DIGITALIZATION OF THE NIGERIA SCHOOL'S SYSTEM: IMPLICATIONS FOR EDUCATIONAL MANAGEMENT AND SUSTAINABLE NATIONAL DEVELOPMENT

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Abstract

The increasing rate at which nations of the world are keying into digital technology in their school's system make it a welcomed development and underscores the dynamic nature of the human society; since education affects and it is in turn affected by the social environment where it operates. Expectedly, the schools should be so structured and made relevant enough to meet with the developmental yearnings and aspirations of the society/nations. With the very high interest placed on digital learning in schools across nations, it is obvious that this innovation has come to stay and should be fully embraced by all the critical stakeholders of the educational system as a "new normal" in the educational service delivery. This paper which focuses on digitalization of the school's system: implications for educational management in Nigeria for national development, sees digitalization globally as the trending term, describing the 21st century very aptly as an era where unprecedented ideas are evolving in our education sector and creating the advancement that cannot be matched by lagging behind in terms of technology. In this quest, the educational managers are very strategic in the digitalization process and prospects of the school system in Nigeria. The paper recommends amongst others that, digital compliance should be a major criterion in the appointment of educational managers at all levels of the nation's school's system, and that there should be an evidence-based digitalization of management processes and procedure across our educational system amongst others.

Introduction

The concept of digital literacy as a subject matter is very broad with a variety of definitions and a range of applications to virtually all walks of life. With regards to the educational system in general, digital literacy can be defined as the capacity of an individual to know when and how to use digital technology to access, process, evaluate, create and communicate information through writing and other media on various digital platforms (Rubble and Bailey, 2007). It is one of the numerous benefits of the 21st century breakthrough in Information and Communication Technology (ICT) that has led to the increased use of technological devices like computers, mobile phones, televisions and DVDs as well as the internet to create, manage and distribute information. This breakthrough in information and communication technology in recent years has had significant impact on the different sectors of the economy including education. The advancement in technology has led to the era where learning through the internet is a possibility. With respect to education, increased access to the internet and improved availability of learning materials and technological gadgets has led to the breaking of the restriction to a particular place and time for both students and instructors before learning can occur that plagued the pre-ICT era. This undeniable growth in the educational system due to the use of internet and the availability of digital outlets like audio and video CDs among others that has undoubtedly made the task of the teachers and students easier have mostly been implemented at the secondary and tertiary institutions with varying degrees of success dependent on peculiarities and challenges inherent at the geographical locations at which it has been implemented.

For countries in Europe and America, digital literacy is an integral part of their educational system with well structured digital innovations that have led to relative success in the use of internet and other digital literacy components. It has been of enormous benefits to their students in various learning institutions at different levels relative to Sub Saharan Africa in general and Nigeria in particular. Despite the willingness and pledged commitment by the Nigerian government and relevant stake holders in educational planning and management to inculcate computer appreciation in our educational systems, Nigeria is yet to fully incorporate digital literacy into its curriculum and subsequently implement it at all levels (Achuonye 2012; Damkor et al., 2015). Findings from previous studies have shown that effective computer literacy skills and subsequent utilizations in Nigeria has been significantly hindered by factors such as availability and accessibility of

computers to classrooms, teacher quality and teaching method, learning environment and learner characteristics. This paper focuses on Digitalization of the Nigerian School System: Implications for Quality Educational Management.

The Concept of Digital Literacy

The term "digital literacy" which was first introduced and defined by Gilster (1997) as "the ability to understand and use information in multiple formats from a wide range of sources when it is presented via computers" has since become an all-encompassing phrase that has enjoyed a range of uses in the ICT literature (Eshet-Alkalai, 2004). While Bruce and Peyton, (1999) and later Davies et. al., (2002) used the term "digital literacy" to describe the technical and operational skills required for optimal computer usage, other researchers further extended the definition to both include information literacy and highlight the higher-order cognitive aptitude required to access, analyse, and create information via the utilization of digital resources and technological gadgets.

The Concept of Digitalization:

Digitalization of education according to Akinyemi et al., (2022) is a concept adopted to ensure the innovative incorporation of modern technology and digital tools to assist the progress of teaching and learning and to create more room for remote learning. Micheal and Jacob (2017) defined digitization as the process of converting educational resources from material forms to electronic forms where they can be stored and manipulated by a computer. The transfer of data from analogue to digital is viewed as a crucial driver of innovation in teaching and learning (Gillpatrick, 2020). Similarly, Jagboro et al. (2012) viewed digitization as all the steps involved in the process of making collections of historical and other materials available online. Digitization is the process of converting manual information or data to a digital format for a more meaningful interpretation.

Bejinaru (2019) observed digitalisation is the conversion of text, pictures, video, and music into digital format utilizing technologies such as a laptop computer, the internet, mobile devices, a scanner, a digital camera, a projector, and printer, among others, that may be played by a computer. Machekhina (2017) viewed digitalization as the translation of all information kinds, such as text, audio, pictures, video, and other data from multiple sources into digital language. From the above, digitization can be conceptualized as those facilities that aid the conversion of teaching and learning into platforms like online courses, online assessments, and web seminars/conferences or workshops through the use of electronic platforms. Digitalization is the process of transforming physical teaching and learning resources into packages or platforms or electronic forms where they can be stored and manipulated by a computer for the implementation of teaching and learning programmes in school.

The Concept of Management

The term management which is believed to be in all human organizations has no single definition that is universally accepted or acclaimed. Perhaps this explains why in many attempts to offer useful explanation or even definitions of the term, people end up revolving around the intrinsic connotation of the concept.

However, writers on management like Drucker (1954) and Baron (1978) are of the view that it could be seen as an activity that associated with the goals of an organization and the setting up of strategies that could be employed in achieving the goals with minimum difficulties. The outcome of such actions will constitute the yardstick on which future objectives and further planning for actualizing them will be based. The perception from which these writers view management could be argued to be similar to that of Wheeler (1969) and Wilson (1989). The only difference is that Wheeler and Wilson feel more comfortable stressing the human side of managerial functions. For example, Wilson is of the view that management is largely an activity that reflects the willingness of members of an organization to work hard towards attaining the set objectives through a carefully planned allocation of resources. In a sense, therefore, the success of organizational development depends to a large extent on joint efforts and co-operation among members of an organization.

In his opinion Fayol (1949) indicates that management is a universal phenomenon in all human endeavours in the public, private or domestic affairs. According to Fayol "the soundness and good working order of the body corporate depends on a certain number of conditions, termed indiscriminately principles, laws, rules". He saw nothing rigid or absolute in management practice but that all management processes or principles require is flexibility so that it is adaptable to every need. It is also important that the manager knows how to use the

principles well and this requires intelligence, experience, decision and proportion. Therefore, the management in any organization be it a business outfit, a school, a religious one etc. need to have the ability to work out in broad outline what is needed and the method for accomplishing it in order to realize expected goals. In relation to the digitization of the school system, and the implications it has for educational management for sustainable national development, school management should come to terms with this reality as an inescapable universal phenomenon.

Sustainable National Development

Sustainable national development can be defined as the purposeful pursuit of positive transformation in personal and societal life without creating situations that could undermined the achievements already made and those to be made in future. The ultimate goal of sustainable development is to meet the needs of today without compromising the needs of tomorrow. This implies that we cannot continue using current level of resources and disposition towards national development at the expense of future generations of our citizenry. Sustainability strives at meeting the needs of the present without compromising the ability of future generations to meet theirs. The three pillars are **economic, environmental and social.**

Development as a concept is difficult to define, as there are differences in opinion and conceptualization of it. However, times and situations tend to shape the thinking about and the approach to development. (MOU, 2015). Again, Mou (2014, 2015) argues that development and developmental strategies, such as "sustainable national development" are not "value-neutral" but "value-loaded". The reason is that "development strategy is an attempt to identify a clear connection between what is to be done and the 'pooled' interest of all the groups and classes constituting a given society, it cannot be value-neutral" (Deng and MoU, 1985). What is to be done in essence, determine the ideology of development. However, there is growing consensus regarding what should be seen as development. It is now understood that development is not synonymous with growth (Mow, 2015, 2016 and 2017). Growth simply involves quantitative increase in the indices such as income per-capital, national income and gross national product. While development has been seen instead as certain process among which are increasing productivity and the equitable distribution of these gains among all social classes and groups in the society or nation.

The introduction of the sustainable development goals (SDGs) in 2015 with its seventeen-goal aspiration was premised on two fronts namely; that the millennium development goals (MDGs) targets were not met by many developing countries and secondly, the need to ensure that those gains that were made in the MDGs are enhanced for humanity and human livelihood. However well thought-out, the SDGs are the fact remains that there cannot be sustainable development without investment in education.

Bhola (2006) opines that education for all its worth assures development. Therefore, the relationship between education and development that is sustainable is defined absolutely and infinitely by Oghenekohwo (2013) that the elements of education, namely; empowerment, engagement, experience and evidence are undoubtedly the integral part of the relationship. It is pertinent to state here that, the quality of education that can stir up and drive our national quest for sustainable development cannot remain the regular type, but the digitalized type for global relevance and competitiveness.

Components of Digital Literacy for Sustainable National Development

Digital Literacy is a term that comprises of other elements of information and communication technology. To fully grab the concept of digital literacy and adequately define it, a look at the various components of digital literacy is both necessary and essential. According to Payton and Hague, (2010); creativity, critical thinking and evaluation, cultural and social understanding, collaboration, ability to find and select information, effective communication, e-safety and functional skills are the eight components of digital literacy. Belshaw, (2011) opined that there are eight essential elements of digital literacy and that anyone seeking to fully harness their digital literacy skills ought to develop skills, attitudes and aptitudes in the eight areas which he identified as: cultural, cognitive, constructive, communicative, confidence, creative, critical and civic. Applying these essential elements to a particular context is essential to adequately defining "digital literacy". Greene and Copeland, (2014) argues that the two critical aspects of Digital Literacy as it relates to the growing prominence of the internet as educational tools are: (1) the ability to effectively plan and monitor the efficacy of strategies used to search and manage wealth of information available online and (2) the knowledge to appropriately vet and integrate those information sources. Garcia and Weiss, (2017) referred to the components of digit literacy as a set of digital skills, knowledge and understanding that are required for

digital participation and necessary to survive and be productive in the digital era. He opined that Photo-Visual literacy, Information literacy, Social-economic literacy, Reproduction literacy and branching literacy are the five basic components of digital literacy for which a potential digital literate should possess the requisite skills needed to be a relevant and informed digital participant.

Digital Literacy and Primary School Education in Nigeria

The world has continued to advance at a rapid rate and events have continued to move to the electronic stage with technology permanently altering the way pupils and students learn. The recent outbreak of the novel coronal virus pandemic has further strengthened the case for the inclusion of virtual and e-learning which requires teachers and pupils to be digital literates. Beyond the basic ability to read, write, calculate, communicate and comprehend, the demands of today's world require students who can embrace information technologies, artificial intelligence and their application (Breen, 2017). With regards to primary school education in Nigeria, a significant number of school children and their teachers still lack access to digital technologies and the requisite technical know-how to utilize them despite the fact that majority of the pupils were born into the internet enabled "always-connected life" (Kavanagh and O'Rourke, 2016) and at a time when computers and devices have become relatively cheaper and easier to use (Belshaw, 2011).

Due to poor funding of government owned primary schools and the resultant dilapidated buildings housing crowded classrooms, most Nigerian children attending those schools can only think of the non-existent computers and other digital gadgets as luxuries. Where available, the ratio is always ridiculously unbalanced. For those whose parents can afford to pay the exorbitantly high tuition fees for decent private primary and secondary schools, the use of digital gadgets, computers and the internet is already an integral part of their daily life. Unfortunately, they are not familiar with or use technology for learning purposes (Waycott et. al., 2010). The majority of them employ the use of their mobile devices, computers and tablets for social and entertainment purposes rather than learning (Prior et al., 2016). As a result, studies by Gurung and Rutledge, (2014) are of the opinion that pupils in primary schools who are already exposed to the internet and other digitally enabled platforms (digital learners) need help to apply technology effectively for learning to prepare them for further education and help them develop skills for living, learning and working in a digital society now leaning towards artificial intelligence. Unfortunately, most of the primary school teachers who are supposed to teach and offer guidance do not possess those capabilities. If we are to achieve the UN's Sustainable Development Goal 4 target of equipping young people and adult with the relevant skills for decent employment and entrepreneurship by 2030 and prepare the next generation for the challenges of surviving in a continuously evolving digital age now leaning towards automation and artificial intelligence, then there is need for school managers and teachers to be made aware of how digital tools can be best used to enhance quality teaching and learning in the school system.

Benefits of Digitization in the School System

There are many benefits of integrating digital technologies into our school system. Ding (2000) noted that the advantages of digitization include; digitization means no new buildings are required; improvement in information sharing and the redundancy of collections reduced. Digitization leads to the development of the Internet in digitalized-based institutions. Digital materials can be transmitted, sorted and retrieved easily and quickly. It is cheaper to access electronic information than its print counterpart when storing files in an electronic device with compatible facilities and equipment. Digital texts can be linked and made interactive and improves the retrieval of more information.

Digitization has the potential to transform the entire higher education system by making teaching, research and the provision of community service more efficient and faster. Digitization of higher education can increase access to teaching and learning, enhance flexibility, and improve the quality of higher education in Nigeria.

Also, Panji (2023) outlined the benefits of digitization in Education including;

1. **Transformation of Teaching:** The implementation of digital technologies in higher education has the potential to transform the way we teach and learn. One of the key benefits of digitization is increased access to education. Online learning platforms, for example, can provide students with access to educational resources from anywhere in the world. This can be particularly beneficial for students who are unable to attend traditional brick-and-mortar institutions due to financial, geographical, or personal

constraints. Online learning can also provide students with more flexible learning opportunities, allowing them to study at their own pace and on their schedule.

2. **Customize Learning Experiences:** Another benefit of digitization is the ability to customize learning experiences to suit individual needs. Digital technologies can provide students with personalized learning experiences, allowing them to focus on areas where they need the most support and challenge themselves in areas where they excel. For example, educational apps can provide students with interactive and engaging learning experiences that are tailored to their individual needs and interests. In addition to these benefits, digitization can also enhance the quality of education. Multimedia resources, for example, can provide students with access to a wide range of educational materials, including videos, podcasts, and interactive simulations. These resources can help to bring complex concepts to life and make learning more engaging and interactive.
3. **The advent of online Testing:** Along with online education comes the advent of online testing, which is hugely beneficial for a whole host of reasons. Foremost among those reasons is the fact that online testing is impartial and entirely fair. If a machine is grading the test and automatically correcting wrong answers, it is impossible to show any signs of bias. Additionally, online testing can be an excellent solution for those who suffer from test anxiety and are distressed by taking tests in a room with a group of other people. Finally, it is also much better for those with busy schedules, who may struggle to be at a testing centre at a particular time. Online testing is not without drawbacks, however. Most notably, it is only effective for multiple-choice tests, not for essay or short answer questions. Students can still take essay-based tests online, but a human teacher will need to evaluate them.
4. **Improved Ability to Meet Special Needs:** In the past, a rigid classroom structure defined the world of academia. Each student had the same experience, no matter their differing needs or abilities. While some students could function well in this environment, others had unmet needs. Technology improves a school's ability to meet the needs of all types of students. Now, students with hearing, speaking or seeing impairments, or those who are largely housebound, can still receive a quality education. Technological advancements can also meet the needs of students with intellectual, social, or developmental disabilities. No matter what a student's unique needs may be, technology affects education for the better by improving our ability to create learning environments that work for all.

In addition, McNulty (2021) opined that curricula that are delivered in digitalized environment improve learning and innovation skills, information, media and technology skills, and life and career skills. Whereas, curricula taught in non-digitized contexts cover cognitive skills such as critical thinking, problem solving and creativity because it is possible to teach and learn these skills without having access to digital tools and environments. As a result, the digitisation of education provides a chance for learners to establish a cognitive resource-based mechanism and enhance their abilities, as well as to engage in lifetime learning and continuous education (Abdullahi & Tijani, 2019). In today's digitalized environment, modern instructional materials are critical and desirable. Technology is used in modern schooling to impart knowledge. Education becomes a collaborative and self-driven business in which instructors, students, and other stakeholders are involved as a result of digitalisation, which provides information that may be transmitted in a variety of ways, for instance, teacher-directed, joint teacher-and-learner-directed, and learner-directed.

Digitalization Tasks for Quality Educational Management in Nigerian School's System

Digitalization plays a valuable role in education management, by transforming traditional educational practices. The following are some key ways it can enhance education management:

1. **Administrative Efficiency:** Digitalization tools and systems are used to streamline administrative tasks, such as student enrolment, attendance tracking, and resource allocation, and making education management more efficient.
2. **Data Analytics:** It enables the collection and analysis of data on student performance, helping teachers make informed decisions to improve teaching methods and curriculum design.
3. **Online Learning Platforms:** Digitalization can facilitate the creation of online learning platforms and Learning Management Systems (LMS) that offer a centralised hub for course materials, assignments, assessments, and communication between students and teachers.
4. **Virtual Classrooms:** Teachers can conduct virtual classrooms and webinars with the help of digitalization, allowing for remote learning and expanding access to education.

5. **E-Libraries and Digital Resources:** It provides access to digital libraries, e-books, and multimedia resources, enhancing students' learning experiences and reducing the need for physical textbooks.
6. **Assessment and Evaluation:** Online assessment tools and automated grading systems simplify the evaluation process, providing timely feedback to students and teachers.
7. **Professional Development:** Teachers can access online courses and resources to enhance their teaching skills, helping them to stay updated with the latest educational trends.
8. **Security and Data Privacy:** Implementing digital solutions also involves safeguarding student data and maintaining privacy, ensuring Accessibility and Inclusivity: the security of educational systems.
9. **Digitalization** can also help create accessible learning materials for students with disabilities, promoting inclusivity in education.

Challenges of Digitization of the Nigeria School's System

Digitization of education is a laudable project that encompasses the application of a wide spectrum of practices, including blended and virtual learning. Nevertheless, some hurdles impede its smooth operations especially in Nigeria; According to Asogwa, B.E. (2011), some of the challenges include;

1. **Inadequate funding:** Funding for the purchase and maintenance of modern and state-of–the–art digital equipment by the government remains a major constraint.
2. **Erratic power supply:** It is very unrealizable for computerization and digitization to take effect in an environment of epileptic power supply. The issue of power has become a national calamity. Thus, it has to be given priority by any library aspiring to attain global visibility. Hence, all the institutions in Nigeria only depend on a generator for its power supply, and most often there is no light due to lack of diesel or generator breakdown which often hinders the digitization process.
3. **Lack of Modern Infrastructure:** Infrastructural facilities in most Nigerian academic institutions are in a state of disrepair. Yaya and Adeeko (2016) observed that ICT department in these institutions lack modern computer systems; even the few available systems are being infected with a virus which makes them unfit for the digitization project.
4. **Lack of skilled staff:** Many academic staff lack the basic computer training, not to mention specialized training required for digitization (Jagboro, Omotayo, and Aboyade, 2012). There is a need for continuous training to build academic staff capacity in equipment maintenance and software management. Also, digitization is a complex process which requires specialized skills. However, a good number of staff who may be involved in the digitization process in Nigerian academic institutions may not skilled as they do not possess adequate knowledge or competence in the handling of digitization equipment.

Digitalization of the School System and its Implications for the School Management

Digitalization of the school system is no longer an experimental issue, rather it has become an increasing global trend; with great functional implications on the management of the school/system. The obvious position held by school managers as an instructional leader, is strategic to the realization of the desired instructional goals. This would require that school managers must be highly esteemed in the functions as even as the schools are esteemed. Hence, no school manager can adequately give to his school an instructional innovation which he does not possess or neither is inclined to. Therefore, the digitalization of the school system holds very serious implication to school management as follows;

1. The digitalization of the Nigeria school system must be accepted as an educational innovation that is geared towards enhancing the quality base of our schools for global competitiveness. Hence, we cannot afford to remain onlookers in the face of global digitization of education.
2. It should be a matter of engagement policy in all our school's system to ensure that only digital proficient and euthanistic people are employed on any school's management team in Nigeria.
3. Similarly, the employment of the critical staff in our school's system should be based digital literacy, since these are the key players in the instructional process. They should have ready capacity to influence in the desired direction both the teaching and administrative aspects of the school's life.
4. The management should make it a point of emphasis that all formal or official transactions and operations with the school are digitalized; from application into the school, admission, registration, teaching and learning, examinations, and release of results to staff meetings and more. These should become a tradition or academic culture of our school system.

5. The management of our school system should be proactive enough in their commitment to supply, maintenance and replacement of relevant digital wares / facilities and equipment for smooth conduct and operation of the school activities.
6. The school management should avail themselves with their staff of digital skill enhancement workshops, seminars and conferences for the purpose of improving their effectiveness and efficiency on the job.
7. The management of our school system should put appropriate measures in place to closely monitor the disposition of staff in towards digital compliance in their service delivery to the school.
8. The school management should also carry the student body along in this innovation. There should be ample time created to orient and further strengthen the student's mindset for digital instructions.
9. There should be forum created by management to periodically review and assess the school's digital instructional process in other to appreciate the strengths and to proffer required solutions to existing problems.

Conclusion

Digitalizing education management revolutionises how educational institutions operate, making processes more efficient, expanding access to quality education, and improving the overall learning experience for students and teachers. It continues to play a pivotal role in shaping the future of education worldwide.

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