

EVALUATING TEACHER'S KNOWLEDGE AND USE OF MODERN TECHNOLOGY IN EARLY CHILDHOOD CENTERS IN MAINLAND LOCAL GOVERNMENT AREA OF LAGOS STATE

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ABSTRACT

In recent years, modern technologies have become increasingly prevalent in the daily lives of families with young children. Mobile devices, touch screens, and voice interfaces have made regular engagement with digital platforms and content common, even for very young children. This paper focuses on evaluating teachers' knowledge and use of modern technology in early childhood centers in the Mainland Local Government Area of Lagos State. The study formulated two research questions and randomly selected teachers from four nursery and primary schools in Yaba, Lagos as the sample size for the research. The survey research design was used, and a structured questionnaire was utilized to gather responses from 80 participants. Descriptive and inferential statistics, including frequency and percentage, were used for the analysis. The findings revealed that early childhood education teachers have a low level of knowledge of modern technologies and utilize them to a limited extent in early childhood education centers. It was recommended that the authorities organize workshops to train teachers on the use of modern technology in the classrooms and make modern technology available in all classrooms for effective utilization.

Keywords: Teachers, knowledge, Modern Technology, Technology Materials, Early Childhood Education.

INTRODUCTION

Technology is the collection of skills and techniques used to produce goods or services, as well as accomplishing particular objectives. Modern technology is the advancement of old technology with new additions and modifications. For example, the same people in this decade can't live with a wired telephone placed on the table. So, the mobile phone which can be taken anywhere is the perfect example of technological advancement or simply, modern technology. Any machine or device around us is the product of modern technology. It made things way easier than could ever be imagined. Children in their early years (0-8years) are growing up in societies where networked digital technologies such as smartphones, tablets, computers, etc. are not only common but central to social modes of communication and information sharing,

Modern technology plays an important role in teaching and learning in early childhood. It is a powerful means of communication and learning. Due to its interactive nature, it has the potential to meet the needs of providing practical ways of constructively directing learning activities and completing tasks in a way to meet diverse interests and needs. Otucu (2013) and kaindio and Wagithunu (2014) refer to technology as anything that allows children to get information and communicate with each other in early childhood settings. Bolstad as cited by Kathryn and Heather (2016) submits that technologies are tools used to facilitate, share, and transform the activities, roles, and relationships with children and educators in early childhood education settings.

Modern technology has impacted every area and has become a crucial factor in no time. It has got to a point where everything we use in our daily lives is directly or indirectly related to technological advancement of some form. So, modern technology cannot be avoided even if intentionally wanted to (Swalih, 2021). The National Association for the Education of Young Children, NAEYC (2012), in its joint position with Fred Rogers Center for Early Learning and Children's Media at Saint Vincent College, states that technology tools in early childhood encompass a broad range of digital devices such as computers, tablets, multi-touch screens, interactive whiteboards, mobile devices, cameras, DVD and music players, audio recorders, electronic toys, games, e-book readers, and older analog devices still being used such as tape recorder, cassette players, light tables, projectors and microscopes.

Undoubtedly, information and communication technology (ICT) plays a crucial role in people's everyday lives. Yelland (2006) observes that "the very nature of our work and leisure time has been transformed due to the presence of information and communication technologies." ICT has become ubiquitous in homes and society at large, significantly impacting the daily lives of most children. As a tool, "ICT has the potential to transform the way that education is delivered" (Fisher, 2001).

ICT can enable differentiation and individualization in education, allowing for tailored content and presentation based on students' backgrounds, experiences, and needs. Additionally, Adeleke, Binuomot, and Adeyinka (2013) highlight that ICT amplifies what teachers can do, providing new entry points to content and inquiries, extending students' capabilities in their investigations, and offering teachers the opportunity to become learners once again. The initial interest in the presence of Information and Communication Technologies (ICT) in Early Childhood Education (ECE) stemmed from extensive teaching experiences in the early childhood sector, where it was evident that ICT was becoming an increasing feature in the teaching and learning environment. More recently, this interest shifted in a slightly different direction when working with early childhood student teachers within the teacher education context. It became increasingly apparent that teachers and student teachers displayed varying views of the part they considered ICT played or should play within these settings, coupled with how they chose to use or not to employ ICT resources. Fu (2013) emphasized that computers and modern technology could be employed in developing appropriate ways with very young children when they are ready to learn using information Communication Technology (ICT). The researcher recommended that computers be introduced to young children when they are about three years of age. Information Communication Technology offers a multiplicity of uses and can be integrated into meaningful learning opportunities for children, assisting in the administration and

management of tasks. It has tremendous potential to enhance early learning experiences, professional development, communication with families and communities, and administration in early childhood education services. Until fairly recently the bulk of literature about ICT, was centered predominantly on the compulsory education sector. While ICT within the schooling sector has long been considered an integral component of the curriculum, the use of ICT within early childhood education has been accorded less attention. This lack of attention did not necessarily mean, however, that ICT was non-existent or not implemented within early childhood contexts. Several studies suggest that small groups of early childhood teachers have been implementing and integrating ICT within their teaching and learning contexts over several years. These innovative practices have contributed to increasing the profile of early childhood education both locally and internationally (Ghavitfekar, Razak, Ghani, Meixi & Tengyue, 2021).

The non-utilization of technology in early childhood centers can bring about many unpleasant consequences the children may never have an early opportunity to develop an interest in technology or acquire basic skills of technology which they would need to contribute meaningfully to their or the nation's progress. It could be difficult to make children enjoy fun-filled or interactive learning.

There are however, significant challenges that stand in the way of ICT use in early childhood education, such as equity of access to equipment, lack of confidence and professional development (Buabeng-Andoh 2012, Tella 2011, Ogunloye 2007, Aduwa-Ogiegbaen & Iyamu 2005) especially in terms of training of teachers, non-availability of ICT resources (Nwana, Ofoegbu & Egbe 2017) and teachers' lack of expertise in using ICT (Sofowora & Egbedokun, 2010, Tella, Toyobo, Adika & Adeyinka, 2007). Understanding gaps exist as Dale, Robertson, and Short (2002) predict that "the qualitative and quantitative gaps between the pupils' and the teacher's understanding of the application of ICT as a technology of teaching are much greater than has heretofore been the case with any other teaching technology." Plowman and Stephen (2005) argued that the curriculum and assessment are less prescriptive for pre-school settings and the role of computers in driving up standards is not yet explicitly stated in pre-school policy documents.

The Alliance for Childhood (2000) argues, for the removal of computers in American schools, as they consider that the use of computers is dangerous for children's physical, emotional, and intellectual development. On the other hand, Jones (2002) disputed these claims, as his research indicates that children were spending far more time watching television than working on computers.

Because the issue of teachers' knowledge is highly important to the usage of modern technology, it is rewarding to conduct a study of this kind. Most past studies have focused less on early childhood classrooms when it comes to the use of technology. The need for the development of ICTs is a global resolution and has been a subject of great significance to all mankind. These technologies have become central to contemporary societies.

RESEARCH QUESTIONS

1. What is the level of Early Childhood Education teachers' knowledge of modern technologies?

2. To what extent do Early Childhood Education teachers use modern technologies in early childhood education centers?

METHODOLOGY

The research design adopted for this study is a school survey research design. The main purpose of a school survey is to judge the overall effectiveness of the school program and suggest some improvements, if and when necessary. This approach was used because it was a satisfactory tool for collecting data for the sample population to investigate the topic under study.

The population for this study consists of all male and female Nursery and primary school teachers in Mainland Local Government Area of Lagos. The teachers were selected from four nursery and primary schools in Yaba, Lagos as the sample size in this research work. These schools were randomly selected by the researcher for this study. Four public/private schools were used because teachers from these schools helped to evaluate their knowledge of modern technology. The four Nursery and Primary Schools are:

- i. Garden of Success Nursery and Primary School, Iwaya, Yaba, Lagos.
- ii. UNILAG Nursery and Primary school/women's society, Akoka, Yaba, Lagos.
- iii. Onike Nursery and Primary School, Yaba, Lagos.
- iv. DE Joyland Nursery and Primary School, Onike, Yaba, Lagos.

The above-mentioned schools are from the area of Yaba and were chosen because of ease of accessibility. More so, 80 questionnaires were administered as follows; Yamane's (1973) formula for sample size determination is applied here since it favors the convenience sampling technique used in selecting the sample.

The data collection instrument used in this study was the structured questionnaire divided into three major parts: A, B, and C; where A is the Biodata of the respondents and B and C are the parts relating to the main research questions. The questionnaire is structured in four four-point Likert scales of measurement which include: Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD). The data is primarily sourced and the research questions from where the items of the questionnaire were derived, according to the dimensions of the variables as follows:

The instrument was administered by the researcher through Google form which was sent to the head teachers first for permission. It was then posted on each group and the early childhood teachers assisted in supplying their opinions regarding the questionnaire items. The whole administration lasted for a week.

The method of data analysis adopted is the descriptive and inferential statistics of frequency and percentage. This helps to make inferences concerning a proposition or hypothesis to achieve research objectives. The hypotheses were tested using linear regression to show the relationship between two continuous variables. This was done with the aid of Statistical Package for Social Science or Statistical Product for Service Solution (SPSS).

RESULTS

Research Question 1: What is the level of early childhood education teachers' knowledge of modern technologies?

Table 4.2

The Level of Early Childhood Education Teachers' Knowledge of Modern Technologies

Score	Frequency	Percentage (%)	Mean	Std. D.
0-20	34	42.5	20.00	13.00
21-40	27	33.8		
41-60	14	17.5		
61-80	5	6.2		
81-100	0	0.0		
Total	80	100.0		

Highest Mark Obtainable = 100

Decision Value: *Low* ($\bar{x}$ = 0.00-34.00), *High* (35.00-60.00)

Table 4.2 shows the level of early childhood education teachers' knowledge of modern technologies. The result from the table shows that 42.5% of the teachers scored between 0 and 20 on the knowledge test, 33.8% of them scored between 21 and 40 on the test, 17.5% scored between 41 and 60, and the remaining who constituted 6.5% scored between 61 and 80. The table shows further that none of the teachers scored between 81 and 100 on the test. The overall mean score of the teachers' knowledge is 20.00 with a standard deviation value of 13.00. Based on this result and in line with the decision value, it can be inferred that early childhood education teachers' knowledge of modern technologies is low.

Research Question 2: To what extent do teachers use modern technologies in early childhood education centers?

Table 4.3

The extent to which Early Childhood Education Teachers use Modern Technology in Early Childhood Education Centres

Items	SD	D	A	SA	Mea n	Std. D
Modern technology is consistently used to enhance effective teaching and learning and to aid retention.	20 (25.0)	28 (35.0)	16 (20.0)	16 (20.0)	2.35	1.07
I often use modern technology to manage children's data and track their progress in the learning process.	16 (20.0)	12 (15.0)	12 (15.0)	36 (45.0)	2.80	1.26

I use modern technology often because it enables me to effectively transmit my information through audio-visual aids which enhance productive teaching.	0 (0.0)	16 (20.0)	16 (20.0)	48 (60.0)	3.40	.81
I always use modern technology to make learning permanent for children because it enables a better presentation of learning resources.	56 (70.0)	24 (30.0)	0 (0.0)	0 (0.0)	1.50	.46
I use modern technology for access to the Internet and quick communication between students, teachers, and parents.	0 (0.0)	20 (25.0)	20 (25.0)	40 (50.0)	3.25	.83
Weighted Average	2.62					

N=80; Key: 1 = Strongly Disagree, 2 = Disagree, 3 = Agree, 4 = Strongly Agree
Decision Value: Low Extent = 0.00-2.44, High Extent = 2.45-4.00

Note on Decision Value: Mean values of all the items in the table were added and divided by the number of items. This gave the weighted average value of which 4.00 is the maximum value that can be obtained. The value of the weighted average that is between 0.00 and 2.44 was taken to stand for **Low Extent** while the one between 2.45 and 4.00 was taken to stand for **High Extent**.

Table 4.3 shows the extent to which early childhood education teachers use modern technologies in early childhood education centers. The table shows that the respondents disagree with the following items: modern technology is consistently used to enhance effective teaching and learning and to aid retention (= 2.35) and I always use modern technology to make learning permanent for children because it enables better presentation of learning resources (= 1.50). Furthermore, the table shows that the respondents agreed with the following items: I often use modern technology to manage children's data and track their progress in the learning process. (= 2.80), I use modern technology often because it enables me to effectively transmit my information through audio-visual aids which enhance productive teaching (= 3.40), and I use modern technology for access to the Internet and quick communication between students, teachers, and parents (= 3.25). Meanwhile, based on the value of the weighted average (2.62 out of 4.00 maximum value that can be obtained), which falls within the decision value to a low extent, it can be inferred that the extent to which early childhood education teachers use modern technologies in early childhood education centers is low.

DISCUSSION

It is revealed that early childhood teachers in the Mainland Local Government Area have low knowledge of modern technology. The findings have provided information on the fact that early childhood teachers in the Mainland Local Government Area of Lagos State do not have sufficient knowledge of modern technology in early childhood centers. The findings may be

connected to the discovery of Tella (2011) and Buabeng-Andoh (2012) who state that teachers do not have professional development on ICT, it is possible therefore that early childhood teachers that were used in this study have not attended any in-service training or workshop where they could learn about modern technology used in the classroom.

The second finding revealed that the extent to which early childhood education teachers use modern technologies in early childhood education centers is low in Mainland Local Government Areas which can be likened to the discovery of Nwana, Ofoegbu & Egbe 2017 that state non-availability of ICT resources and Sofowora & Egbedokun, 2010, Tella, Toyobo, Adika & Adeyinka 2007 who reported teachers' lack of expertise in using ICT.

CONCLUSION

Early childhood education teachers' knowledge of modern technologies is low. The extent to which early childhood education teachers use modern technologies in early childhood education centers is low which will hinder early childhood pupils from developing early technology skills and will not be able to enjoy the positive early experiences that technology could offer.

RECOMMENDATIONS

The following recommendations were made given the findings of this study;

- i. Government and school owners should organize seminars/workshops to train teachers on the use of modern technology to improve their knowledge, the workshop should be handled by experts in the area of early childhood education technology.
- ii. The teachers should also make themselves available to attend workshops, trainings, seminars, short time courses on technology in early childhood education
- iii. Private school owners and the Government should make technology materials available in each classroom for effective utilization by consulting experts in the area of technology to suggest age-appropriate relevant technology materials needed in the classrooms.

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