

# **Digital Literacy: A Panacea for Sustainable Development in Nigeria in the 21st Century**

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## **Abstract**

Digital Literacy encapsulates the awareness, attitudes and abilities of individuals to identify, access, and use digital tools and resources appropriately. It also encompasses the entire process of managing, integrating, evaluating, analysing digital resources, creating new knowledge, creating media expressions, enabling constructive social action, communicating with others in the contexts of specific life situations. Literacy plays an indispensable role in the attainment of the Sustainable Development Goals (SDGs). This paper explores the impact of digital literacy on Sustainable Development in Nigeria in the 21st Century. An exploratory design was adopted for the study in which qualitative data was obtained through an in-depth review of relevant literature. The literature revealed that the poor state of Nigeria's economy is a factor that is responsible for digital illiteracy in Nigeria; the state of infrastructures such as ICTs and digital literacy skills is a serious threat to digital literacy in Nigeria; poor funding of education in Nigeria is affecting the provision of ICT resources and encouraging digital illiteracy. Inadequate access to computer and internet connectivity has thwarted digital literacy and sustainable development in Nigeria. Based on this, the paper made some recommendations among which are: Education for sustainable development policy should emphasise the vitality of digital literacy; the Federal and State Governments in Nigeria should show more commitment in addressing the infrastructural problems impeding digital literacy and sustainable development in Nigeria; Federal and State Governments in Nigeria should partner with the private sector in ensuring that the necessary infrastructures that will facilitate digital literacy and sustainable development are provided.

**Keywords:** Digital literacy, Sustainable Development, Nigeria, 21st Century.

## Introduction

Digital literacy represents the ability to use information and communications technologies safely and critically for work, both on a personal as well as on social level. The main features of this 21st Century literacy skill is the use of computers for the purpose of sourcing, evaluating, creating, displaying and sharing information over the Internet. Acquiring knowledge and skills in the field of ICT is one of the prerequisites for successful social inclusion in contemporary society and the labour market. The origin of the word 'literacy' refers to the ability to read and write. Early descriptions of computer-related literacies also focus on the acquisition of sets of rules and technical capabilities. Literacy is the ability to identify, understand, interpret, create, communicate and compute, using printed and written materials associated with varying contexts. Literacy involves a continuum of learning in enabling individuals to achieve their goals, to develop their knowledge and potential, and to participate fully in their community and wider society (UNESCO, 2014). Literacy is socially embedded, and there are multiple literacies depending on the perspective and context. Each perspective requires specific knowledge, skills, and expertise. Thus, different terms, such as computer literacy, health literacy, media literacy, civil literacy, visual literacy, and critical literacy are coined to embrace specific literacies and many more (Parrilla & Stack-Cutler, 2011). Skills in each of these areas are not mutually exclusive. Hence, one may use specific computer skills to access knowledge in the medical field. This has resulted in different categories of literacy. The 21st-century skills are crucial for sustainable development of any nation and through the instrument of digital literacy, it becomes realistic for people to thrive in the 21st century. The Queensland Curriculum and Assessment Authority (2015) defined 21st-century skills as 'high priority abilities and qualities thought to be the most important in assisting students and learners in living and working successfully in the twenty-first century.' In addition, according to Johnson (2009), 21st-century skills encompass not only technology literacy but also critical thinking, problem-solving, communication, and collaboration, all of which are important for success in both work and life.

The United Nations (UN) member states and the UN General Assembly formally agreed in September 2015 on the Sustainable Development Goals (SDGs) and conceived a global agenda for development that is based on 'economic prosperity, social inclusion and environmental sustainability' which is known as the 2030 Agenda for sustainable development (UN, Department. of Economic and Social Affairs, 2018; IFLA, 2019). In response to this development, the UN's Broadband Commission for Sustainable Development, which was established by International Telecommunication Union (ITU) and United Nations Educational, Scientific and Cultural Organization (UNESCO) in 2010 broached the idea of promoting development and empowerment of each and every individual and society through the benefit of broadband (UN Dept. of Econ. Affairs, 2018). Hixson, Ravitz and Whisman (2012) opine that there are eight talents that every student in the twenty-first century should possess. First, critical thinking skills refer to students' ability to examine complicated situations, research topics with no obvious answers, assess many points of view from information sources, and reach appropriate conclusions based on facts and rationale. Second, collaboration skills relate to students' ability to work collaboratively to solve issues or answer questions, work successfully and politely in groups to complete a common goal, and share responsibility for finishing a task. Third, communication skills refer to students' ability to organise their thoughts, facts, and discoveries and effectively communicate them via a range of media, including orally and in writing.

According to Onyam and Chukwu (2022), Sustainable Development is a concept that projects the image of a nation among the comity of nations in the world. It determines the extent to which a country is concerned with meeting the survival needs of its citizens such as food, healthcare, poverty alleviation, education and a host of others. In this regard, nations must not only endeavour to satisfy the needs of the present generation but must plan to also solve those of future generations. Achieving this noble objective requires access to information by all citizens of a nation. It is for this reason that Information and Communication Technology (ICT), (Utin, 2016) is considered relevant due to its propensity to disseminate information extensively and rapidly. This also explains why they are being applied in virtually every facet of human endeavour in a bid to fast-track sustainable development in society. Thus, Digital literacy (a concept that has emerged from ICT utilisation) has become a measuring device for determining the levels of sustainable development of nations. Nigeria is one of the developing nations of the world that has keyed into the SDGs Agenda in its bid to ensure the well-being of its citizens and the socio-economic growth of the country.

However, the question that comes to mind is, to what extent has Nigeria embraced digital literacy in sustaining its developmental efforts? Is digital literacy making any impact on the country's sustainable development? Does ICT resources play any role in promoting digital literacy for sustainable development in Nigeria? Are there issues and challenges of digital literacy in sustaining development in Nigeria? What is the role of teachers in digital literacy and sustainable development in Nigeria? Could there be suggested strategies that could be adopted in enhancing digital literacy and sustainable development in Nigeria? The paper is an attempt to provide answers to these questions and a few others. Owing to this, the paper will consider

- Digital Literacy and Sustainable Development in Nigeria.
- Impact of Digital Literacy on Sustainable Development in Nigeria
- The Role ICT Resources Play in Promoting Digital Literacy for Sustainable Development in Nigeria
- The Issues and Challenges of Digital Literacy and Sustainable Development in Nigeria.
- The Role of Educators in Digital Literacy and Sustainable Development in Nigeria.
- Strategies to Enhance Digital Literacy and Sustainable Development in Nigeria.

## **Methodology**

The paper adopted the exploratory research design in which qualitative and quantitative data was obtained through an in-depth review of relevant literature.

## **Digital Literacy and Sustainable Development in Nigeria**

Digital literacy is described as 'the capacity to analyse and utilise data in diverse forms,' focusing on critical thinking rather than technological abilities (Chan, Churchill & Chiu, 2017). Digital literacy can be seen as an umbrella term that includes a continuum of meanings extending across the ability to use digital devices or software, to being capable of consuming and producing digital content, to meaningfully participating in digital communities (Alexander, Adams Becker and Cummins 2016). Digital literacy is the awareness, attitude and ability of individuals to appropriately use digital tools and facilities to identify, access, manage, integrate, evaluate, analyse and synthesize digital resources, construct new knowledge, create media

expressions, and communicate with others, in the context of specific life situations, in order to enable constructive social action, and to reflect upon this process (Stergioulas 2006). UNESCO (2018) proposes the following definition for digital literacy: Digital literacy is the ability to access, manage, understand, integrate, communicate, evaluate and create information safely and appropriately through digital technologies for employment, decent jobs and entrepreneurship. It includes competences that are variously referred to as computer literacy, ICT literacy, information literacy and media literacy.

According to Ifijeh, Iwu-James and Adebayo (2016) the ability to possess and apply ICT in our daily activities is critical and this is used to determine the level of a country's sustainable development and its status among all other nations. They further stated that it is this disparity that has resulted in the term 'digital divide'. The **European Commission** uses the term **digital competence**. Digital competence involves the confident, critical and responsible use of, and engagement with, digital technologies for learning, at work, and for participation in society. It includes information and data literacy, communication and collaboration, media literacy, digital content creation (including programming), safety (including digital well-being and competences related to cybersecurity), intellectual property related questions, problem-solving and critical thinking. (European Council 2018). The phrase 'digital literacy' is currently defined as the technical knowledge and abilities required for those who desire to live a productive life, engage in lifelong learning activities, and contribute constructively to society (Çam & Kiyici, 2017). Digital literacy is the ability to understand, analyse, and use information in various forms from varied sources that can be accessed through computer devices. Digital literacy is more associated with technical access, compiling, understanding, and disseminating information skills (Dinata, 2021).

Sustainable Development Goals (SDGs) refer to a global decision aimed at making the world a better place to live. Sustainable development has been defined as the development that meets the social, economic and technological needs of the present without compromising the ability of future generations to meet their own needs (Udaudoh, Oname & Adamu, 2019). According to Nicholas & Perpetual (2015), sustainable development is the overall change and improvement in any given society as related to individual progress. Sustainable development covers a wide range of interrelated issues in the areas of environmental, economic, social, and political, all within the limits of the world's natural resources to ensure that all people enjoy peace and prosperity by the year 2030. Sustainable Development Goals (SDGs) were formulated by the United Nations Organisation and were adopted at the Sustainable Development Summit on 25th September, 2015 by the United Nations member states (Abdulrahman, Ape & Egbe, 2019). It is now referred to as the 2030 Agenda for Sustainable Development which, according to Galyuon (2016), includes a set of 17 Sustainable Development goals (SDGs) aimed at ending poverty, fighting inequality and justice, tackling climate change by 2030. The SDGs are built on the Millennium Development Goals (MDGs) which was adopted in 2000, aimed at reducing poverty, hunger, disease, gender inequality and improved access to water and sanitation. Though the MDGs made enormous progress, despite the success, the indignity of poverty, hunger and other anti-poverty has not ended particularly in Africa and most especially in Nigeria. The MDGs made progress in several areas, such as income, poverty reduction, access to improved water sources, primary school enrolment, child mortality among others. The SDGs, according to Galyuon (2016) are as follows:

1. End poverty in all its forms everywhere;

2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture;
3. Ensure healthy lives and promote well-being for all at ages;
4. Ensure inclusive and equitable quality education and promote lifelong learning opportunity for all;
5. Achieve gender equality and empower all women and girls;
6. Ensure availability and sustainable management of water and sanitation for all;
7. Ensure access to affordable, reliable, sustainable and modern energy for all;
8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all;
9. Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation;
10. Reduced inequality within and among countries;
11. Make cities and human settlements inclusive, safe, resilient and sustainable;
12. Ensure sustainable consumption and production patterns;
13. Take urgent action to combat climate change and its impacts;
14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development;
15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt and reverse land degradation and halt biodiversity loss;
16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels; and
17. Strengthen the means of implementation and revitalise the global partnership for sustainable development. The 17 SDGs covered various aspects of human welfare, prosperity and climate change and sustainable industrialisation.

To attain sustainable development, the roles of information and digital literacy cannot be ignored. Unfortunately, according to the National Bureau of Statistics, adult illiteracy rate in Nigeria stands at 56.9%, while 95% of Nigerians do not own a personal computer (PC) (Hamutoğlu, Güngören-Canan, Uyanık-Kaya, & Erdoğan-Gür, 2017; Ng, 2012).

## **Impact of Digital Literacy on Sustainable Development in Nigeria**

The poor state of digital literacy in Nigeria, required for the sustainability of its development, calls for concern. This is due to the apparent inadequacy of essential infrastructure that would drive sustainable development. Major infrastructure such as ICTs and digital literacy skills are grossly inadequate. Joryesimi (2016) supports this assertion when he said: ‘The implementation of SDG goals can be very challenging, especially for countries that are faced with serious infrastructural problems. Digital literacy can be thwarted when the enabling environment is not created. Resources like good network access, availability of computers, smartphones and electricity, among others, impact sustainable development. Lamenting further

on the inadequacies of major resources, Ifijeh, Uwu-James and Adebayo (2016) stated that ‘Sustainable development will remain a mirage in any country whose citizens cannot effectively and efficiently deploy the use of ICTs to access and utilise quality information’.

Apparently, this statement pictures the true situation in Nigeria. It can therefore be deduced from the foregoing that digital literacy is impacting on sustainable development in Nigeria to a low extent.

### **The Role ICT Resources Play in Promoting Digital Literacy for Sustainable Development in Nigeria**

ICT is the aggregate of computers, telecommunication gadgets, multi-dimensional resources and other related technologies that are applied and used in the whole process of information management and dissemination. These tools facilitate digital literacy in so many dimensions and various components of ICT have provided a facelift for the support of varying professional services. Nwabueze and Ozioko, (2011); Umana (2018) asserted that ICT resources are imperative in actualising Nigeria’s sustainable development goal. Likewise, the same ICT resources are paramount to effective digital literacy delivery. The ICT resources according to Adebayo, Ahmed, & Adeniran, (2018) include:

**Computers:** These are essential management tools which are used to handle different operations more efficiently. Computers can be used for various activities such as information generation, processing, storage, analyses and information dissemination for sustainable development. The use of computers is noted with great assets such as speedy information transmission, cost effectiveness and optimal utilisation of available resources. Computer accessories include CDs, Flash drive and so on which are instrumental to digital literacy for sustainable development.

**The Internet:** This ICT resource is a means to speedy flow of information. It is a network of computers, communicating with others, often via telephone line. The Internet provides a worldwide platform for information sharing among individuals, institutions and organisations. The use of internet enables the provision of current and useful information to enhance digital literacy.

**Social networking:** Social networking is the use of internet-based social media sites to stay connected with friends, family, colleagues, customers, or clients. Social networking can have a social purpose, a business purpose, or both, through sites such as Facebook, Twitter, LinkedIn, and Instagram, among others.

**World Wide Web (WWW):** This is also an internet- based resource that plays a vital role in digital literacy. Websites help individuals, organisations or institutions to find products or information and transacts business. Relevant information is made available to members of the public through the websites of many organisations or institutions. Being on the web places any nation or organisation on the right cause of speedy and sustainable development in line with emergence of changes in technology, economic and political area.

**Webinar meetings:** A webinar is an online meeting or presentation held via the Internet in real-time. To put it simply, it is an **online event**, which connects individuals with viewers across the world. The main feature of live webinars is interactivity, or the ability to discuss, send and receive information in real-time. This tool also creates an enabling environment to facilitate digital literacy for sustainable development.

**Printing Technology:** A printer is a device that converts computer output into printed images.

**Video Conferencing:** This enables people at different locations to hold conferences by data communication network. It is convenient and less expensive for conducting a conference

between two or more participants situated at different remote location (Mishra and Mishra, 2014).

**Telephone:** A telephone is a telecommunications device that permits two or more users to conduct a conversation when they are too far apart to be heard directly. Telephone is a key tool through which digital literacy is possible, every digitally literate individual makes use of smart phone(s) to carryout daily routines.

**10) Electronic Mail (E-mail):** This is the most widely used resource of the internet. It is used for sending and receiving of messages otherwise known as mails. The messages are communicated through electronic device. E-mail enables faster and cheaper organisational communication.

## **Challenges of Digital Literacy in Nigeria**

### **Illiteracy / Language Barrier**

According to Ifejih, James & Adebayo (2018), 56.9 percent of Nigerians are not literate. Though the Nigerian government has made efforts to bridge the literacy gap by embarking at one time or the other, on programmes with various captions such as Education for all, Mass Literacy Campaign (MIC), one-third of the adult population still lack basic literacy. Nigeria is a multi-lingua state; some of her citizens can only write and speak in local languages other than English. Most, if not, all of the ICT facilities imported into Nigeria are configured in English Language. Consequently, these people are digitally excluded

### **Affordability**

An interview with a cross section of people disclosed that 75% of non-internet users in Nigeria say affordability is the main reason for not using the internet (Iorhemen,2020) Majority of internet users in Nigeria access it exclusively using mobile devices. Smart phones and tablets have become very popular in Nigeria. Nevertheless, a mobile broadband cost is high for most people in Nigeria where low per capita incomes subsist. According Ifejih, James & Adebayo (2018) World Bank reported that around 80% of Nigerians earned \$2 or less a day, or \$730 per year<sup>20</sup>. The cost of ICT services is a major barrier to increased internet and broadband usage. Nigeria cannot boast of free Wi-Fi to enable internet access; and internet speeds are particularly slow.

### **Lack of Digital Literacy**

Most human endeavours are increasingly dominated by the Internet and digitised services; individuals who are unable to access, interact and use digitised services are gradually excluded from enjoying basic benefits in the society. For instance, the recent cashless policy occasioned by change of naira notes in Nigeria relegated people who lack digital knowledge to cope with the novel situation. ‘Just as providing books to people who cannot read does not solve functional illiteracy, simply offering access to technology does not bridge the digital divide’. Lack of basic digital literacy skill is a major threat to digital inclusion. Ifejih, James & Adebayo (2018) observe that Conventional education i.e. learning to read, write and communicate; can never be downplayed. However, literacy in information and communication technology (ICT) is a nonnegotiable standard in the 21st century. Digital literacy is the ability to identify, search and utilize required information in multiple formats from a wide range of sources presented through information and communication technologies. CILIP postulates that digital literacy is one of the core skills required for digital inclusion. It enables one to find, critically appraise and manage information that is useful for every area of life.

## **Cybercrimes**

There is no gainsaying the fact that cybercrimes have become rampant in the cyber space. Hackers are increasingly succeeding in hacking into personal and organisational files. Consequently, this has resulted in crimes such as identity theft and exposure to hate sites. This development has resulted in reduction in the use of internet and online services by a portion of the population (Olufuye, 2018). There is no doubt that if this is not checked, it will constitute a danger because as more people become digitally literate, the rate of cybercrime will likely increase, especially among young people. This is due to the large number of unemployed youths that are turned out from higher institutions of learning in the country every year, who are mostly digitally or ICT literate (Udaudoh, Omame & Adamu, 2019).

## **Disparities Between Urban and Rural Areas**

The disparity between urban and rural areas has a serious negative effect on the inclusion of digital literacy in Nigerian education system. Most of the urban areas are characterised with enabling environment like availability of electricity, access to network as well as smartphones and computers. Rural areas on the other hand experience poor or no electricity, poor network, low access to smartphones and computers to sufficiently key into digital literacy. Most owners of mobile phones in rural areas use them for making calls, rather than for accessing the internet to interact and search for important information. For instance, the recent cashless policy system failed woefully in rural areas but had a relatively better performance in urban areas. According to Ifejih, James & Adebayo (2018), rural areas in Nigeria constitute about sixty percent of the country's habitable land space. These parts of the country are adjudged economically underdeveloped as they are plagued with poor infrastructure hence the continuous migration of persons in the productive age bracket from rural to urban areas in Nigeria becomes inevitable. Considering the development advantages that ICT offers, those who are on the disadvantaged side of the digital divide will remain digitally excluded and underdeveloped. The level of information and computer illiteracy in the rural areas is alarmingly high. Apart from illiteracy, most people in these communities are low-income earners and as such, the provision of ICT facilities remains a luxury.

## **The Role of Teachers in Digital Literacy**

This is a constantly evolving digital era. Present students, also called as 'Digital Natives' grow up using technology like computers, internet and mobile phones constantly from their early years of life. In fact, mobile phones and computers have become like a pillow to the 21st century generation as they stay on these gadgets and sleep off on them. Kumari and Flavia (2016) observe that due to this early exposure to technology, students today think, communicate, seek help, learn and access information differently. For this reason, it is imperative that the digital natives need to be taught in a fundamentally different way. Teachers are expected to provide learners with appropriate and contemporary experiences that allow them to successfully engage with digital technology and prepare them for 21st century skilled life after school. Hence, to cope up with the current demands of 21st century student -community and techno-enhanced teaching-learning process, the teachers need to get digitally upgraded. Every teacher who is digitally literate aids in providing the learner community with the abilities and technically innovative skills to achieve global standards in digital world. It is the need of the hour to initiate effective teaching and learning process simultaneously by using latest ICT tools and web-based collaborative learning with global community. Digitally literate teachers can give crucial suggestions to education-based technology developers on pedagogical practices or

specific subjects. Payton and Hague (2010) further support that teachers have to know how to create, locate, communicate information in critical and creative way. This enhances the quality as well as the quantity of useful data for educational purposes. Taking into account the results of the study about teachers' digital literacy, Ata and Yildirim (2019) suggested that digital literacy courses should be included in all teacher education programs, that alongside theoretical courses should be included more practical activities useful for the development of teachers' digital literacy. In a nutshell, teachers are key actors in digital literacy and should be proactive in making sure that digital literacy is realistic for sustainable development.

### **Strategies to Enhance Digital Literacy and Sustainable Development in Nigeria**

The achievement of digital literacy and sustainable development goals will depend on the level and accessibility of education by all. Access to education by all will lead to poverty reduction, improved health and a high standard of living which will eventually culminate in environmental sustainability. To address various challenges like social inequality, economic empowerment and environmental sustainability, literacy and digital literacy have vital roles to play. Prioritizing the development of education and the eradication of illiteracy is a strong strategy for promoting development and social empowerment. Giving education to all must, therefore, be the focus of any developing nation like Nigeria. Education for sustainable development policy should thus emphasize the vitality of digital literacy. With adequate education, issues related with language barrier could be minimize. Armstrong (2004) conceptualises the growth of the realisation of a person's ability and potential through the provision of learning and education experiences and thereby submits that learning and education are necessary ingredients that can bring about development in a nation. Education is, therefore, core to sustainable development.

As obtainable in some of the universities in Nigerian, Federal and State Governments of Nigeria should provide free wifi services to the larger society to encourage the masses who are digitally illiterate to have access to internet facilities. Government should prioritise digital literacy initiatives and discussions on internet policies, digital inclusion, broadband access and open data. Governments should include free internet in plans for broadening ICT and broadband reach to rural areas as well as reducing the cost of access for the low-income earners. Assistive technology should be provided in public libraries to improve access for people from the disadvantage background. These technologies are often costly for people who are usually among the lower socio-economic groups. IT companies, governments, NGOs, and the international community should create an enabling environment void of digital exclusion. The digital era is not going to disappear anytime soon and so there is need for education to respond to the growing digital tide which is rapidly increasing.

Digital literacy can be made much more available when the Federal and State Governments of Nigeria partner with the private sector in ensuring that the necessary infrastructures that will facilitate digital literacy and sustainable development are provided. The Federal and State Governments of Nigeria should establish a Special Fund for Public ICT resources in the country to enable them procure the necessary infrastructure that would facilitate digital literacy for sustainable development in Nigeria. The Private Sector should assist public libraries in acquiring the necessary facilities that will enable them promote digital literacy and sustainable development in Nigeria.

Cybercrime comes in different forms such as phishing, identity theft, data breach, hacking, bullying, plagiarism and so on. To curtail these crimes, cyber security should be put in place to act as a check and digital literacy should be included in the teachers' training. The teacher should discuss plagiarism and lay down strict rules. Cyberbullying is a prevalent deviant behavior observed among students. Bullying itself is a major concern in schools or educational institutions in the 21st century. Students should be deterred from engaging in such activities, and those bullied must be given proper counseling. Cybercrime security can also collaborate with teachers, parents and care givers to help put a serious check on the activities of the youth which constitute the largest digital literate population.

The disparity between urban and rural areas which has a serious negative effect on the inclusion of digital literacy in Nigerian could be curbed if the Federal and State Governments of Nigeria show more commitment in addressing the infrastructural problems impeding digital literacy for sustainable development by repositioning the institutional frameworks that would ensure effective and efficient digital literacy for sustainable development in Nigeria. There is also need for equitable distribution of resources between urban and rural areas to encourage grassroots participation in digital literacy for sustainable development.

## **Conclusion**

The paper has attempted to study the impact of digital literacy on sustainable development in Nigeria. Digital literacy and sustainable development were examined from the perspectives of the UN and other international organisations. Attempt was then made to discuss the topic based on the objectives stated in the paper. It appraised the summary of major findings and concludes that the state of digital literacy for sustainable development in Nigeria leaves much to be desired, and if Nigeria is to make better the plight of its citizenry in the direction, the public and private sectors of the economy must go into partnership in ensuring that all the necessary infrastructures that will facilitate digital literacy for sustainable development in Nigeria are provided.

## References

- Armstrong, M. (2004). *Human Resources Management Practice*, 9th edition, London, Kogan page.
- Abdulrahman, A.B, Ape, R& Egbe, N.G.E. (2019). Information literacy as a key to sustainable development in Nigeria. *Journal of Library Services and Technologies* (2019), 1(1), 31-37. Available online at credencepressltd.com. Assessed 23th June, 2023.
- Adebayo, O. A., Ahmed, Y. O. & Adeniran, R. T. (2018). The Role of ICT in Provision of Library Services: A Panacea for Sustainable Development in Nigeria. *Library Philosophy and Practice (e-journal)*. Retrieved from <http://digitalcommons.unl.edu/libphilprac/1951>.
- Alexander, B., Adams Becker, S. and Cummins, M. (2016). Digital Literacy: An NMC Horizon Project strategic brief. Austin, Texas: The New Media Consortium.
- Ata, R., Yildirim, K. (2019). Exploring Turkish Pre-Service Teachers' Perceptions and Views of Digital Literacy, *Education Sciences*, 9, 40..
- Chan, B. S. K., Churchill, D., & Chiu, T. K. F. (2017). Digital literacy learning in higher education through digital storytelling approach. *Journal of International Education Research (JIER)*, 13(1), 1–16. <https://doi.org/10.19030/jier.v13i1.9907>.
- Dinata, K. B. (2021). Literasi Digital Dalam Pembelajaran Daring. *Jurnal Eksponen*, 11, 1–8.
- European Council (2018). Recommendation of 22 May 2018 on Key Competences for Lifelong Learning, ST/9009/2018/INIT, OJ C189, 4.6.2018, pp. 1–13.
- Galynon, I. (2016). African's education and Sustainable Development Goals (2030): Where is the Nexus? Key note address for the World Educators Forum 5th International Conference, held in Cape Coast Ghana.
- Hamutoğlu, N. B., Güngören-Canan, O., Uyanık-Kaya, G., & Erdoğan-Gür, D. (2017). Adapting digital literacy scale into Turkish. *Ege Journal of Education*, 18(1), 408-429.
- Hixson, N., Ravitz, J., & Whisman, A. (2012). *Extended professional development in project-based learning: Impacts on 21st-century teaching and student achievement*. West Virginia Department of Education.
- Iorhemen, B.T. (2020). The Role of Social Media in Teaching and Learning. In Kembe, E.M & Shallah, B.M (eds). *Official Publication of the Nigerian Society for Educational Psychologist*. 978978-8451-54-9.
- Ifijeh, G, Iwu-James, J. & Adebayo, O, (2016). Digital Inclusion and Sustainable Development in Nigeria: The Role of Libraries. Available at <http://eprints.covenantuniversity.edu.ng/id/eprint/6631>. Accessed 23/4/2023.

- Johnson, P. (2009). The 21st century skills movement. *Educational Leadership*, 67(1), 11.
- Joriyesimi, R, (2016). The challenge of Implementing Sustainable Development Goals in Africa: The Way Forward. *African Journal of Reproductive Health*,20(3),13-18.
- Kumari, S.N.V & Flavia, D. (2016). Secondary School Teachers' Digital Literacy and Use of ICT in Teaching and Learning. *International Journal Of Computational Research And Development (Ijcrd) Impact Factor: 4.775, Issn (Online): 2456 - 3137 (Www.Dvpublication. Com) Volume I, Issue I, 2016* 141.
- Mishra, L., & Mishra, J. (2014). ICT resources and services in university libraries. *International Journal of Digital Library Services*, 4(3), 243-250.
- Ng, W. (2012). Can we teach digital Natives Digital Literacy? *Computers & Education*, 59(3), 1065-1078. <https://doi.org/10.1016/j.compedu.2012.04.016>.
- Nicholas, M.T & Perpetual, A.E. (2015). Library and Education: Panacea for Sustainable Development in Nigeria. *Asian Journal of Information Science and Technology*, 5(2), 28-31.
- Olufuye, J. (2012). Digital Literacy and Public Access Policy Issues: As measures for Promoting Open Knowledge Environment (OKE) in Nigeria, Nigerian Internet Governance Forum.
- Onyam, I.D & Chukwu, E.G. (2022). Optimizing Digital Literacy for Sustainable Development in Nigeria: Issues and Challenges. Access on 21/4/2023 Available at <https://journals.ezenwaohaetorc.org/index.php/ESCJERPS/article/download/2168>.
- Parrilla, R.K. & Stack-Cutler, H. (2011). Literacy and Reading Behavior. In B. B. Brown, & M. J. Prinstein (Eds.), *Encyclopedia of Adolescence*, 1, 203-211.
- Payton, S., Hague, C. (2010) 'Digital literacy in practice: case studies of primary and secondary classrooms' Futurelab, Retrieved July 27, 2020 from [http://www2.futurelab.org.uk/resources/documents/project\\_reports/digital\\_literacy\\_case\\_studies.pdf](http://www2.futurelab.org.uk/resources/documents/project_reports/digital_literacy_case_studies.pdf)
- Queensland Curriculum and Assessment Authority. (2015). *21st-century skills for senior education: An analysis of educational trends*. The State of Queensland.
- Stergioulas, L.K. (2006). The Pursuit of Digital Literacy and e-Inclusion in Schools: Curriculum development and teacher education. E-start project presentation.
- Udaudoh, S.J.; Oname I.M & Adamu A.L.G. (2019). Digital Economy: Harnessing the Benefits Tackling the Challenges for Sustainable Development in Nigeria, *International Journal of Arts, Languages and Business Studies*. 2(1),20-29.
- Umana, K. (2018). ICT resources for sustainable development in Nigeria. Retrieved from <https://researchcyber.com/icr>.

- UNESCO. (2014). *Global citizenship education: Preparing learners for the challenges of the 21st century*, UNESCO.
- UNESCO. (2018). *Global Education Monitoring Report: Migration, displacement and education, building bridges, not walls*. Paris: UNESCO.
- Utin, I.D. (2016). Information and Communication Technology: A Tool for the Teaching and Learning of the English Language in the Open Educational Resources Development in Nigeria. *International Journal of Academia* 1(1), 78-87.