

Digital Integration into the Nigerian Educational System: Challenges and Prospects

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Abstract

In the last ten years, there have been conscious attempts by every nation to integrate digital tools into their educational system especially at the tertiary level. Nigeria is no exception. The policymakers in Nigeria at the federal and state levels have felt the need to integrate Information Communication Technology (ICT) in their educational policies. It is felt that in this globalized world the country must embrace digital technology to enhance support teaching and learning environment. It is the belief that in the present globalized world every nation should embrace digital technology to be competitive and also have knowledge-based society as well as information society or as Castells, (1996) has put it "Network Society" and also Perevozchikova, et.al. (2020). The COVID-19 pandemic has also made it imperative that countries should advance towards e-learning. The future of education is therefore intertwined with Information Communication Technologies (ICTs). The Nigerian government has realized that the new normal or post-COVID-19 pandemic environment has made the traditional method of teaching and learning outmoded.

It is therefore in this regard that most policymakers in Nigeria are advocating an advance towards ICT hence there is what we can call paradigm-shift in terms of teaching and learning in Nigeria now. This paper discusses the Nigerian guidelines on digital education highlighting the challenges and the prospects of digital education. It concludes that digital education must be embraced because the post-COVID-19 pandemic has made it impossible to continue with the traditional mode of teaching/learning.

Keywords: Digitalization, Education, E-learning, Globalization.

Introduction

In recent years every nation has realized that Information Communication Technologies (ICTs) are important in all spheres of life of the society. Information Communication Technologies (ICTs) have become the most important factor in the rapid development of any society. History, it is asserted, has proved this in terms of countries that have developed rapidly because of their technical skills in ICTs. Globalization has been made possible by Information Communication Technologies (ICTs) which has triggered in an unparalleled way the shrinking of space and time in the world today. Modernity has become associated with information technology. Globalization has been defined in various ways but Giddens (1990) is probably the most appropriate definition which captures the process of globalization. He

conceives the process of globalization as the interdependence of world societies in such a way that technology is the most singular factor that has propelled this process of globalization. This conception of globalization is also expressed by Hosen, (2020; Ivanov, 2020; Jameson, 2015; Appadurai, 2005; Lyotard, 1979; Conley, 1977). In each nation of the world today there is an awareness and appreciation of technologies as the most important factor for the advancement of society.

ICT has made the world highly dependent on knowledge produced by it in terms of information that can be accessed for socio-economic and political development. It is because of this that modern society has been characterized as a knowledge-based society. Some scholars have characterized this society as digital or information society which is an attempt to link it up with technology (Atoy, et.

al. 2020; Ayodele, 2020; Waheed, et. al.; García-Peñalvo et. al. 2017). These two concepts give us the idea that modern age is based on the accumulation of information which has a spinoff on society in terms of socio-economic and political development. Hernandez, (2017) defines knowledge-based society as the social transformation occurring in modern society and its impact on various areas of human endeavors. In another twist to the two concepts, Andalia (nd. cited in Hernandez) notes that there is a difference between knowledge-based society and the information society. He claims that information society is designated through information and communication technologies while knowledge-based society is anchored on a conception that conveys and stimulates its resources through the application of technological tools. The two concepts demonstrate that their origins and development stem from technological innovations and advances that are closely related to information communication technology. It is pertinent to note that technological innovation and advancement have been largely fostered or brought about in the field of education. Education has been the main agent of change in societies through technologies in the 21st century. It is in this regard that societies now give premium to information technologies in their educational system.

Most societies especially developed ones are conscious that technological innovations are important for society and hence they have a robust educational policy in the management of information technologies (Hernandez, 2017). Some developing countries like Nigeria have also become conscious of information technologies as an important factor in the transformation of society and have fashioned out a pragmatic educational policy in managing information communication technology in their educational system. It has been observed that there is a symbiotic relationship as earlier pointed out between technology and social transformation. It is in this sense that the connection between technology and knowledge has been seen as playing an essential role in societal development and transformation (Alaimo et. al., 2020; Valderrama, 2012). This connection between technology and education

has implications for socio-economic development.

In knowledge-based society the impact of ICT is enormous. In terms of form and content, the changes wrought by ICT have had a multiplying effect to such an extent that the wider society has been permeated by the idea of ICT being the propeller of changes in socio-economic and political domains especially in developing countries like Nigeria.

Integration of Information Communication Technology (ICT) into the Educational System

The integration of ICT into the educational system has gone beyond the technological tools which are used in the teaching of students. It has made the learning process to go beyond the traditional teaching method. The technological tools have helped in imparting knowledge much better than the old methods. The Nigerian national implementation guidelines for ICT in education define Information Communication Technology (ICT) as “the art and applied sciences that deal with data and information. It encompasses all (equipment including computational machinery – computers, hardware, software, firmware, etc., tools methods, practices, processes, procedures, concepts, principles, and the sciences) that come into play in the conduct of the information activities: acquisition, representation, processing, presentation, security, interchange, transfer, management, organization, storage, and retrieval of data and information” (NIGICTIE, 2019). These tools started with the emergence of calculators, voice recorders, television sets, etc. But there are many more advanced tools now - computer, World Wide Web (www). Wang, 2020 defined “web as a series of interconnected documents stored on computer site or websites.”

The use of the internet facilitates e-learning within the educational system. The internet relay chat includes some components that is been used to communicate globally such as Zoom, Skype, Google Meet, and Microsoft Team. Some other internet tools which allow people to exchange ideas with each other through the internet are e-portfolios, cyber infrastructures, digital libraries, and online learning object repositories, etc. There are also e-modules which are written and could be converted and stored into a digital

version and transferred into a computer using word processor accessible by the user through the internet. All these technologies are tools that are deployed now in education. They are also used in teleconferencing – audio conferencing involves a live exchange of voice messages over a telephone network and still images such as graphs, diagrams, or pictures. There is also video conferencing which makes it possible for showing moving images as well as voice and graphs. Video conferencing technology does not use telephone lines but either satellite link or telephone network. The next one is web-based conferencing and it is as the name implies the transmission of text and graphic, audio and visual media through the internet. It requires the use of a computer attached to a browser and communication can both be synchronous and asynchronous. All these technologies play a greater role in education by improving the quality of education. With the COVID-19 pandemic which is ravaging the world now, it is impossible to have the traditional face to face conference hence institutions have resulted in teleconferencing. Zoom is mostly deployed now. Zoom is a web-based video conferencing tool with a local, desktop client and a mobile app that allows users to meet online and collaborate with or without video. Zoom users can choose to record sessions, collaborate on projects, and share or annotate on one another's screens, all with one easy-to-use platform.

Education is now regarded as the fulcrum of social change. In this regard societies all over the world lay much emphasis on the education of their citizens. They invest heavily in the education of their citizens. Education aids any nation in terms of its economy, social and political upliftment. It is therefore imperative for any nation that wants to develop to fashion its educational policies towards the development of its citizens as well as bringing about changes in all areas of human endeavors. It is also through education that knowledge is imparted which involves skills that can be used for the development of society. According to UNESCO, (2000), “Education refers to the total process of developing human ability and behaviours.” It is an organized and sustained instruction in terms of learning designed or fashioned to communicate a combination of knowledge, skills, and understanding value for all activities

of life. Education molds total humankind to solve his problems in life. It is also a tool through which they come to understand their environment and if necessary, change their environment for the better of their environment in the world. Fafunwa (2018) notes that education is “the aggregate of all the processes by which the learner develops abilities, attitudes and other forms of behaviors which are of positive value to the society in which he/she lives.” He further claims that education is also a process of transmitting culture which allows for its perpetuity in space and time. Education also, according to Fafunwa, disseminates knowledge in other to ensure social control as well as guarantee rational control of society. Education could also be seen as a systematic procedure for the transfer and transformation of culture through both formal and informal methods of training people in society. It deals with the mental, physical, psychological, and social development of citizens. Education is also conceived as an institution that makes individuals think freely and rationally which enables social progress and innovations to be possible (Kurilovas, 2020). Social progress and innovation are the key ingredients of how society has fared better in terms of its advancement to a higher stage of development. When progress occurs in any society its members can think freely and rationally and can, therefore, innovate which could impact society. From the above therefore it can be seen that education is a tool for social change.

Given the importance of digital technologies most countries have fashioned out a robust educational policy in their educational system hence they have to prioritize digital technologies. Nigeria is not an exception to this. It is realized by stakeholders or educational policymakers that digital technologies must be incorporated fully into the educational system. This is reflected in the policy on ICT by the federal government of Nigeria in their 9- 3- 4 educational policy which is entitled National Implementation Guidelines for ICT in Education henceforth called (NIGICTIE, 2019). It has vision and mission. The vision is “to make education universally accessible, empowering, inclusive and enriching”. And the mission is “to meet the human capital investment of the nation for attaining and enhancing sustainable socio-

economic development, global competitiveness as well as the individual's ability to survive in a contemporary environment" (NIGICTIE, 2019).

The guidelines have seven major components which are:

Human Capital Development in terms of ICT

- Infrastructure
- Research and Development
- Awareness and Communication
- Governance
- Financing
- Monitoring and Evaluation

The objectives of ICT in education are spelled out in the educational policy on ICT. These are:

- To facilitate the teaching and learning processes.
- To promote problem-solving, critical thinking, and innovative skills.
- To promote life-long learning and advance knowledge.
- To enhance the various teaching/learning strategies required to meet the needs of the population.
- To foster research and development.
- To support effective and efficient education administration.
- To enhance universal access to information.
- To widen access to education and the range of instructional options and opportunities for any-where, any-time, any-pace and any-path learning.
- To promote the commercialization of ICT in education.
- To develop and support technical infrastructure that maximizes digital creativity, sharing, and innovation.

The policy thrust of the guidelines is geared toward making ICT relevant in the educational system. The policy thrust involves government:

1. Building and encouraging the development, utilization, and sustenance of the ICT manpower required to achieve an ICT-enhanced Education;
2. Establishing and sustaining a common ICT infrastructure platform for education at all levels;
3. Ensuring and encouraging Research and Development (R&D) in ICT generally and ICT in Education in particular;
4. Engaging in and encouraging regular stakeholders' consultations (including the

Private Sector), sensitization of the learning community, public awareness and inter-governmental relations to achieve a broad-based consensus on ICT in education;

5. Providing appropriate legal, regulatory and security framework to ensure that ICT in Education and the conduct of related activities are focused on achieving ICT-enhanced Education;
6. Adopting innovative and creative financing models for ICT in Education.
7. Using Monitoring and Evaluation (M&E) as a veritable tool in ICT in Education for tracking policy implementation, efficient service delivery, and compliance (ibid).

All the objectives and policy thrusts are elaborated upon in terms of how to implement them. Strategies and sub-strategies are laid out on how to go about them. The strategies and sub-strategies are explicit and comprehensive. For instance, human capital development strategies are such that the government has to play a vital role. It is realized that there is a severe shortage of ICT skills and personnel. To improve this government has to encourage the development, utilization, and sustenance of the ICT manpower to achieve an ICT enhanced education. The strategies that should be adopted to achieve this are these:

1. Restructure the environment for teaching and learning as well as education administration to be ICT-enhanced.
2. Carry out and encourage the continuous and mandatory professional development of core ICT Teachers and Administrators.
3. Ensure appropriate ICT training including content development and delivery for all staff.
4. Review the curricula periodically to reflect emerging good practices in line with national goals.
5. Promote ICT proficiency in mass and non-formal education with a special focus on children, women, and people with special needs.
6. Develop and strengthen standards and guidelines for content and instructional materials in electronic media and the use of ICT tools in formal and non-formal education.
7. Strengthen and expand Open and Distance Learning as well as blended and e-learning.

8. Carry out a needs assessment to identify skill gaps and encourage the acquisition of appropriate ICT skills to mitigate the gaps.
9. Encourage private sector participation in Education and Training in ICT.
10. Encourage ICT education at all levels.
11. Ensure periodic quality assurance in the development, utilization, and sustenance of ICT in education.

Each of these strategies has sub-strategies on how to implement them. The second policy thrust which is on infrastructure notes that there is an inadequate ICT infrastructure in the country in general and in the education sector in particular. It is therefore realized that there is the need to provide the infrastructure required to attain improved ICT in education. The strategies to achieve these among others are:

1. Ensure adequate supply of ICT systems for access to software applications, local and international content, and online learning resources at all educational institutions and establishments.
2. Ensure that all educational institutions and establishments are interconnected to create a common platform that will facilitate the sharing of resources and reduce duplication. The platform will provide a secure network for administrative purposes as well as access to the Internet for instructional and professional development.
3. Ensure that ICT systems for education administration are in place and all necessary common infrastructures for the storage and management of the ensuing data are provided in all educational institutions and establishments.
4. Promote and encourage the design, development, acquisition, and hosting of indigenous content.

All the other objectives - Research and Development, Awareness and Communication, Governance have strategies and sub-strategies on how to achieve them. They are all intentional guidelines that stipulate what should be done to bring about the deployment and transformation of ICT in the education sector especially in tertiary education.

Challenges

One question that comes to mind is how digital education has fared in Nigeria since the

guidelines were introduced in 2010. One can say that not much has been achieved. Nigeria has not become educationally advanced in ICT. There have been problems and challenges that have militated against the country becoming tech-society or network society, especially within its educational system. The ICT policies are comprehensive in scope and are mainly statements of intention the implementation of such an ambitious intention has not been achieved. Several physical and pedagogical factors have militated against digital education. These include lack of electricity and frequent power outages, poor technology infrastructure, low bandwidth, lack of internet connectivity, insufficient and inappropriate software, and insufficient human capital to impart these digital technologies, which means those with skills in digital technologies are insufficient in numbers. There are insufficient computers in schools in the country. Most computer labs are either not available or equipped properly. Moreover, there is a lack of technical know-how in terms of maintenance of the equipment. Turel & Johnson, (2012) have noted that technical problems constitute a major barrier to digital learning in most schools. This position is also corroborated by Nwanchukwu et. al. (2020); Shedden, (2020). The issues also involve virus attack and non-functioning printer.

There is also the issue of connectivity as earlier highlighted. Nigeria depends on an expensive satellite that cannot be sustained hence connectivity is not available. Two-way satellite connectivity is now widely available but its cost is prohibitively high hence Nigeria cannot afford that. No submarine connectivity can link Nigeria with other parts of the world especially Europe and America though in recent years efforts are being made to connect to SAT-2 and SAT-3.

There is also the question of funding. The Nigerian government has not sufficiently funded education generally not to talk of funding digital technologies in the educational system. The country has not met the UNESCO benchmark of 26% of Gross National Product (GNP) to fund education and this has affected digital education.

In all, there is a need to address the challenges of infrastructure, connectivity, pedagogical integration of ICT into the educational system in Nigeria.

Conclusion

Prospects of Digitalization in Learning: A Peep into Future Learning

The present state of the world with the COVID-19 pandemic is now imperative that traditional mode of education will have to be abandoned for a new mode of learning which involves the introduction of digital technologies into the educational system in all ramifications. Nigeria has to embrace the new normal in terms of post-COVID-19. This new normal has made certain learning imperative which is different from the way learning was conducted in the past. In other words, there is a kind of paradigm shift in terms of teaching/learning which involves digitalization. It is in this respect that Nigeria has to embrace this new form of teaching/learning in its educational system and because of this, it must gear up the digitalization of its educational system.

The Nigerian guideline policy on ICT is comprehensive in scope and with this new reality, it must be updated to match the present situation in terms of the pandemic. Some stakeholders in Nigeria have voiced this out that Nigeria has to embrace digital technologies (Ajiboye, 2020). Nigeria has to deploy digital technologies in its educational system so that it will meet up with the competitive globalized world.

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