World Journal on Educational Technology: Current Issues

Volume 17, Issue 4, (2025), 205-211

www.wj-et.eu

Towards Effective Pedagogical Use of Multimedia Technology among Young Children in Nigeria

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Suggested Citation:

Ilesanmi, A.B. (2025). Towards Effective Pedagogical Use of Multimedia Technology among Young Children in Nigeria. *World Journal on Educational Technology: Current Issues*, *17*(4), 205-211. https://doi.org/10.18844/wjet.v17i4.9609

Received on June 3, 2025; revised on August 12, 2025; accepted on October 08, 2025.
Selection and peer review under the responsibility of Prof. Dr. Huseyin Uzunboylu, University of Kyrenia, Cyprus.

Abstract

This paper presents current learning theories that relate to multimedia technology use in the teaching-learning process. It also presents an exposition of the extent to which multimedia technology devices and tools are being adopted and used in the Nigerian educational contexts, and as applicable in her primary schools. While education technological tools tends to foster learning in some ways, including making classroom instruction fun for the students and boosting understanding of complex concepts, it is essential to understand how they are used to support learning in the classroom as facilitated by the teachers. In this paper, the constructivist learning theory and the Meyer's theory of multimedia learning are used to understand how multimedia tools are being created and how a child's learning can be improved in the classroom through the use of technology. Classroom instruction is often taught concurrently with visual/audio-visual information, but the way they are presented can improve or hinder the learning process for some pupils.

Keywords: Multimedia learning, education technology, learning theories, pedagogy

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Ilesanmi, A.B. (2025). Profiling competences for the development of digital citizenship in teacher education. *World Journal on Educational Technology: Current Issues*, *17*(3), 205-211. https://doi.org/10.18844/wjet.v17i4.9609

1. INTRODUCTION

Over the last two decades, Technology has profoundly changed the ways by which almost all types of work are being carried out ranging from the use of machines in the industry to including studio practices using computer systems, hardware and software components (Ghavifekr et al, 2016; Selwyn, 2012). The use of technology in Nigeria has come a long way since the earliest times of human endeavours, ranging from chalkboards, slates to digital learning means such as the Internet. Learning means a lot in every human's life as it facilitates the rapid and systematic acquisition of skills and development of expertise. However, technology is changing the way education is being practiced (and perceived) in recent times (Selwyn, 2012; Beheshti et al, 2018; Adeniyi, 2019).

Learning is a form of knowledge acquisition; and this concept of 'being taught' has become prevalent in barely all times/segments of life. In Nigeria, learning at elementary level takes place at primary education level (also called Universal Basic Education, UBE) where young children are enrolled in schools to take certain courses as defined by the curriculum. In formal education settings, a teaching process ensues when children enrolled in the school are being taught by the teacher, following a set of curricula over a thirteen-week period, after which a summative assessment is done in form of examination and tests (although this differs from place to place). Visual communication plays a major role in facilitating this learning process, and this happens in the sense that it enhances learning by making the teaching-learning process more interactive, provides deep knowledge, and brings about positive interaction in the classroom (Bonk and Graham, 2006; Livingstone, 2012; Falode et al, 2016).

In recent years, the use of multimedia instructional technology has been known widely in modern educational systems through various means (such as research works). Visuals (such as pictures/ photographs, illustrations, or videos) make very complex ideas simple, hence the essence of its use particularly among children at primary level of their education. Although according to Nidup (2018, p.2), 'internet emerged widely in the 1990's in Asia, and following this, digital technologies have come a long way since the invention of the first computer', however, Technology use in the classroom (from place to place) is constantly changing. Identifying some issues that teachers and children may face while learning with technologies and offering solutions to these issues and challenges, will ensure its continuous use in the classroom (Adeniyi, 2019; Selwyn, 2012).

Hence, this study aims to investigate the use of multimedia technologies in the teaching - learning process (TLP) in the Basic education setting by identifying and discussing challenges and prospects schoolteachers and children may encounter regarding its use. Technology use in educational setting comprises of different areas such as pedagogy, outdoor learning activities, and administrative roles (Bonk and Graham, 2006; Falode et al, 2016). However, a focus is built on how technology is used in relation to teacher–student interaction in the classroom, as studies that explore this area of learning with regards to Information Communication Technology - ICT are surprisingly limited. Basic/primary Education often consists of children aged 4 to 11; hence as young children find learning to be interesting when visuals are incorporated, multimedia technology use I'm elementary education may not only make children to be interested in their studying but also motivate them to attend school.

In this study, the terms multimedia technology, instructional, and teaching aids are terms used interchangeably to refer to devices and materials used to aid the teaching and learning process. The TLP assumes the role of the teacher as facilitators of learning while various media are being used to buttress concepts and ideas to pupils at learning centers.

2.0 Teaching Aids and Primary Schools in Nigeria

When discussing the topics of multimedia technological aids, it is important to ensure that necessary factors are considered, as equipment and materials used in teaching-learning process differ from place to place (country to country) and across different times (Livingstone, 2012). Although, technological aids commonly have a goal in learning, which is to improve the TLP as teachers facilitate learning. However, to ensure effective use of technology in the classroom, this study seeks to understand the concept of multimedia technological aids, and how they affect the teaching-learning process.

2.1 What Are Technological Aids?

The concept of teaching aids is used to describe all devices, tools, materials that make learning accessible to students (Adeyanju, 2001; Falode et al, 2016, Mantiri, 2014). Adeyanju (2001) defines teaching aids as instructional materials and devices through which teaching and learning are done in schools. Akubue (2010), on the other hand, professes that teaching aids are the equipment or set of equipment that are used generally in schools including laboratory equipment. Teaching aids are said to be devices such as television, radio, or projectors that store, receive or transmit information and are used in the classroom for teaching-learning purposes (ibid). In other words, they are materials and files or data that can be accessed through these digital devices, for instance, audio recordings, digital images, and video films. The term 'education Technological aids' can be said to encompass both devices and materials used for teaching purposes. In Africa, the teaching-learning process depends largely upon the different types of equipment available in the classroom (Adeyanju, 2001; Adeniyi, 2019).

Education Technological aids can be visual, audio aid, or audio-visual aids. In furtherance, Visual Aids use the sense of vision are called visual aids. Some examples of visual aids are actual objects such as models, flash cards, flannel board, bulletin board, chalkboard, overhead projector, and slides, pictures and charts and maps. Graphic communication materials such as computer-generated images (CGI) and infographics are also examples of visual aids (Singh and Kumar, 2018). Audio Aids, on the other hand, are teaching aids that involve the sense of hearing. Some examples of audio devices are radio, tape recorder, and record player, while others include items such as musical audio programs, and sound recordings (Mishra and Yadav, 2014). Audio-visual Aids: Audio-visual aids incorporate both the sense of hearing as well as vision. Anzaku (2011) describes audio-visual aids as those devices or set of materials which are used to convey meaning in the classroom through both visuals and sound. Devices such as mobile phones, tablets, televisions and projectors are examples of audio-visual aids.

Multimedia Technology can free teachers and students from the static structure of curriculum and protocols that has kept them confined to their desks, thus mobilizing diverse practices among teachers and students as learning mediators and active learners. This includes reading and writing and making, developing, conducting, looking, and playing. Such transformations, it is assumed, make the learner's task more versatile and negotiable precisely because "knowledge is dynamic and open to interpretation" (FRN, 2004; Livingstone, 2012). When digital technologies with specific resources are used, learners can participate in more interactive and inclusive learning and as well gain the skills needed to contribute to family growth and National development.

2.2 The Concept of Learning Through Technological Aids

Only a few people would disagree that learning is a process of interaction which occurs between the teacher, the learners within a community, and the physical world. Hence, when a student is exposed to certain concepts or ideas through the assistance of a teacher or adult, learning is said to occur. Owing to this, the teacher must make sure that a lot of activities are made available to enhance learners' proficiency in the classroom. Kester (2007) identified two sources of notions: sensation and reflections. In the efficacy of graphic communication, sensation conveys into the indistinct perception of things, while reflection is the perception of operation of the mind (Kester, 2007). According to the constructivist approach, knowledge is constructed by engaging students in real-life problem-solving situations (Bransford et al, 1990).

3.0 Vygotsky's Constructivist Learning Theory

To understand how learning takes place in the classroom and with regards to the tools employed to facilitate the learning process, it is imperative to understand the theoretical groundings underpinning learning and learners' engagements in the classroom. One of these is the social constructivist learning theory (postulated by Vygotsky) which stipulates that for learning to occur, learners must be engaged with the learning process (Vygotsky, 1978; Bransford et al, 1990). Social contact is vital to a child's cognitive development, and so community is essential when constructing meaning. Closely related to this conception is the Zone of Proximal Development (ZPD). Vygotsky's ZPD is often described as the distance between the real development level of a child (determined by the child's ability to independently solve a problem) and the level of development a child could possibly attain when being under the guidance of an adult, teacher or peers. As a result, the learning process will be more effective when students interact with teachers or guidance which are considered more knowledgeable than they are. To facilitate this process, instructional material such as videos can be an essential element by which children are encouraged to understand, explore, and develop innovative ideas when paired with a knowledgeable teacher who makes use of relevant teaching materials such as books as well as digital instructional tools to support the concepts being taught (ibid).

Meyer's theory of Multimedia Learning: While the Constructivist theory centers on the learning process, Meyer's theory of multimedia learning guides mainly the development of multimedia elements. The theory specifies that multimedia designs should be made in such a way that it reduces unnecessary ideas which are not geared towards achieving learning goals (often resulting from inadequate designs), manages essential ideas which operates within the memory affected by the learning materials, and promote generative ideas capable of motivating learners as they engage with the learning materials (Meyer, 2014). In other words, learners engage more with multimedia designs when the key materials in the lessons are highlighted while unnecessary contents are removed. Hence, using relevant instructional materials and tools, both visual and auditory channels operate together to enhance learning (Meyer 2014). The use of teaching materials therefore sustains learners' engagement in the classroom and can also link learners with a more knowledgeable person capable of optimizing the learning process. Meyer's theory of multimedia learning guides the development of visual, audio and audio-visual aids (Rikala et al, 2013; Meyer, 2014).

Therefore, it is essential to continuously utilize modern educational techniques in the teaching-learning process to achieve educational goals (Adeniyi, 2019; Kingsley, 2021).

4.0 Using Multimedia Technology Effectively in Primary Schools: Challenges and Prospects

Because technology-assisted learning is continuously changing, the various aspects that influence the continuing use of multimedia instructional Technologies also changes. This may necessitate a required approach to its operation at any given time. These issues/challenges were identified and discussed based on their use.

First, while multimedia learning technologies could make students understand difficult concepts in the classroom better, researchers have argued that it could inhibit students' performance. In this case, a student who performs excellently well or above average in certain subjects began to score quite less in their tests or assignments (Livingstone, 2012). Students may misinterpret certain concepts being delivered by teaching materials such as watching a video, when used without the guidance of his /her teacher. This necessitates the need for learners to relate with one another and to relate with their teachers while learning with technology (Vygotsky, 1978).

Secondly, while teachers perceive students' exposure to wide range of information through technology as potential advantage for them, researchers have seen it as a potential challenge. This is because the idea of digital 'distraction' has been evident in the use of technology for teaching and learning in the classroom lately, owing to its diverse use. As some students get engrossed with social media apps like face-book, twitter, and tiktok when they are supposed to use their smartphone technologies for their assignment (Darko-Adjei, 2019).

On the side of the teachers, over-reliance on technology is also an issue of concern, as it is often indisputable that multimedia technologies display multi-media contents to assist the teacher's roles in the classroom. Teachers are regarded as facilitators of learning in the learning process rather than dictators (Underwood and Dillon (2011). Advances in technological use have made the duties of the teachers to be a more complex one which requires complex pedagogical/technological technique to handle. Multimedia technology comprises various sets of elements (which include but are not limited to images, sound, and other interactive elements) and should make the teacher's role simpler. However, teachers' over-dependence on these tools could affect direct teacher-student relationships in some ways.

Lastly, although Multimedia instructional technology is beneficial to the teaching-learning process such that they promote individualized learning that enables students to learn at their own pace, however, this could also isolate students from their learning community (Bosamia, 2013; Beheshti et al, 2018). Social contact is essential to a child's cognitive development, and as Vygotsky (1978, p.88) submits: "learning presupposes a specific nature and a process by which children grow into the intellectual life of those around them".

5.0 Strategies for Improved Technology Use in Primary Schools in Nigeria

Technology stimulates learners' interest in the subject matter being taught, serves as sources of information or reference, helps to buttress a given idea or point, with a goal to ultimately make learning permanent (Adeniyi, 2019). As technology becomes commonly used in learning across the continents, the need to ensure its appropriateness remains key. Firstly, teachers should engage with the students while using technological tools in the classroom. That is, teachers should pay attention to how children use their learning applications while learning. Through this, they play an active role in facilitating knowledge acquisition in the classroom using technology. This is because while there are warnings that students' technology use might distract students (Bosamia, 2013), however, this is less likely to occur in technology-mediated learning environment facilitated by teachers.

For educators and multimedia designers, multimedia instructional materials should be created or designed in such a way that sustains students' attention while learning (Meyer, 2014). In multimedia designs, unnecessary ideas that are not geared towards achieving learning goals in an instructional material should be completely removed (ibid). This will help build focus and sustain user's interest throughout the period of learning. Hence, teachers must ensure that a lot of activities are created in the class to ensure learners proficiency in subject matter. Effective teaching and learning among children in Nigeria will bring about an increase in the number of students graduating and further enrolling for study at tertiary institutions of learning, that is, in a university. It will also help manage the menace of unemployment in the country through the provision of skills necessary for vocation /entrepreneurial development. On fairgrounds, the desired learning outcome in schools could be achieved when teaching aids are applied in the teaching-learning process effectively.

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REFERENCES

Adeniyi, W. O. (2019). Assessment of effectiveness of e-learning tablet (OPON-IMO): A package for teaching–learning in senior secondary schools in Osun State. *American Journal of Education and Learning, 4*(2), 339–348.

Adeyanju, L. (2001). *Teachers' perception of the effects and use of learning aids in teaching: A case study of Winneba basic and secondary schools*. Ultibase Publishers. Retrieved November 10, 2024, from http://ultibase.rmit.edu.au/Articles/nov03/adeyanju1.html

Akubue, F. N. (2010). Use of instructional materials for teaching social studies in junior secondary schools. *The Nigerian Journal of Research and Production, 17*(1), 1–7.

Anzaku, F. (2011). Library experts speak on audio-visual material. Paper presented at the United Nations Educational, Scientific and Cultural Organization (UNESCO) World Day for Audio-Visual Heritage, Lafia, Nigeria.

Beheshti, M., Taspolat, A., Kaya, O. S., & Sapanca, H. S. (2018). Characteristics of instructional videos. *World Journal on Educational Technology: Current Issues, 10*(2), 79–87.

Bonk, C. J., & Graham, C. R. (Eds.). (2006). *Handbook of blended learning: Global perspectives, local designs*. Pfeiffer.

Bosamia, M. (2013). Positive and negative impacts of information and communication technology in our everyday life. In *International Conference on Disciplinary and Interdisciplinary Approaches to Knowledge Creation in Higher Education: Canada and India (Genesis 2013)* (pp. 1–10). Swami Sahajanand Group of Colleges.

Bransford, J. D., Sherwood, R. D., Hasselbring, T. S., Kinzer, C. K., & Williams, S. M. (1990). Anchored instruction: Why we need it and how technology can help. Lawrence Erlbaum Associates.

Darko-Adjei, N. (2019). The use and effect of smartphones on students learning activities: Evidence from the University of Ghana, Legion. *Library Philosophy and Practice, 1*(1), 1–23.

Falode, O. C., Sobowale, M. F., Saliu, R. M., Usman, H., & Falode, M. E. (2016). Effectiveness of computer animation instructional package on academic achievement of senior secondary school agricultural science students in animal physiology in Minna, Nigeria. *Bulgarian Journal of Science and Education Policy (BJSEP), 10*(1), 5–18.

Federal Republic of Nigeria. (2004). *National policy on education*. NERDC Press.

Ghavifekr, S., Kunjappan, T., Ramasamy, L., & Anthony, A. (2016). Teaching and learning with ICT tools: Issues and challenges from teachers' perceptions. *Malaysian Online Journal of Educational Technology, 4*(2), 38–57.

Kester, L. K. (2007). Designing support to facilitate learning in powerful electronic learning environments. *Computers in Human Behavior, 23*, 1047–1054.

Kingsley, C. E. (2021). Perceived teachers' culture and teaching of environmental education at the Universal Basic Education (UBE) level in Cross River State, Nigeria. *Global Journal of Educational Research, 20*(1), 163–171.

Livingstone, S. (2012). Critical reflections on the benefits of ICT in education. *Oxford Review of Education, 38*(1), 9–24.

Mantiri, F. (2014). Multimedia and technology in learning. *Universal Journal of Educational Research, 2*(9), 589–592.

Mayer, R. E. (2014). Multimedia instruction. In J. M. Spector, M. D. Merrill, J. Elen, & M. J. Bishop (Eds.), *Handbook of research on educational communications and technology* (pp. 385–399). Springer.

Mishra, S. K., & Yadav, B. (2014). Audio-visual aids and secondary school teaching. *Global Journal of Human-Social Science, 14*(1), 15–24.

Nidup, Y. (2018). *A comparative analysis of information and communication technology in education in five Asian countries*. Asian Institute of Management.

Ilesanmi, A.B. (2025). Profiling competences for the development of digital citizenship in teacher education. *World Journal on Educational Technology: Current Issues*, *17*(3), 205-211. https://doi.org/10.18844/wjet.v17i4.9609

Rikala, J., Vesisenaho, M., & Mylläri, J. (2013). Actual and potential pedagogical use of tablets in schools. *Human Technology: An Interdisciplinary Journal on Humans in ICT Environments, 9*(2), 113–131.

Selwyn, N. (2012). Making sense of young people, education and digital technology: The role of sociological theory. *Oxford Review of Education, 38*(1), 81–96.

Singh, D., & Kumar, M. (2018). Integration of audio-visual and traditional practices for effective classroom teaching. *Advanced Journal of Social Science, 3*(1), 47–49.

Underwood, J., & Dillon, G. (2011). Chasing dreams and recognizing realities: Teachers' responses to ICT. *Technology, Pedagogy and Education, 20*(3), 317–330.

Vygotsky, L. S. (1978). *Mind in society: Development of higher psychological processes*. Harvard University Press.