

THE ROLES OF SCIENCE AND TECHNOLOGY IN REMEDYING THE CHALLENGES OF CRISES IN NIGERIA EDUCATION SYSTEM

By

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Abstract

Science and technology play fundamental roles in improvement of the quality of life, economic growth, security and transformation in any society. Science and technology has been the major reason developed countries have advantages over developing nations. It is on this note that this paper examines the roles of science and technology in remedying the challenges of global crises in Nigeria educational system. The paper identifies the various crises ranging from; pandemics, war, terrorism, climate change, famine, economic recession, among others. It further investigates how these global crises adversely affects the Nigerian education system. This includes; school closure due to Covid-19 pandemic, inadequate funding due to economic recession, security lapses in schools which has led to kidnappings and abductions of both students and teachers, evacuation of Nigeria students from institutions in countries affected by war, incessant strike action in Nigeria tertiary institutions, and so on. Ways through which science and technology could be used in remedying these challenges are identified. Among others are; the production of more vaccines to prevent pandemics, installation and use of CCTV's and drones in educational institutions, provision of communication gadgets and transport facilities. Recommendations were made, which if implemented, will curb these challenges and bring about rapid growth in the education sector.

Key words: science, technology, crises.

Introduction

Nigeria, in recent times, has been faced with challenges ranging from pandemics, economic crises, bad governance and insecurity in forms of terrorism, banditry, robbery and kidnapping. The Nigerian educational system has not been left out as it has been badly affected by the afore-mentioned challenges. However, the biggest challenge we encounter as a nation is the gloomy future of education stating Africa's largest economy and the most populous nation in the face.

There is zero public school registration for WAEC examination in Sokoto and Zamfara states in the year 2022, and some candidates in some South Eastern States cannot participate in the Unified Tertiary Matriculation Examinations as a result of the sit-at-home orders of the indigenous people of Biafra (IPOB) (Dakuku, 2022). The inability of Nigerian government and policy makers to put an end to this negligence of the education sector is a thing of major concern.

The global pandemic caused by COVID-19 in the year 2020, also brought about a major setback in education. The first case of COVID-19 in Nigeria was reported on the 27th February, 2020 (Nigeria Centre for Disease Control (NCDC, 2020), after which a lockdown was enforced in various States to contain the fast spread of the virus. Schools at all levels were further shut down in every part of Nigeria, and students were out of school for about eight months; although few students learnt from home during the lockdown through virtual learning process. The pandemic brought about huge negative consequences on education globally (Adebowale et al, 2021).

Crises in the Nigerian education system has become more evident within the last one year; the Academic Staff Union of Universities (ASUU), who have been on strike since 14th

February has declared an indefinite strike, after extending the strike by three months in June, 2022. The Academic Staff Union of Polytechnics (ASUP) has commenced a strike action and the COEASU, the union of colleges of education lecturers also embarked on two months national strike which was called off on the 10th day of August, 2022, for 60 days.

Science and technology hold the key to the present challenges and future development in Nigeria education system. Technology plays a fundamental role in wealth creation, improvement of quality of life, economic growth, provision for adequate security, and transformation in any society (Anaeto et al, 2016). Science is an activity which results into a testable, falsifiable and a veritable body of knowledge while technology is the practical application of science (Omosewo in Damoeroem, 2021). Science suggests ideas and technology operationalizes them. The application of science through technology is crucial for providing the infrastructures needed in all modern countries.

This paper therefore gives an overview of the following questions;

1. What are the recent crises experienced across the globe?
2. What are the challenges of global crises on Nigeria education system?
3. What are the roles of science and technology in providing remedies to these challenges facing the Nigeria education system?

Global Crises

Global crises include pandemics, war, climate change, famine, economic recession, among others. The global economic crises caused by COVID-19, has had adverse effect on individuals' quality of life and mental health (Mann, Krueger & Vohs, 2020). COVID-19 pandemic appeared in Wuhan, Hubei region, China, and the first case of infection was reported on the 31st December, 2019 in the same region. The outbreak of covid-19 epidemic has caused a global health emergency, having affected 220 territories, regions and countries. (Wang, et al, 2022). The advent of coronavirus brought the global health emergency which affected almost all the countries in the world including the most advanced nations and the weak economies nationwide (Rose (2021); Zhang (2021) & Azomahou, et al, (2021).

Another major global crisis is the war between Russia and Ukraine which started on the 24th of February, 2022. Russia deployed her military into neighbouring Ukraine, releasing bombs and shelling which has caused damages to homes, schools, hospitals and other civilian infrastructures (IRC, 2022). Millions of people remain in danger and in need of urgent aid as attacks on Ukraine's cities continue, even after over 3.5 million people fled Ukraine to neighbouring countries. This war has caused a major setback in the world's economy, encompassing weaker growth, stronger inflation and potentially long-lasting damages to supply chains (Horobin, 2020). The world has also been affected by numerous crises which has posed risks to humanity and their environments in recent times. The International Rescue Committee, IRC (2022) identifies recent humanitarian crises across East Africa;

- i. Political tensions amid regional drought and conflict in Sudan
- ii. Economic crisis compounding a decade of war in Syria
- iii. Humanitarian access to basic needs due to violence and crisis in Somalia
- iv. Civil unrest, armed clashes, violent deadlock leaving millions displaced in Myanmar
- v. Conflict and disease compound crisis in the democratic republic of Congo
- vi. Regional tensions, food insecurity amidst the economic impact of COVID-19 and flooding in South Sudan
- vii. Growing insecurity across the country in Nigeria
- viii. Cumulative impact of protracted conflict in Yemen
- ix. Climate change which includes drought and flooding, and continued conflict in Ethiopia
- x. Crisis after conflict (The Taliban control) in Afghanistan.

Challenges of Global Crises on Nigeria Education System

The Nigerian education system consist of four levels of organization; the first is informal and the remaining three make up the formal system of education (Birabil & Ogeh, 2020). This includes the early childhood education which is meant for children of the age range of two to five years; the primary education which is the first level of the formal education system for children of age range six to twelve years (six-year course); the secondary education which is in two stages of six years duration – junior secondary school one to three (JSS 1-3) and the senior secondary school one to three (SSS 1-3); and the tertiary education which is categorized into universities, colleges of education, and polytechnics. The university is the highest level of tertiary education in Nigeria, awarding first degree, masters' degree and Ph.D degree in various disciplines; colleges of education are teacher training institutions and awards Nigerian Certificate in Education (NCE); and the polytechnics award National Diploma (ND) and Higher National Diploma (HND) in technical courses for a duration of two years each.

The global crises have affected the Nigerian education system at all levels; ranging from lack of funding arising from COVID-19 pandemic, economic crisis as a result of the war between Russia and Ukraine; to the insecurity in the country caused by terrorism. The challenges of global crises on the Nigerian education system includes;

- i. Inadequate funding/ budgetary allocation. Nigeria is one of the countries that is yet to allocate 26 percent of her budgetary allocation to education as recommended by the United Nations Educational, Scientific and Cultural Organization, UNESCO (Birabiyil and Ogeh, 2022). This has affected the growth of education in the country leading to lack of infrastructures in primary, secondary and tertiary schools and regular strike action in tertiary institutions. Odigwe and Owan (2019) investigated the trend analysis of the Nigerian budgetary allocation to education sector from 2009 to 2018 with reference to UNESCO's 26% benchmark. The trend shows that budgetary allocation to education by the Federal Government of Nigeria has been below the 26% benchmark prescribed by UNESCO for developing nations. Table 1 shows the budget and allocation to education sector for eleven years.

Table 1: Nigeria's budget and allocation to the education sector from 2012 to 2022

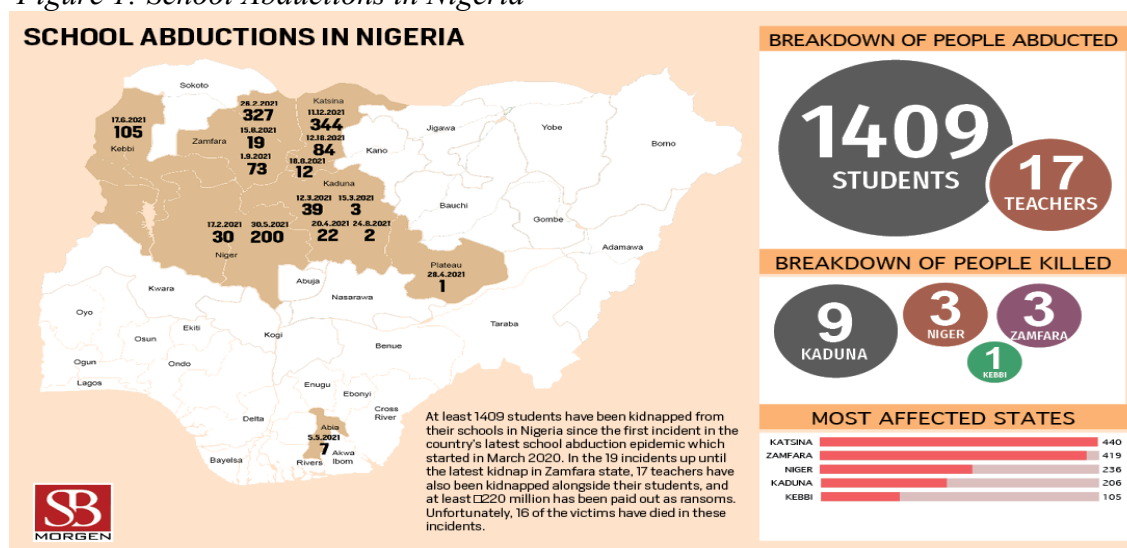
Year	Budget (naira)	Education allocation (naira)	Allocation to education as % of total budget
2012	4,877,000,000,000	400,015,000,000	8.202
2013	4,987,000,000,000	426,053,000,000	8.543
2014	4,962,000,000,000	493,000,000,000	9.936
2015	5,068,000,000,000	392,002,000,000	7.735
2016	6,061,000,000,000	396,006,000,000	6.534
2017	7,444,000,000,000	550,000,000,000	7.389
2018	8,612,000,000,000	605,008,000,000	7.025
2019	8,920,000,000,000	620,000,000,000	7.050
2020	10,330,000,000,000	671,070,000,000	6.700
2021	13,600,000,000,000	742,500,000,000	5.600
2022	16,390,000,000,000	1,290,000,000,000	7.900
Total	91,250,000,000,000	6,585,654,000,000	7.216

Source: Iyabo Lawal. (2021, October 28). FG's allocation to Education. *The Guardian*, available on <https://guardian.ng/features/education>

- ii. School closure, loss of academic sessions, poor/unequal access to education opportunities (students in rural and urban area access to e-learning gadgets), and lack of technology for distance learning caused by covid-19 pandemic (Eze, et.al, 2021).

- iii. The shut-down of universities in Ukraine as a result of the unprecedented war and conflict has led to the evacuation of Nigerian students studying in such institutions. The federal government has evacuated 1,199 stranded Nigerians, mostly students, from Ukraine through Hungary, Poland, Romania and Greece, while some students are still trapped in the city of Sumy, where they live a life of agony and uncertain anxiety (Matazu, 2022). These evacuated Nigerian students are to be absorbed by Nigerian Universities in the face of incessant strike actions.
- iv. Security lapses and challenges which manifests on daily basis in Nigerian schools ranging from youth restiveness, terrorism and insurgent attacks, kidnappings, hostage taking for monetary ransoms, political assassinations, arsons, murders, cult related activities, mass protests and so forth (School Software Pro, 2022). Figure 1 is a breakdown of the abductions that has been carried out by terrorists and bandits in Nigeria between March, 2020 and September, 2021. At least 1409 students have been kidnapped from their schools in Nigeria since the first incident in the country's latest school abduction epidemic which started in March 2020. In the 19 incidents up until the latest kidnap in Zamfara state, 17 teachers have also been kidnapped alongside their students, and at least ₦220 million has been paid out as ransoms. Unfortunately, 16 of the victims have died in these incidents (SBMintel, 2021).

Figure 1: School Abductions in Nigeria



Source: Reports on school abductions in Nigeria (SBMintel, 2021), available on www.sbmintel.com/2021/09/chart-of-the-week-school-abductions-in-nigeria/

- v. Drastic drop in the rate of government allocation to the Nigerian educational sector due to economic crisis (Bamigboye, Ede & Adeyemi, 2016), which in turn has affected/caused;
 - a) The purchase of equipment and materials for effective education delivery
 - b) Regular payment of salaries and allowances to staff in education sector
 - c) Regular servicing and maintenance of laboratories in schools at all level
 - d) Lack of renovation of dilapidated buildings and construction of new ones
 - e) Incessant strike actions embarked upon by various unions of Nigerian educational institutions
 - f) Unemployment and inadequate supply of qualified teachers and other personnel needed for effective curriculum delivery

- g) Inability of teachers at all levels of education system, to cope with class size due to insufficient man power and classrooms.

Roles of Science and Technology in Remedying the Challenges of Global Crises on Nigeria Education System

The roles of science and technology in providing remedies to the challenges caused by global crises on the Nigeria education system cannot be overemphasized. Science and technology have been used to proffer solutions in different sectors such as health, agriculture and education, among others. The problems of redundant economy, insecurity, unemployment, inflation, incessant strike actions and so on, can all be remedied through science and technology. The following are ways through which science and technology could be used in remedying the challenges caused by global crises on the Nigerian education system;

- i. Transparency could be ensured in budgetary allocations and funding of education sector by displaying all allocations, funding and expenses online for constructive criticism.
- ii. The invention of ventilators, vaccines and numerous kinds of mobile sprayers used in fighting the spread of coronavirus pandemic are all products of science and technology. More research and innovations can be made to help prevent and fight any further outbreak of disease and pandemic
- iii. Virtual learning and online classes to be introduced in both rural and urban areas by providing computers and wireless network facilities all over the country
- iv. Provision of science and engineering infrastructures to ensure Nigeria's economy is diversified and to enhance the growth of its diversified economy
- v. Installation of cameras, closed-circuit television (CCTV) and the use of drones in schools at all levels and their environs for monitoring to rule out insecurity, and to boost effective security networking
- vi. Provision of communication gadgets and transport facilities, of recent technology, to be made available for security personnel.

Recommendations

The following recommendations were made based on the context of this paper;

1. The government should ensure adequate funding of education so that Nigerian schools can measure up to the standard of other developing nations. Educational bodies could be set up to monitor these funds, with education allocations and expenses displayed online for consumption of the public. This will ensure transparency in budgetary allocation and funding in the education sector
2. Research and innovations should be made on the prevention and cure of Covid-19; and tackling further outbreak of disease and pandemic
3. Computers and wireless network facilities should be provided by the government and private sector to encourage virtual and distance learning
4. The management staff of institution at all levels should invest on the installation of closed-circuit television system and cameras in their institutions for proper monitoring to boost effective security network
5. The government should invest in educating the nations' security personnel and purchasing communication gadgets and transport facilities for security personnel to rule out insecurity.

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