

SECONDARY SCHOOL EDUCATORS' AND DIGITAL LITERACY NEEDS FOR EFFECTIVE CLASSROOM INSTRUCTIONAL DELIVERY IN THE 21TH CENTURY IN NIGERIA

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Abstract

Digital literacy is a critical competency for modern classroom instructional delivery. It encompasses the ability to leverage digital tools, evaluates information critically, and fosters a culture of innovation. This paper examines secondary school educators digital literacy needs for effective classroom instructional delivery in the 21th Century in Nigeria. It explores the integration of digital tools for communication, teaching, and professional development and highlighting strategies to address challenges to educators' digital literacy. This work provides a framework for implementing digital literacy initiatives in schools, ensuring educators are prepared to support 21st-century learning environments. This study therefore, concludes that since the 21st century is a digital century, educators cannot depend only on pedagogy that limits teaching on the four walls of the classroom such as the traditional teaching approaches for instructional delivery.

Keywords: Digital literacy, educators, secondary school, instructional delivery

Introduction

In the 21st century, digital literacy has emerged as a desired framework by governments, industries, and educational institutions as an integral component of teaching. This is due to the COVID-19 pandemic outbreak in 2020 and the global security challenges which have changed the scenario of education. As such, educators must embrace digital literacy to effectively teach students to acquire skills to navigate the digital world in order to conduct scientific enquiries using technology. This is because, learners in the early 21st century are continuously receiving information, communicating, viewing media, and using a myriad of technology-based tools. Teaching learners in a world of instant information is a challenge to educators. The use of the internet, smart phones, computers, tablets, gaming systems, and multimedia devices may be problematic to the education community. To correctly educate students, interpret, evaluate and effectively use technology, teachers have to support technology, utilize technology in their classrooms to accomplish teaching tasks competently. Hence, the place of digital literacy among educators becomes imperative.

Education is the bedrock on which modern day civilization and discoveries hinged. Education is an inevitable tool for sustainable development and a vehicle for advancing the frontier of knowledge. Education has been recognized as a process of imparting knowledge, skills, value and attitudes to the learners in homes, skill acquisition centers and schools such as secondary. Secondary education is the type of education offered to children who have completed their primary education. It is divided into three years of junior secondary and three years of senior secondary. According to Federal Republic of Nigeria (FRN) (2013), the education that is offered at this level has two main purposes; to prepare students with the opportunities to continue with their academic careers in higher institutions and to acquire the necessary skills that would help them live functionally in their communities. Therefore, such

education supposed to be delivered by teachers who are digitally literate to prepare students for competitiveness and sound academic performance.

However, it seems all is not well with education teaching at secondary school especially core subjects like English language, Mathematics and science related subjects, as there are report of students' poor performance in subjects such as biology, chemistry and physics. Bamidele and Adekola (2017) reported that students have not been performing so well in various subjects like English Language, Mathematics and Science related subjects such as Biology, Chemistry and Physics due to several factors like teaching environment, the teaching methods in use and teachers characteristics. Oladejo (2018) attested that students' poor academic performance in can be attributed to such factors as dilapidated infrastructural facilities, poor laboratory set up, lack of equipments and lack of competent educators. No wonder, Akani (2017) observed that one of the most important factors influencing students learning could be the teacher. Teacher could stand in the interface of the transmission of knowledge, values and skills. Therefore, in the learning process, if the teacher is ineffective, students under such teacher tutelage will achieve progress academically. Therefore, the teaching at the secondary school level would require educator's adequate digital literacy.

Digital and Digital Literacy

The term 'digital' refers to multi-functional devices with internet connectivity, particularly those that are handheld and portable. Digital literacy is the ability to assess the reliability and quality of information found in the digital environment (Menzietin & Akkoyunlu, 2017). Digital literacy represents a person's ability to perform tasks effectively in a digital environment, with digital meaning information represented in numeric form and primarily for use by a computer (Jones-Kavalier & Flannigan, 2006). It is the capacity to use information technology and the internet to discover, assess, exchange, and create content (Pilgrim & Martinez, 2013). It is the capacity to communicate on digital platforms, such as computers and mobile devices. American Library Association defined it as the ability to use information and communication technologies to find, evaluate, create, and communicate information.

Digital literacy expands on the traditional notions of literacy by addressing competencies relating to computers and other digital devices, the internet, and social media. According to the European Commission (2013), digital literacy helps individuals to fully engage in the society, by inculcating the skills and knowledge required to survive in the twenty- first century. Educators are required to have the ability to understand and effectively utilize the information, media, and technology available. Aqili and Nasari (2010) differentiated traditional literacy from literacy in the 21st century as a range of abilities to successfully communicate using various media, read e-books, utilize e-mail, find and evaluate online information, utilize presentation software, employ electronic communications to establish dialogue with experts, and write for both a local and global community. Hobbs (2011) supported this changed meaning by suggesting that literacy, due to the varied methods of communication and expression, is greater than the ability to just read, write, speak and listen. It's now includes complex and integrated forms of images, video, sound, music, and interactivity that the teachers needs to possess in their bag of tools to teach competently.

However, teaching in educational institutions is changing and modernizing to adapt to today's society. This new teaching relies on digital tools that promote active methodologies and reaffirm the idea that learning is shared. The integration of digital tools

into educational practice is intended to ease the work of teachers and students by providing new resources that are appealing and reinforcing for 21st century classroom (Aluko, 2019). To access appropriate ICTs and improve digital competence, there is the need for digital literacy, which is widely understood as an inter-related set of skills that are vital for success in the digital age (List, 2019). According to Kaware and Sain (2015), teaching learners in a world of instant information is a challenge for educators. Educators' lack of ICT knowledge and skills may be a key barrier to effective teaching, as teachers need to be conversant with digital media cultures that are vital for learners. They must also be able to use technology pedagogically in ways that are appropriate to the subject(s) being taught (Amhag et al., 2019; Torres & Giddie, 2020). Therefore, educators need digital literacy for quality instructional delivery.

Components of Digital Literacy

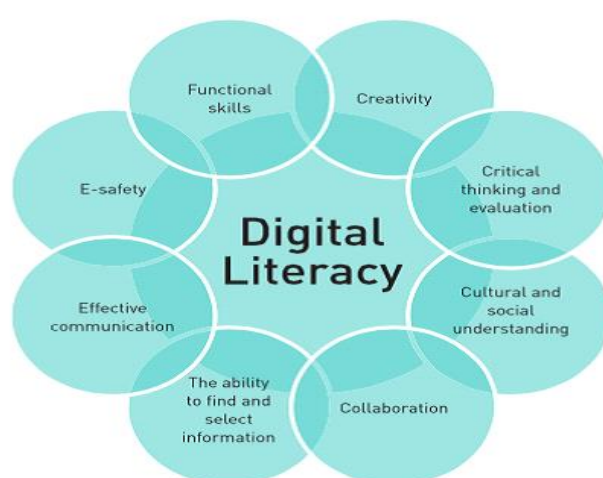


Figure 1: *Components of Digital Literacy*

As technology has rooted its way into our day-to-day existence, education cannot be left out in this innovative change. The eight components include creativity, critical thinking and evaluation, cultural and social understanding, collaboration, find and selection of information, effective communication, e-safety, and functional skills (Hague & Payton, 2010).

Digital Literacy Skills

As technology continues to evolve, it is crucial for educators to continually cultivate their digital literacy skills to remain at the forefront of scientific advancement. The following skills are crucial in the digital space. The first skill is technical digital skills. This is a basic skill that educators need to acquire effective instructional delivery at the secondary school level. With the rampant changes to technology, this technical skill is essential as a continual effort to keep up with the new technology. According to Fuchs (2010), as new technology is developed; manual labor is being replaced and technology is being integrated into most aspects of work. The second is information digital skills. Skills like searching, evaluating, and organizing information in a digital environment are significant. According to Ananiadou and Claro (2009), characterized information management is the ability to clearly define information needs, identify digital information, and select digital information effectively and efficiently. As of now, learners use multiple devices therefore, maintaining formation across the digital device is crucial for educators.

The third skill is communication digital skills. It is essential to master the right way of communicating on the internet. Communication using email, social networking sites, and instant messaging services must be done effectively. Learners need to express themselves clearly and be able to interact with others in real-time (Yu et.al., 2010). By communicating via the internet, it can cater to a universal audience and distance at a faster pace. The fourth skill is collaboration digital skills. Collaboration skill is widely used due to the collaboration software chats such as WhatsApp, Skype, Zoom, and others. This software allows instant interchange of ideas, chats, information, and experience. In today's society, the emergence of online collaborative platforms has made it important to manage the information with others (Ester van Laar et. al., 2020).

The fifth skill is critical thinking digital skills. According to Starkey (2011), having this skill is essential and crucial as it allows resources to be created with various intentions and competencies. It is significant to assess online content to avoid fake news. The ability to do so is through being able to extract crucial information and communication through critical reflection. According to Dede (2010), incoming online information and communication and extracting valuable information are important to sustain and steer online discussion. The sixth skill is creative digital skills. Loveless and Ellis (2001) claimed that ICT can develop creativity through creating and realizing ideas. Web 2.0 technology allows such ideas to be produced and shared in creative and new ways. Creativity is much more appreciated in Web 2.0 as it determines the success of whether being well-received by the audience. Video sharing, web-blogging are some common online content creations that portray creativity.

The seventh skill is problem-solving digital skills. ICT has become the main source of problem-solving. Problems are defined differently, and solutions can be easily found online. Barak (2018) elaborated that educators and learners need the skills to find the solution, solve the problem and transfer the knowledge to new situations. These skills are fundamental for educators in 21st Century. Being able to be equipped with these skills will help educators to be more vigilant to online content, information, and communication. By acquiring these skills, learners of this century can maximize the usage of online learning. These seven skills were incorporated to form digital literacy in education with the aids of digital software.

Digital Literacy Software

The most common type of software discussed with learning tools, LMS solutions offer a host of educational capabilities. LMS stands for Learning Management System, which is a software application used to plan, deliver, and track training and educational programs. This software often serves as a hub of learning materials; provide online quizzes, and much more. Modern LMSs rely on artificial intelligence (AI) and innovative technologies to analyse the training needs of individuals and companies, design individual learning paths and track progress in continuing education and compliance training. They also support classroom management for instructor-led courses and use algorithms to automatically recommend courses based on users' skills profiles. The software can be used to track students' progress directly in the system for decision making.

Status of Digital Literacy among Educators in Nigeria

Digital literacy in Nigeria in the context of the United Nations Department of Economic and Social Affairs (UNESA) and Wiley DSGI respectively was ranked to be far from adequate (Isyaku & Nwokeocha, 2022; Okafor, 2023). Studies in Africa have revealed that the majority of teachers lack essential technological knowledge and need extensive professional development to apply technology in teaching (Aluko, 2019). This is also very

true in the Nigeria context, where this study was conducted (Torres & Giddie, 2020). To upscale the status of Nigerians, educators inclusive in digital literacy, several ICT initiatives and implementation have been put in place among which are; the national ICT baseline study; the refocusing of the education trust fund of Nigeria to address teachers' ICT skills; review of pre-service teacher education curricula; and teacher capacity development initiatives. This is to say that, much confidence has been placed in the ability of the educators to bridge the digital literacy gaps. Notwithstanding these efforts, many teachers in Nigeria, according to Okafor (2023) still lack the digital literacy skills and confidence to effectively integrate technology into their teaching practices. In 2021, the Universal Basic Education Commission (UBEC) reported that over 60% of teachers in Nigeria's public schools lack digital literacy. This, however, calls for a serious concern because educators who are to impart digital literacy to students are deficient themselves. According to List (2019) to access appropriate ICTs and improve digital competence, there is the need for digital literacy, which is widely understood as an inter-related set of skills that are vital for success in the digital age.

Digital literacy and Education Teaching

Digital literacy is crucial in modern classroom teaching, enabling educators to leverage on technology for engaging and interactive learning experiences, while also equipping them with skills to critically evaluate and use digital information for research and scientific inquiry. Therefore, digital literacy plays the following roles in education delivery:

- **Enhanced Learning Experiences:** Digital tools can create immersive and interactive simulations, experiments, and visualizations that make complex scientific concepts more accessible and engaging for students.
- **Access to Information:** Digital literacy allows students to access a vast amount of scientific information from various online sources, fostering a deeper understanding of scientific topics and promoting critical thinking skills.
- **Scientific Inquiry and Research:** Digital tools are essential for conducting research, collecting and analyzing data, and presenting findings in a scientific manner.
- **Collaboration and Communication:** Online platforms and tools facilitate collaboration among educators and with experts, promoting communication and knowledge sharing in the scientific community.
- **Preparing Students for the Future:** In an increasingly digital world, digital literacy is essential for students to succeed in Education and other fields, as well as to become informed and engaged citizens.

Moreover, in this era where digital aids are used in teaching and learning, material such as video, projector, magnetic board, interacting board, filmstrip etc. There is now two widespread recognitions that such equipment presents opportunities to change the way in which students learning can be organised. Traxler (2010) suggests everyone should have his or her own digital aid. Educators use one and often have more than one such device in teaching and learning processes. As a consequence, it has been argued that the availability of such digital devices has the potential to change the traditional dynamics and patterns of the teaching and learning environment. The combination of more Internet access (fixed location) and personal Internet access (mobile) thus provide the opportunity for educators to explore a number of trends in this new era.

Challenges facing Educators Digital Literacy

Educators in Nigeria face challenges in digital literacy, these challenge include the following:

Digital Access and Infrastructure: Many schools, especially in underserved areas, lack sufficient computers, reliable internet access, and other necessary digital resources. According to Anunobi and Ukwoma (2016) the key barriers to digital competence among Nigerian educators are poor infrastructure and the lack of adequate regular revisions of curricula to integrate new teaching methods and digital competence. Unreliable internet connections and slow speeds can hinder online learning and communication. Socio economic disparities, unequal access to technology and internet at home creates a digital divide, impacting students' ability to engage in digital learning activities. Skaletsky et al. (2017) argue that difficulties with ICT access have an impact on the society involved and cause them to suffer unequal benefits and unequal participation, thus leading to digital divides. Digital divides refer to differences in access to ICTs (for instance, personal computers and mobile phones) and purposeful use of them (as determined by outcomes) by individuals, or by social or in the classroom (Skaletsky et al., 2017). Umugiraneza et al. (2018) reported that such factors like age, educational level, income level and behaviour can impact on who have access to technology, what kind of technology people have access to, and who can use technology.

Lack of Professional Development and Resistance to Change: Many educators lack adequate training in using digital tools and integrating technology into their teaching practices. Some educators may be hesitant to adopt new technologies or teaching methods, fearing the learning curve or lack of comfort. Keeping up with the ever-evolving landscape of technology can be difficult, requiring ongoing professional development and support.

Curriculum and Pedagogical Issues: In the 21st century, digital tools are invariably linked to education; therefore, educators are expected to be familiar with the various pedagogical approaches to appropriately use them in promoting the development of their learners' 21st-century skills (Valtonen et al., 2017). However, this is not possible if teachers have been neither adequately prepared nor assisted to take up this role. There is a gap between the curriculum of teacher education, societal needs and the world of work, which is a problem that is not exclusive to Africa (Zeichner, 2014). Curricula may not adequately incorporate digital literacy skills, leading to a lack of focus on the skills needed for a digital environment. Education educators may struggle to find and evaluate reliable and relevant digital resources for their Education lessons. Educators may find it difficult to adapt their teaching methods to effectively utilize technology and promote digital learning. The implication of this is that education institutions will continue to churn out graduates whose skills are not relevant to the needs of the society, with no return on investment for the government and the public in general. Other Challenges:

Lack of Administrative Support: Poor administrative support can hinder the effective implementation of digital literacy initiatives. Schools may face budget constraints that limit their ability to invest in digital resources and professional development. Other factors are policy guidelines, school support, and investment in ICT in the schools (Mustapha et al., 2020). Moreover, educators need to be aware of ethical issues related to technology use, such as data privacy, online safety, and responsible information consumption. Maintaining effective communication with students and parents in a digital environment can be challenging due to digital policy, cost implications and digital technology access, among others.

Conclusion

Digital literacy is vital for educators in today's technologically driven era. It's not only enables them to access and evaluate reliable information, but also equips them with the skills needed to communicate their research findings effectively. Moreover, digital literacy fosters collaboration and innovation within scientific communities through seamless communication by leveraging on emerging digital technologies. Digital literacy plays a crucial role in shaping the field of education today. The ability to access and analyze vast amounts of data, collaborate with researchers from across the globe, and utilize sophisticated software and simulations has revolutionized the scientific landscape. Therefore, since the 21st century is a digital century, educators cannot afford to really on pedagogy that limits teaching on the four walls of the classroom such as the traditional teaching approaches for instructional delivery.

Suggestions

The following recommendations are suggested for the improvement of digital Literacy among educators.

1. Digital literacy must be included in the teaching materials in order to enhance school literacy programmes for educators.
2. Secondary school educators must employ a range of multimodal interpretation strategies in their digital literacy instruction.
3. Government can subsidize the purchase of digital devices for educators' to improve access to digital tools
4. Schools can partner with foreign and local organization for provision of digital tools and training of educators to improve their digital skills and literacy.
5. Combine online and face-to-face learning to create a more engaging and effective learning experience to enhance educators' digital literacy.
6. Various training programmes such as in-service trainings, workshops and seminars can be organized to improve educators' digital skills and literacy levels.
7. Applications for enriching the content of the digital education platform (LMS) can be increased.

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