ASSESSMENT OF EARLY CHILDHOOD EDUCATORS' ATTITUDE AND UTILIZATION OF INFORMATION AND COMMUNICATION TECHNOLOGY IN RIVERS STATE, NIGERIA: Implication in COVID-19 Era

Dr Amakiri, Hager Atisi Eremina[1], Edwin Tamar Isom[2]

[1]Department of Educational Psychology, Guidance and Counselling, Ignatius Ajuru University of Education, Port Harcourt, Rivers State, Nigeria

[2]Department of Early Childhood Education, Ignatius Ajuru University of Education, Port Harcourt, Rivers State, Nigeria

ABSTRACT
This study assessed the attitude and utilization of information and communication technology by early childhood educators in Rivers State. The study adopted the descriptive survey research design. The population of the study consist of 42,417 early childhood educators in private schools in Rivers State. Taro Yamane formula was used to draw a sample of 396 early childhood educators from the population. Three research questions were used to guide the study. Data for the study was collected using an 18-item inventory developed by the researchers. The instrument was validated by experts in early childhood education. To establish the reliability of the instrument, the test-retest method was used and a reliability coefficient of 0.73 was obtained. Mean and standard deviation were used for data analysis. Results revealed that educators had a positive attitude, while there was a low extent of utilization of ICT facilities. Furthermore, the result showed that some factors militating against the utilization of ICT in early childhood education include inadequate training and the high cost of ICT tools. Based on the result, it was recommended among others that pre-service and in-service teachers should be given target training on the effective utilization of ICT tools in early childhood education contexts.

KEYWORDS: *Early childhood education, utilisation, attitude of early childhood education, ICT*

INTRODUCTION
Twenty-first-century students need competencies that enable them to adapt to a new type of individual information and individual-knowledge relationship. Therefore, the education system should contemplate new ways for learners' development in accordance with this so-called information and knowledge society (Bas, et al., 2016). In the light of the foregoing, educational systems and centres need to include new learning theories, methodologies, materials, resources and devices to replace the traditional classroom with digital classrooms where students can acquire competencies appropriate to this century's network society. No better time can this be achieved than at the early stages of education, especially in an era where face to face teaching/learning has been hindered to a high extent by the COVID-19 pandemic.

Empirical research suggests at least three reasons why ICT integration is important in early childhood education. First, ICT already affects the people and environments that surround young children's learning. Second, these technologies offer new opportunities to strengthen many aspects of early childhood education practice. Third, there is support and interest across the whole education sector for the development and integration of ICT into education policy, curriculum, and practice. However, there is a clear consensus in the literature that the introduction and use of ICT in early childhood education should be grounded in a clear understanding of the purposes, practices, and social context of early childhood education. One such context is understanding teachers' attitudes and expertise to use them, their ability to apply them at the service of new communication scenarios, and their skills to adapt them to their students' cognitive and social characteristics. This is because teachers play a major role in all educational reforms and innovations since they are the ones in charge of adapting their classrooms to whichever elements they are offered, ICT being one of them. Thus, training in these technologies is crucial to ensure their implementation (Cabero, 2014).

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The importance of ICT competencies for early childhood educators is publicly recognized and supported in most countries around the world. Recent research from Turkey shows that early childhood educators use ICT to prepare their daily plans, but they do not use ICT that often in children's activities, and if they use it, it is mostly for music activities and as rare as one or two times a week (Konca, et al. 2016). Similarly, results from Sweden showed that in addition to the above uses, educators perceive ICT as a supplement to existing activities and not as an integral part of the early childhood and preschool curriculum (Masoumi, 2015). Additionally, a recent study from Greece (Nikolopoulus & Gialamas, 2015) suggests that to successfully integrate ICT into educators' daily practices, ICT needs to be perceived as a mode of learning that should be embedded in the curriculum. Most recent findings suggest that it is necessary not only to support educators" positive attitudes toward ICT but also to seek their suggestions on how to use ICT in kindergarten. Al-Zaidiyeen (2010) pointed out that successful utilization of ICT in schools is dependent on the attitude of teachers. Attitude is defined as the way teachers accept or reject the idea of teaching and learning with the use of ICT tools in the classroom, while they are preparing instruction that needs to be implemented during the course of teaching in the classroom and while they are learning to better equip themselves to bolster delivering better educational instructions to the students in a learning environment. Furthermore, Kreijns (2013) stated that attitude is a person's overall feeling of how favourable or unfavourable the result of exhibiting a particular behaviour. For Ajzen (2005), a negative attitude is practically a barrier to the integration of ICT with education in the process of teaching and learning.

These educators need to be encouraged to use ICT for educational activities, while in-service training (that involves technical knowledge and skills as well as the effective and appropriate use of ICT in specific teaching activities) might be an approach to link their own technical and pedagogical expertise with the ICT-supported curriculum. Current realities have shown that ICT is massively adopted in all areas of life including education. It is for this reason that research into the attitude of teachers and utilization of ICT has taken centre stage. These are reflected in the study of Ndibina (2004) who investigated the attitude of teachers towards ICT as a pedagogical tool which showed that teachers do not use digital learning tasks to enable teaching and educational practice. Teachers are also more positive about their perspective concerning computers and the intention to utilize them than their feelings about the usefulness of computer and their control over it. Similarly, Oladosu (2012) found a high level of pessimism in the use of ICT in educational teaching and learning.

However, the study of Yusuf (2012) revealed a positive attitude from the teachers and willingness to use ICT though there was low use of the resources made available to the high schools in the state where the study was conducted. Martin, et al. (2019) also found that pre-service teachers had a favourable attitude towards the use of ICT but do not have digital competence or sufficient ability to use ICT in their academic life or professional future.

As recognized and defined by many authors, ICT refers to "anything which allows one to get information, to communicate with each other, or to have an effect on the environment using electronic or digital equipment" (Preradovic, et al, 2017). As applied to early childhood education, ICT include computer hardware and software, digital cameras and video cameras, the Internet, telecommunication tools, programmable toys, and many other devices and resources. There is a growing recognition of the many different ways that ICT can contribute to, or transform, the activities, roles, and relationships experienced by children and adults in early childhood education settings (Brito, 2010). In the wake of the Covid-19 pandemic, it became imperative for educators globally to rely on ICT tools for teaching and learning due to the enforcement of social distancing. This brought to bear the relevance of the utilization of ICT in the educational system.

One of the challenges highlighted as militating against the integration of ICT in teaching and learning is the lack of government commitment to the development of adequate policy on ICT in early childhood education (Gbadegesin, et al. 2018). To foster students' development of digital competencies after completing their schooling, exposure to ICT tools should start from the early school years. Although ICT is frequently used in early childhood education, they are neither integrated into daily classroom activities nor applied to develop content associated with the teaching units that are underway, their use being more recreational than educational. To be precise, they are mostly used at specific times rather than as regular tools in the teaching-learning process (Asorey & Gil, 2009). It is therefore important that the knowledge, attitude and utilization of ICT by early childhood educators be investigated.

Statement of the Problem

For over twenty-five years, ICT has been introduced into the Nigerian educational system with the goal of integrating it into the teaching and learning process. Despite contributions/ collaborations from the private and public sectors to support ICT usage in the educational system, the integration of ICT in education is yet to yield substantial results, especially in its utilization in teaching and learning. The effect of the integration of ICT in teaching has not been felt nor seen vividly, to say the least among early childhood educators. This was very glaring at the peak of the COVID- 19 pandemic, when most educational institutions (at early childhood, primary and secondary levels) in collaboration with private organizations and state ministries of education, embarked on the use of audio/visual (radio/television) channels to teach learners. Some private schools resorted to crash virtual training for teachers to enable them to prepare virtual materials for their pupils/students. Literature provides evidence that educators in some countries have been using ICT in early education programmes for over a decade. In Finland, 66% of kindergarteners use a computer daily as part of their

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regular programme for already 13 years, while in Hong Kong parents expect children to acquire the ICT skills in the kindergarten environment (Kankaanranta & Kangassalo, 2013; Lueng, 2003). However, there is no concrete data on the extent of utilization of ICT in early childhood education in Nigeria, specifically in Rivers State.

When there is no effective usage of ICT in education, it defeats the expected benefits that the technology can offer. For some teachers, they only use ICT tools for administrative, self-development, class note preparation and student management purposes rather than for pedagogical purposes. The fact that attitude towards a particular technology is deemed to be at a positive level does not translate to acceptability or utilization for teaching and learning, talk less of constructivism approach in education. Therefore, the educators' professional development represents a crucial factor in stimulating the ICT use that surpasses teaching basic ICT skills. Certain conditions or strategies must have to be put in place to motivate a teacher to accept technology and eventually apply the same in teaching and learning.

Educators' professional judgment and ICT competencies are necessary to determine whether and when to use technology that is age-appropriate for a child and suits his individual, linguistic and cultural needs. The educators of young children have experience and knowledge about the children's development, individual interests, as well as the social and cultural context in which children live. The impact of technology in early childhood education depends on educators and their use of the same for developmentally appropriate policies and practices that guide their use of printed materials, content and all other tools for teaching young children. The last few decades had witnessed the rapid development, growth and adoption of Information and Communication Technologies (ICT) in virtually every sector of human society. This has led to major changes in many areas including education. Choosing not to recognize these changes and failing to integrate them into the educational system in Nigeria would not only be a serious mistake but a big disservice to students who are expected to be future drivers of innovation and creativity (Barrantes, et al. 2014).

To tackle the issue and aid proper response, there is a need to probe the factors affecting the effectiveness and use of ICT as an educational tool within the early childhood education context. While various factors have been associated with the knowledge, attitude and utilization of ICT in education, this study will shed more light on the attitude, the extent of utilization and challenges militating against the integration of ICT into teaching and learning by early childhood educators in Rivers State. It will also contribute to literature to fill the gap in the dearth of data on the extent of integration of ICT in early childhood education in Nigeria, precisely in Rivers State.

Purpose of the Study
The purpose of this study is to assess early childhood educators' attitudes and utilization of ICT in the teaching and learning process. In specific terms, the objectives of this study include:
1. To ascertain the attitude of early childhood educators towards the integration of ICT in the teaching and learning process in Rivers State.
2. To ascertain the extent of utilization of ICT in the teaching and learning process in early childhood education in Rivers State.
3. To determine the challenges militating against the effective utilization of ICT in the teaching and learning process in early childhood education in Rivers State.

Research Questions
The following research questions were raised to guide this study:
1. What is the attitude of early childhood educators towards the integration of ICT in the teaching and learning process in Rivers State?
2. What is the extent of utilization of ICT in the teaching and learning process in early childhood education in Rivers State?
3. What are the challenges militating against the effective utilization of ICT in the teaching and learning process in early childhood education in Rivers State?

METHODOLOGY
Research Design: This study adopted the descriptive survey research design as it investigated the attitude and utilization of ICT by early childhood educators in the teaching and learning process. This design was considered appropriate because the research seeks to describe the current status of things without manipulating any of the variables.

Population of the Study: The study population consisted of 42,417 (Source: Universal Basic Education (UBE), Rivers State, 2022) early childhood educators in Rivers State. Whose primary role involves educating learners less than 5 years from all private schools in Rivers State.

Sample and Sampling Technique: From the population of early childhood educators in private schools in Rivers State, 396 were drawn using the Taro Yamane formula as the sample used in the investigation through simple random sampling techniques.

Instrument for Data Collection: An instrument titled: "Attitude and Use of Information/Communication Technology Inventory" (AUICTI), developed by the researchers was used to collect data. The instrument was constructed after a detailed review of related literature and consultation with experts in early childhood education. The inventory consists of two sections: labelled A and B. Section A is concerned with information on demographic variables, while section B consists of 18 items. These items were presented to respondents to indicate the level of agreement or disagreement on a 4-point modified Likert Scale.

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Validity of the Instrument: The face and content validity of the instruments was determined by expert judgment. For face and content validity, copies of the instrument were given to experts in the Department of Early Childhood Education. Thereafter, their suggestions were reflected in the final version of the instrument.

Reliability of the Instrument: To establish the reliability of the instrument, the test-retest method of internal consistency was used. A sample of 20 teachers who were not part of the final selected sample was drawn for reliability testing. While the instrument was administered twice on the sample. The scores from both administrations were analyzed using Pearson Product Moment Correlation. The coefficient obtained was 0.73. This value indicates that the instrument possessed a suitable level of reliability.

Method of Data Collection: The instrument was administered to the respondents using the direct delivery method. Before administering, effort was made to explain orally the purpose of the study, the importance of their contributions and instructions for filling. Thereafter the instrument was administered and collected on the spot after completion.

Method of Data Analysis: For answering the research questions posed for the study, mean and standard deviation were used. All analysis was done using the Statistical Package for Social Science (SPSS).

RESULTS

Research Question One: What is the attitude of early childhood educators towards the integration of ICT in the teaching and learning process in Rivers State?

Table 1: Attitude of early childhood educators towards the integration of ICT.

	ITEM	$\overline{X}_1$	SD	Decision
1	Computer use makes me so much more productive	3.03	0.73	Agree
2	Teaching with ICT tools improves pupils' learning	3.08	0.73	Agree
3	ICT is a supplement to existing classroom activities	2.58	0.84	Agree
4	ICT is indispensable in early childhood education	3.03	0.73	Agree
5	Using ICT tools saves time and effort	2.93	0.81	Agree
6	I would rather do teaching by hand than use a computer	2.09	0.66	Disagree
7	Computers provide a faster means for information sharing and dispensation	3.10	0.71	Agree
	Grand Mean	**2.83**	**0.74**	**Agree**

The result in Table 1, revealed that except for item 6 (I would rather do teaching by hand than use a computer) with a mean and standard deviation: ($\overline{X}$ = 2.09, SD = 0.66), items 1, 2, 3,4, 5 and 7 with mean values greater than 2.50 showed that these items were accepted. Furthermore, a grand mean value of 2.83 (SD = 0.74) was obtained which suggests that early childhood educators have a positive attitude towards the integration of ICT in the teaching and learning process in Rivers State.

Research Question Two: What is the extent of utilization of ICT in the teaching and learning process in early childhood education in Rivers State?

Table 2: Extent of utilization of ICT in the teaching and learning process

	To what extent do you use the following tools in the teaching and learning process	$\overline{X}$	SD	Decision
8	I assist my pupils to connect with ICT tools during classroom training	1.81	0.74	Disagree
9	ICT tools are used for the recreational purpose	2.74	0.61	Agree
10	I use ICT tools to prevent my pupils from being distracted	2.58	0.84	Agree
11	ICT tools have enabled my pupils to learn new things	2.01	0.69	Disagree
12	I use ICT to gather the information I use for classes	2.12	0.75	Disagree
13	I use ICT tools when am compelled by the headteacher	2.72	0.60	Agree
	Grand Mean	**2.33**	**0.71**	**Disagree**

The result displayed in Table 2 on the extent of utilization of ICT in teaching and learning in early childhood education, revealed that items 8, 11 and 12 were rejected with a mean and standard deviation ($\overline{X}$ = 1.81, SD = 0.74), ($\overline{X}$ = 2.01, SD = 0.69), and ($\overline{X}$ = 2.12, SD = 0.75) while items 9, 10 and 13 were accepted ($\overline{X}$ = 2.74, SD = 0.61), ($\overline{X}$ = 2.58, SD = 0.84) and ($\overline{X}$ = 2.72, SD = 0.60) respectively. A grand mean of 2.33 (SD = 0.71) was obtained which indicate a low level of ICT utilization among early childhood educators in Rivers State.

Research Question Three: What are the challenges militating against the effective utilization of ICT in the teaching and learning process in early childhood education in Rivers State?

Table 3: Challenges militating against the effective utilization of ICT in early childhood education

	ITEM	$\overline{X}$	SD	Decision
14	Lack of effective government policies and interventions on early childhood integration.	2.97	0.76	Agree
15	Lack of adequate training of early childhood educators in the integration of ICT	2.98	0.81	Agree
16	High cost of ICT tools	3.01	0.81	Agree
17	Lack of commitment on the part of school administrators to integrate ICT	3.00	0.75	Agree
18	Inadequate knowledge in utilization of ICT tools and integration in teaching/ learning	3.01	0.81	Disagree
	Grand Mean	**2.99**	**0.79**	**Agree**

The result in Table 3 indicate that on the challenges militating against the effective utilization of ICT in early childhood education, all items; 14, 15, 16, 17 and 18 with mean and standard deviation ($\overline{X}$ = 2.97, SD = 0.76), ($\overline{X}$ = 2.98, SD = 0.81), ($\overline{X}$ = 3.01, SD = 0.81), ($\overline{X}$ = 3.00, SD = 0.75) and ($\overline{X}$ = 2.17, SD = 0.70) were accepted as challenges militating against the effective utilization of ICT in the early childhood education.

DISCUSSION OF FINDINGS

The result obtained from the answer to research question one revealed that teachers in early childhood education have a positive attitude towards the use of ICT in the teaching and learning process. This result is not surprising and might be attributed to the increased availability of information and communication tools in every aspect of modern societies. Furthermore, it is possible that this result might be due to the increased level of education that early childhood educators might be exposed to, unlike in the past when education is basically executed using the analogue method. This result is in tandem with that obtained by Ndibina (2004) who found that teachers had a positive attitude towards the use of ICT as a pedagogical tool. This is contrary to the findings of Oladosu (2012) who revealed that teachers are pessimistic about the use of ICT. The current study affirms that early childhood educators acknowledge that ICT enhances their level of productivity as well as in speedy dissemination of information.

From research question two, it was revealed that despite the positive attitude of early childhood education teachers towards the use of ICT in the teaching and learning process, there is a low level of utilization of ICT in early childhood education settings. This result was deduced from the mean value obtained in Table 2 which was less than the criterion mean (2.50) of the study. This result might be attributed to early childhood educators' low level of competence in the use of ICT tools. This is affirmed by the findings of Konca, Ozel and Zelyurt (2016) that early childhood educators do not often use ICT for pupils' activities rather they use it for music activities

which are also rare. This might be due to some of the challenges faced by early childhood educators highlighted in the study such as inadequate training in the integration of ICT for teaching, inadequate knowledge in utilization of ICT tools and integration in teaching and learning. This result is in agreement with that of Martin, Gonzalez and Panalvo (2019) who established that pre-service teachers had a favourable attitude towards the use of ICT but do not have digital competence or sufficient ability to use ICT in their academic life or professional future.

The result from research question three which sought to investigate the challenges militating against the effective utilization of ICT in the teaching and learning process in early childhood revealed among others that lack of effective government policies and interventions in early childhood, inadequate training of early childhood educators in the utilization of ICT and the high cost of ICT equipment were substantial challenges hindering the utilization of ICT tools. The result is in line with that of Gbadegesin, Alabi and Omodun (2018) who showed a lack of government commitment to the development of adequate policy on ICT in early childhood education.

Implications in the COVID-19 Era

The world is still grappling with the unending emergence of different strains of the COVID-19 virus. Though the rate of infection and transmission seems to be abating globally, there are still concerns about the deadly nature of the virus with no cure in sight. To sustain the downward slope of the COVID-19 curve the protocol associated with its control must be adhered to especially in an environment prone to large gatherings such as educational institutions. Teacher educators need training in the utilization of ICT tools in teaching and learning because they can only transmit the knowledge that they have acquired. Therefore, if pre-service and in-service teachers are not adequately trained to integrate ICT in teaching/ learning it would be difficult to raise digital competent pupils as well as to adapt to the new normal of virtual teaching/learning.

It is therefore expedient that stakeholders, state and the federal ministries of education embark on extensive training on the integration of ICT in teaching/learning for teacher educators, pre-service and in-service teachers. The time to act is now. This would boost the confidence of teachers to raise digitally literate pupils who would not contend with the use of ICT tools in learning as they continue on future academic pursuits and endeavours even with their peers globally. The results from this study imply that teachers might have faced a lot of challenges in virtual teaching and learning during the COVID-19 pandemic. Hence, those who had the short end of the stick in the process were learners.

Recommendations
1. The federal and state governments should give priority attention to the provision of technological facilities for instructional delivery especially in higher education to enable teacher educators to train pre-service teachers adequately on the utilization of ICT tools in teaching/learning.
2. Stakeholders such as Parents Teacher Association (PTA) and non-governmental organizations should join hands with the federal and state governments in the provision of ICT facilities so that the needed technological gadgets would be adequate for the teaching and learning at early childhood care and educational centres.
3. The state government should collaborate with the National Association of Proprietors of Private Schools (NAPPS) to embark on intensive training and re-training of early childhood education teachers on the preparation/ integration of ICT tools in the teaching and learning process.
4. A course on the utilization of ICT facilities for teaching at the early childhood stage should be introduced into the academic programme for pre-service early childhood education teachers.

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