PERCEPTION AND ATTITUDE OF VOCATIONAL AND TECHNICAL STUDENTS TOWARDS E-LEARNING IN TECHNICAL COLLEGES OF NIGER STATE

BY

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DEPARTMENT OF INDUSTRIAL TECHNOLOGY EDUCATION

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A RESEARCH PROJECTSUBMITTED TO THE
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JUNE, 2021

DECLARATION

I **JOHN DANIEL** declare that this Research titled**PERCEPTIONAND ATTITUDE OF VOCATIONAL AND TECHNICAL EDUCATIONAL STUDENTS TOWARDS E-LEARNING IN TECHNICAL COLLEGES OF NIGER STATE** is a collection of my original research work and it has not been presented for any other qualification anywhere. Information from other source (published or unpublished) has been duly acknowledged.

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Signature and Date

CERTIFICATION

This is to certify that this research proposal was undertaken by **John Daniel (2014/1/52561TI)** to meet the regulation governing the award of the Degree of Bachelorof Technology (B. Tech, ITE) in Industrial Technology Education of Federal University of Technology Minna, and has been read and approved by:

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Prof. Hassan Bello _____

External Supervisor Signature and Date

DEDICATION

This Thesis is dedicated to GOD Almighty

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ABSTRACT

The electronic resources are completely immersed in our environment. The world becomes the world of technology and students are well aware about the use of electronic information resources. Vocational and Technical education which is expected to be an interesting practical vocational skill is posing a great treat to many students nowadays, some have already developed phobia because of their consistent poor achievement on assessment or repeated failure in external examinations. This study investigated the accessibility, availability and attitudes towards e-learning resources for teaching vocational and technical education among students of technical college in Niger State. It identify the available e-learning resources for teaching Vocational and Technical education in Niger State Technical Colleges; examine the utilization of e-learning resources by Technical Colleges Students in Niger State; examine Students attitude towards e-learning resources in teaching Vocational and Technical education in Technical Colleges; and identify the challenges faced towards the use of e-learning resources to learn Vocational and Technical education in Technical Colleges in Niger State. Qualitative research methods were used, structural questionnaires were administered to SSII students in department of vocational and technical studies. Responses were collected and coded into SPSS; Descriptive statistics was used. The findings reveal that majority of the e-learning resources are not available in technical colleges except resources desktop computers, printers etc, and the available ones are not being utilized by the students. In addition the student developed positive attitude toward the use of e-learning resources despite challenges like use of outdated computers and software faced by the students. This implies that there is no significant difference in the utilization of E-learning facilities for teaching vocational and technical students. The study concludes that COVID-19 pandemic is making the educational sector to embrace e-learning resources. Thereby recommends that Vocational and technical education teachers should be given proper training on how to use as well as maintain E-learning facilities in their various schools in order to equip students with the necessary skills and knowledge that will enable them optimize learning in a fast-changing world.

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CHAPTER ONE

1.0 INTRODUCTION

1.1 Background to the study

Technology is a major part of students' lives, and their academic training requires an introduction to scholarly uses of technology (Salavati, 2013). Technology offers tremendous promise for student learning and has ignited the imagination of those who are interested in bringing about revolutionary gains in the achievement of all students (Skolverket, 2016). Yet the use of technology in education also raises a whole host of challenges, including those related to cost-effectiveness, teacher professional development, assessment, equity, and safety. Despite the challenges of utilizing technologies in education and teaching, the importance of the adoption and use of digital technologies in school education should not be underestimated. Technology constitutes a strong and powerful influencing force on how education is to be carried out and what is expected of the future generation (Salavati, 2013).

The electronic resources are completely immersed in our environment. The world becomes the world of technology and students are well aware about the use of electronic information resources. They prefer World Wide Web resources for different educational and research purpose. The application of e-learning resources has changed the way the researchers and students' access and information resources. As a result, e-resources have become an integral part of the information resources for academicians and researchers and can substitute print resources (Mardhusudhan, 2010).

The implementation of e-learning in technical colleges has led to a shift in students' roles. Instead of being passive recipients of knowledge transmitted by the teacher, students are expected to be active participants with the main task of acquiring and processing knowledge

(Cohen &Nycz, 2016). Furthermore, Cohen and Nycz (2016) described that this knowledge is usually obtained from various online platforms and sources for which the teacher is responsible to provide to students. According to Anderson (2015), e-learning resources has changed the teacher's role from being "sages on stage" to "guides on the side". It is apparent that teachers have moved from serving as active transmitters of knowledge to instead in an online-based teaching situation acting as tutors to guide, support, motivate, and introduce the technological tools that the students need to learn.

Many scholars agree that ICTs play an increasingly important role in facilitating the educational processes and systems of today (AL-Hunaiyyan, Al-Huwail, & Al-Sharhan, 2008; Oh & Park, 2009; Vaughan & Garrison, 2006). E-learning has started to emerge in many developing countries where it has the potential to help meet an increasing demand for education and address the growing decline of trained teachers (UNESCO, 2006). The application of e-learning in developing countries has gradually advanced in recent years with an improved availability of Internet connections, local area networks, and IT support (Omidinia, Masrom, &Selamat, 2011; Tedre, Ngubuke, &Kempainnen, 2010; Williams, Mayer, & Minges, 2011). However, other challenges still prevail. In those countries, the active, participative student who is required for interactive learning is rare, and the traditional methods are widely used in teaching and learning (Andersson, 2012).

E-learning resources are easily accessible through computer networks. E-learning resources solve storage problems and control the flood of information. Now-a-days all the teacher education print sources are being digitized. E-learning sources can be seen as the most recent development in information technology and are among the most powerful tools for teacher

vocational. E-learning resources are becoming more and more important for vocational teacher community (Nachimuthu, 2011).

These characteristics include computer self-efficacy, Internet self-efficacy, computer experience, Internet experience, computer anxiety, and attitudes toward e-learning (Chu & Chu, 2010; Chiu & Wang, 2008; Fuller et al., 2006; Pituch& Lee, 2006; Shih, Muñoz, & Sanchez, 2006; Sun et al., 2008). Student attitudes are influenced by the quality and perceived ease of use of e-learning courses, functionality of e-learning platforms, and the level of student computer skills (Aixia&Wang; 2011). Their computer experience including perceived self-efficacy, enjoyment, and usefulness of using e-learning also plays a role (Liaw& Huang, 2011). In turn, positive student attitudes and behaviors towards e-learning are critical to their e-learning readiness and acceptance (Lim, Hong, & Tan, 2008; Selim, 2007).

Accessibility of E-learning resources involves different technologies and standards. First of all, both the e-learning content and the e-learning platform should be accessible, in order to be effective. Several standards have been defined to provide an accessible e-elearning (Ajiboye, 2013). According to Ngwu (2014), most e-learning resources are not adequately accessible in schools. This therefore implies that, even though teachers are adequately trained and willing to impart the knowledge they have to students, they are blocked from doing so by this lack of technological equipment and laboratory facilities. The same research revealed a poor accessibility of e-learning and related technologies in the schools under study.

Accessibility and availability of e-learning resources for effective instructional delivery in technical colleges in Nigeria revealed that the accessibility and availability of e-learning resources for effective instructional delivery is relatively low, except for laptops, multimedia projectors and internet facilities. They went on to argue that this affects the quality of graduates

produced from these institutions. The research recommended that e-learning resources should be availed in institutions of learning, teachers should make an effort to acquire these tools since they are an integral part of instruction delivery, government should come up with appropriate ICT policies and workshop training programmes for teachers should be organized among teachers at all levels of education.

Likewise, students' attitude is a very important factor towards achieving the e-resources. Most of the students in developing countries are left far behind towards the involvement in using of e-resources. Because the nature of the college library is not a conducive environment for learning and searches of the e-resources (Archibong et al., 2010 and Abubakar, 2011). However, there is adequate need to improve on the students 'attitude with the availability of infrastructure with the e-resources. The needs for students' attitude in using the e-resources, at the same time also need to improve students' attitude with the availability of e-resources. It is very important for any academic e-resources to improve its services towards the students' attitude and provides adequate information resources in all formats that can support the college in achieving their educational goal (Adeniyi and Ajiboye, 2013).

Generally, it is apparent that the print age is paving attitude to electronic information resources. Since the early 1990s, several initiatives aimed to increase the availability of e-resources have resulted in a significant increase in the number of African institutions subscribing to these e-resources. The present study seeks to expand on what is already known about the attitude of vocational and technical students towards e-learning resources in enriching the learning of students of Technical College in Niger State.

1.2 Statement of Research Problem

Vocational and Technical education which is expected to be an interesting practical vocational skills acquisition is posing a great treat to many students nowadays, some have already developed phobia because of their consistent poor achievement on assessment or repeated failure in external examinations. Evidences have shown that most concepts in Vocational and Technical education are indeed difficult to learn by most students (Johnstone, 2016). Many scholars agree that e-learning resources play an increasingly important role in facilitating the educational processes and systems of today (AL-Hunaiyyan, Al-Huwail, & Al-Sharhan, 2010; Oh & Park, 2012; Vaughan & Garrison, 2016).

These are not commensurate with the attitude of the students, lack of commitment and laxity of teachers in their quality of teaching and the use of available e-learning resources to help students in solving academic problems is affecting the students. Existing researches on the use of e-learning resources reveals that it improves students' achievements and performance (Jones *et al.*2011). Some researchers such as Vaughan & Garrison (2016) have examined the impact of e-learning information on both teachers and students but none have investigated its perception and attitude of students towards the use of e-learning resources in teaching of vocational and technical education in Niger State to be specific. This research considers this as a gap to fill and therefore explores the personal and emotional aspects of the students' attitudes and investigates the accessibility and availability of e-learning resources in vocational and technical education among students of technical college in Niger State.

1.3 Purpose of the Study

The aim of this study is to investigate the perception and attitudes towards e-learning resources for teaching vocational and technical education among students of technical college in Niger State. The study will achieve the following objectives:

1. Identify the availability of e-learning resources for teaching Vocational and Technical education in Niger State Technical Colleges.
2. Examine the utilization of e-learning resources by Technical Colleges Students in Niger State.
3. Examine the perception of the student towards the use of e-learning resources in Vocational and Technical education in Technical Colleges.
4. Examine Students attitude towards e-learning resources in teaching Vocational and Technical education in Technical Colleges.
5. Identify the challenges faced in the use of e-learning resources to learn Vocational and Technical education in Technical Colleges in Niger State.

1.4 Significance of the study

The findings of this study will be of practical and theoretical benefits to the following stakeholders: Vocational and Technical Education students, Vocational and Technical Education teachers, textbook authors, examiners, government, curriculum planners and the society at large. It would develop in the students listening skill, writing skill, communication skill, time management skill, manipulative skill amongst other skills needed for self-development and self-reliance. It will also make the teaching of Vocational and Technical education to be practical to real life, less abstract, remove fear/phobia, remove frustration, and thereby solve the problem of poor students' achievement in Vocational and Technical education. The students will get this benefit in form of significant improvement in their academic achievement.

The results of this study will be of great benefit to Vocational and Technical education teachers due to the fact that this study will employ activity-based. They provide modern methods of

teaching Vocational and Technical education which are capable of holding student's attention, ginger their interest and make them participate fully in the lesson. Teachers will get these benefits through the application of audio visual aid of e-learning resources in the teaching and learning of Vocational and Technical education. The benefit will also be through an improved teaching performance.

The findings of the study would also benefit the society at large because it will come to have a crop of students with sound knowledge of ICT which is a vital tool for a productive living, national development and self-reliance. The society will also benefit when students' achievement and interest in Vocational and Technical education have increased significantly and graduates that are being produced are self-reliant, and able to take rational decisions in solving individual problems and societal problems. This will go a long way in bringing about lasting societal transformation and development. An improved teaching performance by the teachers will also have a multiplier effect on the society.

1.5 Scope of the study

This research is restricted to Government Technical College (GTC) TungaGoro, Minna. The study will deal with the SSII Vocational and Technical Education Students. It will explore the perception and attitude towards e-learning resources for teaching Vocational and Technical education, emphases will be on gender and age of students towards the use of e-learning resources.

1.6 Research Questions

In attempt to achieve the stated objectives, the following research questions were formulated:

1. Are there e-learning resources available for teaching Vocational and Technical education in Technical Colleges of in Niger State?
2. Are the e-learning resources in Technical Colleges of Niger State being utilized to the students?
3. What is the perception of students towards the use of e-learning resources in technical colleges of Niger State?
4. What is the attitude towards e-learning resources in teaching Vocational and Technical education in Technical Colleges of Niger State?
5. What are the challenges faced by students in Vocational and Technical education in Niger State Technical Colleges?

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Theoretical Framework

The focus of this study is built upon the various learning styles theories of online learning, and how learners gain knowledge differently. Facilitation theory and constructivist theory are two popular learning theory concepts which are used as a representation as a taxonomy for learning (Etmer& Newby, 1993). According Eccles (1999) developing a system of best practices built around these learning theories can assist teachers in encouraging improved student preparedness and instruction presented within an online learning environment of higher education.

2.1.1 Constructivism Theory

Constructivism is the theory that people construct their own understanding and knowledge of the world, through experiencing things and reflecting on those experiences. When learners encounter something new, they reconcile it with previous knowledge and experience. They may change what they believe, or they may discard the new information as irrelevant. To be active creators of their knowledge however, they must be able to ask questions, explore and assess what they know. In the classroom, the constructivist view of learning means encouraging students to use active techniques such as experiments and real-world problem solving using authentic data if possible, and to create knowledge and reflect on their understanding.

Constructivism modifies the role of the teacher so that teachers help students to construct knowledge rather than reproduce a series of facts. The constructivist teacher provides tools such as problem-solving and inquiry-based learning activities like in e-learning setup so that students can formulate and test their ideas, draw conclusions and inferences, and convey their knowledge in a collaborative learning environment. The teacher must understand the students' preexisting conceptions and guide the activities to address this knowledge and then build on it. Constructivist teachers encourage students to assess how the activity is helping them gain understanding. By questioning themselves and their strategies, students become expert learners as they learn how to learn, with the use of computers online and/or offline. The students then have the tools necessary to become life-long learners.

The teaching-learning method in e-learning is assumed to be self-directed learning (SDL), which is supported by the educational philosophy of constructivism. According to constructivism theory, e-learning is an active information process because knowledge generation is accomplished through individual experience, maturity and interaction with one’s environment. Due to this point of view, the educational philosophy of constructivism is distinguished from objectivism in that the learner is regarded as a passive recipient of information (Rovai, 2014).

Learning performance with regards to e-learning is possibly lower than a crammed educational style based on objectivist educational philosophy, with the exception of a strategic approach relating to the efforts and studies for the pleasure of the self-learner. Lee et al., (2017) point that the SDL teacher is available as an assistant and guide for learning, not as a unilateral knowledge source and messenger.

Learners take the lead in self-regulated learning for the development of a total learning process that involves problem perception, adoption, and assessment of alternatives (Lee, 2004). Learners play the same roles that the producers do by organizing or re-organizing knowledge like a consumer, by selecting knowledge and using it practically (Thatcher& Pamela, 2012).

E-learning must be considered as one of many SDL strategies. The reason is that an e-learner attends a lecture only to register the time, place, subject, and to alter the order of attending lectures. Proper monitoring of the learner is difficult in comparison with the off-line education already being used, not only because the learning progress method of evaluation is being altered, but because personal meetings with the teacher are also no longer part of the process. Therefore, it is important to manage one's ability to organize self-learning time, process information, plan data, and control data.

2.1.2 Facilitation Theory (The Humanist Approach)

Learning theory developed by Carl Rogers. One of the basic premises of this theory is that learning is possible because human beings have a "natural eagerness to learn" and they are responsible for and at the center of the learning process (person-centered learning). E-learning is possible only because individuals signed up in it are self-driven and eager to learn despite their location in relation to learning institutions. The role of the teacher is to act as a facilitator- no amount of effort on the part of the teacher can guarantee success, unless the learner has a desire and predisposition to learn.

An interesting contribution of Rogers's Facilitation Theory is the notion that learning involves changing one's self-concept. Such changes may involve discovering one's strengths or weaknesses. Learners in the e-learning setup have to perceive the possibility that there is in the e-learning system for knowledge acquisition. A freshly perceived self-concept has a consolidating impact on learning in that it allows the learner to attack a target skill with confidence or with an adjusted 'updated' approach.

Implicit in the non-direct facilitative approach is the assumption that learners can find the information by themselves (teachers merely *facilitate* that process), an assumption which downplays the role of information transmission and underestimates the contribution of teaching. Such a teaching model is obviously an idealization which is rarely found in its pure form in practice.

2.2 Conceptual Frame Work

2.2.1 The Concept of E-Learning

E-learning is defined as a system based on technology, organization, and management which bestows upon the students the ability to learn via internet and facilitates their learning (Levy, 2016). E-learning makes use of telecommunications technology to get information to achieve the teaching and learning objectives (Bowles, 2010). Also Wanting et al. (2012) define e-learning as acquisition of the disseminated knowledge using electronic devices. it can be said that e-learning refers to the use of systems of electronic education such as computer, internet, multimedia disks, electronic magazines, virtual newscasts, and etc. whose purposes are to reduce time and expenses and achieve better, faster, and easier learning (Zare et al, 2014). Employment of information and communication technologies in education has created a new mode of learning which does not require physical attendance; hence, learning has been made possible in environments other than classrooms (Gholamhosseini, 2011). In this context, some study is reviewed next.

Keshavarz et al. (2013) concluded that e-learning has a positive impact on academic achievements of students. ZarieZavaraki& Rezaei (2011) in their study at the e-learning center in Khaje Nasir Toosi University concludes found that the use of e-portfolio significantly improved students' attitude, motivation and academic achievement. Mahmoodi et al. (2015) found that the use of e-learning in physiology teaching-learning process improves students learning and creativity. Zare et al. (2015), also found that learning and recollection of students who were

educated to multimedia methods, is more than learning and recollection of students who were educated in the traditional methods.

Review of studies conducted in the field of e-learning application and its impact on learning and creativity suggests that the use of this teaching method in the teaching-learning process can lead to the effectiveness of training. Emergence of new theories of teaching and learning has made the education to shift from being teacher-oriented to being student-oriented. Moreover, development and evolution of new communication devices has enabled modern man to use modern methods of teaching and learning and get free from time and space barriers and keep on learning in any time and place according to his needs and demands (Hosseini et al., 2015).

The use of electronic technologies has led to the development of educational opportunities and helps students develop their skills. According to studies, the evidence shows that e-learning can have a profound and positive impact on learners' involvement, positive attitudes of teachers, personalized learning, and learners' creativity (Magnoson et al., 2010). Negash& Wilcox (2015), quoted in Mahmoodi et al. (2015), suggest that there are six different types of e-learning. These six types are presented below:

i. E-learning with Physical Presence and without E-communication (face-to-face)
ii. E-learning without Presence and without E-communication (self-learning)
iii. E-learning without Presence and with E-communication (asynchronous)
iv. E-learning with virtual Presence and with E-communication (synchronous)
v. E-learning with occasional Presence and with E-communication (blended/hybrid-asynchronous)
vi. E-learning with Presence and with E-communication (blended/hybrid-synchronous)

Different types of e-learning methods have been proposed, but the present study focuses on the second type i.e. self-directed learning method of e-learning. In fact, this type of e-learning is the self-instruction of self-paced method of learning. In this method, the learners use the educational media and take responsibility of learning on their own.

2.2.2 E-learning resources

According to Sinha et al. (2011) e-resources can be defined as those resources which contain documents in electronic format that can be retrieved via the internet in a library environment. In other words, e-resources are those electronic artifacts that provide a collection of document, be it text, image and other multimedia artifacts like statistical, graphical mode which are available for library and information centers. These may be delivered on CD-ROM over internet. The availability of e-resources helps students to find e-journals, e-books, e-magazines, e-database, e-subject guide, e-newsletters, e-white paper, e-audio, e-exhibitions, e-conferences and web search tools on a range of topics or disciplines.

The advent of e-resources has cut the obstacle of valuable information difficult by students in the developing countries. In the same vein, Issa et al. (2011) emphasized on the popularity of e-resources, flexible in searching rather than the paper based and they can access in a remote area or in an academic library. Similarly, Ojedokun and Okafor, (2011) described the academic library as: A collection of full text and bibliographic information source which joins human services (such as electronic publishing, personal management and distance information use) and information technology tools (such as those to support browsing, authorizing and communication. Therefore, the academic libraries have a physical space ICT facilities of different types used for production, storage and dissemination of information.

In another development, Issa et al., (2011) emphasized that there are different kinds of academic libraries for the various information needs of the targeted group of students. Some are developed by groups or organizations, higher education institutions, research centers, national libraries, as well as public libraries. They include contents that are both digital and those that have been digitized. Therefore, an e-resource generally contains e-books, e-journals, OPAC, web-bibliographies (equivalent to a printed bibliography), letters, maps, dictionaries, encyclopaedias, still and moving images, sound recordings, indexes, conference/seminar proceedings, e-theses/dissertations, e-abstracts and e-reviews, and handbooks. The traditional libraries have limited storage space, but the present academic libraries require very little physical space, which reduces the cost of maintaining academic e-resources (Issa et al., 2011). In this study, e-resources refer to a collection of information resources in electronic formats that can be accessed by the students inside the academic library.

The benefits derived from the academic resources are expected to have a positive effect on Nigerian Libraries. Therefore, Nigerian libraries are:

To offer quick and easy ways of performing increased workload of library tasks with greater efficiency; to enhance adequate ICT for easy accessibility of information needed by students‘; to enable major policy persons and strategies to be defined in relation to ICT; to exhibit the visions and hope for information users is now involved in resource sharing enabled by ICT; to enable libraries to fully adopt the use of ICT in information handling and library services such as indexing cataloguing, reference and information retrieval services, circulation, serial control and the provision of other technical services; to enable libraries to establish a positive correlation in the networked world; Nigerian libraries have now been found to shift their focus of operation from library centered to information-centered; the abilities to access information and adapt it for

local problem solving are the real changing dividends as against information control (Henriatta, 2015).

Students widely use e-resources to access information in support of the print sources for their studies, hence Abubakar and Adetimirin (2015) agreed that e-resources constitute an important source of information and are widely contained by libraries to process and disseminate information to its users all over the world. Electronic sources consist of information sources that are in electronic format, and are characteristically very easy to use when accessing

information compared to sources in print. Libraries, irrespective of their purpose, have started incorporating e-resources into their services to provide users with more efficient, effective and reliable sources of information. The age of total support on print information sources has passed, current large volumes of print information sources are being converted to electronic format (Issa et al., 2011). Therefore, Adekunmisi*et al*. (2013) indicated that many academic libraries in Nigeria are currently building academic repositories of their publications and other works that can be digitized and made available to students without restriction.

2.2.3 Technical and Vocational Education

Technical and vocational education is used as a comprehensive term in the educational process involving, in addition to general education, the study of technologies and related sciences and acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life (FGN, 2004). Okoro (1993) quoted in Agapu and Andural (2007) and Momoh (2012) defines vocational education as a form of education whose primary purpose is to prepare persons for employment in recognized occupation. In the same vein he defines technical education as a post-secondary vocational training programme which the major purpose is the production of technicians.

The terms technical education and vocational education are often used interchangeably but, they are separate and distinct terms. For the purpose of this paper there is the need to do some clarifications. Vocational education refers to skill based programmes which are designed for skill acquisition at lower level of education. Vocational education programmes focus on specific vocations for entry into defined workplace. Technical education, in the other hand is not designed for any particular vocation but provides general technical knowledge. This type of education prepares people for entry into recognized occupation at a higher level but usually lower than the first degree. In fact technical and vocational education is usually a merger of technical education and vocational education i.e the inclusion of basic technical and scientific knowledge with the skill based vocational programme.

According to Uwaifo (2009), technical education is the training of technically oriented personnel who are to be the initiators, facilitators and implementers of technologically development of a nation. In his own opinion, this training of its citizens on the need to be technologically literate would eventually lead to self reliance and sustainability. He observed that technical education more than any other profession has direct impact on the development of the country.

Again, technical education contributes so much ranging from electrical and electronics technology, metal work technology, mechanical/automobile technology, building technology, woodwork technology etc, technical education is practical oriented education which makes it unique in its content and approach thereby demanding special attention. Unfortunately, despite all the glaring contributions of technical and vocational education in our nation, Nigeria is yet to accord this type of education the attention it deserves. This is one of the major reasons for the rising unemployment, poverty and unabated crimes in the society today.

2.3 Availability of E-learning Resources

Several studies have been conducted on the availability of e-learning resources in higher institution of learning, research centers and organization. Reitz (2014) asserts that they are resources consisting of data and/or computer programs encoded for reading, learning and manipulation by a computer connected to the internet. Similarly, Appleton (2016) describes e-learning resources as those kinds of documents in digital format which are made available to users through computer-based information retrieval systems. The category includes electronic texts, bibliographic databases, e-newspapers/magazine, e-books, e-journals theses/dissertations collections etc. There are online electronic resources available free of charge and some are fee based that requires licensing and authentication before users can access it.

Ahiauzu (2013) defined e-learning resources as a collection of electronic journals, books and other study materials available through the computer and the internet. Some can be accessed free of charge, while others are subscribed to by universities or organizations before users can have access to these resources online. Hundies (2012) said that most of this information in the databases are accessible free of charge while some are fee-based. Libraries need to pay subscription fees in order to have access to these resources. But there are large numbers of databases that can be searched for at no cost an example of this is the Directory of Open Access Journal and many others. Some universities in developing nations, foundations and international organizations provide free access to e-learning resources to higher institutions and research centers in developing nations to support teaching, learning and research work. The World Health Organization (WHO) is one of such international agencies that subsidize payment of online databases such as HINARI, AGORA and OARE to research centers, hospitals, non-governmental organizations, colleges, universities and government ministries (Research4life, 2012).

In a study conducted by Ani and Ahiauzu (2013) it was observed that there are available e-learning resources databases in some Nigerian university libraries either through free based access or fees-based subscription. In a research conducted by Patra (2016) on introducing e-journal services among researcher in Kolkata in India. It was discovered that the library subscribes to e-journals database such as Elsevier Science, Springer, American Institute of Physics, Blackwell, American Chemical Society, John Wiley, Cambridge University Press, Oxford University Press, Royal Society of Vocational and Engineering databases. It must be noted here that it is what the library subscribed to that they get. The e-journals that are relevant to the institution curricular are what they focused on.

In a study conducted by Anthony and Shell (2018) on e-journals databases in libraries in CUSAT Central library, India. The study revealed that the CUSAT Central library subscribe to the following database: Elsevier Science, Taylor and Francis, Portland Press, Emerald, EBSCO, Oxford University Press, Springer Links, Chemical Abstract on CD and American Physical Society. The findings also show that the subscription rate ranges from 1-2 years.

The studies of Otokunefor and Kari (2011) and Nok (2014) showed that these libraries in Nigeria are gradually developing their electronic resource databases collection and the major databases that could be found are Access to Global Online Research in Agriculture (AGORA), Health Internetwork Access to Research Initiative (HINARI) and Online Access to Research in the Environment (OARE)**,** Directory of Open Access Journal (DOAJ) and EBSCO host resources. It could be possible because they are free access databases that are made available by for developing nations like Nigeria. Each of these e-learning resources consist of different titles of peer reviewed journals, books and other educative resources.

Similarly, Paines and Kwachi (2013) study shows that majority of the databases subscribed to by the university were HINARI, JSTOR, OARE, AGORA, Ebsco host resources, TEEAL, DOAJ, MIT Open Course ware, Proquest, ScienceDirect and Elsevier EIR databases in Kurukshetra University library, India. It was also discovered that the duration of subscription of these resources 2- 3 years, while some of these databases were free. Akinseye (2014) observed that many university libraries have subscribed 2-3 years online databases for lecturers and students in order to have access to information and to updating their knowledge for the purposes of teaching, learning and reach work.

According to Kinengyere, Kiyingi and Bazirake (2012) and Fagbami (2014) most of the resources available in African universities like Nigeria are open access resources which are free to libraries in developing nations that have internet connectivity to support teaching, learning and research work. The open access resources are made free courtesy of Directory of Open Access Journals (DOAJ) which includes 3,622 free quality-controlled journals, covering all subjects and languages. There are few universities in developing nations that subscribe to fees databases in their libraries.

A publication of Queen`s University (2013) revealed that the university library had 1750 e-learning resources resources. New Castle University On line Publication (2014) stated that there are 450 e-resources available for teaching, learning and research work. It could be seen that in both universities there is a high level of availability of EIR databases in their library. In South Africa a developing nation like Nigeria, James (2014) study on availability of e-learning resources in three higher institutions in South Africa, showed that University of Johannesburg had 160 e-learning resources, Nelson Mandela Metropolitan University had 40 and Cape Peninsula University of Technology had 100 e-database resources in their univers.

In Nigeria, the National University Commission (2010) reported that Educational Trust Found (ETF) now known as Tertiary Education Trust Fund (Tetfund) have been able to subsidized the payment of online databases such as Ebsco host resources for Universities, Polytechnic and Colleges of Education. The e-learning resources databases in libraries is an opportunity open for university libraries in developing nations like Nigeria to bridge the knowledge gap and move toward a digital knowledge based society. However, the study of Okiy (2005), Tiemo and Ateboh (2015) showed that lack of funds have limited university libraries in Nigeria in providing e-learning resources and other facilities to users. As a result of this, libraries in developing countries opt for free e-learning resources on the internet, such as the open access journals. Open access is free of charge for readers that are registered with the resource databases. They allow library users to freely read, download copy and acknowledge the author in their work (Kwan, 2003; Ricardo and Merce 2004). The internet connectivity that enable librarians render EIR database services to lecturers and students is slow. Chigbu and Dim (2012) affirmed that the internet connectivity is far below what is obtainable in developed countries.

2.4 The Role of E-Learning on Academic Performance

Attitudes concerning e-learning, echoed by scholarly and academic reviews, range from neutral to positive. On one hand, it is noted that e-learning is at least as effective as traditional instructional strategies (Rosenberg, Grad and Matear, 2013), and that there are no major differences in academic performance between the more traditional and more technology-oriented modes of instruction (Cavanaugh, 2011). On the other hand, many reviews go further, reflecting a principally positive attitude towards the impact of e-learning. The current piece sought to demystify e-learning by concentrating on how specific e-learning factors (socio-demographic

characteristics, hours spent on-line and prior computer skills) influence individual academic performance.

There is a considerable body of evidence to suggest that different teaching delivery styles can have different degrees of success; as measured in terms of academic results (Emerson & Taylor, 2014). In relation to online teaching, some studies indicate that this medium of delivery has a positive impact on performance, for example, Smith and Hardaker (2000). Other studies however, find that greater online teaching has a negative impact on performance (Johnson, 2015).

Benefits include offering a variety of new possibilities to learners (Breuleux, Laferrière, & Lamon, 2012), in addition to having a positive effect on students' achievement in different subject matter areas (Chambers, 2013). Other benefits of electronic education include increases in enrollment or time in school as education programs reach underserved regions, broader educational opportunity for students who are unable to attend traditional schools, access to resources and instructors not locally available, and increases in student-teacher communication. According to Barker & Wendel (2011) students in virtual schools showed greater improvement that their conventional school counterparts in critical thinking, researching, using computers, learning independently, problem-solving, creative thinking, decision-making, and time management. A study by Calderoni (2010) revealed that academic advantages over traditional classroom instruction were demonstrated by students in Mexico's Telesecundaria program, who were "substantially more likely than other groups to pass a final 9th grade examination" administered by the state; by students taking a vocational by satellite course; and by students learning reading and math via interactive radio instruction (Yasin &Luberisse, 2010).

Electronic education is not the most effective choice in all situations. Students may feel isolated, parents may have concerns about children's social development, students with language difficulties may experience a disadvantage in a text-heavy online environment, and subjects requiring physical demonstrations of skill such as music, physical education, or foreign language may not be practical in a technology-mediated setting. Bond (2012) found that distance between tutor and learner in an online instrumental music program has negative effects on performance quality, student engagement, and development and refinement of skills and knowledge. Virtual school students show less improvement than those in conventional schools in listening and speaking skills (Barker & Wendel, 2011). Highly technical subjects have also proven to be difficult to teach well online. The Alberta Online Consortium evaluated student performance on end-of-year exams among virtual school students across the province, and found that virtual school student scores in mathematics, and the sciences lagged significantly behind scores of non-virtual school students (Schollie, 2001).

Kearsley (2010) notes that given instruction of equal quality, groups of students learning online generally achieve at levels equal to their peers in classrooms. Equality between the delivery systems has been well documented over decades for adult learners. Evidence to date convincingly demonstrates that when used appropriately, electronically delivered education 'e-learning' can improve how students learn, can improve what students learn, and can deliver high-quality learning opportunities to all children" (NASBE, 2001).

2.5 Students Attitude Towards Electronic Resource Utilization

Lau & Woods (2015) investigates on user perception and attitudes towards learning objects. This study empirically evaluated the technology acceptance model drawn from literature on Information Systems (IS) to investigate how user beliefs and attitudes influence learning-object

use among higher education learners. The findings clearly showed that an individual's attitude towards the use on the learning object is significantly influenced by the individual's perception about ease of use and usefulness. User perceptions of usefulness had an even stronger influence on attitudes than user's perceptions of the learning objects ease of use Judged by its direct relationship to attitude and behavioral intention to use perceived usefulness was found to be the most significant factor influencing the user's acceptance of learning objects. At the same time behavioral intention to use the learning objects was highly related to the attitude and perceived usefulness.

Gomez, (2017) reported survey finding of study entitled "Utilizing Web Tools for Computer-Mediated Communication to Enhance Team-Based Learning." This article presents the results from pilot assessments of computer-supported team based-learning. Team-based learning is an active learning instructional strategy used in the traditional face-to-face classroom. Web-based Computer-Mediated Communication (CMC) tools complement the face-to-face classroom and enable active learning between face-to-face class times. The authors utilized pedagogical approaches grounded in collaborative learning techniques, such as team-based learning, and extended the set techniques to a Web-based environment through the use of computer-mediated communications tools (discussion web-boards).This approach was examined through field studies in the course of two semesters at a US public technological university. The findings indicate that the perceptions of team learning experience such as perceived motivation, enjoyment, and learning in such a Web-based CMC environment are higher than in traditional face-to-face courses. In addition, our result show that perceived team members' contribution impact individual learning experiences. Overall, Web-based CMC tools are found to effectively facilitate team interactions and achieve higher level learning.

2.6 Strategies Adopted for E-Resource Utilization

One solution that was recommended by Pejova (2013) is launching and carrying out collaborative joint projects between professionals from developed countries and those from less developed countries as a way of developing information literacy skills which will enable students to acquire information retrieval skills that will enable them to exploit the massive e-resources that are in existence today. According to Katundu (2010)**,** information literacy in the curriculum has not received much attention due to the factor that only librarians are engaged in the teaching of the library discipline. Many authors such as Heseltine (2010) and Rader (2014) agree that a successful information literacy programme can be well delivered when it is integrated within curriculum. This is the only way that can be made to relate information sources to various courses, thus rendering it functional and more meaningful to students**.**

Omoniwa (2013) observes that power will rest largely on staff that possesses multiple skills. Employment of librarians for instance, should be based on skills in technology applications. This strategy would improve on e-resource utilization, as library staff would be expected to provide leadership in computer applications such as Internet and CD-ROM technologies among others. This would translate into a greater ability of students to exploit the massive technologies in academic libraries in developing countries. In the opinion of Dai et al (2010), there is a need for a library consortium that will ensure collective acquisition of e-resources. This will enable financially weak University libraries to contribute to a general pool that would ensure the utilization of jointly acquired ICT facilities as a means of gaining easy access for the users. A consortium with the collective strength of resources of various institutions available to it is in a better position to resolve the problems of managing, organizing and archiving the electronic resources (Bedi& Sharma, 2015). Therefore, consortia are imperative towards the improvement

of Libraries in Africa. Libraries the world over are forming alliances for the purpose of identifying and addressing common needs arising from development in information technology, especially the growing importance of the internet and the World Wide Web. According to Bedi and Sharma (2016) the strategies in this direction include among others:

1. Selecting a coordinating agency to work on behalf of the entire group of participants that will be charged with executing and monitoring programs and activities.
2. Identifying and negotiating with the potential publishers/vendors or aggregators to provide access in which purchase is done by consortia.
3. Identifying the necessary infrastructure for electronic access to resources.

Such an arrangement has made it possible for users to access and download the required materials without even going through the elaborate process of inter-library lending.

2.7 Students, Teachers Attitude Towards the Study of Vocational and Technical Education

The study on students' attitude towards science has been a fundamental feature of the work of the science education research community in the past 30-40 years (Osborne *et al*., 2010). Teaching and learning is an encounter which demands voluntary contribution from all party involved to achieve the desired result in school system. Attitudes, like academic achievement, are significant aftermaths of science education in high schools as research has confirmed that attitudes are linked with academic achievement and that attitudes predict behaviors (Cheung, 2011). Dori and Barnea (2017) opined that teachers' attitudes toward science are a critical stimulus on their instruction and have a direct correlation to the instructional methods they adopt. To bring about conceptual change, it is equally important to promote students' awareness of the limitations of the instructional methods/ models, as it is to provide the learners with accurate in-formation (Jaakkola*et al*., 2011).

Adesoji (2014) have investigated the effect of teacher-directed and self-directed problem-solving strategies on students' attitude toward vocational and came to conclusion that if students were allowed to develop higher cognitive processes through problem solving strategies, either as teacher directed or self-directed, their attitudes toward vocational might change positively. According to various theories, the key to success in any human endeavor is the desire of that person (human motivation); motivation maybe rooted in the basic need to minimize physical pain and maximize pleasure, or it may include specific needs. This means that success or failure depends to a great extent on the interest or attitude of the learners involved in learning models (Pyatt and Sims, 2012).

The attitude of children in their school work is deeply affected by the degree of encouragement their parents give them and by their own level of emotional stability. The students often muddle their parent's attitude, where this happens, there is the tendency for them to exhibit positive or negative of encouragement by way of information or demonstration given or exhibited to them from the onset. It, therefore, becomes imperative to estimate students/learners' attitudes towards the instructional medium and instructional approach used for conceptual change to occur, and these approach should: be developmentally appropriate-ate for students of all ages and ability levels; facilitate conceptual change, cognitive conflict and promote access for all students (Jaakkola*et al.,* 2011; Pyatt and Sims, 2012). Cheung (2011) reported that the correlation between high school students' achievement in vocational and their attitudes toward vocational ranged from 0.24 to 0.41. Helen (2010), in her report reveals that poor results in science subjects by girls may be attributed to gender polarization and perception towards the subjects. "Girls are expected to be passive and subjective, and more interested in people than ideas". Francis and

Greer (2006)concluded that boys showed a more positive attitude to learning vocational than girls, but his research examined one particular year group while Barnes in Sydney used three items to measure student interest in vocational by exploring sex differences in enrolment intentions ex-pressed by 449 year 10 students from five high schools and concluded that males found vocational more interesting than females (Cheung, 2009). Subsequently, the promotion of favour-able attitudes towards science, scientists and learning science, as a component of science education, is a progressive matter of concern.

Nevertheless, the concept of learners' attitude to-wards science has become vague, and often poorly enunciated (Osborne and Dillon, 2010). Students' attitude toward science education could be aroused through interest and motivation which gears towards the selection of the school courses and leads to the student careers (Aschbacher*et al*., 2010; Harry, 2011). Thus, the attitude of students toward science and science education could be either positive or negative depending on the relative situation of the following: - (i) Age and previous experiences, (ii). Sex differences, (iii). Student's motivations, (iv)Lack of text book, (v) Textbook contents, (vi)Ability and aptitude of student, (vii) Teaching and learning method, (viii). Classroom activities(ix) Laboratory activities, (x) Academic Achievement, (xi) Home or family environment, (xii) Social class of parents, (xiii) The culture and philosophy of the student (Harry, 2011).Furthermore, on the part of government, cut-ting backs in funding and unfulfilled promise are the problems, where government promise some allowances for the science teachers and raise their moral surprisingly the promises are not fulfilled. (Nzekwe, 2013). So lack of encourage to teachers by the government also contributes to ineffective teaching of vocational .

Adefunke (2011) stated that "most laudable educational programs in the nations (especially in the developing countries) are usually wonderfully planned but they usually crumble at the

execution stage because of inadequate funding". A group of educators have argued that education, being a fundamental human right, must be funded by the government since there are sufficient resources to fund at least basic education for all children. According to this group, the hindrance to the realization of education for all children is corruption, misplaced priorities, inequality and poor policy choices (Okoro, 2011). Abdullah(2009) blamed government for mass failure in vocational and other science subjects due to the following reasons: little resources are made available without implementing effective government policies and servicing of education; inadequate trained staff for monitoring and evaluation of schools; collapsed infrastructure, lack of instructional materials; hostility of the environment, inadequate laboratory trained and experienced personnel, inadequate professional teachers' development and funding of the schools are inadequate.

2.8 Students Satisfaction with the Availability of E-resources in Technical Colleges

According to Alison, Kiyingi and Baziraake (2012) revealed that there is a significant relationship between students' satisfaction with the availability of e-resources and infrastructure. Furthermore, Sivathaasan, (2013) exposed that there is a significant relationship between students' satisfaction with the availability of e-resources and infrastructure. Therefore, there is also a significant relationship between students' satisfaction with the availability of e-resources and infrastructure (Caplan, 2011).

According to Watts and Ibegbulem (2016) described some of the factors facing the use of electronic resources available at the medical library of the College of Medicine in Nigeria, Nsukka. The findings revealed that there is a significant relationship between infrastructure, affordable online access, information searching skills, staff commitment and students are barriers

to the use of electronic resources. In another study, Alison et al., (2012) described that using available of e-resources have a significant relationship with the staff commitment and its influenced by staff commitment, institutional factors including internet connectivity and number of resources available to students. The literature review of this study has also discovered that availability of e-resources, and institutional factors affecting the use of the resources by staff commitment (Tenopir, 2013). Sife and Chilimo (2017) revealed that there is a significant relationship between students‘ satisfaction with the availability of e-resources and staff commitment in an academic library. Therefore, Sivathaasan (2013) investigates the impact of library collections on user satisfaction. Results revealed that there is a significant relationship between students' satisfaction with the availability of e-resources and staff commitment in libraries. Based on the explanation above, the study shows that, there is a medium and significant relationship between students' satisfaction with the availability of e-resources and staff commitment in colleges.

There is a significant relationship between students' satisfaction with the availability of e-resources and student involvement in using e-resources (Caplan, 2011). In another study, Mulla (2011) also discovered that there is a significant relationship between students satisfaction with the availability of e-resources and students involvement in using e-resources. Zhang et al. (2011) described the use of e-resources among students in China. The findings revealed that satisfaction. Farran et al. (2016) conducted an empirical study, with a sample of 350 students. Results revealed that there is a significant relationship between students' satisfaction with the availability of e-resources and student involvement in using the e-resources. Consequently, Varghese (2013) described the students studies in the electronic environment: review and brief analysis. The

results showed that there is a significant relationship between student involvement and students satisfaction with the availability of e-resources in the library.

2.9 Review of Related Empirical Studies

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financially weak University libraries to contribute to a general pool that would ensure the utilization of jointly acquired ICT facilities as a means of gaining easy access for the users. A consortium with the collective strength of resources of various institutions available to it is in a better position to resolve the problems of managing, organizing and archiving the electronic resources (Bedi& Sharma, 2015). Therefore, consortia are imperative towards the improvement of Libraries in Africa. Libraries the world over are forming alliances for the purpose of identifying and addressing common needs arising from development in information technology, especially the growing importance of the internet and the World Wide Web. According to Bedi and Sharma (2016) the strategies in this direction include among others:

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2.10 Summary of Literature Review

The literature revealed that insufficient computers with Internet facilities, incessant power outage, slow Internet connectivity, and lack of ICT skills, inadequate ICT infrastructure and difficulty in finding relevant information are challenges militating against the utilization of electronic resources by Technical students. In an empirical study of motivation, challenges and strategies in the use of electronic information resources by Technical students, it was revealed

that Technical students were motivated to use electronic resources because they were more informative, easy to access and use, saves time and less expensive.

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Design of the Study

The research design was a descriptive survey; as a result, the study seeks an understanding in order to document current condition that exists at the moment. This study was therefore adiscovering current situation as they relate to the Accessibility, Availability and Attitudes towards E-learning resources for teaching vocational and technical education in technical college of Niger State.

3.2 Population of the Study

The population of interest is vocational and technical students of technical college Tungan Goroin Niger State. The targeted student were SS II students of vocational and technical education department. The total population in this study is 182.

3.3 Sample and Sampling Technique

Systematic random sampling procedure where a neutral start point will be identified by the researcher, the first student will be identified randomly, within the study location. It will be a key to consider gender parity in the study, if a male student was picked the next will be a female respondent. Identification of the starting point will be done at the entrance of the department; the data collection will be done on one side of the road towards the Head office and the other side of the road will be taken towards the gate.

3.4 Instrument for Data Collection

The main instrument of data collection in this study was questionnaires. The items in the questionnaire were structured (closed ended) and unstructured (open ended). The structured questions were used to measure of the subjective responses to clarify the objective responses and at the same time, enhanced formulation of recommendations of the study.

3.5 Validation of Research Instruments

Validity establishes the relationship between the data and the variable or construct of interest. Its estimates how accurately the data obtained in a study represents a given variable or construct in the study Mugenda, (2014). To ensure accuracy of the data the researcherpre-tested the questionnaires and analyses the results and made corrections on the questions that were not clear.

The questionnaires provided accurate data due to the process of pre-testing in the selected sample to maintain validity. The researcher visited the sampled students to make them aware of the need of the study. This was use to ensure the validity of the data collected. The research instrument was validated by two senior lectures both from Federal University of Technology, Minna.

3.6 Administration of the instrument.

The instrument was administered to the respondents by the researcher and collected back immediately after response to the items.

3.7 Reliability of Research Instruments

The test reliability approach was adopted for the convenience of the researcher as pointed by Osaeze and Izedonmi (2016) that reliability test assess consistency between independent measurement of the same phenomenon, which implies stability, dependability and predictability of a measuring instrument. Reliability was ensured by test re-test and internal consistency was measured by Cronbach Alpha.Reliability statistical test for the 24 items in this research measurement shows that the measurement scale items in this research has excellent value of 0.926 and therefore acceptable. The reliability established is considered high enough for the study because it falls within the range of 0.68 to 0.85 as recommended by Kerlinger in Uwe (2007)

3.8 Method of Data Collection

The questionnaire was administered by the researcher with the permission of the Head of Department and cooperation of other staff of vocational and technical education department. Appropriate copies of the questionnaire were made available and accompanied with letters for

permission obtained from the Department of Industrial Technology Education, Federal University of Technology, Minna.

3.9 Method of Data Analysis

The data collected for the study was analyzed using simple frequencies and percentages for the demographic characteristics of the subjects. The answer to the research questions provided with tables of frequencies and percentages. Spearman correlation procedure was used because of the non-parametric measurement of the variables.

CHAPTER FOUR

4.0 RESULTS AND DISCUSSION

4.1 Results

This study explores the accessibility, availability and attitude of vocational and technical educational students towards e-learning in technical colleges of Niger state. The study

investigated the accessibility, availability and attitudes towards e-learning resources for teaching vocational and technical education among students of technical college in Niger State. This chapter comprises of four sections. The first section identifies the availability of e-learning resources for teaching Vocational and Technical education in Niger State Technical Colleges. The second section examined the accessibility of e-learning resources of Technical Colleges in Niger State. The third section examine Students attitude towards e-learning resources in teaching Vocational and Technical education in Technical Colleges, and the fourth section identify the challenges faced towards the use of e-learning resources to learn Vocational and Technical education in Technical Colleges in Niger State.

4.2 Demographic Characteristics of the Respondents

The demographic characteristics of the respondents were analysis basis on their gender, qualifications and teaching experience. Figure 4.1 shows that out of teachers sampled for this study, 60.0% of the teachers were males and 24 40.0% were females.

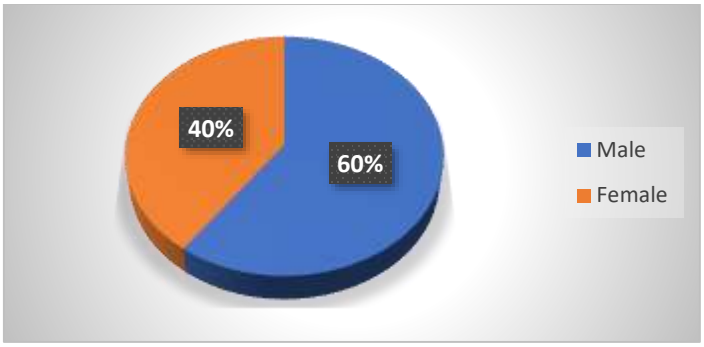

Figure 4.1: Gender of Teachers

More so, it was discovered from the analysis in Figure 4.2 that, 8.3% of the teachers had NCE; 20.0% had HND; 31.7% had B.Sc.; 21.7% had B.Sc. (Ed.); 15.0% had M.Sc. and 3.3% had Ph.D.

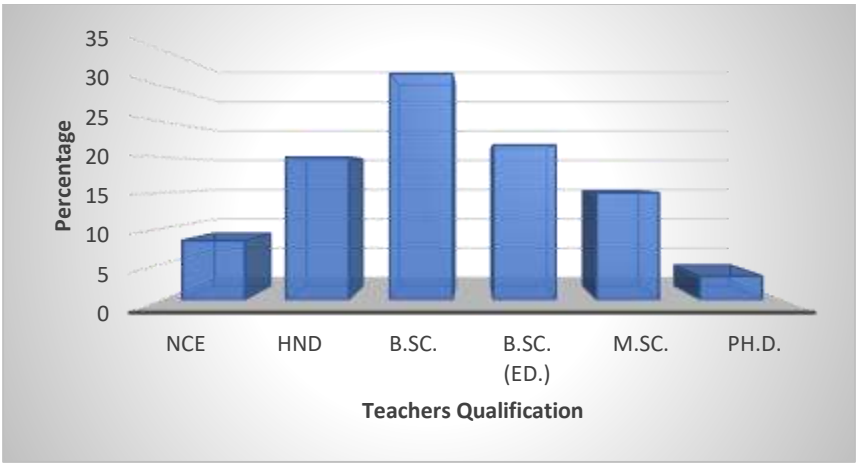

Figure 4.2: Teachers Qualification

In addition, 55.0% of the teachers had less than 5years of teaching experience; 33.3% had 5 – 10 years of teaching experience and 11.7% of the teachers had 11years and above teaching experience (Figure 4.3).

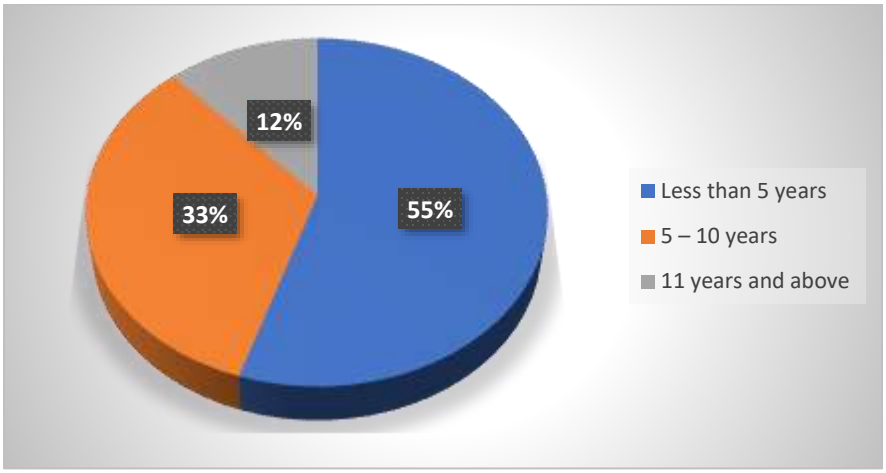

Figure 4.3: Years of experience of teachers

4.3 Research Question I

Are there e-learning resources for teaching Vocational and Technical education in Technical Colleges of in Niger State?

Table 4.1. Availability of e-learning facilities for the teaching of Vocational and Technical education

S/N	Available E-learning Facilities	Available (%)	Not Available (%)	Total (%)	Rank	Remark
1.	Desktop Computers	194 (75%)	66 (25%)	260 (100%)	2nd	A
2.	Laptop Computers	170 (65%)	90 (35%)	260 (100%)	5th	A
3	Internet Facilities	99 (38%)	161 (62%)	260 (100%)	11th	NA
4	Digital Cameras	7 (3%)	253 (97%)	260 (100%)	20th	NA
5	Phone	168 (65%)	92 (35%)	260 (100%)	6th	A
6	Video Recorder	57 (22%)	203 (78%)	260 (100%)	16th	NA
7	Projector	99 (38%)	161 (62%)	260 (100%)	11th	NA
8	I-pad	49 (19%)	211 (81%)	260 (100%)	18th	NA
9	Audio Tapes	42 (16%)	218 (84%)	260 (100%)	19th	NA
10	Smart Board	59 (23%)	201 (77%)	260 (100%)	15th	NA
11	Scanners	148 (57%)	112 (43%)	260 (100%)	8th	A
12	Electronic Typewriters	150 (58%)	110 (42%)	260 (100%)	7th	A
13	Flash Drives	180(69%)	80 (31%)	260 (100%)	4th	A
14	Printers	220 (85%)	40 (15%)	260 (100%)	1st	A
15	Television	73 (28%)	187 (72%)	260 (100%)	14th	NA
16	Power Point Software	104 (40%)	156 (60%)	260 (100%)	9th	NA
17	Photocopying Machine	185 (71%)	75 (29%)	260 (100%)	3rd	A
18	CD Writers	57 (22%)	203 (78%)	260 (100%)	16th	NA
19	Radio	93 (36%)	167 (64%)	260 (100%)	13th	NA
20	Projection Screen	101 (39%)	159 (61%)	260 (100%)	10th	NA

Source: Authors analysis, 2021

Table 4.1 shows that the ranked 1st, 2nd, 3rd, up to 8th were E-learning facilities affirmed by the majority of the respondents as available for the teaching of vocational and technical education. This implies that printers, photocopying machines, desktop computers, laptop computers, phones, electronic typewriters and scanners were E-learning facilities affirmed by the majority of the respondents as available for the teaching of vocational and technical education in Niger State.

However, ranked 9th, 10th 11th up to 20th were E-learning facilities that were affirmed by the majority of the respondents as not available for the teaching of vocational and technical education. This shows that power points, software projection, screen projectors, internet facilities, radio television, smart boards, video recorders, cd writers, i-pads, audio tapes and

digital cameras, are E-learning facilities that are not available for the teaching of vocational and technical education in Niger State.

4.4 Research Question II

Are the e-learning resources in Technical Colleges of in Niger State being utilized by the students?

Table 4.2 Utilization of e-learning facilities for the teaching vocational and technical education in Niger State

S/N	UTILIZATION OF E-LEARNING FACILITIES	MEAN	REMARK
1.	Desktop Computers	2.023	Not Utilized
2.	Laptop Computers	1.773	Not Utilized
3	Internet Facilities	1.334	Not Utilized
4	Digital Cameras	1.088	Not Utilized
5	Phone	2.253	Not Utilized
6	Video Recorder	1.100	Not Utilized
7	Projector	1.584	Not Utilized
8	I-pad	1.207	Not Utilized
9	Audio Tapes	1.173	Not Utilized
10	Smart Board	1.219	Not Utilized
11	Scanners	1.592	Not Utilized
12	Electronic Typewriters	1.669	Not Utilized
13	Flash Drives	2.019	Not Utilized
14	Printers	2.423	Not Utilized
15	Television	1.376	Not Utilized
16	Power Point Software	1.807	Not Utilized
17	Photocopying Machine	2.223	Not Utilized
18	CD Writers	1.323	Not Utilized
19	Radio	1.403	Not Utilized
20	Projection Screen	1.446	Not Utilized

A cut-off score of 2.50 was used as the baseline for determining participants' responses since the questionnaire items were structured in a four-response-type. Therefore, items found with mean scores equal or above 2.50 were remarked as 'Utilized' E-learning facilities for the teaching of vocational and technical education while items with mean scores below 2.50 were 'Not Utilized'.

From Table 4.2, the mean score of the items is below 2.50. This implies that all E-learning facilities such as printers, photocopying machines, desktop computers, laptop computers, phones, electronic typewriters, scanners, power points, software projection, screen projectors, internet facilities, radio, television, smart boards, video recorders, CD writers, I-pads, audio tapes and digital Cameras among others are not utilized for the teaching of vocational and technical education teachers.

4.5 Research Question III

What is the perception of students towards e-learning resources usage in teaching Vocational and Technical education in Technical Colleges of Niger State

4.5.1 Perception of Students towards E-Learning

Table 4.3: Perception of Students towards E-Learning

S/NO	Perception About E-Learning	SA		A		D		SD	
		F	%	F	%	F	%	F	%

1	E-learning offers the possibility to efficiently manage my time.	71	29.6	119	49.6	37	15.4	13	5.4
2	E-learning is not efficient teaching method	54	22.5	75	31.2	99	41.2	12	5
3	E-learning is a learning environment which needs advanced technical knowledge to use	125	52	97	40.4	16	6.6	2	0.8
4	E-learning guarantees learning flexibility	83	34.6	111	46	40	16.7	6	2.5
5	E-learning reduces students' educational cost	47	19.6	77	32	90	37.5	26	10.8
6	Students need to be trained before they undergo any e-learning activity	104	43	101	42	29	12	6	2.5
7	E-learning is a waste of students precious time and energy	29	12	35	14.6	135	56	41	17
8	Students who use e-learning materials need to be updated with the latest trends in technology	134	55.8	90	37.5	14	5.8	2	0.8
9	E-learning is as an assisted learning tool.	114	47.5	112	46.7	12	5	2	0.8
10	Use of online learning methods makes learning easier to students.	74	30.8	93	38.8	62	25.8	11	4.6
11	There is effective communication between the lecturer and the students with the help of e-learning	54	22.5	72	30	93	38.8	21	8.8
12	Use of e-learning increases students creativity	76	31.7	103	42.9	51	21	10	4.2
13	E-learning is seen as a self-paced learning environment	72	30	131	54.6	34	14.2	3	1.3
14	The e-learning environment improves my thinking skills	74	30.8	112	46.7	45	18.8	9	3.8
15	The e-learning environment enhances my problem-solving skills	47	19.6	107	44.6	74	30.8	12	5
16	I like the instructor's help and suggestions in the e-learning environment	55	22.9	109	45.4	63	26	13	5.4
17	E-learning cannot work in Nigeria	56	23	45	18.8	102	42.5	37	15.4

Table 4.3 shows the result of analysis on students' attitudes toward e-learning. The result shows that majority of the students 49% agreed that e-learning offers the possibility to efficiently manage their time, 52% of the respondents strongly agreed that e-learning is a learning environment which needs advanced technical knowledge to use, 46% of the respondents agreed

that e-learning guarantees learning flexibility, 43% strongly agreed that students need to be trained before they can undergo any e-learning activity, 55.8% strongly agreed that students who use e-learning materials need to be updated with the latest trends in technology, 47.5% strongly agreed that e-learning is as an assisted learning tool, 38.8% agreed that use of online learning methods makes learning easier for students, 42.9% agreed that the use of e-learning increases students' creativity, 46.7% of the respondents agreed that use of e-learning increases students' creativity, 54.6% agreed that e-learning is a self-paced learning environment, 46.7% agreed that e-learning environment improves their thinking skills, 44.6% agreed that e-learning environment enhances their problem-solving skills and 45.4% of the respondents agreed that they like the instructor's help and suggestions in the e-learning environment.

Table 4.3 shows the result of analysis on students' perceptions toward e-learning. The result shows that majority of the students 49% agreed that e-learning offers the possibility to efficiently manage their time, 52% of the respondents strongly agreed that e-learning is a learning environment which needs advanced technical knowledge to use, 46% of the respondents agreed that e-learning guarantees learning flexibility, 43% strongly agreed that students need to be trained before they can undergo any e-learning activity, 55.8% strongly agreed that students who use e-learning materials need to be updated with the latest trends in technology, 47.5% strongly agreed that e-learning is as an assisted learning tool, 38.8% agreed that use of online learning methods makes learning easier for students, 42.9% agreed that the use of e-learning increases students' creativity, 46.7% of the respondents agreed that use of e-learning increases students' creativity, 54.6% agreed that e-learning is a self-paced learning environment, 46.7% agreed that e-learning environment improves their thinking skills, 44.6% agreed that e-learning environment

enhances their problem-solving skills and 45.4% of the respondents agreed that they like the instructor's help and suggestions in the e-learning environment

4.6 Research Question IV

What is the attitude of students toward the use of e-learning resources in Niger State technical college

Table 4.4: Attitude of Students towards E-learning

S/NO	Attitude of Students Towards E-learning	SA		A		D		SD	
		F	%	F	%	F	%	F	%
1	I dislike the idea of using e-learning tools	43	17.9	56	23	117	48.8	24	10
2	I have a generally favorable attitude towards using e-learning tools	57	23.8	123	51	50	20.8	10	4.2
3	I believe it will be a good idea to use e-learning tools	78	32.5	106	442	47	19.6	10	4.2
4	Using e-learning tools is a foolish idea	25	10.4	50	20.8	117	48.8	49	20.4
5	If available, I intend to use e-learning tools during the semester	66	27.5	94	39.2	64	26.7	17	7
6	If available, I intend to use e-learning tools as frequently as possible	59	24.6	91	37.9	77	32	14	5.8
7	If available, I intend to use e-learning tools whenever possible for my coursework.	68	28	119	49.6	14	5.8	14	5.8
8	I feel confident in using e-learning tools	60	25	110	45.8	55	22.9	16	6.7
9	I enjoy using ICT for my studies	75	31.3	108	45	51	21.3	7	2.9
10	I believe that e-learning gives me the opportunity to acquire new knowledge	84	35	111	46.3	37	15.4	9	3.8
11	I believe that convince is an important feature of e-learning	85	35.4	120	50	31	12.9	5	2.1
12	E-learning increase the quality of learning because it integrates all forms of media	75	31.3	127	52.9	31	12.9	8	3.3
13	I would be interested in studying courses that use e-learning	52	21.7	121	50.4	53	22	15	6.3
14	Adopting ICT and e-learning allows for increased student satisfaction	58	24.2	115	47.9	53	22	15	6.3
15	I will never participate in e-learning	24	10	38	15.8	120	50	59	24.6

Table 4.4 shows the result of analysis on students' attitude towards e-learning. Majority of the respondents 51% agreed that they have generally favourable attitude towards using e-learning tools, 44.2% agreed that it will be a good idea to use e-learning tools, 39.2% agreed that if available, they intend to use e- learning tools during the semester, 49.6% agreed that if available, they intend to use e-learning tools whenever possible for their coursework, 45.8% agreed that they feel confident in using e-learning tools, 45% of the respondents agreed that they enjoy using ICT for their studies, 46.3% agreed that e-learning gives them the opportunity to acquire new

knowledge, 50% of the respondents agreed that convenience is an important feature of e-learning, 52.9% agreed that E-learning increases the quality of learning because it integrates all forms of media, and 47.9% agreed that adopting ICT and e-learning allows for increased student satisfaction.

4.7: Research Question V

What are the challenges faced by students in the use of e-learning resources to learn Vocational and Technical education in Niger State Technical Colleges?

Table 4.5: Challenges faced by students in the use of E-learning resources

ITEMS	N	VO	MO	LO	NAA	Mean	Std. Deviation	Remark
Network downtime	319	168	83	51	17	1.73	0.91	Moderately often
Slowness when downloading	319	131	77	41	70	2.15	1.18	Less often
Vendor upgrades	319	121	93	66	39	2.07	1.03	Less often
Slow computers	319	177	73	51	18	1.71	0.92	Very often
Load-shedding	319	101	99	73	46	2.20	1.04	Not atall
Off-campus access problems	319	131	111	55	22	1.89	0.92	Less often
Lack of usage	319	89	131	79	20	2.09	0.87	Less often
High cost of subscription fees	319	131	126	39	23	1.85	0.89	Less often

Very Often (**VO**), Moderately Often (**MO**), Less Often (**LO**), and Not At All (**NAA**)

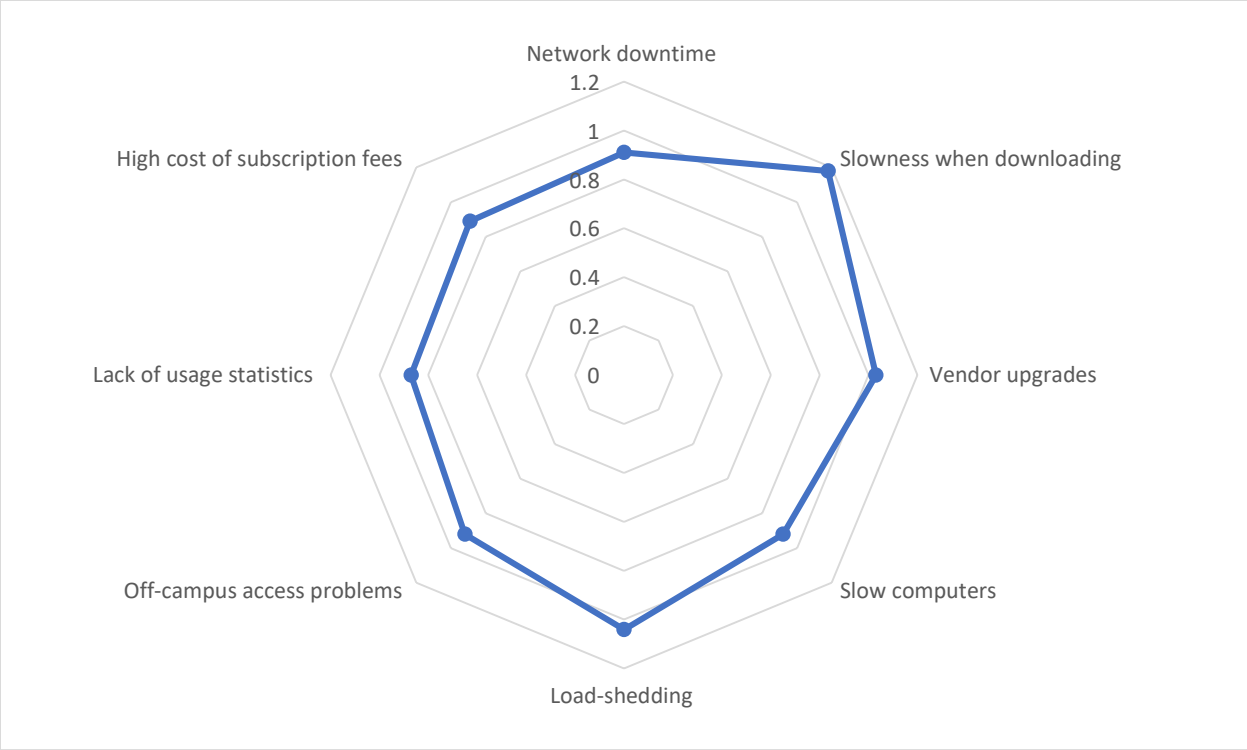

Figure 4.4: Level of the challenges faced in using e-learning resources

Table 4.5 shows the rate at which some problems were encountered when accessing the e-learning resources. It was observed that Slow computers as a challenge faced toward the use of E-learning facilities is very often followed by Network downtime with the mean value of 1.7398 and the standard deviation 0.91357 which is moderately often faced when using the e-learning resources in colleges of education. Slowness when downloading has the mean value of 2.1567 and standard deviation of 1.18184, Vendor upgrades with the mean value of 2.0721 and standard deviation 1.03605, Off-campus access problems with the mean value of 1.8997 and standard deviation of 0.92279, Lack of usage statistics with the mean value of 2.0940 has the standard deviation of 0.87807 and High cost of subscription fees with the mean value of 1.8558 and the standard deviation of 0.89613 are challenges being faced less often when accessing the e-learning facilities respectively. It was lastly observed that Load shedding with the highest mean

value of 2.2006 and standard deviation of 1.04183 is not a challenge faced when using the e-learning resources.

4.8 Discussion of Findings

Findings from this study revealed that the available E-learning facilities for the teaching vocational and technical education in technical colleges in Niger State are printers, photocopying machines, desktop computers, laptop computers, phones, electronic typewriters and scanners. However, facilities such as power points, software projection, screen projectors, internet facilities, radio television, smart boards, video recorder, cd writers, i-pads, audio tapes and digital cameras, are E-learning facilities that were not available for the teaching and learning of technical colleges students in vocational and technical education.

The finding also revealed that E-learning facilities such as printers, photocopying machines, desktop computers, laptop computers, phones, electronic typewriters, scanners, power points, and software among others are not utilized for the teaching and learning of vocational and technical education in technical colleges. The finding also shows that no significant difference exists in the utilization of E-learning facilities for teaching vocational and technical education.

This means that teachers' qualification status does not matter in the use of E-learning facilities to support their classroom instructions. Another finding revealed that there was no significant difference in the utilization of E-learning facilities for teaching vocational and technical education teaching experience.

The study also revealed the attitude of students toward e-learning. The results revealed positive attitude of students towards e-learning. They have generally favorable attitude towards using e-learning tools and they agreed that they will use e-learning tools if made available. This finding is in agreement with that of Adewole-Odeshi (2014) which reported that students have a positive

attitude towards e-learning because they find the system easy to use and useful for their course work. This finding is also emphasized by that of Nassoura (2012) which pointed out that many students had positive attitudes towards e-learning because it had a positive impact on their motivation as well as self-esteem.

CHAPTER FIVE

5.0 CONCLUSION AND RECOMMENDATIONS

5.1.Summary of the Study

Vocational and Technical education which is expected to be an interesting practical vocational skill is posing a great treat to many students nowadays, some have already developed phobia because of their consistent poor achievement on assessment or repeated failure in external examinations. This study investigates the accessibility, availability and attitudes towards e-learning resources for teaching vocational and technical education among students of technical college in Niger State. The finding revealed that E-learning facilities such as printers, photocopying machines, desktop computers, laptop computers, phones, electronic typewriters, scanners, power points, and software among others are not utilized for the teaching and learning of vocational and technical education in technical colleges. The finding also shows that no significant difference exists in the utilization of E-learning facilities for teaching vocational and technical education.

5.2 Implication of the Study

The positive attitudes and the willingness of students to engage in e-learning suggest that there is a great potential for e-learning initiatives in technical colleges. The findings of this study could serve as a predictor of the attitudes of future students towards e-learning. They can be considered as a source of information for academics, administrators, researchers and decision-makers involved in planning, design, implementation and promotion of e-learning in Nigeria.

However, for e-learning to be widely accepted in technical colleges in Niger State, there is a need for the provision of appropriate training at different levels, the development of expertise in e-learning use, and research to gather data and inform future developments. These are important tasks that require substantial attention and great effort from the government to ensure the development of adequate awareness, positive attitudes, and improved motivation towards e-learning.

5.3 Contribution to Knowledge

This study empirically establishes that: Students exposed to e-learning resources performed significantly higher than the students who were taught without e-learning materials. There is significant difference in the retention ability of students taught with e-learning resources and e-learning resources enhance students learning ability.

5.4 Conclusion

Based on the findings from this study, it can be concluded that most E-learning facilities were inadequate in technical colleges in Niger State and those that are available were not utilized effectively by teachers in the teaching environment. In addition, teachers' qualification and years of teaching experience do not influence the level of utilization of vocational and technical education teaching. The findings of the study have far reaching implications for e-learning in technical colleges. The COVID-19 pandemic is making the educational sector to look inward. Institutions are now embracing e-learning which serves as alternative to the face-to-face contact learning thereby helping the institutions cover gaps the pandemic have on the institutions academic calendar. The study revealed that though the students have positive attitude towards e-learning, e-learning in Nigeria is bedeviled with numerous challenges. The study investigate the

accessibility, availability and attitudes towards e-learning resources for teaching vocational and technical education among students of technical college in Niger State, Nigeria.

5.5 Recommendations

Based on the findings of this study, the following suggestions were proffered;

1. Every school authority should seek for assistance from companies, nongovernmental organizations and private individuals for the provision of E-learning facilities. School authorities should also provide enabling environments such as competent teachers,
2. Regular supply of electricity and internet facilities for the utilization of E-learning in order to improve students' achievement.
3. Vocational and technical education teachers should be given proper training on how to use as well as maintain E-learning facilities in their various schools in order to equip students with the necessary skills and knowledge that will enable them optimize learning in a fast changing world.
4. Workshops should be organized for the physics teachers irrespective of their teaching experience so to acquaint them with the use of electronic learning facilities for enhanced teaching performances.

5.5 Suggestions for Further Research

The following suggestions for further studies were made:

(i) Similar study should be carried out using other departments in technical colleges with view to identifying students' problems.

(ii) Research should be carried out on the adequacy of e-learning resources in various technical colleges learning strategy in other subject areas to authenticate the validity of its use

(iii) Research should be carried out on the attitude of teachers towards the use of e-learning resources

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APPENDIX

FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA.

DEPARTMENT OF INDUSTRIAL TECHNOLOGY EDUCATION

Topic:

ACCESSIBILITY, AVAILABILITY AND ATTITUDE OF VOCATIONAL AND TECHNICAL EDUCATIONAL STUDENTS TOWARDS E-LEARNING IN TECHNICAL COLLEGES OF NIGER STATE

A project work is proposed to be done on the above topic in pursuit of a Degree in Industrial Technology Education. The aim of this survey is to obtain useful information needed for the success for the research. All information obtained would be treated with utmost confidentiality and respect for this research work only.

JOHN, Daniel 2014/1/52561TI

Instruction: Fill in the blank spaces or tick where it applies.

1. Gender (a) Male ☐ (b) Female ☐
2. Age (a) Less than 20 years (b) 21-25 years (c) 26-30 years (d) Above 30 years
3. Do you have interest in e-learning resources (a) yes ☐ (b) No ☐
4. Which method of teaching do you prefer (a) E-learning (b) Traditional learning (c) Not interested in e-learning

5. How frequently do you think e-learning in your school are used?

   (a) Daily (b) 2-3 times a week (c) Once a week (d) 2-3 times a month (e) Once a month
6. How can you rate the level of use of e-learning resources in your school?
   (a) Very high (b) High (c) Low (d) Very low
7. Based on your opinion, what are the advantages of e-learning

Advantages	Thick
Learning from own home	
Everything in the same place	
Easy access to information	
No fixed terms of learning	
Freedom in choosing teaching materials	
Possibility of repetition if necessary	
Lower cost of studying	
Favourable for people with restricted mobility	
Special ideas	

8. What are the disadvantages of e-learning according to your opinions

Disadvantages	Thick
No direct communication with teachers	
No direct communication among students	
No interaction	
Loneliness, depression	
Costs of Internet	
No compulsion for learning	
Working long hours on the computer can be harmful	
Loss of tradition	
Special ideas	

9. Rate your Attitude towards e-learning resources

	Statement	SA	A	D	SD
11	E-learning is very economical for educational institutions to adopt.				
12	I believe using e-learning will improve the quality of my work.				
13	Computers make work more interesting.				
14	I prefer reading articles in e-learning.				
15	It is easier to revise electronic educational materials than printed material				

16	I feel uncomfortable reading a text book on a computer screen than a physical text book.	
17	E-learning requires expensive technical support.	
18	E-learning reduces quality of knowledge attained.	
19	Interacting with the computer system is often frustrating.	
20	A face-to-face method is more learner-centred than E-learning methods.	
21	I believe using e-learning technologies will improve my learning ability	
22	Communicating through social networks is fun.	
23	I like reading magazines on new technology innovations.	
24	E-learning increases learners' social isolation.	