Chapter 6

A Systematic Review of Literature for Technology Adoption and Use:
The Case of Nigerian Education System 2015–2023

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ABSTRACT

Digital technologies can allow for more proactive and engaged learning for students. The study analyzed recent publications related to technology use at all levels in Nigerian classrooms. The PRISMA Guideline was followed to analyze 25 quantitative studies published between 2015 to 2023. Five thematic areas related to ICT implementation in schools were explored. The review showed that there was some adoption of technology, but the level of adoption would increase with the provision of hardware for faculty, a steady supply of electricity, and professional development for teachers.

INTRODUCTION

The use of proper technology for teaching and learning is indispensable for student academic growth. According to OECD, (2023), digital technologies can allow for more engaging and differentiated instruction responsive to the needs of all

students (p. 4). Bryant, Child, Dorn, and Hall (2020) pointed out that the promise of technology in the classroom is enabling personalized, mastery based learning and equipping students with the digital skills they will need in the 21st century (p1). Their study also came up with five key findings including (a) that "technology in the hands of teachers is associated with higher scores than technology in the hands of students" and (b) The type of device matters as some are associated with poor student outcomes. (p. 2). The U.S. Department of Education (2016) pointed to the far-reaching benefits of technology in the classroom- "Technology can be a powerful tool for transforming learning. It can help affirm and advance relationships between educators and students, reinvent our approaches to learning and collaboration, shrink long-standing equity and accessibility gaps, and adapt learning experiences to meet the needs of all learners." (p.1)

Haleem, Javaid, Qadri and Suman (2022) pointed out that "Information technology has emerged to spread shared knowledge and is a primary driving force behind education reforms." (p.275). They concluded by indicating that technology in education help students to prepare for lifelong learning…. and some students learn more efficiently and track their progress with the help of technology (p.281). According to Laleye (2015), the quest for development now in Nigeria makes it imperative for learners to shift from the existing method of teaching in schools to accommodate use of various forms of technologies. Other African countries like Tanzania, Kenya, Uganda, and South Africa seems to have gone ahead of Nigeria in this regard. "It is disheartening to note that Nigeria, with her abundance of resources - human and non- human cannot boast of being among the countries utilizing technology in teaching" (Laleye,2015, p.399).

One major characteristic of Nigerian education in the last twenty years is the astronomical growth in student population at all levels- primary, secondary, and tertiary. This growth may have been a result of the implementation of the UN sustainable development goals and the need to use education for national development. One result of the astronomical growth is that inadequate planning has not captured all the issues related to educating a large and teeming 5 to 22-year-olds. Inadequate planning and implementation of educational policy in Nigeria has meant the prevalence of large classes, lower levels of qualified / certified teachers and high levels of non-attendance. According to Folade, Chukwuemaka and Folade (2022), before the Covid 19 pandemic, schooling was usually characterized "by over-crowdedness in class, abnormal student-lecturer ratio, inadequate infrastructure, lack of qualified human resources and ultimately, less-quality education among others." (p.2).

Covid 19 caused many teachers globally to change their mode of instruction from mostly face to face to the infusion of more online learning. According to Pozo, Echeverria, Cabellos and Sanchez (2021), "the pandemic forced most teachers to assume virtual teaching where they had to use digital technologies, sometimes for

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