AVAILABILITY AND UTILIZATION OF MULTIMEDIA TECHNOLOGIES FOR LITERACY INSTRUCTIONS AND EARLY CHILDHOOD DEVELOPMENT EDUCATION IN AFIKPO, NIGERIA

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Abstract
The digital era is having significant impact on all affairs of man in the society. In the education sector, information and multimedia technologies are adopted, applied and used in providing library and information services, facilitating teaching and learning, and assessing students' academic performance. Literacy instructions and early childhood development education (ECDE) represent key sub-sectors that require strategic attention, which is now championed with multimedia technologies. Multimedia technologies are digital and interactive applications with combinations of voice, graphics, images, video and animations for communicating ideas and sharing information. The use of multimedia technologies has been found to encourage and rekindle the interests of pupils in literacy instructions and ECDE for easy learning and acquisition of knowledge. This necessitated the study that adopted survey research design with checklist and observation used for data collection, involving ten (10) institutions that provide literacy instructions and ECDE purposely selected for the study. Findings revealed that multimedia technologies are inadequate and hardly used in the institutions, except television and stand-alone computers found in some of the schools, but rarely used. Poor electricity supply, high cost of procuring multimedia technologies, low tuition fees were described as key factors affecting availability and use of these technologies in the literacy instructions and ECDE institutions covered. The study recommended that erratic power supply in Afikpo should be addressed, and management of the ECDE institutions should strive to provide the multimedia technologies, considering their impact in literacy and early childhood development.

Keywords
Multimedia Technologies, Literacy Instructions, Early Childhood Development Education, Afikpo, Nigeria.

Introduction

The technologies for information and communication activities cover computer systems, telecommunication devices, multimedia technologies, and associated electronic gadgets for management of information and communication functions. These technologies work together and sometimes used interchangeably targeted at advancing the mission of man in the society. The rapid development of the digital era with digital technologies and information explosions is having series of influence in the affairs of man in the society. Education in general is an area that appears more affected with these technologies, leading to the emergence of educational technology, instructional technology or technology-mediated education, which centres on systematic and organized process of applying modern technologies to improve the quality of education. These concepts are fast growing and gradually moved into the direction of digital education and e-learning.

According to Stosic (2015), educational technology has three domains of use, which are technology as a tutor (computer gives instructions and guides the user), technology as a teaching tool and technology as a learning tool. The technology in question that is driving educational technology is information and communication technologies (ICTs), which include computers, telecommunication gadgets, the Internet, storage devices, and multimedia technologies. Thus, the teaching and learning in this era are dominated with ICTs, and this transcends from early childhood development education, primary schools, secondary schools, to tertiary education. This situation appears to be aligning with various strategies of imparting knowledge and skills, considering the fact that, students of nowadays are digital natives. Digital natives in the sense that today's students are born alongside the various technologies, and even when the technologies appear to be in sophisticated dimensions.

Meanwhile, an aspect of education that is expected to adopt and apply ICTs in their teaching and learning process is the foundational level of education, otherwise referred to as early child development education (ECDE). This level of education required proper attention because that is where the foundation for the overall growth and wellbeing of children are laid. As such, for the society to get it right, the application of ICTs, most especially multimedia technologies in pupils' literacy instructions and overall ECDE are inevitable.

According to Singh and Mishra (2013), multimedia is seen as the multi dimensions of media, which can be an amalgamation of text, sound effects, light, animated figures, still images, videos and interactive content forms. It is multiple forms of media integrated together, i.e. the collection of audio, sounds, text, graphic, and other animations, which increases independence, decision making, and consolidation of children's prior knowledge, critical literacy and general learning processes. Multimedia technology includes interactive, computer-based applications that allow people to communicate ideas and information with digital and print elements. Professionals in the field use computer software to develop and manage online graphics and content. The work that media technology specialists produce is used in various media, such as training programs, web pages, and news sites (Learn.org, 2020). Multimedia has the potential to create high quality learning environment, as well as capability of creating more realistic learning contexts through its different media.

According to Lambert and Cuper (2008), the current generation of digital students is both familiar with and motivated to use multimedia tools. Teacher educators must, therefore, harness their power as teaching and learning opportunities for the next generation of classroom teachers. In the most positive sense, multimedia technologies can be as tantalizingly random as these digital natives' "new" brains. By making use of multimedia tools in teacher education instruction, faculty can meet digital natives where they stand, showing them how to make better sense of what initially appear to be random patterns of thinking.

Meanwhile, literacy instructions lead to the development of literacy skills in pupils and students. As experts in early childhood development education, Strickland and Riley-Ayers (2006) note the following as facts:

- Literacy development starts early in life and is highly correlated with school achievement.
- All of the domains of a child's development, from physical, social-emotional, cognitive, language and literacy are interrelated and interdependent.
- The more limited a child's experiences with language and literacy the more likely he or she will have difficulty learning to read.

- Key early literacy predictors of reading and school success include oral language, Alphabetic Code, and print knowledge.
- Well-conceived standards for child outcomes, curriculum content, and teacher preparation help establish clarity of purpose and a shared vision for early literacy education.
- Increased demands for programme accountability are often heavily focused on assessments of children's early literacy development.
- Highly capable teachers are required to implement today's more challenging early literacy curriculum.
- Teacher knowledge, respect and support for the diversity of children's families, cultures, and linguistic backgrounds are important in early literacy development.

Key components of an early literacy curriculum grounded in evidence-based early literacy research include oral language development, which includes vocabulary and listening; an understanding of the alphabetic code, which includes phonological/phonemic awareness and knowledge of the alphabet; and knowledge and understanding about print and its use (Strickland & Riley-Ayers, 2006). Thus, in the above submissions, multimedia technologies are key and central in delivering instructions to students for acquisition of knowledge and skills.

Lambert and Cuper (2008) posit that multimedia uses multiple forms of text, audio, graphics, animation, or video to convey information. As such, multimedia technologies offer today's classroom teachers the opportunity to move from a largely linear learning environment to an increasingly nonlinear environment. Such technologies also allow students a strong degree of choice as they pursue learning with multimedia texts. Although multimedia classroom tools offer classroom teachers multiple ways of engaging students in the learning process, they also present challenges for teachers. One of the challenges lies in the fact that certain multimedia tools promote far more active learning and student decision-making than others.

There are two categories of multimedia – linear and nonlinear. Linear multimedia tools generally progress from one screen to the next and are commonly used by instructors as a supplementary teaching aid. This form of multimedia tends to limit learning potential because it does not require active participation. On the other hand, nonlinear multimedia tools (those that include hyperlinks) offer viewers interactivity, control of progress, and choice in their construction of knowledge (Lambert & Cuper, 2008).

When used as active learning tools, nonlinear multimedia engages students in using 21st-century skills and provides a variety of creative, digital-age reflection opportunities. These are in line with constructivist teaching and learning strategies and support cognitive flexibility in learning. According to cognitive flexibility theory, learners benefit from retrieving information in the nonlinear fashion that hypertext allows, as it helps them develop complex and rich schemata and enables them to use their knowledge in a flexible manner. Hypertext learning environments are particularly beneficial for learners who prefer active, problem-based, and self-directed learning. These environments also show potential to foster higher order, complex reasoning skills in students (Lambert & Cuper, 2008).

Multimedia technologies are advancing the mission of teaching and learning in the society. Research has shown that the utilization of multimedia technologies has tremendous impact on teaching and learning as it has been effective in increasing students' retention capability, stimulates their interest and attention, allows self-paced learning, as well as influences both academic and job performance of students because research has shown that people remember 20% of what they see,

40% of what they see and hear but 75% of what they see, hear and do simultaneously (Oshinaike & Adekunmisi, as cited in Oghomwen, Abdullahi, Kolo & Karickson, 2021).

Early childhood development education (ECDE) is the stage of fast development, with focus on educational programmes and strategies for learning directed towards children from birth to the age of six. Various studies have been conducted, most especially in developed climes (Lambert & Cuper, 2008; Singh & Mishra, 2013), where multimedia technologies are adopted and applied in ECDE. In developing nations like Nigeria, similar studies have equally been conducted in some parts of the country (Nwanekezi & Kalu, 2012), but none in Afikpo, Ebonyi State. Thus, since the use of multimedia technologies has been found to encourage and rekindle the interests of pupils in ECDE for easy learning and acquisition of knowledge, there is justification for this investigation. So, it is as a result of this that led to the study to ascertain the extent of availability and use of multimedia technologies as well as the associated challenges in the selected institutions that offer ECDE services in Afikpo, Nigeria.

Literature Review

The available, use and educational implications of multimedia technologies are on the increase across the universe considering that the society is in the digital era. Multimedia technologies are applied and used in the teaching and learning process. Moreover, various studies have reported the extent of availability and utilization of multimedia technologies in different sectors of the society. According to Tella (2011), the level of usage of ICT gadgets were found to be very low with inadequate facilities in colleges of education in South-Western Nigeria. The findings by Singh and Mishra (2013) revealed the effect of multimedia technologies on pupils and students in the following areas: watching television inculcates moral ethics in students; computers increase children's content-related knowledge; animations in stories provide opportunity to children to observe, manipulate and investigate; videos are helpful in presenting real world contexts to students; and use of slide projector enhances child engagement and development related to education.

There are related studies on the use of multimedia technologies for instructional programmes in Nigeria. For instance, Ejem, Christopher, Odii and Diala (2017) noted that due to natural vulnerability to distractions and loss of concentrations in the classrooms, an object-oriented learning paradigm that initiates learning among children through animations that encourage concentrations was developed and tested, and the result showed that the system demonstrated efficient platform for child learning capacity and early childhood education that is possibly devoid of distractions, which should be adopted across schools in Nigeria.

Anyim (2018) studied the extent of use of multimedia technologies for library-user education programmes in North-Central Nigeria. A total of 196 respondents were involved in the study and the findings revealed that although the multimedia technologies enhance user education programmes, but there is very low use of the technologies in user education programmes due to poor power supply, inadequate funding, cost of the technologies and the requisite competences for the operations and use. Komolafe, Otonekwu and Oyeyemi (2019) investigated the availability and use of multimedia technologies in Osun State University, Osogbo, Nigeria, by lecturers and students. The findings revealed that different multimedia technologies like television, radio, projectors, digital microphone, media players, computers and Internet facilities are fully available in the university, of which the students and lecturers have positive perception of using the technologies. On the frequency of use, lecturers concentrated on computers and Internet facilities,

whereas students use all the available multimedia technologies for learning. Some of the revealed factors affecting use include inadequate technical support for use, lack of multimedia applications for use, logistics issues for traveling and using the technologies, and insufficient number of the multimedia technologies that are available. The study recommended procurement of sufficient multimedia technologies, motivating and encouraging use of the technologies, engaging in training programmes for facilitating use of the technologies and periodic evaluation of the progress made in using the technologies for teaching and learning. The findings of Adesanya and Adeyemi (2020) revealed that utilization of multimedia technologies has significant relationship with lecturers' teaching effectiveness in colleges of education in South-West, Nigeria. In a related study by Awogbami, Opele and Chibueze (2020), it was revealed that lecturers significantly used multimedia technologies for knowledge transfer, despite some challenges like poor understanding of the numerous benefits of the technologies and the high cost implications of procuring and using the facilities.

The extent of availability and use of multimedia technologies for teaching basic science and technology in primary schools in Akwa Ibom State, Nigeria, was investigated by Kennedy, Akpan and Utin (2018). Findings revealed that multimedia technologies are lacking in almost all public primary schools studied whereas some private schools have the technologies but rarely use them for teaching basic science and technology. The study recommended for deployment of multimedia technologies for teaching and learning in all primary schools across the state. Akinoso (2018) studied the effect of multimedia use on students' academic performance in secondary school mathematics, and the findings revealed that multimedia technologies positively influenced the academic performance of students in Lagos State, Nigeria. Similarly, the use of multimedia technologies in teaching mathematics in public and private secondary schools in Abuja, Nigeria, was investigated by Dominic-Ugwu and Ogwueleka (2019). A comparative analysis was carried out between students taught with multimedia technologies and others taught with traditional chalk and talk method, and it was revealed that those taught with multimedia technologies had higher mean score which implies that the technologies boost the teaching and study of mathematics, increased the motivation and participation of students during classes, improved their learning capacity and interests, and resulted to significant academic performance.

The study of Falola and Jolayemi (2020) explored the impact of multimedia technologies on the teaching of oral English in secondary schools in Osun State, Nigeria. The findings revealed that using multimedia technologies positively influenced the teaching of oral English in secondary schools in the state. Abubakar and Bello (2020) assessed availability and use of Internet for teaching and learning in selected secondary schools in BauchI State, Nigeria, and discovered poor availability, and that students mostly access and use the Internet from their homes and cybercafés. Similarly, the investigation by Nwuke and Ucheji (2021) exposed the inadequacy of multimedia technologies in secondary schools in rural areas of Rivers State, Nigeria, but that the available technologies are heavily utilized by the teachers for instructional delivery, especially in urban centres of the state. In a related study by Oghomwen, Abdullahi, Kolo and Karickson (2021), it was found that a significant difference existed between students taught with multimedia technologies and those taught manually in commerce. Thus, the academic achievement of students increased when teachers used multimedia technologies in teaching and learning commerce, thereby justifying that multimedia technologies have significant and positive effects on the teaching and learning process. Unfortunately, none of the afore-mentioned studies have been conducted in Afikpo, Ebonyi State of Nigeria, to ascertain the extent of availability and use of multimedia

technologies in institutions providing early childhood and development education (ECDE). Thus, this study was limited to private-owned ECDE institutions considering that an earlier informal survey by the authors in public primary schools in Afikpo metropolis showed that all the schools still maintain the traditional chalk and board teaching and learning system without the existence of multimedia technologies.

Methodology

Survey research design was adopted in the study. Checklist and observation were the strategies used for data collection, with ten (10) private-owned institutions that provide ECDE purposely selected for the study. It should be noted that these institutions selected were among the very best ECDE centres in the metropolis. The nature of the study led to the use of checklist and observations in order to have on the spot access and clear picture of the availability and utilization of multimedia technologies for instructions in the ECDE institutions.

Meanwhile, it should be noted that in the process of data collection by the researchers, the respondents from the various institutions involved were told that their institution names will not be mentioned in the study report, but rather they will be numbered for easy analysis. This is in consideration that the institutions are private-owned businesses, and if published with their names, such could affect their business operations.

Findings and Discussions

The various schools were visited, and the researchers informed the headmaster/headmistress of the schools the purpose of the study. In some cases, heads of schools wanted the interaction to end in the office, but after arguments and conviction, researchers were allowed to go round the classrooms and offices to see what is on ground in term of multimedia technologies. See findings in the table below:

ECDE Institutions	Availability of Multimedia Technologies	Use of Multimedia Technologies	Challenges
1	One TV; a set of computers.	Rarely used	Inadequate power supply; cost of fuel for generator
2	One small TV	Hardly used	No power supply
3	None	Not used	Poor funding due to low tuition fees
4	A Small TV	Not used	Lack of power supply
5	One old computer set and a small TV	Hardly used	Poor power supply; Cost of gadgets
6	None	Not used	Poor power supply; low school fees; cost of computers and other technologies
7	None	Not used	Same
8	None	Not used	Same
9	a TV set	Used occasionally	Cost of fuel; poor electricity supply
10	None	Not used	Very low school fees; poor funding by the owner.

As seen in the table, the availability of multimedia technologies is very poor in the institutions, and is rarely used, with the exception of television and stand-alone computers found in few of the schools, but also rarely used. Unfortunately, in all the schools, there are no projectors, videos, and digital animations, which are technologies that arouse students' learning interests. This concurs with the earlier findings of Kennedy, Akpan and Utin (2018), Abubakar and Bello (2020) as well as Nwuke and Ucheji (2021). The unavailability and non-use of these multimedia technologies, no doubt, will affect the students' acquisition of knowledge and the pattern of instructional programmes of the institutions.

The study also revealed that poor electricity supply, high cost of procuring multimedia technologies and low tuition fees affecting procurement of the technologies were key factors affecting availability and use of these technologies in the ECDE institutions covered, thereby aligning with the findings of Anyim (2018), Komolafe, Otonekwu and Oyeyemi (2019) as well as Awogbami, Opele and Chibueze (2020). These challenges have the ability to impede the teaching and learning process, and end up affecting the academic performance of the students.

Conclusion and Recommendations

In the present society, there is no way teaching and learning will thrive and succeed without adoption, application and use of multimedia technologies, which ICTs are part of. Planners and entrepreneurs in the education sector should note this and should not take it for granted because ICTs rule the world now. Thus, the findings of this study are indirectly telling that multimedia technologies are found not to be a resource for practicing literacy instructions and early childhood education in Afikpo, Ebonyi State of Nigeria. This is a situation to worry about, considering that these technologies have proved to stimulate the interest and attention of early learners, as well as make them comfortable in the quest for acquisition of knowledge and skills.

In line with the findings, it is recommended that the management of the ECDE institutions should strive to provide the requisite multimedia technologies, considering their impact in literacy instructions and early childhood development. Second, the erratic state of power supply in Afikpo should be addressed by the service providers and alternative sources of power supply should be explored by the management of the institutions.

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