



**INFORMATION AND COMMUNICATION TECHNOLOGY: IMPERATIVE IN
TEACHING AND LEARNING IN A PANDEMIC ERA FOR SUSTAINABLE NATIONAL
DEVELOPMENT IN NIGERIA**

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Abstract

The paper examined information and communication technology (ICT) in teaching and learning in pandemic era for sustainable national development. The role of ICT in promoting national development cannot be overemphasized. ICT is one of the most reliable sources of support for national development (Global and Local Economy). ICT in teaching and learning in pandemic era in Nigeria include: E-learning system which enables students to learn from their various homes without necessarily coming to class physically, e-business model allows customers to buy and sell products online, providing employment opportunity through the development of new ideas and improvement in technology via the education system, training facilities and affordable access to computers among others. Since the outbreak of the covid-19 pandemic by the end of 2019, many aspects of human's lives have been affected dramatically. Therefore, this paper looks at concept of ICT, Education, National development, sustainable development goals, sustainable national development, importance of ICT in national development, and effects of pandemic era on national development in Nigeria. The paper concludes that ICT has improved man's ingenuity and opportunity to retrieve real-time information for solving societal challenges, and it has also helped in improving the national economy around the world. It was therefore recommended that e-learning facilities should be constantly upgraded to facilitate effective teaching and learning in educational institutions, also, government should adopt e-learning system educationally to avoid schools closure, especially during state of emergency or pandemic.

Keywords: *ICT, Pandemic Era, Sustainable National Development, Education*

Introduction

Information and communication technology (ICT) emergence has improved man's ingenuity and opportunity to retrieve real-time information for solving societal challenges, needs and for skilled development (Eze & Chinedu-Eze, 2018). The digital transformation of education system in all levels has allowed incorporating a new teaching and learning process called e-learning (electronic



learning) for the purpose of advancement of knowledge at all level of education. Developing countries in comparison with developed world are facing challenges such as poor internet connectivity, poor or inadequate knowledge of the adoption of ICT for content development (Aung & Khaing, 2015).

These interactive interconnectivity platform link students, schools around the world in such a way to improve education, enhance understanding, and develop skills that are needed for job placement and invariably for sustainable national development of any nation. Educational institutions in developing countries suffered and are still suffering poor funding from the dearth of qualified staff with less accessibility to technology usage (Ahmed, 2010). Digital transformation, which is widely used in the 21st Century is associated with the mandatory COVID-19 Pandemic lockdown which resulted to greater access of digital technology platform potential for the enhancement of teaching and learning in our educational sector (Radha, Mahalakshmi, Kumar & Saravana-kumar, 2020).

The digital technology in educational contexts resulted to terms such as e-learning, online learning, web-based learning, virtual learning environment (VLE), massive open online courses (MOOC) (Daniel, 2014). Technological digitalization affects how people interact, live, work, study and this makes investing in digital skills throughout life of utmost importance. Education is the backbone of national development and growth. There is an urgent task of preparing citizens to make the utmost opportunities of it and meet the challenges of a fast moving globalized and interconnected world through the tools of digitalization of ICT. However, research studies have shown that most of the teachers and facilitators ignored potential pivotal role of ICT in delivering qualitative standard of education (Endedijk, Vermunt, Verloop & Brekelmans, 2012).

The adoption of digital technologies significantly improves learning outcomes, innovation, enhance equity and quality, and increase efficiency in educational system. Similarly, digital technology accessibility helps to reduce the learning gap between students from high and low socio-economic background. There must be an improvement in digital technology accessibility and connectivity for ill students in learning institutions by reducing inequality and exclusion. Accessibility to technology tool usage and infrastructure leads to innovative potential if fulfilling learning experience outcomes.

Educational innovation depends largely on empowering both the learners and the educators together through an expert – led training professional seminars and workshops. Digital transformation of education call for change in perception and strategies adopted by the stakeholders both the policy makers and the educators in order to witness the desired outcomes. Making digital technology readiness in education, providers of education need to provide the right environment, infrastructure, devices and leadership support that are beneficial to both students and the teachers. It is an approach that blend teacher’s training, curriculum contents and other educational materials that are fit for digitally- supported teaching models.



Conceptualization

Education

Education is a word with root from old Latin “educatio” which has to do with the process of providing information to an inexperienced person in order to help him/her develop physically, mentally, socially, economically, spiritually and politically. It is an all-round developmental process. Education leads to acquisition of adequate and appropriate knowledge, skills, attitudes and values which could form cognitive, affective and psychomotor domain of learning that are aimed at making the learner functional optimally in the society. It is in the light of this reality that Ocho, considers education as the process through which individuals are made functional members of their societies. Thus, education is not just aimed at enriching the individual knowledge but also geared toward preparing such individual for special tasks and employment functions essential for national development. Education is morality. It is about learning how to be loyal, honest and effective in the society. It is an individual guide for national development. Education maybe formal, informal and non-formal in whichever way viewed, education is central to development productivity and growth. It is about learning skills and knowledge.

Education develops a country economy and society, therefore, it is the transmitting of cultural heritage, stabilizing the present, improving and changing the future. Education provides knowledge and skills to the population, as well as shaping the personality of the individual of a nation. According to Egeonu (2019), education remains a vital tools and a powerful instrument for socio-economic empowerment, wealth creation, employment generation, poverty eradication and value orientation. Education is very important for an individual’s success in life. It is generally seen as the foundation of society which brings economic wealth, social prosperity and political stability. Education is also capable to give power for individual to voice out their views expose to them their real potential, lead them to become a better person and widen their views in certain areas. Education is the key to move in the world, seek better jobs and ultimately succeed in life.

Education is said to be the best investment for the people because well educated people have more opportunities to get a job which gives them satisfaction. Most educated individuals enjoy respect among their colleagues and they can effectively contribute to the development of their country and society by inventing new devices and discoveries. The main purpose of education is to educate individuals within society, to prepare and qualify them for work in economy and to integrate people into society and teach those values and morals of society. Students at all level of education must be equipped with knowledge and skills which are needed to participate effectively as members of the society and contribute towards the nation’s development most especially in the pandemic era.

National Development

National development is referred to as the type of achievement and choices that are essential for human life to prosper (Hamel, 2010). These types of achievements are non-hierarchical, irreducible, incommensurable and basic kind of human ends that are valuable objectives for human progress beyond social or cultural values (Alkire, 2002). National development is the means by which the people’s welfare can be improved by eliminating illiteracy, ignorance and poverty by



providing amenities like education, transportation, and healthcare (ITU, 2011). National development centres on human, trade and governance (Bankole, Osei-Bryson & Brown, 2013). National development encapsulates the notion of human development as the means of enlarging people's choices in order to raise levels of wellbeing so as to lead a long healthy life, to acquire knowledge and to have access to the resources needed for a decent standard of living (UNDP, 2006). Trade (both international and regional) serves as cornerstone of socio-economic development by creating and enlarging regional and international economy from small and unequal national economies thereby stimulating productive capacity and industry competition for national development (Bankole, 2015).

The role of ICT in promoting national development cannot be overemphasized. ICT has been receiving enormous scientific and political attention among international organisations such as World Bank and United Nation, the World Trade Organisation (WTO) and International Monetary Fund (IMF) (Soper, Dermirlean, Goul & St. Louis, 2012). This has led to a continued debate on strategy to position ICT for global development. However, the role of investments in ICT to aid national development is not yet fully understood, and to-date there is still not sufficient published mainstream information system (IS) research that looks at the impacts of ICT on national development. In addition, several of the national leaders, policy makers, and the development practitioners that have the capability to initiate changes in both developed, developing and transition economics particularly Africa have not been able to determine how the limited resources set aside for improving the economy should be effectively allocated.

Sustainable Development Goals

The Sustainable Development Goals (SDG), also known as the Global Goals, were adopted by all United Nations member in 2015 as a universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and posterity by 2030. Everyone is needed to reach these ambitions targets. The creativity knowhow, technology and financial resources from all societies is necessary to achieve the SDGs in every context (UNDP, 2015). SDGs recognized that action in one area will outcomes in others, and that development must balance social, economic and environmental sustainability. The vision is also laden with the intent to reduce the burden of poverty on the populace and to massively roll out infrastructure in large magnitude (Isizoh & Anazia, 2013). However, as promising as the vision seems, without commensurate investment in science and technology and the adoption of appropriate technologies to drive that vision, it might as well go the way of previous development plan initiated by the country since independence in 1960.

Therefore, Nigeria's vision of becoming among one of the 20 most developed industrialized nations in the world would remain in mirage without information communication technology (NITDA, 2013). ICT has helped in improving the national economy around the world by changing the way people live and work. It has helped to links the world together by networking. People are able to interact with one another in real-time without having to travel from one end of the world to another (Seewanyana & Busler, 2007).

The importance of ICT lies in the technologies themselves, but more in their ability to create greater access to information and communication in underserved populations (Tech Target, 2003).



Many countries around the world have established organisations for the promotion of ICT with a focus on closing up the already existing economic gap between technological “have” and “have not” areas. Internationally, the United Nations actively promotes ICT for development (ICT for D) as a means of bringing the digital devices.

As long as the world has not found a cure or a vaccine for COVID-19, we may have to adjust to a new way of living and going about our lives, work and interactions with other people. COVID-19 was described as an infection disease which is caused by severe respiratory syndrome (SAR) Corona virus 2. The World Health Organisation (WHO) declared a public health emergency related to COVID-19 on January 28, 2020. With increasing number of cases globally, a pandemic was declared by WHO in March 11, 2020. The declaration of COVID-19 as a pandemic caused the economy of nations all over the world to suffocate as economic activities were brought to standstill. Obviously, there was complete halt in economic growth and development followed by stringent measures, such as lockdown which were taken by some nations globally to contain the spread of the disease (Onyekwena & Ekeruche, 2020). This consequently affected income with more adverse effect on the vulnerable populations in developing countries.

However, a consolation has been taken by most central bank, finance institutions and ministries and independent economic professionals around the globe based on the prediction that impacts of the Covid-19 pandemic might be sharp but brief, and thereafter economy activities will return to fullness. As one of the developing economies, the chances of sliding into a recession are steadily be anticipated as the outbreak of the pandemic continues to put pressure on Nigeria economy. The impact of the dreaded corona virus, it was believed can give a serious blow to the already fragile economy of developing countries like Nigeria even before the outbreak. However, much has not been done on the use of ICT in coping with the pandemic era.

Sustainable National Development

Sustainable national development refers to the ability to harness all available resources, human capital, materials of a nation. In his view, Dzungwe (2012) affirmed that national development is the ability to flow along with other nations in terms of effective management and utilization of current development in science and technology. According to Aguele and Uhuamuabi (2003), development means “bringing a nation to an advanced or a highly organized state, that is, utilizing all the human and material potential of a nation to bring about growth and development”. Development has to do with employment for all the citizens of a nation.

However, sustainable development is attaining and maintaining the height of standard in the development agenda of the nation. This include – education, health services, economic, transportation, good road network, justice and equity, food security and all the social amenities needed for safe and healthy living of citizen in a country.



The Importance of ICT in Teaching and Learning in National Development in a Pandemic Era in Nigeria

It is generally agreed that ICT has enhance National Development (Heeks & Arun, 2009; Evans & Herman, 2011) but the clear cut link between the two has often been left vague (Harindranath & Sein, 2007). Nigeria, like the rest of the world recognized the significance of information and communication technology (ICT) to meet the growing demands of work business, production and services in different sectors in the Nigeria economy include the following:

-E-learning comprises all forms of electronic supported learning of teaching: The information communication systems, whether networked learning or not serve as specific media to implement the learning process. It offers teachers an efficient way to deliver lessons to students. Student can attend classes from any location of their choice and as such there are fewer chances of students missing out on lessons. It suits a variety of learning styles.

-Employment Opportunities: The use of ICT to bring new employment for youths and migrant workers has also been given the opportunity to develop new ideas in the technology via the education system, training facilities and affordable access to computers. In this way, youths have an opportunity to be self-employed; and they are exposed to entrepreneurship through the use of information and communication technology thereby improving national development.

-E-business and services in Nigeria: The growing young educated and technology friendly population has contributed largely in growing trend of e-business in the country popular E-commerce model Business to Business (B to B). Business to Customer (B to C) and Customer to Customer (C to C) are adopted by many small and medium enterprises (SMEs) as a growth strategy for their business.

-Diversification of the Economy: The decline in oil revenue due to COVID-19 Pandemic, it is imperative that Nigeria diversifies its economy. The sudden fall in crude oil price suggests that Nigeria should consider other options of sustaining its economy apart from the oil sector. Available option are Agriculture, Mining, Energy, Human Capital, Telecommunication, Manufacturing, etc.

Effect of Pandemic Era on National Development in Nigeria

The COVID-19 pandemic has social, religious, political and economic effect on the national development in Nigeria. The introduction of lockdown by the Federal Government of Nigeria (FGN) movement, commercial and social activities were brought to halt as a result of the pandemic. This lead to decline in revenue of the government due to decline in global oil market, which the Nigerian economy largely depends on, also, this was further intensified by sub-national governments who quickly followed suit by imposing lockdowns in their States (Onyekwena & Ekeruche, 2020). The following are some of the effect the pandemic era on national development in Nigeria.



Decline in Oil Revenue: The outbreak of the COVID-19 pandemic has affected negatively the price of crude oil in the international market. For example, the price of crude oil dropped from about \$60 per barrel to less than \$30 per barrel (Ozih, 2020) and this has affected negatively the revenues from the sales of crude oil for Nigeria.

-Job Losses: Many people have lost their jobs as a result of the outbreak of the COVID-19 pandemic and many jobs are at risk. The pandemic has worsened the unemployment situation in Nigeria.

-Business Closure: Many businesses/particularly small and medium enterprises (SMEs) have been closed down as a result of the COVID-19 pandemic. SMEs are made badly hit by the outbreak of the pandemic due to their vulnerability and limited resources. Measures such as self-isolation or quarantine, social distance, ban on social gatherings the closure of markets taken to contain the spread of the disease have impacted negatively on their operations, sales and profits.

-School Closure: The COVID-19 pandemic has posed a challenge to education system, with the ban on social gathering and social distancing measure adopted to contain the spread of the disease, school have closed down. Academic activities and calendars have been disrupted. Therefore, students would not graduate at the expected time.

Conclusion

Information and communication technology (ICT) emergence has improved man's ingenuity and opportunity to retrieve real-time information for solving societal challenges. ICT has helped in improving the Nation economy around the world by changing the way people live and work. It has help to link the world together by networking. People are able to interact with one another in real-time without having to travel from one end of the world to another. The information and communication systems (ICT), whether networked learning or not, serve as specific media to implement the learning process. It offers teachers an efficient way to deliver lessons to students. Students can attend classes from any location of their choice and as such there are fewer chances of students missing out on lessons. It suits a variety of learning styles. ICT and its applications will have far-reaching positive effects on Nigerian economy in year to come when fully adopted. It is very important that the Nigerian government should invest heavily in the use of ICT in order to realize its full potential.



Recommendations

1. E-learning facilities should be constantly upgraded to facilitate effective teaching and learning in educational institutions.
2. The government should adopt e-learning system to avoid schools closure, especially during states of emergency or pandemic of this kind. E-learning system enables students to learn from home. With the lockdown policy and other containment measures enforced during the pandemic, many schools have adopted online education system so that academic activities would not be disrupted.
3. Equipment such as computer hardware, software must be adequately provided for operational services of digital platform transforming and facilitating teaching and learning activities.
4. The Government should ensure that the electric power supply is made available around the clock in educational institutions.
5. The Nigerian government should focus on the manufacturing sector in its economic diversification drive (EDD). When this sector is revamped, it would not only drive the economic sustainability of the country, but also job opportunities would be created.
6. The government should encourage the adoption of e-business model. Due to lockdown and restrictions of movement during the pandemic, many customers have adopted online shopping. Online shopping allows goods bought to be delivered to the buyer at the comfort of their home.
7. The government should also reduce the existing tax rate to certain small scale and medium enterprise (SMEs). This is as a result of the effect of the pandemic on SMEs business.
8. It is also imperative that Nigerian diversifies its economy due to the decline in oil revenue due to the COVID-19 pandemic. Nigeria should consider other options of sustaining its economy apart from the oil sector.

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