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E-Readiness of Technical Teachers to Use ICT Facilities in Nasarawa State Technical Colleges.

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Abstract

The study was designed to determining the e-readiness of technical teachers to use ICT facilities in Nasarawa State technical colleges. Two specific purposes and two corresponding research questions guided the study. This study adopted a descriptive survey research design. The population for the study comprised 70 members of staff from Ministry of Education, Nasarawa State in Nigeria. Based on the fact that the population for the study is relatively small, there was no sampling. This study adopted the Readiness Assessment Tool (RAT), developed and validated by Doculan in 2016 as instrument for data collection. The collected data was analyzed using mean and standard deviation. A mean score of 2.50 constitute a benchmark for acceptance of an item as affirmative opinion of respondents and interpreted as High Extent or Very High Extent depending on the value. This implies that items with mean scores of 2.49 and below were considered as negative responses of the respondents and interpreted as Low Extent or Very Low Extent depending on the value. It was found that there is low extent of institutional readiness to use ICT materials, tools and equipment in Nasarawa State Technical Colleges. It was also discovered that there is high extent of Teachers' access to ICT materials, tools and equipment in Nasarawa State Technical Colleges. Based on the findings, it recommended that the government of Nasarawa State should do more to encourage the institutions (Technical Colleges) to get properly ready to embrace ICT tools and utilize ICT materials, tools and equipment in line with the present ICT-driven world of today. The government of Nasarawa State should always ensure that all the basic ICT facilities are provided so that the teachers will always access them for their teaching.

Keywords: E- Readiness, Technical Teachers, Information and Communication Technology (ICT), Facilities, Technical Colleges.

Introduction

The use of information and communication technology (ICT) has become indispensable in modern organization especially educational institutions as it is believed to enhance educational processes. ICT has been alluded in contributing to Technical and Vocational Education (TVE) advancement through the use or applications of machines and equipment in the classroom and workshops to increase productivity. E-readiness can be viewed as the degree to which an institution is eager and prepared to accept and take advantage of using Information and Communication Technology in teaching and learning. In a conventional term, e-readiness could also be referred to as the ability to utilize information and communication technologies for improving learning activities in this technology-driven era. E-readiness as perceived in this study refers to teachers' technological skills in the utilization of ICT facilities in enhancing teaching and learning in Technical colleges in Nasarawa State.

However, Information and Communication Technologies (ICT) is today considered an indispensable tool for modern-day teaching and learning. With the present-day computerization of activities of the world, the inclusion of ICTs in teaching and learning especially in technical colleges is an indisputable necessity for modern advancement in knowledge and skills (Folayan and Ibrahim 2020). According to Paul (2012), technological development is bringing changes in the world very rapidly; the manufacturing of things to meet the market needs has changed the factory system to operate on modern and scientific lines. To this end, it is expected that teaching and learning in technical colleges should follow modern and scientific trends where teaching techniques should inject modern varieties that would stimulate, motivate and maintain learners' interest to stay updated on the world's development.

However, technical colleges are institutions that provide secondary level education in technical education. The aim of technical colleges is to train and also produce graduates with skills that are saleable within the nation and even beyond. Knowledge, skills and attitude are necessary for effective employment in order to function well in the place of employment (Federal Republic of Nigeria, 2014). The curriculum of technical colleges according to Federal Republic of Nigeria (2014), are grouped into related trades. These trades include: computer trades, electrical/ electronic trades, building trades and mechanical trades. Considering the various trades taught in technical colleges today, it has become explicit that information and communication technology facilities should be used in teaching and learning activities to create an environment where learners are proactive in decision-making and problem-solving; and also to help learners develop manipulative, communicative and collaborative skills in meeting with the world's developmental challenges. Technical teachers are saddled with the task to help in meeting up with the objectives.

Bamidele (2016) noted that the world is in a revolution that involves the use of computers, the internet and other telecommunication technology facilities in every aspect of human endeavour.

Hence it is worth noting that teachers should be familiar with ICT and its application. FGN (2014) spelled out the objectives of ICT in teaching and learning. To include but not limited to: promoting problem-solving, critical thinking, innovative skills, life-long learning and knowledge advancement. The application of ICT also help to promote research and development, to support effective and efficient education administration, to enhance universal access to information, to widen access to education and the range of instructional options and opportunities any-where, any-time, any-pace and any-path learning, to promote the commercialization of ICT in education, to develop and support technical infrastructure that maximizes digital creativity, sharing and innovation (FGN, 2014). Thus, Information and Communications Technology (ICT) covers any product that will store, retrieve, manipulate, transmit or receive information electronically in a digital form, for example: personal computers, digital television, VCD player and LCD projectors (Scholten, Velde & Manen, 2009).

Information and communication technologies (ICTs) do not only involve the use of computers alone. It has a wider spectrum of application and its facilities can be best described as electronics or computerized devices, assisted by human and interactive materials that can be used for a wide range of teaching and learning as well as for personal and business use. It encompasses the computer hardware and software, network, and media and several other devices for collection, storage, processing, transmission and presentation of information. According to Adoni (2013) it is a term that includes any communication devices or applications encompassing mobile phones, computers and network hardware, software, the internet, satellite system, and so on. To Rouse (2022), ICTs is the convergence of computing, telecommunication and governance policies for how information should be accessed, secured, processed, transmitted and stored. As the world is rapidly changing, the ability to access and apply or use information is no longer luxury but a necessity for development. (Aduwa-Ogiegbean and Iyamu, 2015). The field of technological education has been affected by digital technology networks, which has also affected teaching, learning and research activities (Yusuf, 2015). The application and use of ICTs will provide benefits in improving Nigeria's education system, and most especially in technical colleges where sciences and technical oriented subjects are studied.

In embracing the idea that practical course requires an ICT enhanced teaching techniques, Abigail (2016) stressed the policy thrust which is reflected in the policy on ICT by the Federal government of Nigeria that it has vision and mission. The vision is "to make education universally accessible, empowering, inclusive and enriching". And the mission is "to meet the human capital investment of the nation for attaining and enhancing sustainable socio economic development, global competitiveness as well as the individual's ability to survive in a contemporary environment". This is captured by the National Implementation Guidelines for ICT in Education (NIGICTIE, 2019) which is geared toward making ICT relevant in the educational system. Given the importance of Information and Communication Technology, most countries have brought out a robust educational policy in their educational system hence, prioritizing ICT. Nigeria is not an exception to this. It is realized by stakeholders or educational policymakers that ICT must be incorporated fully into the educational system (Abigail, 2016). All the objectives and policy thrusts are elaborated upon in terms of how to implement them. For

instance, the government has to play a vital role to improve and encourage the development, utilization, and sustenance of the ICT manpower in order to achieve an ICT enhanced education. The strategies that should be adopted to achieve this are in restructuring the environment for teaching and learning as well as education administration to be ICT-enhanced, carrying out and encouraging the continuous and mandatory professional development of Teachers and Principals (Administrators), ensuring appropriate ICT training including content development and delivery for all staff, reviewing the curricula periodically to reflect emerging good practices in line with national goals, developing and strengthening standards and guidelines for content and instructional materials in electronic media and the use of ICT tools in formal and non-formal education, strengthening and expanding Open and Distance Learning as well as blended and e-learning' (Abigail, 2016).

In the same vein, the vision of Nasarawa State government is to be among the top three most competitive states in the country in the area of sustained, accelerated economic growth, increase economic activities using ICT as the driving force (Adam, 2019). The state also believed that ICT might help in employment and job creation as Aja, Akpagu, Mgbabor and Anita (2021) noted that Information Communication and Technology (ICT) innovations will be used for youth empowerment and to create many jobs that could impact positively on the entire Nigeria citizens. However, there are some challenges to the use of (ICT) innovations for youth empowerment and job creation in Nigeria. The Nasarawa State government has set up a policy framework known as Nasarawa Economy Development Strategy in order to achieve e-governance, e- economy and e-education through the partnership with the National Information Technological Development Agency (NITDA) (Aisha, 2020). Another body known as Bureau for Information and Communication Technology(BICT) is supporting the state in this era of Digital Switch Over' which is in tandem with the current global practices in most developed countries of the world(Francis 2021). BICT is equally adding value by ensuring that every civil servant become ICT compliant as the economy has gone Digital and the quest will continue unabated to ensure that ICT is given maximum attention. The governor of the Nasarawa state in one of his courtesy visit to the National Information Technological Development Agency (NITDA) stated thus: 'ICT is one of the fundamental pillars that leads to diversification of the economy', he solicited for partnership in the area of capacity building through ICT for indigenes in order to prepare them for the era of innovation in ICT and also to enable them key into information technological skills that will advance the state (Aisha 2019). Effort has been made to strategically position Nasarawa State in the nation's technological space toward achieving digital transformation. This has begun through the training of civil servants across the state on ICT in order to advance their knowledge on the use of information technology (Semel, 2023). This according to Semel, is aimed at improving quality lives of the citizenry in the area of capacity building to advance the state through information technological skills.

The state of being ready in using ICT facilities in teaching and learning is an essential condition which determines whether the teacher can successfully embrace it or not. ICT consists of various technological tools and resources which are helpful in communicating, creating, disseminating, storing and handling information (Al-Furaydi, 2013). The measure at which these ICT facilities

can be utilized in teaching and learning environment seem to a large extent dependent on the e-readiness of the teachers in that environment (Ishfaq, 2022). It is therefore necessary to carry out an assessment in order to identify skill gaps and encourage the acquisition of appropriate ICT skills to mitigate the gaps through ensuring adequate supply of ICT facilities in order to access software applications, local and international content and online teaching and learning resources at all educational institutions and establishments. All intentional guidelines that stipulate what should be done to bring about the deployment and transformation of ICT in the education sector especially in technical colleges should be considered with keen interest starting with the e-readiness of technical college teachers in using ICT facilities for teaching and learning.

Statement of the Problem

Technical colleges across the nation teach science subjects and technological oriented trades. The teaching techniques required is to inject modern varieties that would stimulate, motivate and maintain learner's interest so that the learners stay updated with the world modern development. The researchers have observed that the teaching and learning environment of technical colleges is dominated by the traditional method of teaching. This approach constitutes a decline in the quality of education in technical colleges today. People who have shown vested interest in this research work viewed the decline in the quality of education in Nasarawa State Technical colleges and attribute it to the poor attitude of teachers and students towards the use of ICT facilities as instructional materials for teaching and learning. This may indicate the lack of access to use ICT facilities, lack of skills in the area of confidence, lack of support, inadequate training of personnel and general lack of institutional readiness to use ICT facilities. Hence, the study is geared toward determining the e-readiness of technical teachers to use ICT facilities in Nasarawa State technical colleges.

Purpose of the Study

The study specifically seeks to determine the:

1. Institutional readiness to use ICT materials, tools and equipment in Nasarawa State Technical Colleges.
2. Teachers' access to ICT materials, tools and equipment in Nasarawa State Technical Colleges.

Research Questions

The following research questions guided the study

1. What is the extent of institutional readiness to use ICT materials, tools and equipment in Nasarawa State Technical Colleges?

2. What is the extent of Teachers' access to ICT materials, tools and equipment in Nasarawa State Technical Colleges?

Methodology

This study adopted a descriptive survey research design. A descriptive survey according to Julie (2015) refers to a research design in which data is collected from a sample of a given population for describing the pattern or trend of distribution of the elements in a parent population. It deals with studying the representative sample of the population, which may be consisting of individuals or items of different attributes without manipulations.

The study was conducted in Nasarawa State. The population for the study comprised 70 members of staff from Ministry of Education Nasarawa State in Nigeria, consisting of 13 administrators, 57 teaching staff (Nasarawa State Ministry of Education, 2020). The administrators were made up of 3 principals, 6 vice principals 3 deans of studies and 1 assistant dean of studies of the Nasarawa State Ministry of Education. Based on the fact that the population for the study is relatively small, there was no sampling. Therefore all the teaching staff, technical instructors, and the administrative staff of the state Technical Colleges were used giving rise to a sample size of 70 respondents for the study.

This study adopted the Readiness Assessment Tool (RAT), developed and validated by Doculan in 2016. It is a 4-point scale response questionnaire, comprising 23 items and divided into two parts (A & B); with a reliability coefficient of 0.695. The instrument was administered personally by three researchers, while the collected data was analyzed using mean and standard deviation. A mean score of 2.50 constitute a benchmark for acceptance of an item as affirmative opinion of respondents and interpreted as High Extent or Very High Extent depending on the value. This implies that items with mean scores of 2.49 and below were considered as negative responses of the respondents and interpreted as Low Extent or Very Low Extent depending on the value.

Results

Research Question 1: What is the extent of institutional Readiness to use ICT materials, tools and equipment in the Technical colleges in Nasarawa State?

Table 1: Mean ratings of responses on the extent of institutional Readiness to use ICT materials, tools and equipment in the Technical colleges in Nasarawa State

S/N	ITEM: Extent of Institutional Readiness to use ICT	Mean	SD	Decision
1	There is sufficient ICT hardware for e-learning use	1.944	0.656	Low Ext
2	There is a steady supply of electricity in the school	1.720	0.720	Low Ext
3	There is a stable internet connection in the school	1.942	0.699	Low Ext
4	There is an existing contingency plan in case of a breakdown	2.000	0.742	Low Ext

5	E-learning is aligned with the institution's vision	2.423	0.772	Low Ext
6	There is a commitment on the part of institutional leaders to use technology to achieve strategic academic goals.	2.590	0.732	High Ex
7	There is a commitment on the part of institutional leaders to use technology to achieve strategic goals and such commitment extends beyond just using technology.	2.730	0.700	High Ex
8	The institution is willing to employ or assign an academically capable and/or experienced faculty to oversee the implementation of the e-learning environment.	2.530	0.811	High Ex
9	The institution is willing to accept e-learning as a mode of teaching and learning	2.771	0.820	High Ex
10	The institution supports employees who seek out non-traditional development programs or experiences	2.560	0.862	High Ex
11	The institution ensures to put up a committee that will work directly with the development of online courses and programs	2.700	0.840	High Ex
12	The institution provides teachers with professional development opportunities to assist them in improving their online teaching.	2.642	0.702	High Ex
13	The institution supports teachers to have access to a network of other online practitioners to discuss pedagogical and curricular issues	2.714	0.801	High Ex
14	The institution is willing to provide a professional support system is in place to ensure teacher success in delivering the online course	2.590	0.732	High Ex
15	The institution is willing to make provisions for collaborative teaching arrangement	2.771	0.870	High Ex

Grand Mean = 2.441 = Low Extent

Table 1 shows that items 1 – 5 had their mean scores less than the cut-off point of 2.50 while items 6 – 24 had their mean scores above the cut-off point of 2.50, with their corresponding standard deviations. The grand mean was 2.441, this signifies that the institutional readiness to use ICT materials, tools and equipment at the Technical Colleges in Nasarawa State is to low extent. The standard deviation shows that the opinions of the respondents did not deviate far from the central mean

Research Question 1: What is the extent of teachers' access to use ICT materials tools and equipment in Nasarawa State Technical colleges?

Table 2: Mean and Standard Deviation of teacher's access to use ICT materials tools and equipment in Nasarawa State Technical colleges

S/N	ITEM: Extent of Teachers' access to use ICT Materials	Mean	SD	Decision
1	I own a computer(pc, laptop) / smartphone	3.329	0.557	High Ex
2	I have access to a dependable computer (in school, cafes)	2.742	0.830	High Ex
3	I have access to a computer with the necessary software installed	2.590	0.730	High Ex
4	I have access to a computer with a printer installed	2.400	0.710	Low Ex
5	I have access to a computer and internet connection at home	2.614	0.770	High Ex
6	I have access to a computer on campus or internet cafes with an internet connection	2.371	0.801	Low Ex
7	I have access to a computer installed with search engines(ex. Google, Ask) and internet browsers(ex. IE, Firefox, Google	2.414	0.924	Low Ex
8	I have a virus protection on my computer	2.390	0.860	Low Ex

Grand Mean = 2.606 = High Extent

Table 2 shows that four of the items had their mean scores above than the cut-off point of 2.50 while the remaining four of the items had their mean scores less than the cut-off point of 2.50 and grand mean of 2.606. This indicates that there is high extent of teachers' access to ICT materials, tools and equipment at the Technical colleges in Nasarawa State. The scores of the standard deviation show that the opinions of respondents did not deviate far from the central mean.

Discussion of Finding

The work revealed that there was low extent of institutional readiness to use ICT materials, tools and equipment at the Technical colleges in Nasarawa State. This finding is in agreement with Olurinola (2018) who reported that many institutions of higher learning are not completely ready to utilize and embrace ICT but many of these institutions are handicapped by the supply of the tools and equipment of ICT. He further stressed that the budget of most educational institutions are always below the United Nation's standards, this makes the supply of ICT materials and equipment. The inability of many institutions of higher learning not to acquire ICT tools and equipment could be attributed to non-compliance of the proprietors of the institutions who do not take education seriously. Another factor that may lead to dearth of ICT tools and equipment in the institution could be the expensiveness of the ICT materials and tools.

Additionally, the finding supports Castagne (2013) who decried that some institutions of higher learning are hardly ready to fully welcom the use of ICT materials and equipment even after the pandemic of the covid-19 virus. This situation made it mandatory and essential the increasing call for many institution to be fully ready to use ICT materials, tools and equipment for teaching and learning. The readiness of institutions to use ICT materials, tools and equipment as this research has discovered is a noble practice because nowadays, the world is a global village whereby one can carry out teaching and learning at any point without physical contact. This can only happen by the use of ICT materials, tools and equipment..

One of the findings in this research is that teachers had access to ICT materials, tools and equipment. This finding supports the assertion of Ahmed (2013) who reported that many educational institutions have retrained the teachers on the use of ICT equipment.

Additionally, the finding agrees with the findings of Divyal (2020) who stated that many teachers in the institutional learning possess laptops and desktops. Some of the laptops and desktops were supplied to the teachers by the institutions while some teachers bought them with their money. The teachers' access to the ICT materials, tools and equipment may also be attributed to the fact that teachers make use of the ICT centres in the school to carry out their teaching and research. Teachers are not prevented from using the ICT laboratories. Furthermore, teachers patronize individual cybers to do their work such as typing, browsing and searching information in the internet. This might have granted the teachers access to ICT materials, tools and equipment.

Furthermore, this finding supports Doculam (2016) who pointed that many teachers in the institution of higher learning have great access of ICT materials, tools and equipment. He stressed that an average teacher in the higher institution is expected to have personal computer. He added that even if a teacher has not gotten personal computer, that teachers are expected to use the computer laboratory in the school to carry out their activities such as typing, browsing the internet and other activities. The world now is dominated by the use of information and communication technology and the teachers are the most group of people charged to embrace the usage of ICT. Therefore, teachers' access to use of ICT materials should be at a high degree. This finding is also in line with Padmarbthi (2015) who opined that teachers are always ready to learn and carry out any activity in the school including the readiness to use ICT materials, tools and equipment.

Conclusion

This work centered on e-readiness of Technical teachers to use ICT facilities at the Technical colleges in Nasarawa State of Nigeria. Data were collected using questionnaire to elicit information from the respondents, and the empirical analysis of the data generated revealed that there was an institutional readiness to use ICT facilities, the technical teachers had access to the ICT materials, tools and equipment, the teachers also had positive attitude and were proficient in the use of the ICT materials, tools and equipment.

Recommendations

Based on the findings of this study, the following recommendations were made:

1. The government of Nasarawa State should do more to encourage the institutions (Technical Colleges) to get properly ready to embrace ICT tools and utilize ICT materials, tools and equipment in line with the present ICT-driven world of today.

2. The government of Nasarawa State should always ensure that all the basic ICT facilities are provided so that the teachers will always access them for their teaching.

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