Digital Natives and Digitalization for Building Early Childhood Education Future in Nigeria.

ATAKPO, Theresa Edirin

Department of Educational Management and Foundation, Delta State University, Abraka

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ABSTRACT

The study examined digital natives and digitalization for building early childhood education future. The digital revolution has transformed the way children learn and interact, giving rise to a generation of digital natives. This paper explores the potential of digitalization to enhance early childhood education, highlighting benefits such as personalized learning, increased accessibility and improved engagement. However, challenges and limitation including equity and access, teacher training and digital literacy must be addressed. It was concluded that digital natives and digitalization have the potential to revolutionize early childhood education. By embracing technology and digital tools, educators can create personalized, engaging, and effective learning experiences for young children. It was also recommended that to build a strong early childhood education future, stakeholders such as parents, teachers, government and policy-makers should; integrate technology meaningfully into the curriculum, foster digital literacy in children and evaluate the impact of digitalization on learning outcomes.

Keywords: Early Childhood Education, Digital Natives, Digitalization, Nigeria

INTRODUCTION

This generation has been the most targeted generation by the digital technology – it is bombarded with information from a very early age through various media forums. Within the context of early childhood, one only has to consider the phenomenon of the social media – this is the first generation exposed to vast learning and social application. The hi-tech toys produced by manufacturers such as Mattel and Fisher Price are substantially different from those of the past. Toys are highly technologized for young citizens. Similarly, computer software packages geared for young learners are evident in most software and computer outlets. Thus, from an early age, they are exposed to the richness offered by technology (Downes, 2022).

Modern homes are abuzz with technological gadgetry. One only has to consider how the television has become technologized. Remote controls, digital boxes, pay television, and so on are a part of the everyday experiences of many preschool children. Scrolling through the remote to select stations, to turn appliances on or off, or to turn on other applications such as DVDs or videos; scrolling through options on DVDs; fast-track programs – these are all part of the repertoire of many preschoolers' home experiences. Access to computers in the home is another area in which young digital natives are shaped by technologies. Children in early childhood programs are very familiar with computers, either through playing with them and/or seeing significant others working with them and building their future (Kerawalla & Crook, 2022).

Downes (2022) reported that the games format was of particular importance in considering the experiences of children in their out-of-school contexts. She argued that when using computers in the home, there was a strong preference for exploratory learning. When studying the early childhood context, Kontos (2019)

argued that there are a number of critical contextual features: the activities in which children are engaged; the ways they interact with teachers; and the social configurations of such interactions and activities. While much of the research in early childhood settings uses these modalities for understanding practices within such contexts, new ways of thinking about these settings may be necessary when considering the impact of digital technologies. The concept of 'play' as it is valued in the early childhood education context may need substantial reconceptualisation when 'play' is considered within the digital medium (Clements, 2018).

These social and technological differences offer considerable scope for children and educators. This phenomenon has been framed whereby the differences between young children and their parents/teachers could be seen as being a consequence of children's immersion in digitally mediated environments. Such experiences shape the construction of a particular habitus. This suggests that early childhood settings need to be more embracing of new technologies – in this case computers – if they are to provide quality learning environments for the digital natives who are now entering them (Downes, Arthur, & Beecher, 2021). For the digital natives entering the range of early childhood services, their exposure to technologies is often vast and has shaped them in different ways from other generations, including that of the teaching staff. It then becomes critical to consider the impact of this emergent child in current early childhood settings, and particularly the types and amount of access to computers children have in their early childhood education (Howe & Strauss, 2020).

Digital Technologies in Early Childhood Education

Despite the widespread recognition of the impact of digital technology in the social world, the uptake in education has been limited, particularly in those settings prior to formal schooling. Downes et al (2021) have argued that the lack of computers in early childhood settings is due in part to a resistance within the field and wider community, who see the tools as 'neither appropriate nor important in early childhood education. They also argued that there is a lack of funds within this sector of education to support the purchase of computers and the professional development of teachers. However, the lack of uptake is evident in the schooling sector, where computer technology within the earlier years of schooling is seen as less important than in the upper years of schooling.

Bayhan et al (2012) and Ertmer (2015) support Downes et al (2021) claim that despite significant technology being accessible to teachers, there has been little uptake of these tools in early childhood education. Ertmer (2015) suggests that this is in part due to teachers' lack of pedagogical knowledge on how to use the tools effectively within the context of the learning environment. Bayhan et al. (2012) reported that their participants felt that computers restricted the social development of children. Judge et al (2022) reported a similar position, arguing that there has been a rapid growth in the area of technology and teachers need to be supported in its uptake so as to ensure quality learning experiences for young students. As such, these authors advocate that there is a considerable amount of work to be done in the professional development of educators to support them in using technologies effectively in the classroom. Having access to technologies does not necessarily transfer into quality programs.

However, Ertmer (2015) claims, teachers need to know how to use the tools effectively. In his study of technology use, Clements (2014) argued that: 'what we as early childhood educators are presently doing most often with computers is what research and NAEYC [National Association for the Education of Young Children] guidelines say we should be doing least often'. He claimed that technologies were being used in ways that were antithetical to quality practice and tended to reinforce models of pedagogy which were in other contexts abhorrent to the profession.

There has been an increasing use of technology in the field of education across all levels accompanied by a shift towards understanding which technologies can be used for specific purposes and exploring how best they can be used and embedded across educational contexts (Higgins et al., 2012). In Early Childhood

Education, digital technology has been primarily used for pedagogical purposes, as a tool to support and advance the quality of teaching and learning in areas, such as literacy (Sinclair, 2018). There has also been an increasing focus on the pedagogical importance of introducing digital technologies in early childhood environments and the various opportunities and demands facing early childhood educators aiming to integrate digital technologies to encourage problem solving and computational thinking in young children (Murcia et al., 2018).

Digital technologies can also play a major role in supporting early childhood educators with planning and documentation. Careful selection of tools and applications that include an element of progress monitoring can be used to assist educators with consistent and systematic observations of children's learning and development (Lyons & Tredwell, 2015). Technology tools, such as digital cameras, digital audio devices, scanners and electronic portfolios, can support educators to systematically monitor and document children's progress, providing permanent records of children's work (Hooker, 2015; Lyons & Tredwell, 2015).

Quality Use of Digital tool to Support Early Childhood Education

Ertmer (2015) observed that many outcomes have been noted when computers are used to support learning. Interactions is a key aspect of the early childhood learning experience. Computers have been found to improve social interactions. Clements (2018) claimed that there was a large increase in interactions when children were working in pairs at a computer compared to when playing with puzzles on the floor. He noted the amount and quality of the interactions, and found them to be substantially enhanced when students worked at computers in pairs.

In terms of working with computers, there have been numerous studies undertaken with various tools provided by the computers. Judge (2022) argued that developmentally appropriate computer use enhances not only what young children learn, but also how they learn. When well- designed software is used with young children, they become engaged, are involved in exploration, their interest is maintained over sustained periods of time and active involvement is encouraged, rather than passive behaviour (Judge, 2021). Studies have found that open-ended child-directed software makes a more significant difference in children's developmental gains than drill-and-practice software **(**Haugland, 2019). Software packages (such as Logo) have particular foci for learning (in particular, logic and shape), whereas other programs that come with a computer (for example, drawing tools) or more generic programs available for early childhood settings can be used successfully to enhance learning.

However, technology can open up greater opportunities for drawing accurately when this is not possible for young children. It is more empowering as children are able to recognize faults in their drawing, despite lacking the fine motor skills to perform the task. Technology allows them to design more complex shapes than would be possible with pencil and paper. Computer-assisted instruction has been found to aid learning, particularly in science subjects. Hence, Niemiec & Walberg (2017) have argued that such programs may be more cost-effective than other intervention programs, such as peer tutoring, mentoring or smaller class sizes. Clements (2022) cites research where computer technology has enhanced many mathematical skills. As such, issues of equity and access are important considerations when using computers in the early childhood education. There is considerable potential for early childhood experiences to bridge some of the possible divides between those young students who do not have access to computers in the home and those who do – but with the proviso that quality learning environments must be an integral component of the planning and implementation of computer use.

Building Early Childhood Education Future:

Early childhood education (ECE) is a critical period of learning and development, laying the foundation for future academic success and lifelong learning such as social skills, use of health education to teach the child

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to improve their own health (Atakpo, 2020). As technology continues to evolve, it is essential to consider how digitalization can support and enhance ECE (Buckingham, 2019). Research highlights the potential benefits of digitalization in Early Childhood Education. According to Hanna (2017) noted that personalized learning can tailor instruction to individual needs and interests. Increased accessibility, digital resources can reach remote or disadvantaged communities (UNESCO, 2019). Enhanced engagement, interactive technologies can increase student motivation and participation (Shuler, 2012). It also helps reduce classroom management problems (Oghuvbu & Atakpo, 2008).

Hanna (2017) highlighted ways to build early childhood education future as follows:

- Balanced approach: Strike a balance between technology use and traditional teaching methods.
- Personalized learning: Use technology to personalize instruction and meet individual needs.
- Teacher support: Provide teachers with training and support to effectively integrate technology.
- Parental engagement: Encourage parental involvement in children's technology use and learning.
- Curriculum updates: Regularly update the curriculum to ensure relevance and effectiveness in a digital age.
- Equity and access: Ensure equal access to technology and address the digital divide.
- Safety and well-being: Prioritize children's safety and well-being in the digital environment.
- Stakeholder engagement: Engage stakeholders, including parents, teachers, and administrators, in technology integration efforts.
- Research-based practices: Implement research-based practices to ensure effective technology integration.
- Collaboration and partnerships: Foster collaborations and partnerships to leverage resources and expertise.
- Ongoing evaluation: Continuously evaluate and improve technology integration and digitalization efforts.
- Teacher support: Provide ongoing support and resources for teachers to effectively integrate technology.
- Parent education: Educate parents on effective technology use and digital literacy.
- Community involvement: Involve the community in technology integration efforts to promote digital literacy and responsibility.
- Flexible learning environments: Create flexible learning spaces that accommodate different learning styles.
- Digital literacy: Teach digital literacy skills to ensure responsible technology use.
- Real-world connections: Connect learning to real-world scenarios and applications.
- Mentorship programs: Establish mentorship programs to pair digital natives with experienced educators.
- Online safety: Implement measures to ensure online safety and digital citizenship.
- Inclusive design: Design technology-based learning experiences that are inclusive and accessible.

Challenges of Digital Natives and Digitalization

According to Niemiec & Walberg (2017) digital natives and digitalization are faced with a lot of challenges for building early childhood education future such as; short attention span, digital natives have a short attention span and may struggle with traditional teaching methods, high expectations: digital natives have high expectations for technology integration and may become frustrated if not met, constant connectivity: digital natives are constantly connected and may struggle with boundaries between learning and personal life, different learning styles: digital natives have different learning styles and may require personalized instruction, dependence on technology: digital natives may rely too heavily on technology and lack critical thinking skills.

In the same vein, Judge (2022) outline challenges of digitalization as follows:

- Equity and access: Not all children have equal access to technology, creating a digital divide, individuals as well as families in society are differentiated (Atakpo, Obed Chukwuka & Akpotu, 2024).
- Cyber-bullying and safety: Digitalization increases the risk of cyberbullying and safety concerns.
- Screen time and health: Excessive screen time can lead to health concerns, such as obesity and eye strain.
- Teacher training: Teachers may need training to effectively integrate technology into the curriculum.
- Curriculum relevance: Digitalization may require updates to the curriculum to ensure relevance and effectiveness.
- Parental involvement: Digitalization may require increased parental involvement to ensure children's safe and effective technology use.
- Assessment and evaluation: Digitalization may require new methods of assessment and evaluation to measure student learning.
- Infrastructure and resources: Digitalization requires adequate infrastructure and resources, such as devices and internet connectivity.

CONCLUSION

In conclusion, digital natives and digitalization have the potential to revolutionize early childhood education. By embracing technology and digital tools, educators can create personalized, engaging, and effective learning experiences for young children. However, it is crucial to address the challenges and limitations of digitalization, such as equity and access, teacher training, and digital literacy.

RECOMMENDATIONS

Based on the conclusion, the paper therefore, recommended that to build a strong early childhood education future, stakeholders such as parents, teachers, government and policy-makers should:

1. Integrate technology meaningfully into the curriculum.
2. Foster digital literacy in children and educators.
3. Support teacher professional development.
4. Ensure equity and access to technology for all children.
5. Monitor and evaluate the impact of digitalization on learning outcomes.

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