

Post-COVID -19 Era: The Role of Science and Technology in Nigeria

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Abstract: *The covid-19 pandemic has devastated the lives of people across the world. The effect of the pandemic on the life of people in developing countries is estimated astronomically and socially. Covid-19 caused serious setbacks in the education, economic and social life of people in developing countries. Essentially, this paper focused on the contribution of science and technology to mitigate challenges associated with Covid-19. The role of science and technology in global crises cannot be underestimated. This paper identified some of the responses of science and technology in terms of collaborative work through global net open science and data sharing synthetic among others. Similarly, the paper identified some challenges associated with Covid-19 such as closures of schools and businesses, gaps in the healthcare system, loss of jobs and reduction in income generation by families, increase in crime rates and violence, social isolation, increased demands on schools to provide additional infrastructural facilities, etc. To this end, therefore, the paper recommended that: Governments in developing countries should give due consideration in planning the allocation of finance to different sectors of economic, education, and social investments.*

Keywords: Role, Science, Technology, Post, Covid-19

Introduction

The pandemic of COVID-19, an unprecedented global crisis, has had a profound effect on societies around the globe. Beyond the immediate health hazard, a significant concern has emerged regarding the variety of physical and mental health consequences patients experience long after their initial infection with SARS-CoV-2. These persistent health effects, termed "post-COVID conditions," comprise a spectrum of physical, social, and psychological consequences, frequently resulting in functional limitations that pose significant challenges to patient well-being and overall quality of life (CDC, 2021).

Post-COVID conditions, also known as "Long Covid," "Post-acute Covid-19," "Long-term effects of Covid," or "Post-acute Covid syndrome," are a collection of complex health problems that persist for at least four weeks after the initial COVID-19 infection. These conditions can affect people who initially had mild or even asymptomatic acute infections, underscoring the virus's long-term impact on health (CDC, 2021).

The COVID-19 pandemic has had a staggering global reach, affecting every corner of the globe. Its profound social and economic effects are almost incomprehensible, transforming the lives of people around the world (IDB, 2020). Governments around the globe were compelled to take drastic measures, including the temporary closure of schools and businesses, to control the spread of the virus. These necessary but disruptive measures led to substantial resource losses, which exacerbated the pandemic's impact.

While the pandemic's effects were felt globally, developing nations faced particularly formidable obstacles. In regions such as West Africa, including Nigeria and Niger, preexisting vulnerabilities have exacerbated the effects of COVID-19. These factors include limited access to healthcare systems, economic resources, and social welfare. The disruption of vital services, particularly education, has exacerbated the crisis.

In numerous developing nations, the pandemic's effects extended beyond the health and economic spheres, leaving individuals destitute and unemployed. During these challenging times, access to healthcare, which was already difficult in some regions, became even more difficult. Schools and colleges were forced to close, depriving students of vital learning opportunities (UNESCO, 2020).

To this end, therefore, this paper will focus on:

- The role of science and technology
- Concept of E-learning
- The role of E-learning in science and technology education
- Challenges associated with Covid-19
- Post Covid-19 challenges and strategies
- Conclusion
- Recommendations
- References

The Role of Science and Technology

Science and technology are the pillars of contemporary society. In Nigeria, these disciplines experienced a renaissance because of the pandemic. Researchers in area of chemistry, physicians, and engineering among other scientist collaborated to create rapid diagnostic tests, inexpensive ventilators, and mobile applications for contact tracing. This inter-disciplinary effort demonstrated that science and technology are not solely abstract concepts, but rather effective tools for addressing real-world problems.

In addition, artificial intelligence (AI) played an important role in data analysis and forecasting. The use of machine learning models to forecast the spread of infection and optimize healthcare resource allocation. These insights generated by AI enabled more effective decision-making in the face of unpredictability.

The pandemic compelled Nigeria to rethink its educational system. E-learning became the norm when schools were closed and students were confined to their residences. Educational institutions rapidly adopted digital platforms to remotely deliver instruction and interact with students. This transition to e-learning not only ensured the continuation of education, but also revealed the possibility of an educational revolution in Nigeria.

Access to quality education, teacher shortages, and educational infrastructure deficiencies can now be addressed through the use of e-learning platforms. By leveraging technology, Nigeria can establish a more equitable and flexible educational system that reaches even the most remote areas.

Concept of E-Learning

E-Learning refers to a learning system that is obtained through the internet using an electronic device. It is also referred to as online education using the computer. Abernathy (2020) defines E-Learning as online learning or electronic learning which refers to the acquisition of knowledge through electronic techniques and media systems.

E-Learning is the delivery of information and knowledge for education and training through telecommunication technology. Segara and Setyawan (2021), in Aparicio and Bacno (2013) defined online learning as another relevant concept to E-learning which is also defined as E-learning transmitted through information and knowledge through a partial or entire use of the internet in the process with the feature of flexible timing and accessible geographically. E-Learning, therefore, is online learning, therefore, is an online learning system obtainable through the use of the internet by learners. Is a learning system that requires the use of computers and data or other digital services allowing technology to facilitate learning anytime, anywhere, it is a simple way of connecting the world and building assets.

The Role of E-learning in Science and Technology Education

It is important to note that teaching technology, critical thinking, and problem-solving through science education enable students to develop the skills and knowledge they need to succeed in school, community, and society at large or beyond.

Life learners (2021) noted that science and technology education contributes significantly to the development of individuals and the society in various ways; such as:

- Providing a conducive learning environment to students
- Making distance learning more accessible
- Enabling students and teachers to access information at anytime, anywhere □ Making collaboration more efficient and effective.

In the light of the above, it is clear that science and technology education is viable for the continuation of teaching and learning during the Covid-19 locked down and closures of schools. Similarly, the business could flourish through various platforms. Science and technology play a significant role in wealth creation, improvement of the quality of life, and economic growth and transformation in any society.

Asiabaka, et al (2016) maintain that science and technology hold the key to the progress and development of any nation, stressing that it plays a fundamental role in wealth creation in any country. It is in recognition of the role played by science and technology, that Latin America and Caribbean countries use science and technology education to mitigate the challenges of Covid-19 (IDB, 2020). The Latin and Caribbean countries emphasized the use of:

- Collaborative work through global networks
- Open science and data sharing
- Synthetic Biology
- Bioinformatics
- Multidisciplinary teams

These factors had made it possible for the Latin and Caribbean nations to articulate a scientific response to the problems of Covid-19 almost in real-time (IDB, 2020). This particular model of Latin and Caribbean countries be applied to West African countries to mitigate the lingering challenges constituted by the Covid-19 pandemic. In this context, UNCTAD (2020) stated that the Covid-19 pandemic has underscored the pressing need for countries to focus more on elevating science, technology, and innovation in both policy and practical terms. Similarly, Economic Commission for Latin America and the Caribbean (2020) noted the contribution of science, technology, and innovation during the Covid-19 pandemic while aiming at facing the current health challenges and supporting production efforts aimed at the economic recovery effect of the pandemic.

To mitigate the challenges associated with Covid-19 in developing countries, certain issues are fundamental to facilitate the process. Such issues include finance for data, electricity opener, soft and hardware. Similarly, proper mobilization and sensitization of people. With adequate finance, power, hardware, and software as well as mobilization of people the Latin and Caribbean experience can be adopted in order developing countries, especially West Africa.

Challenges Associated with Covid-19

During the Covid-19 lockdown people were constrained by stressors such as social distancing, reorganizing of family life, school, and businesses, fear of being affected by Covid19, access to the healthcare system, and fear of losing a family member, a friend is initially overwhelming (Ajaseh et al., 2020). These challenges were also observed by UNESCO (2020) FME (2020) and Johnson (2020) as gaps in the health sector, social isolation, loss of jobs, reduction in income generation, and distance learning strategies among others. Scarcity of funds increased crimes and violence, as well as homelessness, which were also part of the experiences during the Covid-19 lockdown.

Post Covid-19 Challenges and Strategies Responding to the Pandemic

World Economic Forum (2020) noted that the Covid-19 crisis has affected societies and economics around the globe and will permanently reshape our world as well as it continues to unfold. In this connection issues such as trade, governance, health labor, and technology among others are put to test to balance the risks and opportunities that may come out.

It is worthy to note that the Covid-19 pandemic brought an unprecedented challenge to many developing countries, especially in Africa. For instance, reduction in income generation and increasing poverty, food and insecurity among others (Africa in Focus, 2021). In this regard, the key strategies include deregulation for the growth of large firms, supporting agricultural productivity, and developing the agro-food system. In this context, strategies such as families empowerment, mobilization of youths, finance, entrepreneurial culture, and other supports. These strategies will facilitate development and economic recovery after Covid-19 among countries in West Africa.

Conclusion

Covid-19 brought unprecedented risk and crisis to many countries including the developing nations. The risk associated with challenges in terms of increased poverty, shortages of food access to the health system, closures of schools and businesses, joblessness, reduction in income generations, social distancing, and an increase in crime and violence among others. Science and technology education was identified as options for helping families and governments to address the challenges associated with the Covid-19 pandemic in developing countries, especially in West Africa. In this regards governments are charged with the responsibility to provide: finance for data, hard and software as well as computers and electricity or power. People need to be mobilized and sensitized to accept new changes brought about by the Covid-19 pandemic. Training of health workers and teachers is essentially such training should include entrepreneurship to facilitate accelerated development and economic recovery after Covid-19 in West Africa.

As Nigeria traverses the unexplored terrain of the post-COVID-19 period, science and technology serve as guiding beacons, shedding light on the way ahead. The global health crisis has shown the capacity of these disciplines to revolutionize individuals, sectors, and entire communities. Now, it is imperative for the nation to capitalize on this momentum and allocate resources towards the advancement of its scientific and technological prospects.

The crisis has provided an opportunity to observe Nigeria's remarkable tenacity and adaptation, which might serve as a source of inspiration. Through the utilization of scientific advancements and technological innovations, Nigeria has the potential to not only recuperate but also flourish in the aftermath of the global pandemic. The allocation of resources in present times will play a crucial role in shaping the nation's readiness to tackle forthcoming difficulties, thereby securing its position as a leading hub for scientific advancements in the African continent.

Recommendations

To address the risk and challenges associated with Covid-19 through science and technology education, the following steps are important:

1. Government should ensure proper training of health workers and teachers
2. Governments and donor agencies should make funds available to facilitate necessary activities after the Covid-19 pandemic
3. Governments and donor agencies should help in mobilizing and sensitizing about the new changes brought by Covid-19
4. Governments should ensure adequate electricity supply to all communities
5. Hard and software should be made accessible and affordable by governments and donor agencies
6. Workers should be sensitized to know about Covid-19 protections especially in the workplace by health workers
7. Governments should ensure the proper provision of a conducive learning environment to facilitate learning strategy.
8. Governments should provide e-learning facilities for effective networking. To access information anytime, anywhere
9. Governments and donor agencies should sensitize people to the need for collaborative and interactive learning environments
10. Schools should emphasize the teaching of science and technology with special reference to entrepreneurial training and youth empowerment
11. Governments should review their budgets to adequately accommodate new charges brought by covid-19 and tackle challenges through science and technology education

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