EMERGENCE OF COVID-19 PANDEMIC IN NIGERIA AND ITS EFFECTS ON TECHNICAL EDUCATION

BY

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2016/163769TI

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A RESEARCH PROJECT SUBMITTED TO THE DEPARTMENT OF INDUSTRIAL AND TECHNOLOGY EDUCATION FEDERAL UNIVERSITY OF TECHNOLOGY MINNA
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DECLARATION

I SALIHU SHAMSUDEEN with matriculation number 2016/163769TI an undergraduate of the Department of Industrial and Technology Education certify that the work embodied in this project is original and has not been submitted in part or full for any Diploma or Degree of this or any other university.

SALIHU SHAMSUDEEN   _____

2016/163769TI   **Sign and Date**

CERTIFICATION

This project has been read and approved as meeting the requirement for the award of B.Tech in (Metal work Technology) Education, Industrial and Technology Education, School of Science and Technology Education, Federal University of Technology Minna, Niger State.

Dr. Hassan, A. M   _____
Supervisor   Signature & Date

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Head of Department   Signature & Date

                                                                              _____
External Examiner   Signature & Date

DEDICATION

This research work is dedicated to Almighty Allah for His grace, protection and good health throughout my undergraduate program in Federal University Of Technology Minna.

ACKNOWLEDGMENT

In the name of Allah the beneficent the merciful, Allah to whom all the praise and thanks be to. Lord of mankind, in and all that exist. The most Gracious, the most merciful, the only owner and the only ruling judge of the day of the recompense. May the peace and blessing of Allah be upon our noble Prophet Muhammad (S.A.W).

I wish to express my profound gratitude to my project supervisor in person of Dr. Hassan Abdullahi Muhammad for his guidance, correction and support.

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ABSTRACT

The study aimed to assess the emergence of covid-19 in Nigeria and its effect on technical education. Three research questions with one null hypothesis was formulated and guided the study. Descriptive survey research design was used for this study. The study was carried out technical colleges in Minna metropolis, Niger state. The population for the study consists of 80 respondents comprising 70 technical teachers and 10 principals. There was no sampling since the population was small and manageable. The instrument was validated by three lecturers in the department of Industrial and Technology Education, Federal University of Technology, Minna. The instrument that was used for the data collection was administered to the respondents by the researcher and three research assistant in the study area. Data collected was analyzed using mean and standard deviation for the research questions while t-test was used to test the hypothesis at the 0.05 level of significant. From the findings, it revealed that the School is completely closed during this lockdown, Student experience difficulties schooling/learning from home. The findings also reveal the result on the findings on the challenges posed by Covid-19 on technical education. The findings shows that School closure during the COVID-19 lockdown, Difficulties in utilizing a school/learning program online. Based on the findings, the study conclude that the Technical education in Nigeria are designed and aimed at providing skills necessary for securing employment in the industry or be self-employed. Based on findings, it is recommended that the Federal Ministry of Education department in charge of technical education should liaise with private and public technical schools' administrators to see that use of eLearning in learning is fully implemented in schools' curriculum among others.

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CHAPTER ONE

INTRODUCTION

1.1   Background to the study

Education is a means of self-development through learning, knowledge, skills, and habits conveyed across generations. The importance of education for the economic, social and moral development of nations cannot be under-estimated. The importance of education to human development has been well documented, highlighting the catalytic roles of education in national and human capital developments (Fägerlind & Saha, 2016). Technical education is an arm of education in Nigeria.

Technical colleges level for the purpose of enabling students to acquire further knowledge and develop skills. It exposes students to career opportunity by exploring usable options in the world of work, and enable youths to have an intelligent understanding of the increasing complexity of technology. Recognizing the importance of Technical education in general and metalwork in particular, in National Development of Nigeria, Federal Ministry of Education, (2014) listed metalwork as one of the subjects to be studied at all levels of educational institutions. Metalwork is also one of the subjects for which specialist teachers should be provided at all educational levels. The inclusion of metalwork at technical institutions prepares minds of youngsters to the opportunity for technological development. Students that completed technical college programmes according to FGN, (2014) shall have the opportunity to secure employment either at

the end of the whole course or after completing one or more modules of employable skill. Also, the student could be able to set up their own business and become self-employed and be able to employ others and in addition pursue further education in tertiary institutions like Monotechnics, Polytechnics or Colleges of Education (Technical). The goal of Technical education that starts from Technical colleges according to Awo (2016) is to produce trained manpower in technology and be equipped with knowledge in craft, advance craft, with Technical knowledge and vocational skills that are necessary for individual who shall be self-reliant in contemporary Nigeria. These individuals are to be guided in the vocational skill training. . It is of significant concern that education at all levels has been threatened since the emergence of the novel coronavirus disease 2019 (COVID-19).

The coronavirus disease is a highly infectious disease that has plagued the world population over the months from December 2019 till date. The disease spread through droplets (World Health Organization, 2020) and has affected more than 9.1 million persons, and resulted in about 473,000 deaths worldwide (Aljazeera News, 2020) as at the time of writing this paper. As a result, countries have relied on several containment measures, including a range of physical and social distancing measures to flatten the epidemiological curve and avert morbidity and mortality due to COVID-19 (Barasa et al., 2020; Viner et al., 2020).

Different countries have engaged in various measures to implement physical distancing, such as complete closure of the economy, including educational institutions (Nicola et al., 2020; UNESCO, 2020). The pandemic is affecting all levels of the education system, from pre-school to higher education, in a manner that is of irreparable educational and economic implications (Lindzon, 2020). For instance, a four-week school closure in New York City translated to an economic impact of about $10.6 and $47.1 billion (Lindzon, 2020). A 12-week nationwide school closure cost 1% of GDP (Araz et al., 2012), while protracted closures could cost 3% of UK GDP (Keogh-Brown et al., 2010).

Though school closure is intended to control the spread of the virus within schools, prevent carriage to other vulnerable individuals, and sustain public health, these closures have had widespread socioeconomic impacts (Lindzon, 2020). Furthermore, the far-reaching effects of social/physical distancing and the associated lockdown measures, as well as school closures, have thwarted the education sector and are expected to leave an indelible mark on the education system (Yinka & Adebayo, 2020). Over 188 out of 195 countries have been implementing nationwide school closures and restricted education facilities (Nicola et al., 2020; UNESCO, 2020). It is estimated that more than 1,576, 021, 858, which constitute about 91.3% of all the learners across the globe, have been affected by the closure of educational institutions (Fong et al., 2020; Nicola et al., 2020; Sadique Adams & Edmunds, 2008; Brown et al., 2011; UNESCO,

2020). Apart from the impact on learners, school closures have high economic, health and social costs (Cauchemez et al., 2009; Brown et al., 2011; Wu et al., 2010).

Timely responses have been in place in most countries, such as Australia, Italy, Germany, Hong Kong, with regard to online learning before the pandemic (Crawford et al., 2020). Yet, researchers have shown that the pandemic has posed significant challenges to education in such countries (Crawford et al., 2020). Hence, it is expected that the pandemic would have a more adverse effect on schools that had no online learning platforms before the pandemic (Zhong, 202; Kachra & Brown, 2019). Zar et al. (2020) pointed out that the indirect effects of the pandemic include disrupted schooling and lack of access to school, more especially in low and medium-income countries.

In low and medium-income countries, the impact of COVID-19 is particularly threatening to education given that education systems have been working on substandard platforms (Dan-Nwafor et al., 2020; Yinka & Adebayo, 2020). It is also challenging in overcrowded resource constrained schools in these regions to provide a safe learning environment for students (Zar et al., 2020). The pandemic has a peculiar dissipating impact on education in Africa and other countries through decreased level of education, broadened existing divide in learning access and outcomes and increased school dropouts (Blundell et al., 2020; Dorn et al., 2020). In Nigeria, the threat posed to education is compounded due to peculiar vulnerabilities, including poor

health systems, poverty and inequality, hunger, internally displaced populations, high population densities, urban-rural divide and out-of-school population (Obiako & Adeniran, 2020). Prior to COVID-19, Nigeria accounts for one in every five of the world's out-of-school children. About 10.5 million children aged 5-14 years in Nigeria were out of school, and only about 61 % of 6 to 11-year-old children receive primary school education on a regular basis (UNICEF Nigeria, n.d.). Hence, while Nigeria is battling with underlying educational challenges that have kept the country behind in getting young people ready for the dynamic workplace (Dan-Nwafor et al., 2020; Obiako & Adeniran, 2020; Yinka & Adebayo, 2020), COVID-19 impacts further exacerbate this problem. It is against this background that this study sought to determine the emergence impact of covid-19 on technical education.

1.2   Statement of the Problem

Since the first case of the novel coronavirus (COVID-19) was announced in Kenya, many aspects of society and the education sector have been dramatically affected. On March 15th 2020, the Kenyan government closed all learning institutions countrywide to contain the spread of the virus. As the numbers of those infected by coronavirus rose to over 8,000, the ministry of education announced on July 7th that, the 2020 school calendar year will be considered lost due to COVID-19 restrictions. This announcement has repercussions for over 17 million students across the country whose learning has been thrown into limbo threatening the loss of education gains and the implementation of a new competency based curriculum (Simba, Sinha, Mburugu, Agweyu, Emadau, Akech & English, 2020).

The education sector worldwide has greatly been impacted negatively by corona virus crisis, the republic of Kenya included. This is because teaching and learning activities in all learning institutions have severely been disrupted. The worst hit learners are the primary and secondary school candidates who should sit for their national examinations at the end of 2020.

As part of measures to contain the spread of COVID-19 in Nigeria, the Federal Ministry of Education, through the Permanent Secretary in the Ministry, on March 19th ordered the immediate closure of tertiary institutions, secondary and primary schools across the nation over the outbreak of the disease in the country. In addition to this, restriction was placed on interstates movement, market places were locked, religious gatherings of more than 10 persons were banned, social activities such as parties, ceremonies and club meetings etc. were placed on hold. All public and private schools have to shut the doors of their schools following the government directive. The pandemic has unmasked substantial inequities in the education sector. While some private schools in urban areas are engaging their students through online teaching, a large number of students who are less privileged or are in rural areas were left out. Most schools lack facilities which hindered them to partake successfully in online teaching like they do in the developed countries. The process of effective teaching and learning in TVET was drastically hindered because of the difficulty teachers faced in providing practical training virtually, and delivering lectures under limited access to the internet and devices. Today, TVET teachers and students have been struggling with virtual and distance instructional delivery processes, which was introduced suddenly under the new norm of lockdown and social distancing Madu and Edokpolor (2021). The implication is that TVET programmes faced a significant challenge of providing practical skills training using tools and machines through virtual training. It is

against the above problem that this study sought to assess the Emergence Impact of covid-19 on technical education in Minna metropolis Niger state.

1.3   Purpose of the Study

The purpose of this study is to assess the Emergence Impact of covid-19 on technical education in Minna metropolis Niger state. Specifically this study will determine:

1. The impact of Covid-19 pandemic on technical college's students
2. The challenges posed by Covid-19 on technical education
3. Impact of Government Intervention on COVID-19 Pandemic in technical education.

1.4   Significance of the Study

The study would be of benefit to the following: - the students, teachers, Ministry of education, parent and society.

The findings of the study will be of benefit to the students as it will enable them to know how to cover up for the setback caused by covid-29 pandemic and also be able to know the best strategies for learning in with a new advanced technology.

Technical teachers will also benefit from the findings of the study as it will be an eye opener for them in areas which they need to improve on and strategies for continuous education.

The finding of the study will help the ministry of education to develop a better approach to teaching and learning that will help technical college student to learn both practical and theory any time.

Parent and society will benefit from the findings of this study as it will enable them to know better ways of giving their children an uninterrupted education,

1.5   Scope of the Study

The study will be carried out to determine assess the Emergence Impact of covid-19 on technical education in Minna metropolis Niger state. This study will cover the effect of covid-19 pandemic school closure on student and teachers and the activities the students engage in to during the school closure that help them learn better.

1.6   Research Questions

The following research questions will guide the study;

1. What are the impact of Covid-19 pandemic on technical college' s students?

2. What are the challenges posed by Covid-19 on technical education?

3. What are the Impact of Government Intervention on COVID-19 Pandemic in technical education?

1.7   Hypotheses

The following null hypotheses formulated will be tested to guide the study at 0.05 level of significance.

H_{01} There is no significant difference in the mean responses of principals and technical teachers on the impact of Covid-19 pandemic on technical college' s students.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

The review of related literature to this study is organized under the following subheadings:

2.1 **Theoretical Framework**

2.1.1 Theory of Social Constructivism

2.2 **Conceptual Framework**

2.2.1 Technical and vocational education in Nigeria

2.2.2 Importance of Technical and Vocational Education

2.2.3 COVID 19 Pandemic in Nigeria

2.2.4 Teaching and learning during COVID-19.

2.2.5 Impact of covid-19 pandemic on teaching and learning of STVE.

2.2.6 Innovative approaches to teaching STVE during and after pandemic

2.3 **Related Empirical Studies**

2.4 **Summary of Review of Related Literature**

2.1   Theoretical Framework

2.1.1   Theory of Social Constructivism

Social Constructivism theory explains teaching and learning as social phenomena between teachers and learners (Taguma, Feron, & Lim, 2018). It is a clear departure from the idea that teachers are custodians of knowledge, instead the theory considers teachers as facilitators in the learning process (I Zawacki-Richter et. al., 2019). Advocates of this theory believe that learning is about finding solutions to problems and that the social construction of solutions is the essence of the learning process (Picciano, 2017). In other words, problem-solving through collaboration is the primary objective of social constructivism. Many social media solutions developed for collaborations are leveraged in this COVID-19 pandemic and social distancing era. In the view of social constructivist, teachers could develop social relationship with their students to support their remote learning during the school closure.

Connectivism is often referred to as the learning theory for the digital era, as it describes how people learn in today's "technology-driven" society (Shrivastava, 2018). The theory is based on the premise that the older learning theories – behaviourism, cognitivism, and constructivism– are inadequate to explain how learning happens in the present technology-driven era (Siemens, 2005). While the older theories are anchored on the idea that learning occurs inside a person, the connectivist metaphor presents the notion that technology has now made it possible for learning to happen outside of a person's brain and may be stored in a variety of digital formats (Shrivastava, 2018) – such as databases. According to Siemen (2005), knowledge does not only reside in the mind of a person but it in a distributed manner across a network. An information network contains several nodes - a node is a learning community that

serves as a cluster of similar interests that allow for interaction, sharing, debating, and thinking together (Elmohamady & Azmy, 2016,).

2.2 Conceptual Framework

2.2.1 Technical and vocational education in Nigeria

Technical and Vocational education programme in Nigeria evolved in response to technological and industrial needs of the people. Technical and vocational education is a type of training that borders on the acquisition of knowledge and skills in occupational trades such as woodwork, metalwork, electrical/electronics, welding and fabrication, building, auto-mechanics, etc., including workshop organization and management. According to Abassah (2011), there are five technical institutions in Nigeria outside the universities namely- pre-vocational and vocational schools at post primary level (Technical Colleges), Polytechnics and Colleges of Education (Technical) at the post-secondary level established to provide a base for technological take off of the country.

According to Jacob (2006) during the Colonial era little emphasis was placed on technical and vocational education to produce individuals that were adequately skilled, confident and properly oriented towards self-reliance. Jacob further attributed the low attention to technical and vocational education to the high level of youth unemployment till date. However, as reported by Nworise (2006) attempts were made by government to introduce vocational and technical education into the school system as far back as 1847 with the recommendation of the Privy Council to the Colonial office. The committee recommended among other things that Nigerian schools should:

i. Provide a channel of improving the conditions of the peasantry by educating them how health may be well-maintained by appropriate nutrition, hygiene, airing and clothing;

ii. Give practical training in household economy and in the cultivation of the cottage garden as well as those common hand crafts by which a labourer may improve his/her domestic comfort.

iii. Provide improved agriculture to replace the system of exhausting the virgin soil and leaving it to natural influence to repair.

The Federal Government of Nigeria (FGN) in her National Policy on Education FGN (2014) stated that the curricula activity for Technical Colleges is structured in foundation and trade modules, with the trade modules consisting of five components. These five components or elements include: General Education; Theory and Related Courses; Workshop Practice; Industrial Training/Production Work and Small Business Management and Entrepreneurial Training.

According to Osami (2013) in the traditional period vocational programmes included: metal smelting, weaving (cloth and mat), dyeing, pottery, leather work, bead making, wood carving and canoe carving, artistry, agricultural activities, singing and dancing. Others included: music, hair styling, tattoo or body art and hunting. He further added that the recent vocational curriculum which has been enlarged includes carpentry and joinery, furniture making, baking, shoe making and repairs, dress making, sign writing, photography, metal work, hairdressing, fashion design, fabrication, motor mechanic work and electronic servicing. Other subjects include: mechanical engineering, building, home economics, advanced agriculture and secretarial accounting work.

Achieving the goals stated in the national policy will be impossible if the students are not properly trained; it is in this light that Adebesin (2013) contends that effective training can only be accomplished in a conducive environment adequately equipped with the necessary requirements. According to Osam, such requirements include qualified and adequate numbers of teachers, well equipped workshops and laboratories with modern tools and equipment. Clarke (2007) argues that effective implementation of any educational programme requires the provision of human and material resources made available to the institution of learning.

Technical Colleges have continued to train youths for the acquisition of requisite skills or competence or mastery of skills in various occupational trades. The Federal Government of Nigeria (2014) reported that technical and vocational education is that form of education which is obtainable at the technical colleges. Ekezie (2019) also stated that now in Nigeria, the need for the development of vocational education that takes place in Technical Colleges and skill acquisition centres has become imperative, taking cognizance of their relevance to the socioeconomic manpower development of the nation. Technical College is a post junior secondary school (JSS) institution designed to provide individuals with vocational-technical instruction and skills in a particular trade or occupation. It is equivalent to senior secondary education but designed to prepare individuals to acquire practical skills, basic scientific knowledge and attitudes required as craftsmen and technicians at sub-professional level. According to Federal Government of Nigeria, (2014), Technical Colleges are saddled with the task of providing, imparting or teaching practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economy and social life. As such, it should provide training on the acquisition of relevant and needed skills to meet the demand of modern commerce, technologies, related sciences and industries.

2.2.2 Importance of Technical and Vocational Education

Technical and vocational education as a means of social, economic, technological and national development has been a major debate in many spheres in Nigeria and other nations of the world (Ladipo, Akhuemonkhan, & Raimi, 2013; Ojimba, 2011; Uwaifo & Uddin, 2009). Technical and vocational education otherwise known as Technical and Vocational Education and Training (TVET) according to World Bank (2008), BesmartDigbori (2011) and Dangote (2013) is the brain behind technological advancement and economic fortune of developing countries across the globe. According to Raimi and Akhuemonkhan (2014), for Nigeria to meet with other developed nations of the world, there is a need to deploy adequate human and material resources into TVET as a worthwhile education. They further asserted that post-independence zeal towards TVET by the Nigerian government after adoption of the TVET yielded positive results. Products of TVET institutions worked as engineers, middle-level officers and technicians in a number of firms in Nigeria. Considering this promising impact of TVET, Nigeria was regarded in the early 1970s as one of the 50 rich countries in the world, but later degenerated to be one of the most poverty-ridden nations in the early 2000s (Igbuzor, 2006). This decline was influenced by many factors, among which indifference towards TVET in preference for general education is a key factor (Ojimba, 2011). As confirmed by the Federal Ministry of Education (FME) (FME 2005), in the growing population of Nigerian students, a total of 74.3 per cent chose conventional education in universities, whilst 18.71 per cent enrolled for vocational education in the polytechnics.

The preference for conventional education to vocational education triggered massive youth unemployment, growing poverty rates, hopelessness, youth restiveness and low pace of national progress in Nigeria because graduates from conventional or general education lacked the

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practical skills needed in the world of work (Raimi & Akhuemonkhan, 2014). According to the National Bureau of Statistics (2011) and the Central Bank of Nigeria, the poverty and unemployment rates in Nigeria as of recent are 72% and 23% respectively.

According to NPE (2004) and FME (2005) TVET was prescribed by policymakers as a practical education choice for re-directing the nation towards sustainable development, poverty mitigation, responsible citizenship, industrial progress and economic advancement. Considering the experiences of the Koreans and Asian Tigers whose economies were changed from regressive states to frontline nations, Dangote (2013) endorsed TVET as a necessary paradigm for Nigeria' s industrial advancement.

If TVET in Nigeria must be a tool for technological development, then it must equip its recipients with both technical and soft skills that allow for flexibility and the ability to work across a wide range of work (Caleb & Udofia, 2013). Caleb and Udofia suggests that TVET in Nigeria needs to prepare its graduates with skills that go beyond taking up immediate employment, but with skills that enhance the employability of its graduates so they can adapt to different jobs throughout their life time. This notion is in agreement with Brown and Hesketh (2004) who defined employability as the ability to secure and sustain different jobs. According to Caleb and Udofia (2013), the heart of employability lies on soft skills; these skills acts as a base for the development of industrial skills that allows for adaptability to new work environments and development of new skills while on the job. The need for a flexible workforce brought about by a dynamic environment is on the increase (Smith, Ford & Kozlowski as cited in Caleb & Udofia, 2013). Technological industries are in dire search for innovative solutions with emphasis on employees with creative skill, reasoning skills, ability to work in a group and work experience. There is a great question as to how relevant the school curriculum is to meet these

requirement outlined by industry (Caleb & Udofia, 2013). In agreement with this, is Ajufo (2013) who attributed lack of employability skills to inappropriate school curricula.

2.2.3 COVID 19 Pandemic in Nigeria

The COVID 19 pandemic emerged and spread in Nigeria in 2020 precisely in the month of February. Most of the cases recorded in Nigeria resulted from the travelers who returned from abroad within the period. They may have contacted the virus from the departed destination, on aero plane or at arrival in the airport after intermingling with the carrier patients. Nigeria is the area of study (Attah, Sambo, Sule, Bello, & Saragih, 2021). The country is located in West Africa and is one of the Sub-Saharan African countries. The country has a geographical land area in square kilometres of 983, 213 km2. The approximate population of Nigeria is 200 million based on the projection of 2006 population census. The country is currently a federal state divided into six geopolitical zones and three tiers of government, Federal Capital Territory in Abuja (FCTA), 36 states and 774 local governments areas. Politically, Nigeria operates a presidential system of government with a bi-cameral legislature consisting of the Senate and House of Representatives. The country is neighbouring Niger Republic in the North, Benin Republic in the West, Chad in the North and Cameroon Republic in the South and North (Sambo & Sule, 2021).

Nigeria is the most populous country in Africa, the seventh most populous country in the world, the tenth largest oil producing country and the biggest GDP in Africa above South Africa. Historically, Nigeria has three stages of evolution. An existence of kingdoms, chiefdoms, societies and organisations during pre-colonial period which lived independently but coordinately. The second historical epoch is the colonial period spanning the years between 1860s to 1960s in which the British colonisers occupied and colonised the territory known as

Nigeria today. The third historical stage is the post-colonial period from 1960 to date. Nigeria has recorded several political, economic, social and cultural development and issues also in its self-rule years (Sule, 2018). The global health index in 2019 reported Nigeria as one of the countries with the low level of healthcare services. The report further suggested that Nigeria' s health system is weak. This means the country may not be able to fight COVID 19 (Onwujekwe et al., 2020).

By March 26, Nigeria had already recorded over fifty (50) cases with one death from COVID. Most of the early symptoms or cases of COVID infection were reported from the Nigerian ruling class. Perhaps, this is because they are perceived as the privilege few that has the opportunities for international travels and exposure (Hruby, 2020). This submission seems valid because apart from the Chief of Staff to the President, Malam Abba Kyari, the son of former Vice President and the PDP Presidential in 2019 Candidate, Alhaji Atiku Abubakar was reported positive. Some state governors in Bauchi, Kaduna and Osun were also reported infectious. Initially, public perception of the disease was inimical and hostile. Many could not believe in the pandemic due to culture, religious influence, ignorance and loss of confidence in the political leadership of the country. It took a serious national re-orientation embarked by the media, intellectuals, religious clerics, royal fathers and the NCDC. The incidences of death reported in televisions from Spain, Italy, Iran and United States of America further helped swayed the public opinion to embrace the disease as real. This enabled for the government to secure enough support for taking the measures of response as discussed in the subsequent sections (Shaban, 2020).

The virus which was spreading slowly in Nigeria suddenly began to increase in index cases daily. From fifty (50) cases in March, Nigeria recorded 1, 300 cases by 29th April with 40 deaths. This has been attributed to the low level of testing of the Nigerian population of 200

million in consideration. This is proved by the fact that Nigeria conducted just around 12, 000 tests as at 23rd, April while Botswana, a country with a population of 10 million had conducted over 5, 000 and South Africa, with a population of around 50 million had conducted over 185, 000 around that time (Campbell & McCaslin, 2020). The situation revealed the weakness of the Nigerian response considering the way in which the numbers of index cases keep on rising daily in a geometrical scenario. By the end of May, Nigeria recorded over 8, 000 cases with more than 150 deaths (National Centre for Disease Control, 2021).

From the inception of the month of May, over 100 new cases are reported daily. This may not lack linkage with low response in terms of testing coverage and other related factors. Many infected persons might be roaming the Nigerian environment freely spreading the virus before detection and testing. To this end, this study anticipated that before the overcoming of the pandemic globally, which is unknown for now, Nigeria may report hundreds of thousands of cases or even a million or millions with thousands of deaths. This can be related to the negligence from the part of the government and the populace (Africa CDC, 2021). The government was hitherto, advised by health experts and other stakeholders to shut down the Nigerian border from international travels in January ending. However, because the children of the privileged ruling class and the ruling elites were abroad, the government failed to adopt this measure until late February when many of them returned affected. This has been established accurately if one considers the first set of the cases from the above report). The confirmed cases reported in Nigeria currently as at 10 April, 2021 is 1,803,177 samples tested, 163,652 confirmed cases, 2,059 deaths, 2, 697 deaths, 154,073 discharged cases and 7, 520 active cases. States with the highest case are Lagos and Federal Capital Territory Abuja (FCTA) (National Centre for Disease Control, 2021).

2.2.4 Teaching and learning during COVID-19

From the global perspective, concern on how learning and teaching can be organized during the COVID-19 pandemic was raised (EAEA, 2020). Responding to this concern, a recent study by Reimers and Schleicher (2020), published by the Organisation for Economic Co-operation and Development (OECD) investigated the educational responses to COVID-19, approaches adopted by countries to provide teaching and learning to students, and instructional training and development for teachers and parents during the stay-at-home period. Therefore, countries are making paradigmatic shifts, for instance; China, Japan, Malaysia, United States of America, United Kingdom, South Africa, and South Korea and other countries who are also impacted by the COVID19 virus switched over to remote teaching and learning medium (Ebner et al., 2020; Huang, R.et al., 2020; Huang, R. H. et al., 2020; UNICEF DATA). Shortly after the outbreak of COVID-19 in China, the Chinese government ordered a nation-wide closure of schools and immediately implemented an emergency home-schooling plan through the Ministry of Education (Wang et al., 2020). This plan involved delivering organized courses online and through TV broadcast. In another study, Zhang et al. (2020) reported how China launched an educational emergency management policy, entitled " Suspending Classes without Stopping Learning" (Zhang et al., 2020). The policy, which was set up to curb the spread of the pandemic by limiting in-person teaching at schools and moving over to the online learning model, (Zhang et al., 2020), also aims to integrate China' s national and local school teaching resources, provide rich, diverse, high-quality online resources for all students across the country. The policy supported teachers' online teaching and children' s online learning (Ministry of Education of the People' s Republic of China in 2020, as cited in Zhang et al., 2020). Nevertheless, there is a raging debate on how effectively this policy could be implemented, and the viability of online

learning compared to traditional in-person learning is still being contested. Furthermore, at the University of California USA, several models were adopted by a group of medical professionals to provide knowledge for surgical residents and mitigate the loss of in-Person academics and minimize mass casualty among surgical residents (Chick et al., 2020). According to Chick et al., their innovative model adopted for teaching and learning during the pandemic includes flipped virtual classroom, online practice questions, academic conferences via teleconference, telehealth clinics with resident involvement, and facilitated surgical use videos. A study revealed that most European countries are supporting education during the pandemic by providing digital content and educational materials to support online distance learning (Reimers & Schleicher, 2020). For example, in the Czech Republic, the Ministry of Education has launched a website equipped with online education tools. A similar approach is adopted in Estonia, where the Ministry of Education and Research (MoER) partners with Foundations to provide support and guidelines on distance learning to keep academic instruction ongoing. The same approach goes for Finland students, where the Finnish National Agency for Education is guiding schools to organize different kinds of flexible learning by leveraging already established online educational platforms. In France, a free pedagogical platform tagged: "My class at home" is used to provide virtual classes, making it possible to maintain the human link between students (Reimers & Schleicher, 2020).

Elsewhere in Georgia, Basilaia & Kvavadze (2020) revealed that the government-supported online distance learning by adopting online portal, TV School, and Microsoft teams for public schools and the alternatives such as Zoom, Slack, and Google Meet in some cases, were used. Their report also shows that virtual classrooms have been created for all school classes and subjects in the Microsoft TEAMS program. As reported in a study the Georgian government

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agency, Education Management Information System (EMIS), carried out several activities to support ongoing education during the COVID-19 pandemic where over 600,000 students and 55,000 teachers in public schools are actively profiled on Microsoft Office 365 for online learning (Reimers & Schleicher, 2020).

From the African perspective, statistics from UNESCO on the impact of COVID-19 on education, as of the time this study was conducted, shows that all countries in Africa except Burkina Faso had a country-wide closure of educational institutions (UNESCOb, 2020). This indicates that the impact is perceived to be more in those regions that had country-wide closure if alternative means of teaching and learning were not provided. For instance, in the case of South Africa, the study by Ojo & Onwuegbuzie (2020) revealed that some universities' decision to open their schools for online learning in April 2020 created mixed reactions among their students. Most of the students complained about several inconveniences they encountered by studying from home. The study revealed issues such as noise and disturbances from the home environment, limited Internet connection, and lack of consistent electricity, which affects their academic performance. In addition, the government of South Africa had directed that each university should make a mitigation plan, that is, online study delivery as an alternative method for teaching and learning to curb the spread of the disease (Chothia, 2020). While it seems that the devastation caused by COVID-19 on education has pushed most nations to seek an alternative for teaching and learning, South African scholars have expressed concern over the level of training and experience of educators in the pedagogy for effective delivery of online learning (Hedding et al., 2020). As part of the effort to create more opportunities to learn during the lockdown in South Africa, a study by Mhlanga & Moloi (2020) reported the launching of " STEM Lockdown Digital School." According to Mhlanga & Moloi (2020), this an initiative

where more than 34 public and private school teachers were organized to teach through a live stream on " Africa Teen Geek' s" social media pages such as Facebook, Twitter, and Ms Zora. A similar experience was reported in the northern part of Africa. For example, a report from Egypt shows that most private universities in the country switched to online teaching through Moodle, Microsoft class Notes, Microsoft Teams, email, and Zoom (Crawford et al., 2020). In Nigeria, over 39 million learners including pre-primary and tertiary students were asked to stay at home during the pandemic situation (UNESCOb, 2020). Consequently, students face barriers from accessing learning materials, receiving mentorship, counselling from teachers, and other supports that are easily made available in a face-to-face learning environment. Besides, teachers are not left out of the impact of school closure due to COVID-19 pandemic. Reports from some parts of the world suggest that teachers will experience temporary or permanent layoff during and post-COVID19 (Hernandez, 2020).

2.2.5 Impact of covid-19 pandemic on teaching and learning of STVE.

COVID-19 is a health challenge which requires drastic precautionary measures. Being a global health problem, there was lockdown and restrictions of movement in many countries of the world to curtail the spread of the pandemic and educational institutions were not exempted (Chukwuemeka et al., 2020; Falode, 2020). Although, the lockdown was put in place to curb the pandemic, it however, left teaching and learning STVE with some irreversible impacts which its implications call for the need to re-tool future educational practices. UNESCO (2020b) reported that over 100 countries that implemented school closure had many students experience disruptions of their academics. During this period, unlike developed countries, students in Nigerian schools felt the impact of physical separations from their teachers and schools in the following ways.

Disruption of Academic Activities: The Federal Government of Nigeria through the Federal Ministry of Education on March 19, 2020 ordered the closure of all schools nationwide in order to prevent the circulation of the deadly virus. The closure lasted more than the duration pronounced making the closure of schools' indefinite until a little window of reopening in December 2020. No school was able to flow in their normal routine as many activities such as students' learning; internal assessments were interrupted just to meet up with the examination. According to Ogunode et al. (2020), public assessments were cancelled while some were replaced by inferior alternative.

Termination of Academic Conferences and Exhibitions on Research Outputs: Academic programs were put on hold due to the seriousness of the pandemic. The education sector especially the science, technical and vocational education cancelled and in areas where cancellations were not possible, re-scheduled academic conferences and exhibitions on research outputs scheduled for the first quarter of the year 2020 and early 2021. Ogunode et al. (2020) reported that during the pandemic, institutions were mandated to suspend research activities involving large gatherings leading to a low turnout of academic research and exhibition work.

Loss of Workforce: The COVID-19 pandemic claimed a lot of lives while many staff quit their jobs for the fear of contacting the virus and for the safe keeping of their loved ones. According to Ogunode et al. (2020), tertiary institutions in Nigeria and others across the world recorded loss of many lecturers and great researchers to COVID-19 pandemic; a loss that is irreplaceable in a decade. These losses left laboratories deserted with no research activities going on, many reagents lost viability and laboratory animals died in the process. The loss of human workforce

coupled with social distancing practices in laboratories affected the growth and development of science, technical and vocational education in Nigerian institutions of higher learning.

Social Distancing in Laboratories and Workshops: STVE by its demand is a practical oriented education which requires collaborative approach and methodologies, interactions and the conduct of experiments in teams among scientists, technologists and researchers. Thus, the mandatory social distancing of two meters, posed limitations to physical collaboration of researchers, students and lecturers during such practical activities in laboratories and workshops.

2.2.6 Innovative approaches to teaching STVE during and after pandemic

Here were identified problems associated with STVE before the COVID-19 outbreak. The pandemic in addition to the problems on ground, added more challenges, yet teaching of STVE should continue and be better improved upon. This therefore calls for innovative approaches that could take care of the present and the unforeseen future challenges.

The teacher training received in the 1980s and 1990s need to be updated to reflect the needs of present reality. This is because, the teacher training programmes of those years could not be applicable to the reality of this period as there was no COVID-19 pandemic, neither did the method of teaching require any form of technology. However, with COVID-19 and related health challenges, teachers need to make adjustment in planning and delivering teaching through different platforms such as Zoom, Skype, and other electronic learning (Cortez, 2020). The adjustment required is in skill development, paradigmatic shift toward incorporating technology for distant interactions, meetings, conferences. The need to integrate technology in teaching and learning is in line with the UNESCO 2030 education declaration and framework for action which emphasized the need for countries to provide alternative modes of learning that would ensure

flexible learning in both formal and non-formal settings, as well as during emergency situations (UNESCO, 2020a).

COVID-19 is an emergency situation and the following are effective and flexible approaches that could be employed during and after the pandemic for teaching and learning while still maintaining standard.

Online Teaching and Learning: Online teaching/learning is an approach where online tools and resources are employed for the purpose of disseminating and acquiring knowledge. The key element to achieving this is the internet. Some of these platforms available online are www.openlearning.com, www.helphub.com, www.teachable.com, www.eliademy.com, and www.learnworlds.com among others, which allows the teacher to create contents, connect with students and experience online teaching and learning through these easy-to-use platforms. Apart from learning online, other interactions between the teacher and the students can be done online, assignment and examination at the end of the academic period can also be conducted using online facilities. The entrance examination into some tertiary institutions were conducted online during the pandemic with the candidates remaining in their homes while some institutions also successfully conducted semester examinations for students who were not at school. Online teaching and examination platforms were deployed for these exercises and would be much more needed in the future for the teaching, learning and evaluation of learning outcomes of students in science, technical and vocational education.

Social Media Platforms: Students in institutions of higher learning constitute the largest users of mobile devices (tablets and Android phones). Nearly all social media platforms for interactions can be installed on these devices which can enable the lecturer to make use of the chat feature capability on these platforms. The lecturer can create a group chat for students who

are registered for a course at a particular period. Furthermore, planned educational contents in form of texts, audio, pictures or short video clips can gradually be released to the group in bits, discussions and interactions support can be ensured and the extent of participation by all students can also be monitored by the teacher. Platforms that allow those who may not be online at a scheduled time to have access to previous discussions and posts could be given preference in order to be of benefits to individuals who could be having problems related to internet connectivity. According to Chukwuemeka et al. (2020), the adoption of WhatsApp and Facebook as well as other social media platforms has increased significantly after the pandemic because of its ability to offer access to learning resources at any time and location in various formats.

Electronic Learning: Electronic learning entails the use of information and computer technologies, systems for developing and transmitting educational knowledge through the use of various electronic devices (Coman et al., 2020). CDs, mobile phones, radio, television, and computers are useful devices that support electronic learning. Even with the advent of world wide web, the use of offline resources such as CD ROMS and prerecorded class sessions are still useful. A teacher could record his teaching and such could be packaged on CD and watched individually by students at different locations. Video camera used to be the major known tool for such recordings, but with improved computer technologies, there are several simple-to-use software that can be used by a teacher to record, edit, score and share presentations to students. Students could download, copy and watch such recordings on computer, mobile devices or through digital video disc players at home or locations of their convenience. Further clarifications and discussions on watched session can thereafter be forwarded to the teachers by the students using different available means which is not limited to e-mail, phone conversion,

WhatsApp platforms and so on. One major benefit of this is that recordings can be played back and watched over and over again until a learner is satisfied.

Learning Management Systems: Through the emergence and use of learning management systems (LMSs), many institutions have now made their teaching and learning internet-based. LMSs are web-based platforms for delivering quality online teaching which allows students to interact with educational contents, instructional providers as well as other learners (Angelova et al., 2015; Chukwuemeka et al., 2015; Falode et al., 2018). Popular LMSs include, Canvas, Moodle, Blackboard, WizIQ, D2L, eCollege, Sakai, Amazon Web Services Talent, HotChalk, and WizIQ (Dobre, 2015; Shakeel & Ijaz, 2011). Through a dedicated LMS, the entire academic activities meant for a specified class of learners can be completed online. Students can complete their course registration, receive instructional contents, interact with instructors and colleagues, attend to assignments and test, manage their schedules, monitor and track their academic progress (Chukwuemeka et al., 2015). The COVID-19 pandemic leading to closure of many schools spurred several educational institutions to accept and adapt suitable LMS to their students' needs, of which has encouraged teaching, learning, and also having exams taken without any hindered.

Printed Courseware: Courseware refers to computerized learning material or other material designed on a specific discipline for use in an educational course or training. It is usually written and presented in a structured and sequential format in such a way that the end-user (learner) will feel that the writer directly teaches him or her (Falode, 2019). It is mostly used in distance learning programmes where the education provider and the learners are not in the same physical location. The material is then studied by students at their own pace, location and time of choice to acquire knowledge in a subject instead of attending regular classes. Although, in most cases,

courseware is computer-decoded, traditionally, it can also be printed for learners who do not have access to required hardware for the courseware. When printed as text, it is affordable, easily accessible and offers experiences almost similar to those obtained in the classroom where learners rely on teachers' lesson notes and explanations.

Flipped Classroom Model: Flipped classroom is a classroom-inverted strategy in which students study instructional contents at home through online, electronic or digital means and complete assignments, exercises or practical in classroom with their peers and teachers (Abah et al., 2017). Lecturers are expected to create practical video contents of lectures and practical demonstrations that would be used throughout the session using a camcorder and editing software. These contents are stored in portable devices so as to enable students to safely transport media for learning at home (Chukwuemeka et al., 2020).

Educational Broadcasting: Broadcasting is the transmission of signals to many receivers or viewers simultaneously via powerful electromagnetic waves. Through educational broadcasting, well-planned contents relating to school subjects can be relayed to students in different locations through public or dedicated radio and television stations. Falode et al. (2019) reported that each of the 36 states in Nigeria have at least one state-owned government television station, and a branch of the Nigeria Television Authority station established by the Federal Government. Also, considering the relatively inexpensive of radio and television gadgets, with well-planned school subjects and broadcast scheduled, students can be at home, or even at school and tune in the broadcast station at the scheduled time and connect to teachers, lecturers or instructors as the case may be. Broadcasting of school contents to learners during school closure would be highly effective if implemented as Omiko (2018) already found and reported that Nigerian children are more familiar with radio and television programmes. One major advantage of this is that a

teacher can reach out to a large number of students in the same academic level in different locations while still minimizing physical contacts.

The Synchronous Communication Tools: The synchronous teaching takes place virtually in a real time and all participants receive instructional contents from the teacher simultaneously and there could be mutual reactions from both the learners' end as well (Cortez, 2020). Interactive real-time tools such as Zoom, Skype, Google Meeting, and Google Classroom could be deployed for instructional delivery and teacher-students' interactions during a pandemic such as COVID-19, necessitating schools' closure. The main advantage of this is that, since communication is possible from both ends, instant feedback can be provided.

Internship Schedules: Whenever the school is closed, to curtail a public crisis or health challenge like COVID-19 pandemic, the period should be diverted and spent by learners to acquire practical skills in science, technical and vocational skills at relevant workshops or laboratories of their choice outside the school premises while aligning and maintaining all health precautionary measures such as social distancing as in the case of COVID-19. During this time, students could work as interns or apprentices and acquire real life practical experiences that would complement and simplify abstract contents already learnt or meant to be learnt in the classroom.

2.3 Related Empirical Studies

Aiyedun (2020) carried out a study on the effects of COVID-19 on the academic program of universities in Nigeria. The descriptive survey research design was adopted for the study. Two research questions were raised for analysis in the study. The population of the study comprised of all undergraduate students in public universities in Nigeria. Simple sampling and stratified

random sampling techniques were used to select a sample size of 150 respondents from 3 Nigerian universities, that is, 50 students from each school. The research instrument used for data collection was 20 structured questionnaire items rated on 4-point Likert scale options, with values assigned to them, thus- Strongly Agree (SA) 4; Agree (A) 3; Disagree (D) 2; and Strongly Disagree (SD) 1. The responses of the respondents were presented in the simple statistical table and analyzed using simple percentages and Mean ($\bar{x}$). Results of the findings showed that the COVID-19 pandemic has affected academic programs thereby leading to major disruptions in academic activities. Based on the findings, it was recommended that Universities and eventually another educational sector should avoid or minimize the physical presence of academic staff and students, thereby considering the possibility of online teaching and learning.

Ezeama (2021) conducted a study to examine Microelectronics Design in Educational Apps for Technical Education Learning in Pandemic Eras. In the educational sector where the study was conducted to determine effect of pandemics in the use of microelectronics in design of educational apps for online learning in technical education in Nigeria. The population for the study was 302 people made up of 264 technical college teachers in both public and private schools and 38 school administrators. The instrument for data collection was structured questionnaire. The return rate of the instrument was 96%. Three experts validated the instruments. A pilot study of 10 school administrators and 30 technical college teachers were conducted. Pearson Product Moment Correlation Coefficient was used to test for the reliability. The total reliability coefficient of .79 was obtained for the instrument. Three research questions and three null hypotheses guided the study. Mean and standard deviation were used to answer the research questions, while t test was employed to test the null hypotheses at .05 and .01 levels of significance. Also, MATLAB application was used to give graphical views of

critical relations in the study. The major findings were: (1) A good of number of private technical education have ICT facilities and staff than most public technical education schools. (2) There is no significant difference between the use of ICT skills of teachers in the pre-COVID-19 era because the F-tab of 6.64 and 18.0 at 5% and 1% levels of significances respectively as against F-cal of 0.0014. (3) There is significant difference on the income of technical education administrators since the introduction of EduApps in teaching and learning because the F-tab of 6.64 and 18.0 at 5% and 1% levels of significances respectively as against F-cal of 2.82. It was recommended that technical colleges should be well equipped with Internet of Things facilities and competent technology skilled technical teachers, ICT experts and functional computer laboratory in other to enhance the teaching and learning in technical education.

Ijeoma (2021) conducted a study to examine the challenges of teaching technical courses through e-learning in Nigerian tertiary institutions during the COVID-19 pandemic lockdown. The COVID-19 pandemic has widespread aftereffect on education systems all over the world, with Nigeria, not an exception. The lack of the requirements needed for remote education during the worldwide lockdown caused by the COVID-19 pandemic has impeded teaching and learning. In the underdeveloped world, home education worked well for a few students who had adequate resources accessible to them and were adaptable to remote learning. This has not just affected teaching and learning but has posed a big problem in teaching technical courses. Problems associated with teaching technical courses in Nigeria during the pandemic lockdown especially the difficulties in handling practical and technical processes online are discussed. Students and educators at different programmes at the Federal Polytechnic Nekede Owerri, Nigeria will be interviewed to ascertain the most pressing problems.

Bello (2021) carried a study on Impacts of COVID 19 on Policy of Tertiary Education in Nigeria: The Case of Professional Diploma in Education Students of Federal College of Education. COVID 19 pandemic has strategically overwhelmed all the global sectors of human endeavours since its first appearance in December 2019. The Virus shattered and paralysed all socioeconomic activities for several months. One of the areas that is seriously affected globally is the education sector. Nigeria is most affected just like other world countries economically and socio-culturally. The Nigerian Policy on Education has been widely criticised for its failure to make adequate provisions for an unforeseen contingency like pandemic periods. Thus, when COVID 19 emerged in Nigeria, the education sector emerges arguably as the most affected. Schools were totally shut down for more than two terms or nearly two semesters for tertiary institutions. The study examined the Nigerian education policy and the impacts of COVID 19 on tertiary institutions. The study used both primary and secondary sources of data. The data obtained were discussed using manual SPSS. The study discovered that the obsolete educational policies subjected tertiary institutions to the mercy of COVID 19 protocols which left the schools closed for many months leading to crisis of confidence from the students and a total loss of a whole session in most cases. The study recommends among others that the Nigerian Policy in Education should be immediately revisited to cater for future pandemic preparations that will avoid closure of schools or learning. This can be achieved through the adoption of e-learning and provision of modern tools of learning in public schools

Falode (2022) conducted a study on COVID-19 Pandemic: A Catalyst to Technology Integration in Teaching for Sustainable Science, Technical and Vocational Education in Nigeria. It is an undisputed fact that the existence of COVID-19 disease has posed many challenges to the different sectors of the Nigeria economy and the educational sector seems to be the most

adversely affected. This is because of the total lockdown of schools for several months as part of the measures put in place by the federal government to curtail the spread of the disease. As a result, teaching and learning activities were shut down because of various technological development challenges. This paper focuses on the challenges posed by the COVID-19 disease to the education sector and the need to sustain the growth of science, technical and vocational education (STVE) in Nigeria in spite of the pandemic. Using the narrative literature review methodology, impact of the pandemic on teaching and learning STVE were discussed as well as different innovative and technology-driven approaches that could be integrated when similar crises occur in the future such as online teaching and learning, social media platforms, electronic learning, learning management systems, printed courseware, flipped classroom model, educational broadcasting, and synchronous communication tools were also explored in the paper. The recommendation elaborates on the need for stakeholders to be adequately prepared in terms of necessary trainings and provision of amenities that support continuous learning whenever civic and health crises necessitate emergency closure of schools in the country.

2.4   Summary of Review of Related Literature

The review of related literatures was discussed under the following headings: Technical and vocational education in Nigeria, Importance of Technical and Vocational Education, COVID 19 Pandemic in Nigeria, Teaching and learning during COVID-19, Impact of covid-19 pandemic on teaching and learning of STVE, Innovative approaches to teaching STVE during and after pandemic. Theory of Social Constructivism was reviewed in the study. It was deduced from the study that E-learning is one of the key innovations to set back caused by COVID 19 pandemic. Adequate and relevant study was reviewed in the study.

CHAPTER THREE

3.0   RESEARCH METHODOLOGY

3.1   Design of the Study

The study adopt the descriptive survey research design used to assess the emergence impact of covid-19 on technical education in Minna metropolis, Niger state. Survey design according Nworgu (1991) is aimed at collecting data on and describing in a systematic manner, the characteristics features or facts about a given population.

3.2   Area of the study

The study was carried out technical colleges in Minna metropolis, Niger state.

3.3   Population for the Study

The population for the study consists of 80 respondents comprising 70 technical teachers and 10 principals.

3.4   Sample and Sampling Technique

There was no sampling since the population was small and manageable.

3.5   Instrument for Data Collection

The researcher designed a structured questionnaire as an instrument that was used in collecting data for the study. The questionnaire was made up of four sections (A, B, C, and D). Section 'A' contains items on personal information of the respondents. Section 'B' seeks the impact of Covid-19 pandemic on technical college's students. Section 'C' find out the challenges posed by Covid-19 on technical education. While Section 'D' find out Impact of Government Intervention on COVID-19 Pandemic in technical education. The questionnaire items were based on four points scale types. Items for section 'B', 'C' and 'D' contain four responses category each. The response categories for section 'B', 'C' and 'D' are strongly Agree (SA), Agree (A), and Disagree (D) and strongly disagree (SD). These response categories will be assign numerical values of 4, 3, 2 and 1 respectively. Respondents were require checking ($\sqrt{}$) against the response category that best satisfies their opinion.

3.6   Validation of instrument

The instrument was validated by three lecturers in the department of Industrial and Technology Education, Federal University of Technology, Minna and contributions on the appropriateness of the instrument will be considered in the production of the final copy of the research instrument.

3.7   Reliability of instrument

In order to determine the reliability of the research instrument, a pilot test was conducted using ten respondents in other locations. During the test, the questionnaires were distributed by the researcher. The questionnaire was filled by the respondents and then returned to the researcher. The data collected will be analyzed using Crombach Alpha.

3.8   Administration of instrument

The instrument that was used for the data collection was administered to the respondents by the researcher and three research assistant in the study area.

3.9   Method of data analysis

Data collected was analyzed using mean and standard deviation for the research questions while t-test was used to test the hypothesis at the 0.05 level of significant. A four (4) point rating scale was analyze the data as shown below.

Strongly Agree   (SA)   =   4points (3.5 – 4.0)

Agree   (A)   =   3points (2.5 - 3.49)

Disagree   (D)   =   2points (1.5 – 2.49)

Strongly Disagree   (SD)   =   1point (1.0 – 1.49)

Therefore, the mean value of the 4 point scale is:

$$\bar{X} = \frac{4+3+2+1}{4} \qquad = \qquad \frac{10}{4} = \quad 2.5$$

3.10   Decision Rule

The cutoff point of the mean score of 2.50 was chosen as the agreed. This was interpreted relatively according to the rating point scale adopt for this study. Therefore, an item with response below 2.49 and below will be regard or consider as disagreed while an item with response at 2.5 and above was regard or considered as agreed.

CHAPTER FOUR

PRESENTATION AND ANALYSIS OF DATA

4.1   Research Question One

What are the impact of Covid-19 pandemic on technical college' s students?

Table 4.1: Mean Response of principals and technical teachers on the impact of Covid-19 pandemic on technical college' s students.

N$_1$= 10 N$_2$=70

S/N	ITEMS	$\bar{X}$	SD	Remark
1	School is completely closed during this lockdown.	3.68	.683	Agreed
2	Student experience difficulties schooling/learning from home	3.54	.676	Agreed
3	Student engage in planned learning experiences at home during this COVID-19	3.72	.497	Agreed
4	Teacher regularly communicates with me for information and support for learning at home.	3.44	.577	Agreed
5	Lack of technology for distance learning.	3.26	.600	Agreed
6	School curriculum is accessible to me and other students for learning	3.28	.607	Agreed
7	Students believe learning can progress successfully online	3.36	.693	Agreed
8	Poor internet network and electricity is a constraint to my academic activities	3.56	.611	Agreed
9	lack of technology facilities	3.60	.571	Agreed

Key:

N=80

$\overline{X}$= mean of the respondents

N₁ = No of principal

N₂= No of technical teacher

SD = standard deviation of the respondents

Table 4.1 showed that both principals and technical teachers agreed on all items from 1 to 9. This is because none of the mean response was below 2.50 which was agreed on the 4-points response options. The standard deviation score ranged between 0.497 and 0.683. This showed that the responses of the principals and technical teachers on the items were not divergent.

4.2   Research Question Two

What are the challenges posed by Covid-19 on technical education?

Table 4.2: Mean Response of principals and technical teachers on the challenges posed by Covid-19 on technical education.

N_1= 10 N_2=70

S/N	ITEMS	$\overline{X}$	SD	Remark
1	School closure during the COVID-19 lockdown.	3.64	.663	Agreed
2	Difficulties in utilizing a school/learning program online.	3.56	.644	Agreed
3	No access to educational opportunities/resources from your school during this school closure	3.46	.676	Agreed
4	Difficulties schooling/learning from home	3.42	.575	Agreed
5	Difficulties in planned learning experiences at home during this COVID-19	3.32	.551	Agreed
6	Poor skills and competence for using technologies	3.30	.544	Agreed
7	Loss of academic session	3.44	.675	Agreed
8	Lack of technology for distance learning.	3.56	.611	Agreed
9	School curriculum is was not accessible to teachers and other students for learning	3.48	.762	Agreed
10	Poor internet network and electricity is a constraint to academic activities	3.60	.670	Agreed

Key:

N=80

$\overline{X}$= mean of the respondents

N₁ = No of principal

N₂= No of technical teacher

SD = standard deviation of the respondents

Table 4.2 showed that both the principals and technical teachers agreed on all items from 1 to 10.

This was because none of the mean response was below 2.50 which was agreed on the 4-point

response options. The standard deviation score ranged between 0.544 and 0.762. This showed

that the responses of the principals and technical teachers on the items were not divergent.

4.2 Research Question Three

What are the Impact of Government Intervention on COVID-19 Pandemic in technical

education?

Table 4.3: Mean Response of principals and technical teachers on the Impact of Government Intervention on COVID-19 Pandemic in technical education.

N_1= 10 N_2=70

S/N	ITEMS	$\overline{X}$	SD	Remark
1	The government/Ministry of Education has not supported the technical education with regard to the disruption of COVID-19.	3.36	.598	Agreed
2	The government have directed technical colleges to switch to online teaching and learning	3.36	.563	Agreed
3	The government did not provide ICT facilities to the Universities to Aid online education	3.34	.658	Agreed
4	Data was not subsidized for teachers and students to aid online education.	3.38	.667	Agreed
5	Teachers and students have not been trained on the use of online applications for e-learning.	3.38	.602	Agreed

Key:

N=80

$\overline{X}$= mean of the respondents

N₁ = No of principal

N₂= No of technical teacher

SD = standard deviation of the respondents

Table 4.3 showed that both the principals and technical teachers agreed on all items. This was because none of the mean response was below 2.50 which was agreed on the 4-point response options. The standard deviation score ranged between 0.45 and 0.61. This showed that the responses of the principals and technical teachers on the items were not divergent.

4.4   Hypothesis One

There is no significant difference in the mean responses of principals and technical teachers on impact of Covid-19 pandemic on technical college's students.

Table 4.4: T-test on impact of Covid-19 pandemic on technical college's students.

$N_1 = 10$ $N_2 = 70$

Respondents	N	X	SD	Df	Tcal	P-value	Remark
Principal	10	3.59	0.52	48	0.446	0.06	NS
Technical teachers	70	3.50	0.59				

Key:

N=100

$\overline{X}_1$= mean of principals

$\overline{X}_2$ = mean of technical teachers

N_1 = No. of Principals

N_2= No. of woodwork students

SD_1 = standard deviation of principals

SD_2 = standard deviation of technical teachers

NS=Not Significant

Table 4.4 showed that there was no significant difference in the responses of principals and technical teachers on all the items as impact of Covid-19 pandemic on technical college's students; therefore the null hypothesis of no significant difference was upheld at 0.05 level of significance.

4.5   Findings of the study

The following are the main findings of the study; they are prepared based on the research questions and hypothesis tested.

The impact of Covid-19 pandemic on technical college's students.

- School is completely closed during this lockdown.

- Student experience difficulties schooling/learning from home

- Student engage in planned learning experiences at home during this COVID-19

- Teacher regularly communicates with me for information and support for learning at home.

- Lack of technology for distance learning.

- School curriculum is accessible to me and other students for learning

- Students believe learning can progress successfully online

- Poor internet network and electricity is a constraint to my academic activities

- lack of technology facilities

The challenges posed by Covid-19 on technical education

- School closure during the COVID-19 lockdown.

- Difficulties in utilizing a school/learning program online.

- No access to educational opportunities/resources from your school during this school closure

- Difficulties schooling/learning from home

- Difficulties in planned learning experiences at home during this COVID-19

- Poor skills and competence for using technologies

- Loss of academic session

- Lack of technology for distance learning.

- School curriculum is was not accessible to teachers and other students for learning

- Poor internet network and electricity is a constraint to academic activities

The Impact of Government Intervention on COVID-19 Pandemic in technical education

- The government/Ministry of Education has not supported the technical education with regard to the disruption of COVID-19.

- The government have directed technical colleges to switch to online teaching and learning

- The government did not provide ICT facilities to the Universities to Aid online education

- Data was not subsidized for teachers and students to aid online education.

- Teachers and students have not been trained on the use of online applications for e-learning.

4.6   Discussion of findings

Table 4.1 show the result of the findings on the impact of Covid-19 pandemic on technical college' s students. The findings shows the School is completely closed during this lockdown,

Student experience difficulties schooling/learning from home, Student engage in planned learning experiences at home during this COVID-19, Teacher regularly communicates with me for information and support for learning at home, Lack of technology for distance learning, School curriculum is accessible to me and other students for learning, Students believe learning can progress successfully online, Poor internet network and electricity is a constraint to my academic activities, lack of technology facilities. The findings of the study is in line with Eze (2021) who stated that the school closure could lead to irreversible academic, economic and social challenges for the children, families and society.

Table 4.2 reveal the result on the findings on the challenges posed by Covid-19 on technical education. The findings shows that School closure during the COVID-19 lockdown, Difficulties in utilizing a school/learning program online, No access to educational opportunities/resources from your school during this school closure, Difficulties schooling/learning from home, Difficulties in planned learning experiences at home during this COVID-19, Poor skills and competence for using technologies, Loss of academic session, Lack of technology for distance learning, School curriculum is was not accessible to teachers and other students for learning, Poor internet network and electricity is a constraint to academic activities. The findings of the study is inline with Burzynska and Contreras (2020) who pointed out that the school closure during the COVID-19 pandemic will widen the gender gap through girl-child abuse and neglect. In addition, Francis and Pegg (2020) alluded that school closures have halted school nutritional program in some localities in Nigeria. Van Lancker and Parolin (2020) observed that COVID-19 is a social crisis which has resulted in school closures, a situation that is impacting the education of approximately 80% of school-age children globally.

Table 4.3 shows the result on the findings on The Impact of Government Intervention on COVID-19 Pandemic in technical education. The findings of the study revealed that the government/Ministry of Education has not supported the technical education with regard to the disruption of COVID-19. The government have directed technical colleges to switch to online teaching and learning, The government did not provide ICT facilities to the Universities to Aid online education, Data was not subsidized for teachers and students to aid online education, Teachers and students have not been trained on the use of online applications for e-learning. This result is in agreement with Iprojectmaster (2020) who find out that the Covid-19 pandemic has a significant impact on education in Nigeria; based on the findings from the study, schools need resources to rebuild the loss in learning during the pandemic.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1   Summary of the Study

The main focus of this research study was to find out the Emergence Impact of covid-19 on technical education in Minna metropolis Niger state.

Chapter 1 of the study discussed the background of the study, which examines. The statement of problem, purpose, significance, scope and the research questions were all stated and discussed for the conduct of this research.

The review of related literature looked into Technical and vocational education in Nigeria, Importance of Technical and Vocational Education, COVID 19 Pandemic in Nigeria, Teaching and learning during COVID-19, Impact of covid-19 pandemic on teaching and learning of STVE, Innovative approaches to teaching STVE during and after pandemic. Various views of different authors concerning the topic were harmonized in a comprehensive literature review and empirical studies.

A survey approach was used to developed instrument for the study; the respondents identified as the population of the study were the Principals and technical teachers. The entire respondents were used. A number of 80 questionnaires were administered. The instrument used was analysed using mean, standard deviation and t-test. The research questions were discussed base on the findings from the responses and results of the instrument used.

Implication of the study and conclusions were also drawn from the findings discussed. Recommendations and suggestions for further study were formulated and stated according to the findings of the study.

5.2   Implication of the Study

The present study's findings have implications for education policy, practice, and development regarding pathways to the adoption of e-learning or digital learning. Firstly, as the schools are gradually reopening, there is the need to re-think education in the areas of what, where, how and when learners should learn. In addition, information and communication technology is gradually revolutionalizing learning and teaching at all levels. Therefore, students in technical education should be introduced to IT-enhanced learning approaches such as blended learning, computer-assisted learning, and technologies.

5.3   Contribution to Knowledge

The study will cover up the setback caused by covid-29 pandemic and also be able to know the best strategies for learning in with a new advanced technology and it will be an eye opener for technical teachers in areas which they need to improve for continuous education.

5.4   Conclusion

Based on the findings of the study, the following conclusions were drawn: The Technical education in Nigeria are designed and aimed at providing skills necessary for securing employment in the industry or be self-employed, hence, the graduates of technical college are expected to be equipped with modern job skills to enable the individual perform and progress in the chosen trade and in entering into employment. Insufficient modern skills acquisition in technical education was noted before the COVID-19 pandemic and the deployment into use elearning platforms in teaching and learning necessitated the study.

5.5 Recommendations

1. The Federal Ministry of Education department in charge of technical education should liaise with private and public technical schools' administrators to see that use of eLearning in learning is fully implemented in schools' curriculum

2. Financial support: The government and other stakeholders should financially support the technical education by providing basic facilities and other resources that will not only help to adhere to social distancing measures but also, subsidize data subscriptions for easy access to online teachings and learning. iii. ICT training for academic staff and students: Government should organize training on how to use online applications for e-teaching and learning.

3. The Nigerian Educational Research and Development Council should develop and integrate the use of eLearning into the vocational curriculum of technical colleges under the Council.

5.5 Suggestion for Further Study

The following are suggested for further studies:

1. Strategies for continuous education in technical colleges

2. Entrepreneurial and occupational skills need for self-employment in a pandemic.

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