databases, printers, videotapes, and audio tapes as some examples of ICT. It is obvious that these examples are themselves umbrellas covering other subordinate units, thus requiring further breaking down.

2.2. History of Information Communication Technology (ICT)

The origin of ICT usage can be traced back to the technological rivalry between Union of Soviet Socialist Republic (USSR) and United States of America (USA) in the mid-twentieth century. In 1957, the Soviet Union launched a space craft called "Sputnik". The success recorded in this venture was humiliating to the US, which was supposed to be leading the world in space programme. This challenge spurred the US to devote much time and funds into space research. This led to the formation of Advanced Research Project Agency (ARPA), which comprised military scientists and organizations in the private sector of the US economy. This synergy gave birth to mainframe computers, which were used and linked in a network for medium usage by all the researchers involved in the project. The network link, which was initially called ARPAnet, later metamorphosed into the Internet. Although the military later removed the space research aspect out of ARPA net and into a new body called National Aeronautics and Space Administration (NASA), ARPA net continued as Internet through private initiative and efforts to become an important global network for communication (Mohammed, 2007; Onyeneke, 2007; Achonna & Yaya, 2008). The Internet has made it possible for people all over the world to communicate with one another effectively and inexpensively, hence its adoption in all spheres of human endeavour. As Aliyu (2007) rightly observes "Advances in ICT have facilitated the advancement of all professions".

2.3. The Contributions of Information Communication Technology (ICT) to Socio-Economic Development

Studies have shown that the rate of IT diffusion is correlated to the general level of socioeconomic development (Hargittai, 1999). A most recent finding is that ICT plays a vital role in advancing economic growth and reducing poverty. A survey of firms carried out in 56 developing countries finds that firms that use ICT grow faster, invest more, and are more productive and profitable than those that do not (Tahir 2012).

ICTs can be used to directly influence the productivity, cost effectiveness and competitiveness in industries, which is the advantage developing countries can build their economies upon. Catching up on developed economies in terms of application of technology and resulting economic benefits had never been that easier. On the other hand, the results for not being able to adopt ICTs can also be disastrous (Tahir 2012).

Information and Communication Technology (ICT) network is the basic facility through which information needs of industry, commerce and agriculture can be satisfied. Industrial development requires the coordination of a series of operation, including the acquisition of supplies, recruitment of labour, control stocks, processing of materials, delivery of goods to buyers, as well as billing and record keeping. Information technology is vital to the effective development and control of many of these operations. Commerce is essentially on information processing activity, effective buying, selling and brokerage rely on the continual supply of up-to-date information regarding the availability of prices of goods and services. Farmers on the other hand, must not only grow food but they must sell effectively and buy seeds and fertilizer. They also need information on weather conditions, disease outbreaks and new agricultural techniques (Sylvester, 2011)

The social benefit of ICT is completely invaluable and cannot easily be listed. Notwithstanding, a good number of the social benefits can still be discussed. And these benefits include social interactions. Keeping in touch with friends and relations is one of the major social benefits of ICT. Igyor (1996) also declared the same view that ICT has changed the way transactions are conducted, the way in which information is circulated and the way in which we educate and inform ourselves.

2.4. Information Communication Technology in Tertiary Institutions

It is very clear that the possibilities and reach of information technologies can tear down territorial boundaries and make available equal information and knowledge of different categories as soon as necessary data are fed on the website. Consequently, the field of educational research, students and other educational providers are able to exchange knowledge, research findings and opportunities through publications and other outlets available in countries around the world (Jegade, 2002).

In higher education institutions, common ICT infrastructure and services are usually computers, the internet, and services related to the internet. Computer networks interconnect computers in the University for Easy Communication, sharing of resources, and collaboration among students and lectures. E-learning makes education available even to remote positions and teleconferencing/videoconferencing enables transfer of services of experts from other universities. Additionally, the internet makes information search and access to variety of information easy. All these mean that in higher education institutions, common ICT infrastructure and services are usually computers, the internet, and services related to the internet and they have obviously important impact on the activities conducted. Additionally, the extents to which an institution can provide all the necessary ICT facilities are a measure of the status of the institution.

2.5. Implementation of ICTs in Tertiary Institutions of Learning in Nigeria

The introduction of ICT into universities clearly changed the way education is conducted. It paves the way for a new pedagogical approach, where students are expected to play more active role than before (i.e. getting more involved in the learning process, being active participants of knowledge creation not mere recipients of knowledge). Using information and known ICT tools in education, students should be able to communicate, create preservatives in PowerPoint, and interact with colleagues and teachers using technology (Ekeke & Mbachu, 2015).

Oduma (2013) likened ICT to a utility like water and electricity which plays a major role in education and has impacted on the quality and quantity of teaching and learning as well as research in educational methodology to initiate a new age in education. Internet as a digital tool of ICT has strengthen teaching and learning as it provides powerful resources and services for students, thereby enabling them meet their educational needs, it also allows for networking among students and teachers to facilitate exchange of ideas and improve opportunities for connecting schools to the world as learning is expanding beyond the classroom, so real life context can be established (Dotimi & Hamilton-Ekeke, 2013). According to Nwezeh (2010), the information and communication technology revolution is sweeping through the world and the gale has even caught up with developing countries like Nigeria and Ghana. Information and communication technologies have introduced new methods of teaching and conducting research and have been brought into education facilities for online learning, teaching and research collaboration. While some university communities in some countries enjoy free or inexpensive Internet access, students and faculty/staff in Nigeria must pay for time spent accessing the Internet, whether at a cyber café or in the library (although the library offers a discount). To improve ICT services in the library, therefore, researchers need to show how students and faculty/staff are using the Internet in the academic environment. University administration at many Nigerian universities see information and communication technologies as necessary in the process of learning and teaching. Information and communication technologies have given rise to new modes of organizing the educational environment in schools and new concepts in the teaching process as well as the remodelling of the roles played by the participants in the educational process.

2.6. The Status of ICTs in Nigerian Tertiary Institutions

The information and communication technology facilities in Nigeria institutions are those that assist in providing efficient and current information services for their use. In Nigeria, some of the resources that are harnessed for scholarly work include the use of various computer operating systems such as Microsoft Windows, software packages especially designed for library operations such as library software, software for indexing journals and newspapers, graphical library automation systems and data management applications. Internet technologies software include file protocol software, use

net news groups, discussion groups, web directories, search engines, and e-mail services. These can be harnessed by academics for good scholarly work.

Oduwale and Akpati (2003), sought to know the electronic resources provided by Nigerian libraries. When asked what electronic resources they provide, Nigerian university libraries identified online public access catalog, CD-ROM databases, electronic mail (e-mail) and internet browsing. The study found that students constitute the major category of users of electronic services in the university libraries surveyed. In a survey of cyber cafes which are facilities established in the university environment to aid learning and research in Delta State, Adomi, Omodeko and Otolo (2003) reported that 77.8% of the customers/users of cafes were students. Ojedokun and Owolabi (2003) reported e-mails as the most used internet resource by staff and students.

2.7. The Status of ICTs in Kogi East Tertiary Institutions

2.7.1. Kogi State University, Anyigba

The idea to start a Directorate of ICT in Kogi State University is rooted in the long standing zeal and vision of a technologically forward and upward looking Vice Chancellor, Professor Hassan S. Isah who refers to this university as "an International State University making Anyigba town an international city". The Vice Chancellor of the university wants to bring the university to an international technologically compliant institution, one that offers her students and staff the environment to communicate and collaborate with the international or global community in terms of research, development and human capacity building in order to produce the best human resources and labour for the current global market kicked started the creation of Information Technology and Resource Centre (ITRC) to meet the university community ICT needs (KSU Annual Report, 2014/2015).

ITRC whose conception started with series of research findings, project development, think tank meetings and collaboration was finally and officially created on August 20, 2014.

2.7.2. Kogi State College of Education, Ankpa

In a personal communication with the Directorate Head of the ICT, Mr. Ocholi D.B., ICT Department in Kogi State College of Education, Ankpa was initiated by P.A. Enyaro in 1993. However, it started with Public Private Partnership (PPP) before the school took over as a computer department in 2011 under the leadership of Professor A.I. Ochepe and it was used for JAMB examination. The college later initiated computer department and was later changed to Digital centre which took over the activities of Information and Communication Technology (ICT). Then, in 2015 it became a Directorate under Professor Danladi Musa and the Directorate is being headed presently by Mr. Ocholi D.B.

2.7.3. Federal Polytechnic, Idah

According to the Head of ICT Unit, Federal Polytechnic Idah, Dr. James Oboro, ICT in Idah started in the year 2007 under the leadership of Professor Joseph Ndanusa Egila, the then Rector of the Polytechnic. The services of information and communication technology have been jointly provided by the Information and Communication Technology (ICT) and Management Information System (MIS) units of the Federal Polytechnic Idah. Their operations are purely computer oriented and they are principally charged with the responsibility of computer based services, support services for users and generally management and implementation of both the software and hardware devices for the smooth operation of the day-to-day activities of the Polytechnics.

Specifically, the scope of the operations include management of school's websites, web-design and administration, student admission data processing, course registration, departmental result processing, provision of student and staff identity cards, provision of internet facilities, advisory role to the management and provision for other support services to enhance the teaching, learning, research and efficient services of the school. The unit is headed by a director who coordinates the overall activities of ensuring that ICT services are maximize toward improved efficiency and quality output. The staff comprises of both permanent employees of the polytechnic and part-time staff mostly programmers, computer operators, computer technician and system engineers. The major facilities are located at the administrative building where (MIS), the PTDF building (cybercafé) and the main ICT centre where all activities are being coordinated from.

2.8. Effects of ICT on the Performance of Tertiary Institutions of Learning

The Information and Communications Technology (ICT) is the technology that has brought excitement to teaching, learning and research. It has become a major educational technology. In its simplest form, it can be used to prepare and reproduce hand-outs or make presentations of learning materials as slides in lecture rooms. At a higher level, ICT could be used in such instructional modes as e-learning. For Nigerian educational institutions, the development in the use of ICT provides an opportunity to overcome the perennial problem of non-availability of staff, books and even the lack of equipment in the laboratories (Massaquoi, 2006).

2.9. Infrastructural Challenges of Implementing ICTs in Tertiary Institutions

ICT is heavily dependent on appropriate technological infrastructure. Developing countries, particularly Nigeria has really embraced ICT as an instrument to enhance the quality of education, accessibility to learning resources, creating opportunities for open learning, it is worthy of note that the use of ICT in education is still faced with myriads of constraints which have restricted its efficient and effective use, it also constituted challenges to the use of ICT in education.

ICT infrastructure which include computer hardware and software, bandwidth/access, connectivity are grossly inadequate, and have constituted constraints on its effective usage (Siddiqui, 2004).

Although ICT has the potential to improve education system of a country to a great extent, yet it is not the case in the developing countries. There are multiple issues and challenges confronting the implementation of ICT education in schools and educational institutions in these countries. Owhotu (2006) asserted the followings as constraints for ICT usage in Tertiary Institutions in Nigeria including Katsina State, this include inadequate power supply, financial constraints, inadequate/lack of expertise, bureaucracy in administering ICT in teaching and learning periods, distance, space and time, moral and ethical values, and lack of feedback.

2.10. Strategies for Effective Implementation of ICT

The problems facing the teaching of ICT can easily be addressed with some strategies. Yomere and Esosa (2011) define strategy of a firm as "a well-considered pattern of resources deployment that is appropriate and adequate for achieving the desired quality and level of effective interaction with the environment". In effect, a strategy is a means to an end. It is the mechanism by which an organization deploys its resources - men, material, machines, financial - to execute a plan of action that has been laid out to achieve an objective efficiently and effectively. Ugwuanyi and Eze (2009) identify the strategies for enhancing the teaching of ICT in Business Education as availability of adequate computers on the basis of one student to one computer during class sessions, provision of reprographic machines such as photocopiers and duplicators, micrographics such as microfilming machines, electronic communication equipment such as e-mail, facsimile (FAX), telex machines, word processing laboratories fitted with air conditioners and good lighting, office practice laboratories equipped with modern office equipment, audio visuals, chalkless boards and stand-by generating sets.

Ejiofor and Osinem (2010) also suggest some strategies for enhancing the teaching of ICT in Nigerian universities: students and teachers must have sufficient access to digital technologies and internet in their classrooms; schools and teacher education institutions; high quality, meaningful, and culturally responsive digital content must be available for teachers and learners; teachers must have the knowledge and skills to use the new digital tools and resources to help all students' achieve high academic standards; Egboka (2012) notes these strategies for enhancing the teaching of ICT, the management of universities should build stronger links with multinational businesses and other external stakeholders to assist them in providing ICT facilities in their universities; the universities' portals should be used to disseminate updated university policy statements to staff, students and interested public; the management of the universities should develop legal and policy frameworks that stipulate their rationale for ICT empowerment in their institutions (Egboka, 2012).

2.11. Barriers to Effective Implementation

Cognisant of the substantial opportunities that ICT can provide universities, there are a number of problems and challenges that tend to present themselves. Universities are confronted with outside problems coming from their environment, as well as with inside problems coming from their own structure and culture (Loing, 2005). In Africa for instance, there are issues that have to do with national policies and plans. Many of the countries do not have national ICT policies. This leads to situation where each university has to do what it knows best to do without a central coordinating document. The presence of an ICT policy in a country cannot be overemphasized as it goes a long way to streamline ICT implementation across institutions - private or public. The problem of ICT policy brings to the fore the issue of restrictive regulatory framework. Luboobi (2007) observes that the regulatory frameworks for the telecommunications, ICT and intellectual property rights are still restrictive in most African countries.

Another major outside issue that seems to have plagued ICT implementation in universities is the problem of Bandwidth. The high cost of bandwidth, inadequate and unreliable telecommunication services and applications still remains a major challenge. There is also the problem of insincerity on the part of service provider. Many universities are being made to pay for an amount of bandwidth that is never supplied to them. Until they come to the point of having a dedicated pipe for direct supply the issue of surcharging them may never end. It is hoped however, that with the launching of NIGCOMSAT - 1 by Nigeria the cost of securing bandwidth might be brought down particularly for Nigeria universities. There is also the problem of political instability. Luboobi (2007) observes that Africa is the most unstable continent and its countries are still young democracies. According to him political unrest is a major threat to staff retention and institutional stability. Such instability frustrates policies and plans, and therefore, stagnate developments with all its ramifications (Luboobi, 2007).

Within Universities themselves, Loing (2005) indicates that the implementation of ICT is not an easy task for faculty and staff members, as decision makers and academics are sometimes reluctant to change curricula and pedagogical approaches. Teaching staff and instructors lack incentives and rewards in a system where professional status and career trajectories are based on research results rather than pedagogic innovation. This obvious lack of incentives, perhaps underlies the unwillingness to implement initiatives related to ICT implementation in teaching and learning. Other problems/challenges relate to infrastructure, staff retention, and computer illiteracy among staff and students. Luboobi observed that the African continent lack a continent wide-wide broadband optical fibre network. However, he points out that under NEPAD, there are plans to establish the broadband ICT network for Africa. Though some universities in the region like Makerere University and University of Jos have optical fibre backbone they are not linked to any national bank ICT. There is a major problem of acquisition of ICT facilities such as computers and printers and undertaking viable networking (LAN & WAN) activities within university campuses. Most universities are grossly underfunded and therefore not enabled to sustain the infrastructure required for securing viable ICT facilities in the current ICT-driven world (Loing, 2005).

3. Methodology

The target population in the study constitute 2,360 teaching staff and non-teaching staff from the three selected tertiary Institutions (Kogi State University Anyigba, Kogi State College of Education Ankpa, and Federal Polytechnic Idah) in Kogi East Senatorial District. The sample size for this study comprises of 331. The sample size was reached using Krejcie & Morgan sample size determination table.

However, the 331 sample size will be proportionately distributed using the formula below:

Sample population x Sample size

Total population

$$\text{For Kogi State University, Anyigba} \quad \frac{873 \times 331}{2360} = 122$$

$$\text{For Federal Polytechnic, Idah} \quad \frac{868 \times 331}{2360} = 112$$

$$\text{For Kogi State College of Education, Ankpa} \quad \frac{619 \times 331}{2360} = 89$$

Therefore, the sample size is, $122 + 112 + 89 = 331$

4. Analysis of Data

Option	Frequencies	Percentage (%)
Strongly agree	123	39.94
Agree	167	54.22
Undecided	8	2.60
Disagree	5	1.63
Strongly Disagree	5	1.63
Total	308	100

*Table 1: Respondents View on the Adoption of ICT by Institutions
Source: Field Survey, 2018*

Table 1 above indicates that the use of ICT has been adopted by the institutions has 123(39.94%) and 167(54.22%) strongly agree and agree respectively that ICT has been adopted by the institution. This aid the researcher a confidence in the outcome of this research as the institutions under investigations has adopted ICT as a means to ease the work and make efficient result in the institution.

Option	Frequencies	Percentage (%)
Strongly agree	87	22.28
Agree	55	17.86
Undecided	25	8.12
Disagree	122	39.61
Strongly Disagree	19	6.17
Total	308	100

*Table 2: Respondents View on Adequacy of ICT
Facilities Available in the Institution
Source: Field Survey, 2018*

Data on Table 2 shows that there are no adequate ICT facilities in the institutions under investigation as 122(39.61%) and 19(6.17%) of the respondents disagree and strongly disagree respectively that the institution have adequate ICT facilities, 87(22.28%) and 55 (17.86%) strongly agree and agree that the institution have adequate ICT facilities while the remaining 25 (8.12%) of the total respondents are undecided about this question.

Option	Frequencies	Percentage (%)
Strongly agree	75	24.35
Agree	159	51.63
Undecided	23	7.47
Disagree	42	13.64
Strongly Disagree	9	2.93
Total	308	100

*Table 3: Respondents View on Whether ICT Has Helped the
Institution to Meet the Set Targets
Source: Field Survey, 2018*

Data on Table 3 shows that ICT has really helped the institutions to meet the set target in the institutions over the years as 159 (51.63%) and 75 (24.35%) of the respondents agree and strongly agree that ICT has helped the institution to meet the set targets. While 42 (13.64%) and 9 (2.93%) of the respondents opined that there are still some target not yet meet by the presence of ICT.

Option	Frequencies	Percentage (%)
Strongly agree	28	9.09
Agree	104	33.77
Undecided	26	8.45
Disagree	102	33.11
Strongly Disagree	48	15.59
Total	308	100

Table 4: Respondents View on Effect of ICT on Administrative Activities
Source: Field Survey, 2018

Data on Table 4 shows that though ICT has made significant improvement in the institutions but still have space of improvement on the academic and administrative activities of tertiary institution as 28 (9.09%) and 104 (33.77%) of the respondents strongly agree and agree respectively that ICT has not made significant improvement on the academic and administrative activities in tertiary institution while 102 (33.11%) and 48 (15.59%) of the total respondents also strongly disagree and disagree respectively stating that ICT has made significant improvement on the academic and administrative activities in tertiary institution.

Option	Frequencies	Percentage (%)
Strongly agree	39	12.67
Agree	93	31.17
Undecided	29	9.42
Disagree	121	39.29
Strongly Disagree	31	10.07
Total	308	100

Table 5: Respondents View on Whether There Is Adequate ICT Infrastructure in Institution under Study
Source: Field Survey, 2018

Table 5 indicates that 121 (39.29%) and 31 (10.07%) of the respondents indicated that there is no adequate ICT infrastructures in the institutions, while 39 (12.67%) and 93 (31.17%) of the total respondents opined that the available ICT infrastructure are adequate to effect the development needed by the institutions.

Option	Frequencies	Percentage (%)
Strongly agree	53	17.21
Agree	155	50.32
Undecided	23	7.47
Disagree	57	18.51
Strongly Disagree	20	6.49
Total	308	100

Table 6: Frequency Respondents View on Whether the Availability of ICT Infrastructures Has Helped in Efficient and Effective Administrative Duties in Your Institution
Source: Field Survey, 2018

Data on Table 6 shows that about 67.53% of the respondents believed that the availability of ICT infrastructures has helped in efficient and effective administrative duties in these institutions while about 25% of the total response said the availability of ICT infrastructures has not helped in efficient and effective administrative duties in these institutions.

Option	Frequencies	Percentage (%)
Strongly agree	15	4.87
Agree	94	30.52
Undecided	23	7.47
Disagree	132	42.86
Strongly Disagree	44	14.29
Total	308	100

Table 7: Frequency Distributions of Respondents View on Whether the Available ICT Infrastructures in Your Institution Are Effective
Source: Field Survey, 2018

Data on Table 7 shows that 132 (42.86%) and 44 (14.29%) of the staff respondents believed that not all the available ICT infrastructures in these institution are effective while 15 (4.87%) and 94 (30.52%) strongly agree and agree that all the available ICT infrastructures in your institutions are effective.

Option	Frequencies	Percentage (%)
Strongly agree	27	8.77
Agree	117	37.99
Undecided	40	12.99
Disagree	99	32.14
Strongly Disagree	25	8.12
Total	308	100

*Table 8: Respondents View on Whether the Available ICT Infrastructures Are Not Fully Utilized
Source: Field Survey, 2018*

Data on Table 8 shows that available ICT infrastructures are not fully utilized. This is concluded as 27 (8.77%) and 117 (37.99%) strongly agree and agree that available ICT infrastructures are not fully utilized, this coincides with the findings of Akankwasa (2006) which says although many teachers beliefs that educational technology should promote learning and that the use of ICT is desirable, ICT infrastructures are not yet fully utilize because of expertize needed to utilize such resources may not be readily available.

Option	Frequencies	Percentage (%)
Strongly agree	42	13.64
Agree	148	48.05
Undecided	37	12.01
Disagree	51	16.56
Strongly Disagree	30	9.74
Total	308	100

*Table 9: Frequency Distributions of Respondents View on Whether the Available ICT Infrastructures Has Not Helped to Achieve the Purpose for the Adoption of ICT In Tertiary Institutions in Kogi East
Source: Field Survey, 2018*

Table 9 above shows that since the available ICT infrastructure are under-utilized, It (the available ICT infrastructures) has not also helped to achieve the purpose for the adoption of ICT in tertiary institutions in Kogi East. This is proven as 42 (13.64%) and 148 (48.05%) strongly agree and agree respectively that the available ICT infrastructures has not helped to achieve the purpose for the adoption of ICT in tertiary institutions in Kogi East.

Option	Frequencies	Percentage (%)
Strongly agree	11	3.57
Agree	36	11.69
Undecided	29	9.42
Disagree	146	47.40
Strongly Disagree	86	27.92
Total	308	100

*Table 10: Frequency Distributions of Respondents View on Whether the Adoption of ICT Infrastructures by Tertiary Institutions in Kogi East Amounts to Waste of Resources
Source: Field Survey, 2018*

Data on table 10 shows that the adoption of ICT infrastructures by tertiary institutions in Kogi East is not a waste of resources as opined by 146 (47.40%) and 86 (27.92%) of the total respondents this shows a good percentage in the distribution and this also help the institution management to evaluate the perception of staff over the provision of ICT infrastructures in the institutions.

Option	Frequencies	Percentage (%)
Strongly agree	20	6.49
Agree	84	27.27
Undecided	47	15.26
Disagree	126	40.91
Strongly Disagree	31	10.06
Total	308	100

Table 11: Frequency Distributions of Respondents View That Most of the ICT Infrastructures Available Are Outdated

Source: Field Survey, 2018

Data on Table 11 shows that relevant percentage of infrastructures are up to date as they were recently supplied or renewed as stated by 126 (40.91%) and 31 (10.06%) of the total respondents in disagree and strongly disagree respectively on the view that most of the ICT infrastructures available are outdated, 20 (6.49%) and 84 (27.27%) of the total respondents strongly agree and agree that most of the ICT infrastructures available are outdated while the remaining 47 (15.26%) of the staff respondents were undecided about the question at the time of filling this report.

Option	Frequencies	Percentage (%)
Strongly agree	147	47.73
Agree	120	38.96
Undecided	18	5.84
Disagree	11	3.57
Strongly Disagree	12	3.90
Total	308	100

Table 12: Frequency Distributions of Respondents View on Whether the ICT Provides Easy Access to More Extensive and Current Information

Source: Field Survey, 2018

Data on Table 12 shows that ICT provides easy access to more extensive and current information as 147 (47.73%) of the respondents strongly agree to this backed by 120 (38.96%) of the respondents which also agree that ICT provides easy access to more extensive and current information in the institution under study.

Option	Frequencies	Percentage (%)
Strongly agree	43	13.96
Agree	112	36.36
Undecided	27	8.77
Disagree	94	30.52
Strongly Disagree	32	10.39
Total	308	100

Table 13: Frequency Distributions of Respondents View on Whether the Level of Performance of the Available ICT Infrastructure in Institutions Is Encouraging

Source: Field Survey, 2018

Table 13 above shows that the level of performance of the available ICT infrastructure in these institutions are encouraging, this is proven by 43 (13.96%) and 112 (36.36%) of the total respondents which strongly agree and agree respectively while 94 (30.52%) and 32 (10.39%) disagree and strongly disagree respectively that the level of performance of the available ICT infrastructure in these institutions are encouraging, believing that the performance of the available ICT infrastructure in the institution can still achieve more.

4.1. Major Findings

The major findings of this paper are discussed below

The study revealed that there are no adequate ICT facilities in the institutions under investigation, particularly no adequate internet connectivity (wifi), no constant or steady power supply is available to aid effective utilization of ICTs in these institutions, no adequate internet radios in Faculties, Departments and Units in institutions under studies and no functional staff e-mail services for effective communication in these institutions. This was in agreement with (Siddiqui, 2004) who stated that ICT infrastructure which include computer hardware and software, bandwidth/access, connectivity are grossly inadequate, and have constituted constraints on its effective usage.

The study further revealed that, not all the available ICT infrastructures in these institutions are effective and available. The available ICT infrastructures are not fully utilized. This was in agreement with Siddiqui (2004) who posited reasons for low usage of ICT in education thus insufficient numbers of computers, lack of release time for teachers or lecturers to learn how to use computers or the internet and lack of time in schedule for students to use computers in class.

The finding was also in agreement with (Loing, 2005) who posited that most universities are grossly underfunded and therefore not enabled to sustain the infrastructure required for securing viable ICT facilities in the current ICT-driven world (Loing, 2005).

It was also in agreement with Aryatuha (2007) who noted that the availability of computer hardware and software should be accompanied with training of the users and constant technical support. Without this, even though high quality hardware and software are available, they could be wasted or remain underutilized by the users.

5. Conclusion

In conclusion, the study shows that there are no adequate ICT facilities in the institutions under investigation, particularly no adequate internet connectivity (wifi), no constant or steady power supply is available to aid effective utilization of ICTs in these institutions, no adequate internet radios in Faculties, Departments and Units in institutions under studies and no functional staff e-mail services for effective communication in these institutions, not all the available ICT infrastructures in these institutions are effective and efficient, the available ICT infrastructures are not fully utilized.

6. Recommendations

- Tertiary institutions should make available adequate ICT facilities in the institutions, particularly adequate internet connectivity (wifi), constant or steady power supply to aid effective utilization of ICTs in these institutions, adequate internet radios in Faculties, Departments, Directorates and Units in institutions under study and functional staff e-mail services for effective communication in these institutions.
- All the available ICT infrastructures in these institutions should be effectively and efficiently utilized. This is because, ineffective utilization of some ICT infrastructures culminates in their decay and malfunctioning.

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