COVID-19 Pandemic and the Imperative of Functional Technology Education in Nigeria: A Historical Analysis

Alabi Oladimeji Mohammed
Department of History and International Studies,
Faculty of Arts, University of Ilorin, Ilorin, Nigeria
Email: alibi.om@unilorin.edu.ng

Abstract

Nigeria has recorded great losses since the outbreak of the COVID-19 pandemic in December 2019. Over-reliance on oil as source of national revenue and inadequate human capital development have impeded the country's response to the global emergency. This study examines how technology education can stimulate a diversified economy to boost Nigeria's capacity to withstand future crises. It employed a historical research method, comprising mainly secondary sources. The pandemic exposed the morbidity and inadequacy of Nigeria's health facilities. In addition, a sharp drop in the global price of crude oil worsened the country's wobbling economy during the pandemic. At the micro level, the lockdown imposed by government turned many self-employed Nigerians to idlers. The COVID-19 pandemic could have been a platform to enhance researches in medical sciences and health technology but the extant problems in the country's higher education sector such as poor funding, lack of motivation for teaching and research, brain drain, and poor curriculum prevented meaningful innovation in that regard. The study recommends reforms in technology education to create a work force for non-oil sectors like agriculture, solid minerals, small and medium enterprises, and indigenous industries. This would stimulate self-reliance and a diversified economy to keep Nigeria unperturbed during future emergencies.

Keywords: COVID-19 pandemic, diversification, economy, Nigeria, technology education

The world has, in recent times, been under the scourge of global emergencies with widespread negative impact. By historical reminiscence, around 2009, the global Economic Meltdown led to dwindling fortunes of national economies characterized by less trade and industrial activity, loss of share capital, cut in production and increasing unemployment. In fact, some analysts, including Sanusi, (2010) and Ravichandran and Maloain (2010), maintained that the Economic Meltdown of the period was, perhaps, one of the worst since the great depressions of the 1930s due to its negative impact on national economies. Similarly, in early 2020, the coronavirus, otherwise known as COVID-19, ravaged the world, killing thousands of people. The effects of the crisis were visible in virtually all countries due to human interaction and globalisation. However, the enormity of the challenges created by the COVID-19 call for new dimensions on how national economies, particularly in the developing world, react to global emergencies.

Nigeria possesses a mono-causal economy heavily reliant on oil revenue, and the substantial decline in oil prices during the pandemic had profound repercussions across various sectors of her national economy. The pandemic specifically affected education because governments around the world ordered the closure of schools in order to limit the spread of the virus. According to Folaranmi and Afaktapa, (2022), the impact of the closure of primary and secondary schools; and higher education institutions during the pandemic was more on the less developed countries. Unlike the advanced countries that had buoyant economies to support alternative learning with the use of modern technology, Nigeria's education became moribund during the COVID-19 pandemic. Even though the government directed schools to adopt the e-learning option, attendant challenges of poor educational technology, erratic power supply, unstable communication network and inadequate gadgets all militated against the strategy. In view of these realities, this study explores the potentials of technology education in Nigeria's quest to:

i. Promote creative ability among Nigerian students;
ii. Stimulate employment generation through self-reliance;
iii. Arouse alternative sources of revenue; and
iv. Keep Nigeria's education stable and running during future global emergencies.

Research Methods

The study adopted a historical research methodology. The paper drew its data from secondary sources such as peer-reviewed journals, books, Nigeria government reports and relevant periodicals from COVID-19 focused topics, and issues of sustainable development in Nigeria. The study also gathered facts about Nigeria's role in educational technology development. These secondary data were subjected to thorough qualitative, descriptive and content analysis techniques to produce comprehensive study findings and conclusions.

Literature Review

This study identifies three areas through which the pandemic affected human activities during the period. These are the impact of the pandemic on the achievement of the Sustainable Development Goals as contained in the United Nations programme of action for its member-states; the impact of the pandemic on education; and the search for cure for the disease.

The 17 Sustainable Development Goals (SDGs), which were developed and adopted by all United Nations member states in 2015 (Geddes, 2021), call to action for the eradication of poverty, protection of the planet, and ensuring that all peoples enjoy peace and prosperity by 2030. According to the United Nations, optimum population growth, reduction of poverty, decrease in maternal mortality, optimum proportion of children and young people, are among the foremost in the development goals. Thomas et al. (2022) examined how the pandemic affected the fulfilment of the Sustainable Development Goals in Nigeria. The authors specifically assessed social problems in Nigeria using three indices: the rate of

crime, poverty, and unemployment during the pandemic. These elements are central to the attainment of the Sustainable Development Goals in a developing country like Nigeria. According to Thomas et al. (2022) and Adewumi et al. (2023), there was an increase in crime rate in Nigeria due to the restriction order by the government. Of particular upsurge in the period was cyber-crime. Common cybercrime techniques, such as phishing, recorded a spike. For instance, in January 2020, Google registered 149k active phishing websites; and in February, that number nearly doubled to 293k. In March, though, that number had increased to 522k – a 350% increase since January (Halford et al., 2020).

United Nations Office on Drugs and Crimes ([UNODC], Boyle & Banuelos, 2020) had earlier suggested that the impact of COVID-19 on crime, security and the rule of law would be enormous. Reaffirming the above assertion, Transparency International (2020) discovered that amidst the pandemic, organized crime was actually on the rise. In the same vein, Tade (2020) submits that one of the negative consequences of the restriction order was increase in violent criminality, murder, kidnapping, domestic violence (gender-based violence), and growing cyber-crime.

Poverty was another major challenge to most Nigerians during the COVID-19 pandemic. Nigeria, in 2018, was announced by the World Poverty Clock to be the poverty capital of the world, with over 40% of its citizens living below the poverty line. According to a United Nations Development Programme (UNDP, 2021) report 40.1 percent (4 out of 10) of Nigeria's population was classified as poor (National Bureau of Statistics, 2020, in Odili, 2020). Ewubare (2020) submits that the incidence of poverty in Nigeria had been worsening since the 1980s, and became pervasive in the 1990s. Similarly, the rate of unemployment increased during the pandemic. Indeed, according to a 2018 report by the National Bureau of statistics (NBS), Nigeria's unemployment rate was already at 23% before the pandemic while underemployment stood at 16%. This implied that more Nigerians, especially in the lower middle class, would potentially be forced to live below poverty line. Truly, as envisaged, the pandemic increased Nigeria's unemployment because more people lost their jobs. Akinyetun (2022) states that the coronavirus pandemic created another dimension to the incidence of poverty in Nigeria because the country lacked a formidable social welfare programme to cushion its effects.

On the search for a cure for the disease, Idris and Thompson (2023) reiterated the efficacy of Africa's herbal medicine in curing the COVID-19 disease. The authors argue that the Nigerian government did not make concrete effort to encourage locally manufactured drugs to tackle the disease. Thus, the search for its cure became another avenue for competition and show of class between the developed world and the rest of the world. It also became another avenue for big drug manufacturers to market their drugs. The pandemic further buttressed the age-long hermitic hypothesis that sees the Aryan race as superior.

The pandemic also exposed the inadequacy of Nigeria's educational facilities and the lack of preparedness of schools for alternative teaching and

learning; particularly, the challenges associated with the e-learning method. Even though the Nigerian government directed schools to adopt the e-teaching (online) option for their students, this was generally inadequate to cater for the needs of the students. Folaranmi and Afatakpa (2022) pointed out the challenges associated with the use of the method in Nigeria, such as unstable power supply, poverty, and inaccessibility of internet facilities, particularly in the rural areas.

The COVID-19 Pandemic Realities in Nigeria

Coronavirus (COVID-19) is an infectious disease caused by SARS-Cov-2 virus (WHO, 2020). The disease was reported first in the city of Wuhan, China, in December 2019 (Adhikari et al., 2020) and since then spread like wildfire to more than 190 countries (Jackson et al., 2020). Monetary experts predicted that the pandemic could plunge the World into a worldwide recession (Ozili, 2020). The African Development Bank's (2021) assessment reveals a substantial contraction of Africa's GDP per capita by 10 percent in nominal terms in 2020, marking a pronounced decline in living standards across the continent. This downturn contributed to a noteworthy increase in extreme poverty headcounts among low-income countries worldwide throughout 2020 and 2021. Consequently, the proportion of the population residing in extreme poverty surged by up to 4 percentage points, reversing five years of progress in poverty reduction. Specifically, the adverse impact of the COVID-19 pandemic resulted in approximately 30 million Africans being thrust into extreme poverty (African Development Bank, 2021). The repercussions of the COVID-19 pandemic extended beyond economic dimensions, creating an unprecedented crisis in global education and learning (Anyanwu & Salami, 2021).

The majority of individuals infected with the COVID-19 virus typically experience mild to moderate respiratory symptoms and can recover without the need for specific medical intervention. However, a subset of individuals may progress to severe illness, necessitating medical attention. Those at an increased risk of developing severe illness include older individuals and those with underlying medical conditions such as cardiovascular disease, diabetes, chronic respiratory disease, or cancer (World Health Organization, 2020). The spread of the COVID-19 virus encompassed all states in Nigeria, as illustrated in Figure 1. The distribution of cases across the country is categorized by varying colours to denote the severity of confirmed infections. States represented in deep green indicate a very high number of confirmed cases, exceeding 10,000. Those in leaf green signify states with high confirmed cases ranging from 1,001 to 10,000. Light green represents states with lower confirmed cases, ranging from 101 to 1,000, while yellow denotes states with the lowest reported or confirmed cases, ranging from 1 to 100. This visual representation provides an overview of the geographical distribution and varying intensities of COVID-19 cases across different states in Nigeria. Figure 2 is about the rate of spread of the virus in a period of two and a half years

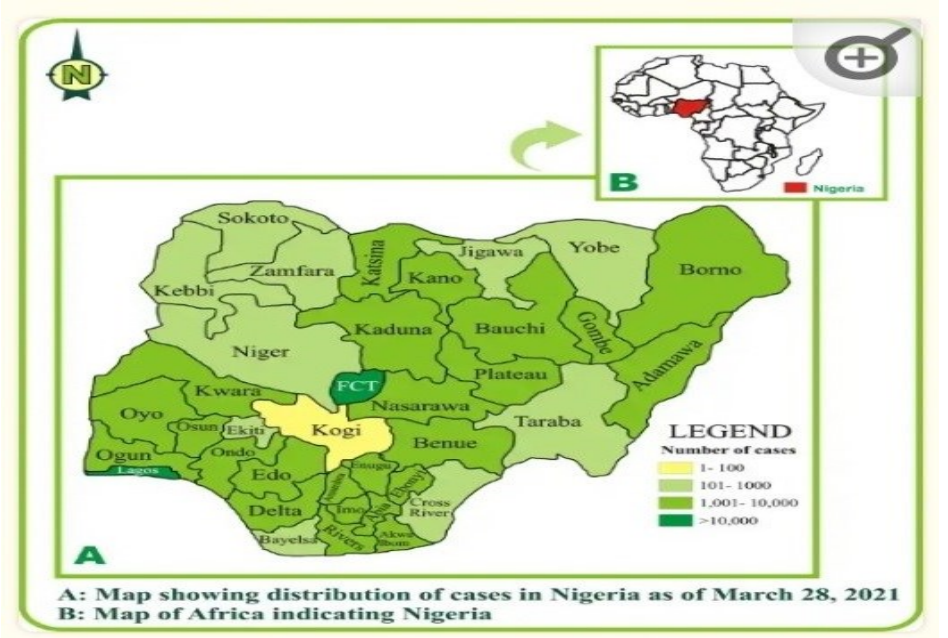

Figure 1: Map showing distribution of COVID-19 cases in Nigeria as at March 2021
Source: covid19.ncdc.gov.ng, www.researchgate.net>figure>map-of-nigeriacovid19reportmar2021

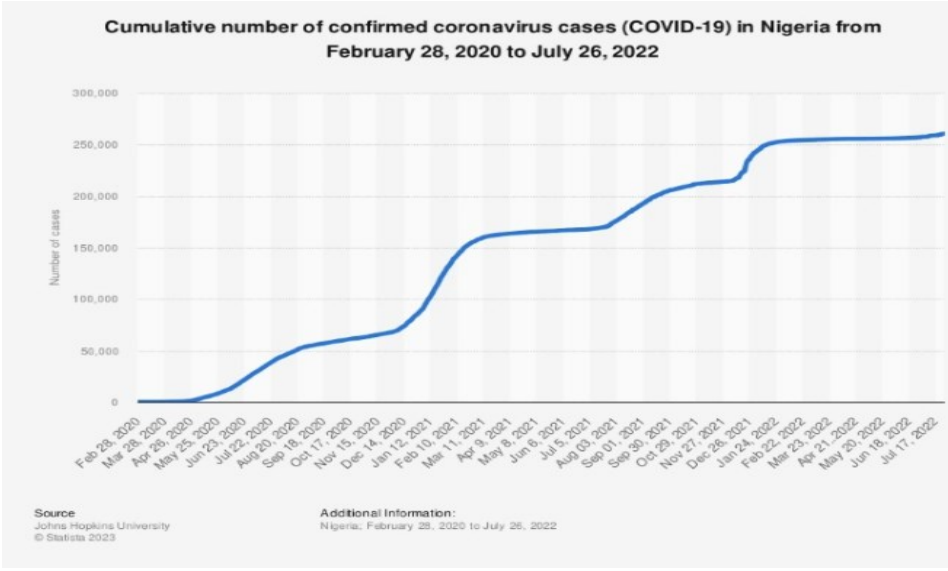

Figure 2: Number of confirmed cases of COVID-19 in Nigeria between 2020 and 2022
Source: Johns Hopkins University Statistics, 2023

Government first imposed a lockdown on Lagos, being the epicentre of the pandemic, perhaps due to its heavy population, comprising a considerable number of foreign expatriates. Government later extended the lockdown to other cities, notably, Abuja, Port-Harcourt and so on, due to their huge demographic interactions. With time during the pandemic, other states joined in the lockdown and the entire country was almost at a standstill. Land borders were closed, both local and international flight operations were suspended, schools were shut, markets were limited to only those for essential commodities, and restricted to every third day, intra and inter-state movements were also suspended. All these brought unprecedented hardship on Nigerians. Table 1 shows Nigeria's GDP between 2018 and 2022.

Table 1
Nigeria GDP between 2018 and 2022

Year	GDP	Per Capital	Growth
2022	$477.39B	$2,184	3.25%
2021	$440.83B	$2,066	3.65%
2020	$432.20B	$2,075	-1.79%
2019	$474.52B	$2,334	2.21%
2018	$421.74B	$2,126	1.92%

Source: Macrotrends, (2023)

Table 1 shows that Nigeria Gross Domestic Products declined between 2019 and 2020 as result of the crisis of COVID-19 pandemic which affected economic activities in the country. In addition, due to Nigeria's large population, the prevention, sensitization, and public enlightenment about the COVID-19 pandemic was jointly carried out by the federal, state, and local governments, in collaboration with private individuals, business firms, philanthropists, and non-governmental organisations. Nigeria also received supports from foreign countries, particularly from the United States. In March 2022, the USAID announced a funding increase to fight the COVID-19 pandemic in Nigeria. (Nigeria/US Bilateral Agreement on COVID-19, 2022).

The COVID-19 pandemic exposed the inadequacy of Nigerian health infrastructure and the need for makeshift facilities to cater for the increasing number of affected persons. Thus, governments at the federal and state levels created temporary camps for the isolation and treatment of persons who tested positive for the corona virus. The burden of feeding and treatment of the patients fell on the government as part of her responsibilities to contain the spread of the virus. Hospital patronage also reduced because of the COVID-19 protocols that patients were compelled to obey in the hospitals. Some people considered health protocols such as wearing facemask, hand washing, the use of alcohol-based sanitizers and physical distancing, too compelling. Furthermore, the commitment of health workers also reduced, especially after a considerable number of Nigerian doctors contracted the virus, some even died in the process of treating COVID-19 patients. For instance, as at October 2020, the Nigeria Medical

Association, NMA had confirmed the death of 16 doctors through the coronavirus. (NMA, 2020, Abdurraheem, 2021).

COVID-19 and the Nigerian Economy

COVID-19, even though a health challenge, touched heavily on the Nigerian economy for obvious reasons. Firstly, the country relies almost entirely on oil revenue for meeting the obligation of state finance. However, due to the universal nature of the pandemic, there was a continuous drop in the price of crude oil globally and this severely affected Nigeria's economy. Indeed, a former Governor of Central Bank of Nigeria (from 2009 to 2014), Sanusi Lamido, warned that the collapse of Nigeria's oil-based economy was imminent. In his words: "the goose laying golden eggs for Nigeria is about to die". He maintains that the future of the country lies in a knowledge-based economy, adding that the country is far behind many African countries in innovation index. Nigeria is ranked 114th in the global innovation index, lower than some African countries like South Africa, Kenya, Rwanda and Senegal (Sanusi, 2021). He singled out education as the fundamental tool for Nigeria to achieve greatness. The country spends a paltry 7 percent of her annual budget on education, which is too ridiculous to propel any meaningful human capital development.

At the micro level, the implementation of the lockdown prompted widespread grievances across different regions of the country, manifesting in protests against hunger, uncertainty and the overall hardships imposed by the lockdown (Fidelis, 2020). Instances of looting, vandalism, and arson were particularly prevalent in several cities, with Abuja, Port-Harcourt, Ilorin, and Lagos experiencing the most severe impact (Timothy, 2020).

Technology Education in Nigeria

Educational policy is the most important instrument through which the system of education is managed, monitored, assessed, evaluated and improved upon from time to time. Nigerian government policies on technology education include the establishment of the National Board for Technical Education (NBTE) 1977, establishment of Technical Colleges, Polytechnics and Universities of Technology. Technology Education as stated in Nigeria's National Policy on Education (NPE, 2004), is referred to as those components of the educational process that, in addition to general education, include the study of technologies and allied disciplines, as well as the acquisition of practical skills, attitudes, understanding, and information required for employment in many sectors of economic and social life. Atoghonu (1998) grouped the relevance of technology education in four areas: self-employment, increased production, higher living standard and development of individual potentials. From the foregoing, technology education is undoubtedly, a fundamental tool for solving many problems in Nigeria.

One of the flagship programme of education reforms in Nigeria was the defunct 6-3-3-4 system of education. The programme was targeted at finding a formidable foundation for Nigeria's determination to establish a technology-

driven society and the country's development based on functional education for the citizens.

The 6-3-3-4 System of Education

The 6-3-3-4 system of education of the mid-1980s was predicated on providing technical and vocational skills in secondary schools. According to Omolewa (1986), the 6-3-3-4 educational system dates back to September 8, 1969, on International Literacy Day, when Federal Commissioner for Education Wenike Briggs launched a conference that defined the concepts that led to the curriculum. The 6-3-3-4 education programme was conceived as an instrument of national unity and was designed to inject functionality into the Nigerian school system. It was fashioned to produce graduates who would be able to use their hands, heads, and hearts (in line with the 3 Hs of education)**.** In 1982 when it was introduced, ideas were drawn from various sectors of Nigerian professional community. The broad goals of education under the 6-3-3-4 system, as defined in the NPE paper, are to accelerate Nigeria's political, economic, and technological growth so that the country can become a powerful, self-sufficient, free, and democratic nation

However, these expectations remained unattained years after the implementation of the programme. The 6-3-3-4 programme was marred by certain problems such as lack of funds, inadequate guidance and counselling, problems of continuous assessment, inadequate material resources, planning without accurate data, and poor curriculum implementation (Aibieyi & Oghoator, 2015). This is why Madugu (1993) concludes that in spite of the clamour for technological breakthrough, there is no corresponding willingness and preparedness on the part of government to develop an independent technology base for Nigeria.

Alo (1995) asserts that despite the relevance of research and development to Nigeria's technological take off, there has been little interest in scientific activity in the country's universities; he identifies some of the constraints on research and development in Nigerian universities to include: inadequate human resources; poor research facilities; inadequate funds, incentive and motivation; and poor linkage with production system.

What follows therefore, is the inability of the science and technology graduates to apply and transfer their knowledge and skills to practical life situations in solving societal problems, which is the ultimate goal of technology. Interestingly, both the formal schools and the informal setting in Nigeria have potentials for creation and creativity. What seems to be lacking is the zeal and the preparedness to turn this endowment into realities. Developing countries like Japan, China, Singapore, and Malaysia are amazing models of how creation and creativity in schools and the informal sectors have stimulated national development. Functional Technology education is thus that which goes beyond the four walls of the classroom to embrace the informal sector such as the indigenous industries (technology) as well as the small and medium enterprises. Perhaps, if these practices had been well applied over the years, more people

would have been self-employed in Nigeria and this would have mitigated the negative impact of the COVID-19 pandemic on the country's economy.

One major problem is the politicization of education in Nigeria. The Nigerian government establishes universities and other institutions of higher learning to fill regional quotas rather the needs of the country. In June 2023, the federal government gave operational licenses to 37 new private universities while the existing ones still lack basic educational infrastructure. Worse still is that most of the higher schools are not science and technology-based institutions that could stimulate technological break-through for Nigeria.

Another major challenge of technology education is the medium for delivering education. Science and technology education requires huge financial resources and commitment. Most of the science and technology-based schools do not possess adequate facilities for effective teaching. Student population in most schools has gone above the optimal level leading to their facilities and personnel becoming extremely over-stretched. In fact, education in Nigeria has become "more of quantity, and less of quality". According to the National Universities Commission, as at October 2023, Nigeria had 264 universities owned by federal, states and private individuals. According to MySchoolGist (2023), there were 52 federal universities, 63 state owned universities and 149 private universities in Nigeria.

Technology Education and the Informal Sector

The informal sector in this study refers to those aspects of Nigeria's productive segments that are dominated by private individuals but are outside the organized private sector. This sector is the largest employer of labour in the country and thus, occupies a prime position in the country's economy. This study identifies four key sectors that technology education should focus on in Nigeria to accelerate economic development and boost self-reliance. These are Agriculture, Solid Minerals, Indigenous Industries and the Small and Medium Enterprises (SMEs).

Agriculture has remained an integral part of man's economic life since the early period and has witnessed great transformations in different places at different times. The pre-colonial and colonial Nigerian economies relied on revenue from agriculture. Indeed, due to ecological peculiarity, every region in precolonial Nigeria was identified with specific agricultural products. At the height of Nigeria's agricultural production, its northern region was reputed for the production of groundnuts, hides and skin, leading to the popular phrase "groundnut pyramids of the north"; the west was known for cocoa while the east was noted for palm produce. The discovery of crude oil however gradually shifted focus away from agriculture and the result has been escalating unemployment.

Technology education has a vital role to play in transforming Nigeria's agriculture. This can be done through 'appropriate agriculture education' not only in schools but also among farmers who constitute a large percentage of Nigerians. Farmers should be encouraged to embrace better farm practices, attend lessons on how to improve crop yield, and most importantly, to adopt mechanized

agriculture that are adaptable to the indigenous Nigerian environment. Agricultural technology education can be used to develop better farming tools for the farmers to make the job more attractive and save wastages that are always recorded in areas of storage. This study emphasises agriculture because during the COVID-19 pandemic, food, which was the primary demand of the populace, was not in adequate supply. The solid mineral sector is another viable area of potential development, which has been neglected in Nigeria. Notable among these are bitumen, coal, gold, iron ore, lead and zinc. Unlike oil, which is concentrated in Nigeria's Niger Delta, solid minerals are more geographically spread across the country. Virtually every state in Nigeria has one solid mineral or another. Technology education can also be geared towards harnessing these potentials to create jobs for Nigerian graduates. This would further strengthen the economy.

Another informal sector is the indigenous industries, which has remained a vital tool for technological development in human societies. Most nations that achieved technological advancement built on the local endowment and the creative ingenuity of their people. Countries like Britain, German, the U.S, France, China, and Japan all paid great attention to their indigenous technology, developed it and eventually achieved perfection. Countries like Japan, China, Korea, Taiwan, Singapore, Malaysia and India are shining examples of those whose local endowment enabled to import (copy) technology from the West (Alabi, 2006). Cultural diffusion made it possible for Ilorin to imbibe a weaving tradition from the old Oyo Empire when immigrants from places like Iseyin, Shaki, Oyo, Igboho etc. settled in the city (Olaoye, 1991). In addition, the long distance trade in Hausa land facilitated the process of textile culture in Kano whose tradition of weaving and dying dates back to about 1512 AD (Eicher, 1977).

However, most of these industries have become shadows of their old self. Volume of their production has reduced considerably and they have become the "dying species" of our time. Several factors may be adduced to this relapse which according to Alabi (2008) include:

i. lack of innovation in their technology;
ii. inadequate capital for expansion;
iii. unfavourable government policy and neglect;
iv. user's preference for imported goods; and
v. the crave for government jobs.

Meanwhile, government policies are predominantly focused on formal educational settings, neglecting the informal sectors, including Small and Medium Enterprises (SMEs) and indigenous technology. The SMEs constitute the third category of the informal sectors where technology education has not found much expression in Nigeria. These enterprises have proven to be important catalysts to economic and industrial development as witnessed in the major economies of the world. According to World Trade Organisation (WTO, 2016), SMEs represent over 90 percent of the business population, 60-70% of employment and 55% of GDP in developed economies. Drucker (2009) states

that SMEs contribute strongly towards the achievement of crucial products in an economy. He furthers that the SMEs represent main motivation and backbone of socioeconomic development. Nigeria has quite a large number of SMEs due largely to inability of graduates to get employment in the civil service and the need for self-employment. According to the International Labour Organisation (ILO, 2022), the SMEs contribute 48 percent of Nigeria's National Gross Domestic Product. This account for 96 percent of businesses and 84 percent of employment in the country. In Africa and many developing countries, SMEs have become a major provider of employment to the growing population. In fact, Nigerian government accorded the SMEs greater attention in the country's Policy Direction (1999-2003), where the industrial policy identified the enterprises for promoting achievement of the goals of self-reliance, poverty alleviation, food security, employment generation and rapid industrialization.

Laudable as these programmes are, they have not had significant impact on the country's economic and industrial development. The major challenge of the SMEs has been that of finance. Godwin Emefiele, former Governor of the Central Bank of Nigeria, revealed that the financing gap for Micro, Small and Medium Enterprises in Nigeria is estimated to be over 617.3 billion Naira each year. According to Emefiele, only 5 % of the MSMEs have access to sufficient financing to cover their working capital and expansion demands. He enumerated the major barriers in the development of the SMEs in Nigeria to include insufficient financial flows, multiple taxation, regulatory burdens, and sub-optimal execution of MSME policy provisions (Emefiele, 2021). However, the overriding factor is the isolation of the SMEs from the technology education programme. Most cottage industries in Nigeria require simple devices to enhance their production but they do not have access to such because they are in the informal sector.

Conclusion

Globalisation has made every nation to share from the vibrating effects of recent global emergencies as indicated by the coronavirus (COVID-19) pandemic. Nigeria's economy, which depends almost entirely on oil revenue, suffered further damage because of the restriction on international trade arising from the COVID-19 emergency and this brought serious hardship on the citizens. The study identified four key areas of agriculture, solid mineral, indigenous technology and small and medium scale enterprises to improve technology education. This paper strongly believes that Nigeria's dream of a technologically developed society, self-reliance and alternative sources of revenue can be realized through a functional and all-embracing technology education.

References

Abdurraheem, A. O. (2021). Oral Interview, a Medical Doctor with the Children Specialist Hospital, Centre Igboro, Ilorin, Kwara State, Nigeria. Age 28^{+}, on 22 September 2021.

Adewumi, I. B., Olanrewaju, T. D., Bashir, O. O., Adeyemi, S. A. and Sunday, S. O. (2023). "Crime Dynamics under COVID-19 Emergency Measures in Nigeria". *Africa Security Review*, *32*(2), 151-165.

Adhikari, S. P., Meng, S., Wu, Y.-J., Mao, Y.-P., Ye, R.-X., Wang, Q.-Z., & Raat, H. (2020). Epidemiology, causes, clinical manifestation and diagnosis, prevention and control of coronavirus disease (COVID-19) during the early outbreak period: A scoping review. *Infectious Diseases of Poverty, 9*(1), 1-12.

African Development Bank (2021). *African Economic Outlook 2021—from debt resolution to growth: The road ahead for Africa*. African Development Bank, Abidjan.

Aibieyi, S., & Oghoator, I. H. (2015). Factors militating against effective implementation of the 6-3-3-4 Education Policy in Nigeria: A case study in policy failure. *African Research Review, an International Multidisciplinary Journal, Ethiopia*, *9*(4), 321-332. http://dx.doi.org/10.4314/afrrev.v9i4.24

Akinyetun, T. S. (2022). Torn between Two pandemics: poverty pandemic and coronavirus pandemic in Nigeria. *Southern African Journal of Policy and Development*, 6(1), 1-21.

Alabi, O. M. (2006). Technology transfer: A case study of Nigeria's policies on industrialization, 1945 – 2005 [Master of Arts Dissertation]. University of Ilorin, Nigeria.

Alabi, O. M. (2008, June 23-26). *Creating an appropriate technology for Nigeria's industrial development* [Paper presentation]. The First National Conference of Kwara State College of Education, Oro.

Alo, M. A. (1995). University based applied research and innovation in Nigerian. Idrc Book free http://www.web,idre.ca.\en\ev.

Anyanwu, J. C., & Salami, A. O. (2021). The impact of COVID-19 on African economies: An introduction. *African Development Review*, *33*(Suppl 1), S1.

Atoghonu, V. O. (1998). *Benefits of sustainable technology in the next millennium.* Proceeding of 11^{th} National Annual Conference of NATT. Lagos.

Bilateral Agreement. (2022). COVID-19 Development Assistance. Press Release www.ng.usembassy.gov

Boyle, J., & Banuelos. T. (Eds.). (2020). The impact of COVID-19 on organized crime: Research brief. United Nations Office on Drugs and Crime. https://www.unodc.org/documents/data-and-analysis/covid/RB_COVID_organized_crime_july13_web.pdf

Congressional Research Service. (2020). Global economic effects of COVID-19. Retrieved from https://fas.org/sgp/crs/row/R46270.pdf.

Drucker, T. (2009). *Innovation and entrepreneurship*. New York, Harper Collins.

Eicher, J. B. (1977). *Nigerian handcrafted textile*. Ile-Ife U.I.P.

Emefiele, G. (2021, September). *Financing infrastructure and SMEsfor inclusive growth in post-COVID-19 economy* [Keynote address] The Finance Correspondents Association of Nigeria's 30th Anniversary Conference.

Ewubare, D. B. (2020). Rural household poverty and public spending in Nigeria *Social Science Review*, *1*(1), 19-28.

FGN, (2004). *National Policy on Education 4th Edition*. Yaba, Lagos NERDC. Press.

Fidelis, M. (2020). *Nigeria seeks to halt looting amid fury over 'food warehouses*. Aljazeera. Available at: https://www.aljazeera.com/news/2020/10/25/nigeria-cracks-down-on-rising-mob-looting-on-food-warehouses

Folaranmi, J. F. & Afatakpa, O. F. (2022). Impact of Covid-19 pandemic on education in Nigeria: A study on secondary schools in Oyo State. *Noun International Journal of Peace Studies and Conflict Resolution [NIJPCR]*,2(2).

Geddes, L. (2021). *How COVID-19 is contributing to period poverty in Nigeria.* https://www.gavis.org

Halford, E., Dixon, A., Farrell, G., Malleson, N., & Tilley, N. (2020). Crime and coronavirus: social distancing, lockdown, and the mobility elasticity of crime. https://doi.org/10.1186/s40163-020-00121-w

Idris, R. T. & Thompson, O. O. (2023). Carry us along and you will see wonders: COVID-19 pandemic and search for local cures in Nigeria. *African Identities*, Routledge, Taylor and Francis Group. http://www.tandfonline.com/action/journalinformation?journalcode=caf20

ILO (2022). International Labour Organisation, MSMEs contribute 48% of Nigeria's GDP. http://www.thisdaylive.com/index.php/2022/11/27/msmes-contibutes-48-of-nigerias-gdp.

Jackson J. K., Weiss, M. A., Schwarzenberg, A. B., Nelson, R. M., Sutter, K. M., & Sutherland, M. D. (2021). *Global economic effects of COVID-19*. Congressional Research Service. https://sgp.fas.org/crs/row/R46270.pdf

Madugu, J. M. (1993). *Crisis of education management in tertiary institutions*. Jos Ehindero Press.

MySchoolGist. (2023). www.myschoolgist.com>univeristies2023

National Bureau of Statistics. (2018). *Labor Force Statistics - Volume I: Unemployment and Underemployment Report (Q4 2017-Q3 2018)*. Government of Nigeria. https://nigerianstat.gov.ng/elibrary/read/856

United Nations Development Programme. (2021). *The impact of COVID-19 on business enterprises in Nigeria.* United Nations Development Programme & National Bureau of Statistics. http://www.undp.org

NMA (2023). Confirms death of 16 Doctors through COVID-19. *The Guardian*. https://www.google.com/url?q=guardian.ng//news/nma-confirmsdeath-of-16-doctors-war

Odili, O. (2020). Agricultural financing and poverty reduction in Nigeria: Policy implications. *Social Science Review*, *1*(1), 209-223.

Olaoye, R. A. (1991). Intrinsic value of Art and crafts to the development of modern science and technology in Nigeria. In S. Bello and Y. Nsidi (Eds) *Culture, economy and national development*. Lagos N.C.A.C.

Omolewa, M. (1986, November 17). History of 6–3–3–4 System of education in Nigeria. *Daily Sketch*.

Ozili, P. K. (2020). Covid-19 pandemic and economic crisis: The Nigerian experience and structural causes. https://ideas.repec.org/p/pra/mprapa/99424.html

Ravichandran, K., & Maloain, A. M. (2010). The global financial crisis and stock market linkages: Further evidence on GCC Market. *Journal of Money Investment and Banking*, *16*, 46–56.

Sanusi, L. S. (2021, September 25). *Nigeria's Economy on the brink of collapse* [Keynote Address] Kaduna Investment Summit, Kaduna State, Nigeria.

Sanusi, S. (2010). Global Financial Meltdown and the reforms in the Nigerian Banking Sector. http://www.cenbank.org/out

Statista (2022). Coronavirus (COVID-19) Cases in Nigeria, 2020-2022, www.statista.com

Tade, O. (2020). COVID-19 and crime landscape in Africa. *International Journal of Offender Therapy and Comparative* (Special Issue Editor). www.https://journals.sagepu.com

Thomas, I. G., Musa, A. B., Audu, M. A., Oremeyi G., Kashim, A. & Alih, L. (2022). The Impact of Covid-19 pandemic on Nigeria: A Substantial threat to the attainment of Sustainable Development Goals (SDGS). *Journal of Sustainable Development in Africa*, 24(1), 43-54. www.htttp://jsd-africa.com/jsda/2022

Timothy, O. (2020). Nigerians justify massive looting of COVID-19 supplies. VOA news. https://www.voanews.com/a/covid-19-pandemic_nigerians-justify-massive-looting-covid-19-supplies/6197611.html

WHO (2020). www.who.int/health topics/coronavirus disease (COVID-19).

WTO (2016). World Trade Report 2016. Levelling the trading field for SMEs. http://www.wto.org/english/re_e/publications_e.htm