

Information and Communication Technologies (ICTs) as Instruments of Change in a Dynamic Society: A Mixed Exploration of Early Childhood Education Pre-Service Teachers' Knowledge in Lagos State, Nigeria

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Abstract

This study examined information communication technologies (ICTs) as instrument of change in a dynamic society: A mixed exploration of Early Childhood Education pre-service teachers' knowledge. Explanatory sequential design of mixed method approach was used. Two hundred (200) pre-service teachers were sample from University of Lagos and Lagos State University using simple random sampling. The authors of the paper used four instruments that were validated by research experts to collect data for the study. They are "Knowledge Test on ICTs (KTICTs), Unstructured Interview Guide (UIG), Field Note (FN) and Audio Recorder. In the KTICTs, the participants were instructed to define and write at least twenty ICTs and their uses. Their answers were marked and scored based on the scoring criteria adopted by the researchers. Each of the ICTs was scored 5 marks and this gave a total of 100 marks. UIG was designed to cull qualitative data from the participants. The instrument contained three unstructured interview questions. The data were collected by the researchers and 2 other trained research assistants. The quantitative data were analysed using descriptive statistics of frequency counts, percentage, mean and standard deviation. While the qualitative data were summarised and analysed thematically. Both results revealed that the level of University of Lagos and Lagos State University early childhood education pre-service teacher's knowledge of ICTs is low. Hence, it was recommended that all tertiary institutions running early childhood education programme in Lagos State should include information communication and technology in early years as a compulsory course and such course should be taught particularly in 300 and 400 level. This is because the technology driven world we are today, has actually demands the need for acquainting both in-service and pre-service early childhood education professionals with the skills of ICTs in order to utilize these facilities to facilitate learning among learners.

Keywords: *Information Communication Technologies (ICTs), Change, Dynamic Society, Early Childhood Education, Pre-service Teachers, Knowledge*

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Background to the Study

The dynamism of the present society demands urgent measures to ensure that young children are not deprived of the remarkable growth, development and experiences that would have long lasting impact in their lives. The experiences of young children in the early years indeed have substantial impact which equally shape their behaviour later in life. This is why it is imperative that young children are deliberately exposed to activities that would engineer, discover and project their innate potentials. This is a way of fine-tuning the present education system to ensure active engagement of learners in learning activities. Olowe, John and Okoroafor (2018), affirmed that the ability of a child to manipulate and explore caring aids in the early years, makes such child become active, creative, committed and proactive which have future implication for his/her survival. Hence, it is imperative that children are offered the opportunity to actively engage with interactive learning materials to develop their potentials. In respect to this study, such materials are Information and Communication Technologies (ICTs).

Oladosu, Abd-el-Aziz, Ibrionke, Alasan and Makanjuola (2020), posit that ICTs is a set of technological devices that are used to manage resources, communicates, produce, disseminate, keep and ensure that information is managed in the education system. ICTs in early childhood classrooms cover all digital tools like children tablets, interactive whiteboards, computers, mobile devices, electronic toys, multitouch screens, cameras, audio recorders, e-book readers, DVD and music players, record and cassette players, games, tape recorders, programmable toys, light tables, projectors, interactive stories, mobile telephones, creativity and communication software/tools, the internet, closed-circuit television, videoconferencing and microscopes (Yaki, & Gaiya, 2020). It has been established that ICTs offer numerous benefits to learners particularly in the aspect of literacy development. In fact, some scholars see the integration of ICTs in promoting learning as new strategy of literacy skill acquisition that goes beyond reading and writing ability of learners (Oladosu, Abd-el-Aziz, Ibrionke, Alasan & Makanjuola, 2020). Developmentally appropriate utilisation of ICTs helps to promote optimal development of learners, most especially in the aspect of emergent literacy skills (Brown, Englehardt, & Mathers, 2016). Furthermore, integration of ICTs into early childhood education classrooms helps to expose young children to acquire practical experiences for their future survival.

In light of the significance of ICTs, one is tempted to say that ICTs are the best devices to enhance the development of 21st-century classroom skills which both learners and teachers are expected to acquire. Yusuf (as cited in Oladosu, Abd-el-Aziz, Ibrionke, Alasan & Makanjuola, 2020) averted that the importance of ICTs is not restricted to teaching and learning process only, but they equally reposition the system of education. This is an indication that the enhancement of 21st-century skills among learners and teachers in early childhood classrooms, demands integration of ICT skills. Pre-service teachers are those who are receiving knowledge, competences and professional skills from teacher training institutions to help learners acquire competences and knowledge (Gbadamosi, 2021). Now, early childhood education pre-service teachers are students or undergraduates undergoing professional training in acquiring relevant knowledge, skills and appropriate pedagogy to aid

young children's learning and development. Again, early childhood education pre-service teachers are those individuals in higher institution of learning in order to master mandatory teaching strategies to be able to become productive and manage early childhood education classrooms effectively. In respect to this study, early childhood education pre-service teachers are those teachers in training who are expected to acquire knowledge, competences and skills of ICTs to help young develop their potentials through scaffolding.

It is pertinent to reiterate at this point that pre-service teachers are the key agents of change this dynamic society. This is not far-fetched as the pre-service teachers are preparing to help young learners to acquire relevant skills of ICTs because they are surrounded with vast array of ICTs (Aslan & Zhu, 2016). There is no doubt that when these pre-service are not exposed to the right knowledge and competency, they would be able to engineer young children and showcase their innate talents and potentials through interaction with ICTs when they fully take up the job of facilitating learning in early childhood education settings. Unfortunately, early childhood education pre-service teachers who are expected to acquaint themselves with the skills, do not display an appreciable level of mastery skills of the ICTs (Olowe, John & Okoroafor, 2018; Bernadette, 2021). Again, painstaking observations and empirical studies have provided evidence that early childhood education pre-service teachers display low level of ICTs knowledge (Olowe, John & Okoroafor, 2018; Gbadamosi, 2021). This could be attributed to the fact that these categories of pre-service teachers are not well exposed to the courses of ICTs which are expected to equip them with the skills of ICTs usage in the early childhood education classrooms. Again, previous researchers have reported quiet a number of contributing factors to this alarming disastrous situation of non-ICTs efficient. Such factors include lack of access to ICT (Xia-Liua & Tokib, 2013), non-utilisation of ICT for educational purposes (Falode, Tukura, Gambari, & Nwachukwu, 2021), negative perception on the use of ICT (Yaki & Gaiya, 2020) among others.

It is imperative to establish at this juncture that if pre-service teachers are acquainted with the knowledge, competences and skills of ICTs, they will find it very challenging in assisting young children to acquire skills of ICTs (Bernadette, 2021). This could be the reason Gbadamosi (2021) recommended that pre-service teachers should avail themselves the opportunity to attend ICTs related trainings to acquire knowledge, competences and skills prior to grasping teaching job. As a result of the implication of ICTs in the 21st century education system, some authorities have conducted studies on the issue of pre-service teachers' knowledge, competency and skills of ICTs and have taken remedial actions through practicable recommendations. For instance, the joint study of Oladosu, Abd-el-Aziz, Ibrionke, Alasan and Makanjuola (2020) showed that the pre-service teachers covered in their study had adequate technological content knowledge. Bernadette (2021) found that final year pre-service teachers had confidence and adequate knowledge and skills on the use of ICT devices during training. The joint study of Olowe, John and Okoroafor (2018) showcased that pre-primary school teachers had average knowledge of technology materials that are relevant in early childhood classrooms. The authors made efforts to hand more research works on the issue of early childhood education pre-service teachers' knowledge of ICTs and competences, but it was sadden to note that there are dearth of studies despite the alarming rate of the

societal dynamism which results to low standard of education productivity. This indicates huge research gap demanding more research attention. Hence, the study.

Research Question

This research question guided this study:

What is the level of University of Lagos and Lagos State University early childhood education pre-service teacher's knowledge of ICTs.

Research Design

Explanatory sequential design of mixed method approach was used for this study. The population of the study comprised all early childhood education pre-service teachers in Lagos State. In all, two hundred (200) pre-service teachers were sample from University of Lagos and Lagos State University using simple random sampling technique which encourages equal chance of all participants being involved in a study. The authors of the paper used four instruments that were validated by research experts to collect data for the study. They are “Knowledge Test on ICTs (KTICTs), Unstructured Interview Guide (UIG), Field Note (FN) and Audio Recorder. In the KTICTs, the participants were instructed to define and write at least twenty ICTs and their uses. Their answers were marked and scored based on the scoring criteria adopted by the researchers. Each of the ICTs was scored 5 marks and this gave a total of 100 marks. The UIG contained three interview questions. The data were collected by the researchers and 2 other trained research assistants. The quantitative data were analysed using descriptive statistics of frequency counts, percentage, mean and standard deviation. While the qualitative data were summarised and analysed thematically.

Quantitative Result

Research Question: What is the level of University of Lagos and Lagos State University early childhood education pre-service teacher's knowledge of ICTs?

Table 1: Unilag and Lasu Early Childhood Education Pre-Service Teachers' level of Knowledge of ICTs

Score	Frequency	Percentage	Mean	Std. D.
0-20	40	20.0		
21-40	103	51.5		
41-60	57	28.5	34.60	14.37
61-80	0.0	0.0		
81-100	0.0	0.0		
Total	200	100.0		

Highest Mark Obtainable = 100

Decision Value: *Low* (x = 0.00-49.00), *High* (x = 50.00-99.00)

Table 1 shows that two hundred early childhood education pre-service teachers were sampled for the study. The result from the table shows that, 20% of the pre-service teachers scored 0 to 20 in the knowledge test, 51.5% of them scored 21 to 40 in the test while the remaining who constituted 28.5% scored 41 to 60. Again, the table shows further that none of the pre-service

teachers scored between 61 and 100 in the test. The overall mean score of the pre-service teachers' knowledge is 34.60 with a standard deviation value of 14.37. Based on this result and in line with the decision value, it can be inferred that the level of University of Lagos and Lagos State University early childhood education pre-service teacher's knowledge of ICTs is low.

Qualitative Result

Research Question: What is the level of University of Lagos and Lagos State University early childhood education pre-service teacher's knowledge of ICTs?

To answer this question, thematic approach of qualitative data analysis was adopted to present the findings from the field notes of the researchers and the two research assistants who collected that data based on the theme provided below.

Theme: Concept of ICTs and ICTs Tools

The researchers and the research assistants interacted with the participants and during the interactions, the participants were asked to define and mentions few ICTs tools they know. Majority of them complained of being novice of ICTs. Only few of them mentioned computer, programmable toy, interactive white board, tablets, projector, smart phones, internet, printer, games and e-book reader. Due to their complaints during the interview, the researchers asked reasons for not mentioning them. Hence, some of them posited that they were not taught. In fact, one of them expressed as follows:

*“All these ICT materials you are asking, we have not been taught at all;
let alone knowing how to use them in the classroom. So, as for me, I don't know them oooo.
The only ones I know are computer, children tablet phones electronic toys that is all I can say”.*

Similarly, when the interview was still ongoing, one other pre-service teacher said it is difficult for someone to mention what he or she is not taught. He further maintained that due to the digital age we are, they are supposed to acquire ICTs skills even before leaving the university. Again, he specifically reiterated as follows:

*It is not as if we don't know them, it is because they didn't teach us.
Is it possible to know what you are not taught? It is not possible, that is the problem we have.
In fact, this period of Covid-19 pandemic where many things were done online, we really need it.
We need the skill of technology materials very well so that we can use them to teach children.*

Discussion of Findings

The quantitative and qualitative results have shown that the level of University of Lagos and Lagos State University early childhood education pre-service teacher's knowledge of ICTs is low. The reason for these findings could be attributed to the fact that the pre-service teachers covered in the study have not been exposed to ICTs related courses. The findings from the study lend credence to support the result of the joint study of Olowe, John and Okoroafor (2018) who found that pre-primary school teachers covered in their study had average knowledge of technology materials that are relevant in early childhood classrooms. Again, the findings corroborate the result of Gbadamosi (2021) who found that early childhood education teachers were not adequately prepared to use digital technologies in classrooms. However, it is imperative to establish that some scholars' findings negate this present finding. For instance, the joint study of Oladosu, Abd-el-Aziz, Ibrionke, Alasan and Makanjuola (2020) showed that the pre-service teachers covered in their study had adequate technological content knowledge. Again, Bernadette (2021) found that final year pre-service teachers had confidence and adequate knowledge and skills on the use of ICT devices during training. This result implies that the teachers covered in the study had appreciable level of knowledge and competency on the usage of ICT devices.

Conclusion

Findings of the study have established that the level of knowledge of early childhood education pre-service teachers quests the need for proactive steps in ensuring that the pre-service teachers are equipped with the skills of ICTs. This is unconnected to the fact that the global world demands high level of early year's technology competent teachers.

Recommendations

The findings of the study necessitated the following practicable recommendations. All tertiary institutions running early childhood education programme in Lagos State should include information communication and technology in early years as a compulsory course and such course should be taught particularly in 300 and 400 level. This is because the technology driven world we are today, has actually demands the need for acquainting both in-service and pre-service early childhood education professionals with the skills of ICTs in order to utilize these facilities to facilitate learning among learners. Again, the pre-service teachers should ensure to attend training programmes centered on early year technology skill acquisitions where their skills will further be strengthened.

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