EARLY CHILDHOOD TEACHERS' TRAINING ON INFORMATION AND COMMUNICATION TECHNOLOGIES FOR CLASSROOM PEDAGOGY IN LAGOS, NIGERIA

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Abstract
Rebranding education that aligns with the demands of modern education entails that teachers' classroom pedagogy should align with technological innovation. The study identified Early Childhood Teachers' Training on ICTs for classroom pedagogy in Lagos, Nigeria. Descriptive survey research design was adopted. The population of the study consists all teachers in Lagos state while the sample size is one hundred and eighty (180) teachers who were randomly and purposively selected using simple random sampling technique. Six teachers each in Basic 3 and 5 in thirty (30) public primary were selected. Two research questions in an eighteen-item statement on four-point Likert Scale was used to elicit responses using an instrument titled 'Early Childhood Teachers' Training on ICTs for Classroom Pedagogy' (ECTTICP). The instrument was validated by experts in Early Childhood and Measurement and Evaluation. The test re-test method was adopted for instrument reliability at 0.70. Data were analysed using descriptive statistics. The findings show among others that ICTs competence allows teachers to have grip over their subject matter and equips teachers more with activity-based learning. Challenges such as lack of facilities and poor connectivity abound. It was recommended that provision of technological gadgets and training teachers innovatively should be the government, school owners and Non-Governmental Organizations' (NGOs) priority.

Keywords: Early Childhood, Teachers' Training, Information Communication Technologies, Classroom Pedagogy, Pupils

Introduction

Modern knowledge-based education requires that teachers be equipped with high-drive technology knowledge for a high-level skill delivery in class. Transformation of teaching pedagogy from traditional style to technology-based style is not only essential but necessary for today's teachers. Information and Communication Technologies (ICTs) skills equip teachers with diverse skills to fit into diverse roles. However, gaps still exist among teachers with such requisite ICTs skills' pedagogy.

Early childhood education is a group setting that affects developmental changes in children from birth to 8 years. Teachers with commitment, training, experience, and knowledge about child development and how children learn should be attached to them (Jackman, 2012). The Federal Republic of Nigeria (FRN) through the National Policy on Education (FRN, 2014) posits that teaching in primary schools shall be participatory, exploratory, experimental, child-centred, practical, activity-based, and experiential and IT supported among others while educational activities shall be learner-centred for maximum self-development and self-fulfillment. One of the objectives of Primary Education among others is to provide opportunities for the child to develop manipulative skills that enable the child to function effectively in the society within the limits of the child's capability, and the utilisation of Information Technology. To attain the objectives, Sattar and Awan (2019) assert that teachers are nation builders who train pupils based on the needs of the nation.

However, gaps are created due to the age gaps between teachers and pupils. This is because most teachers are digital aliens/ immigrants whereas their pupils are digital natives/citizens having been born into the technology-driven age/era. The gap therefore has resulted in teachers' lack of competence in utilisation of technological gadgets during instruction. The problem was

compounded more by the compulsory closure of schools due to the pandemic which forced teachers to move to Information and Communication Technologies (ICTs) driven-instruction without much readiness and competence. Hence, Sattar and Awan (2019) are of the opinion that teachers must be abreast of the developments both in their field of specialization and education developments, social, and cultural issues through continuous in-service training.

Researchers have noted that certain factors impede the adoption and integration of ICTs into teaching. For instance, Tondeur, Valcke and Van-Braak, 2008; Lim and Chai, 2008; Clausen, (2007) identify factors such as organisational factors and attitudes towards technology. Also, Huang and Liaw (2005) identify teachers' attitudes towards technology as factors. Sherry and Gibson (2002) point out that individual, organisational and institutional factors impede ICTs integration and adoption.

The closure of schools during the outbreak of the pandemic in March, 2020 forced both teachers and pupils to stay, and learn from home. It has also introduced a wave of educational instructional paradigm where utilisation of ICTs was no longer an option but a new normal necessity for a continuum in pupils' learning. Besides, pupils' long absence from school during the outbreak of Corona Virus Disease 2019 (COVID-19) pandemic has created more learning gaps between the high achievers and low achievers and necessitated school withdrawals. In addition, DiPiertro, Biagi, Costa,Karpiriski, and Mazza(2020) posit that school's adoption of distance education has affected learning negatively in four dimensions such as time spent in learning, stress symptoms, a change in the interaction style and reduced pupils' motivation to learn. The researchers state further that the most negatively affected due to the lockdown were the primary school pupils and lower secondary schools students (Junior Secondary School students) because they have higher difficulties in adapting to the new learning environment. Also, Kuban and Steele (2011) assert that the closure of schools has detrimental effects on learning.

The new paradigm shift has exposed a lot of inadequacies in educational systems. Most schools lack basic facilities that enhance effective online learning. Besides, pupils with special needs, pupils who live in sub-urban, and pupils from less privileged homes who had no access to technological gadgets, and regularly experience interrupted internet connectivity were denied access to online class instruction. Developing country like Nigeria that lack technological gadgets for instruction in schools especially at the primary level worsened the trauma of pupils. UNESCO (2020) states that almost 1.2 billion pupils and students were affected by closure of schools due to the outbreak of COVID-19, and academic activities were disrupted. The organisation notes further that food supply was affected, and that poor training of parents for distance learning has effect on their children's learning, and increased unequal access to ICTs and school drop-outs.

Utilisation of ICTs during instruction allows access to a lot of information by both pupils and teachers, and pupils can manage learning at their own pace and style. In affirmation, Calle-Achonso, Cuenca-Guevara, Mata-Lara, Sanchez-Gomez, Vega-Rodriguez et al (2017) assert that utilisation of ICTs during learning is a constructivist-based learning because pupils have control over their learning in a regulated system. However, challenges abound in the new practice for both teachers and pupils. Most teachers in primary schools are not competent in online classroom teaching management. The Teacher Education Programme did not equip them with the rudiments of online pedagogical competence. Moreover, restrictive curricula and rigid structure of traditional education coupled with teachers' resistance to change added to the challenges and most teachers in practice solely rely on their initial entry point certification. Also, the economic status and ignorance of parents hindered their provision of gadgets for their children. Ohakwu (2008) also posits that some aspects of E-learning training are not included in the teacher education curricula.

The unavailability of the gadgets denied children access to E- learning. In this vein, Hodges, Moore, Locke, Trust, and Bond (2020) posit that children from less privileged homes were mostly

affected by the digital gap due to the lack of technological facilities. Santisi, Maganano, Platania, and Ramaci (2018) are of the view that teachers play a significant role in the utilisation of ICTs in online teaching and learning. Besides, physical closure of schools resulted in learning loss because quarantined children tend to spend less time learning than when in school. They feel stressed and anxious which affects their ability to concentrate at school work, and also lack of physical contact results in pupils being less motivated to engage in school activities (DiPiertro, Biagi, Costa,Karpiriski, & Mazza,2020).

The Education for All (EFA) policy was to allow equal access to quality education by both the rich and the less privileged children. However, the advent of the COVID-19 denied most pupils access to quality education. This was because the paradigm shifts in instructional styles allowed only children who had access to ICTs to be enrolled for online classes denying the vulnerable who are less-privileged of such opportunity. The sudden exodus from traditional face-to-face instruction brought about three gaps- the access/digital gap (lack of internet and technological gadgets), the use gap (limited quality time to use of the gadgets), and the gap in teachers' skills (adapting to utilisation of the facilities and online class management) (Miralles-Martinez, Gomez-Carrasco, & Sanchez-Ibanez, 2014). According to the Government of Pakistan (GOP) (2013) only educated and highly skilled teachers who are equipped with modern skills benefit from opportunities created by globalization.

Constant training on ICTs skills' competence for a face-lift in the teaching profession is very vital for relevance in teaching career in the 21st century. This is because the paradigm shift has proved beyond reasonable doubt that for teachers to make a positive impact and relevance in the modern educational system, they should undergo ICTs skills' training to enable their utilisation of ICTs gadgets. Information and Communication Technologies (ICTs) are mechanized gadgets, helped by man and intellectual materials to be operated for an extensive variety of educational activities and individual use (Ofodu, 2007). Teachers should regularly be subjected to training and seminars for enhanced input and output. In support, Noah and Olusola (2015) posit that just like other employees in other establishments undergo regular training, teachers should also be exposed to such a trend to enhance their teaching skills. Besides, teachers are the key performers in any educational institution, and therefore should be equipped with proper requisite skills (Carnoy, Khavenson, & Ivanova, 2015).

Training not only helps in job description but in job performance of teachers. Training also equips one with skills that will help the individual fit into diverse job roles. Ali and Hamza (2018) define training as a process of teaching a person skills to carry out a job role description effectively and efficiently. The researchers add that training is a vital part for resourceful human development. Training also helps the teacher to perform effectively, and to enhance pupils' learning outcome. Ali and Hamza (2018) assert that teachers who are deficient in their skills result in pupils' learning behaviour deficiency. Also, Amadi (2010) affirms that teachers who do not have appropriate tools for effective teaching, their pupils suffer adversely.

The paradigm shift from the traditional face-to-face- instruction to ICTs based instruction demands that teachers' training be innovative and activity-based where utilisation of ICTs are the key tools to facilitate instruction., Anita, Miguel, Hugo, and Javier (2015)corroborate that if teachers' training is activity-based, pupils' learning will follow the same trend. Besides, training improves work skills and knowledge which propels confidence among teachers (Awan & Saeed, 2014). Rohtak (2019) defines innovation as the introduction of new trends, methods, techniques or practices. The researcher further stipulates that innovation can be the development and use of technologies, methods and practices in teaching. However, most trainings teachers undergo are not innovative in form and practice; and lack follow-up of trainees. In support, Sheridan, Edwards, Marvin, and Knoche (2009) posit that most professional training formats are brief, lack a sustained relationship between the trainer and the trainee; and operate on a prejudiced directional flow of

information where trainers are considered expert sources of information while the trainees are the novice learners targeted to acquire skills and knowledge.

Statement of the Problem

Teachers are the bedrock and wheel which revolves around learning in school. They mediate learning to the pupils. To rebrand education, teachers' classroom pedagogy (practices and teaching styles) must align with technological demands of the time. However, lack of ICTs facilities, lack of training manpower, lack of teachers' manipulation competence and the rigid structure of traditional education where pupils are used to face-to face- traditional instruction and are in physical contact with their teachers becomes a great challenge. The paradigm shift exposed most teachers' incompetence and inadequacies where they were forced to utilise technological gadgets during instruction irrespective of their lack of readiness and utilisation competence. Teachers and pupils who live on the outskirts have poor internet connection and lack regular power supply. COVID-19 pandemic has created more learning gaps between the high achievers and low achievers and necessitated school withdrawals more. Moreover, vulnerable pupils from less privileged homes were denied access to online class instruction due to the lack of technological gadgets, poor connectivity, ignorance and lack of gadgets' manipulation competence by parents. Besides, most professional training is theory-oriented, and lack continuity and follow-up on trainees, and is one-sided where the trainers are the omniscient repertoire of knowledge. Ilechukwu (2013) asserts that the greatest challenges for effective utilization of E-learning by teachers include the unwillingness to change to the new methods of computer literacy. It is therefore on this backdrop that this study was anchored.

Purpose of the Study

The main objective of the study identifies Early Childhood Teachers' Training on ICTs for classroom pedagogy in Lagos State. Therefore, the specific objectives of the study are to:

I. identify ways ICTs training fosters teachers' classroom pedagogy, and
ii. identify challenges of ICTs training on teachers' classroom pedagogy

Research Questions

The following research questions guide the study:

i. How does ICTs training foster teachers' classroom pedagogy?
ii. What are the challenges of ICTs training on teachers' classroom pedagogy?

Methodology

The study adopted a descriptive survey research design. The population of the study comprises all teachers in Lagos state. The sample size is 180 teachers who were randomly and purposively selected using the simple random sampling technique from selected public Primary Schools in Mushin and Kosofe Local Government Areas of Lagos State. Mushin represents the Metropolitan Lagos while Kosofe represents the non- Metropolitan Lagos. 30 Public Primary Schools were randomly selected; 15 schools from each Local Government. Six (6) teachers were randomly and purposively selected from Basic three and five classes to represent the lower and upper primary classes respectively. The instrument titled Early Childhood Teachers' Training on ICTs for Classroom Pedagogy (ECTTICP) was used to elicit responses in an 18 item statement questionnaire in a four-point Likert scale which emanated from 2 research questions; nine (9) statements from each research question. For the face and content validity of the instrument, experts in the Measurement and Evaluation Department validated the instrument. The test-retest reliability of the instrument was adopted for the instrument reliability with the use of Cronbach alpha technique at 0.70. The instrument was administered to teachers personally and collected immediately to avoid loss and external influence and bias. The data was analysed using descriptive statistics such as percentages, mean and standard deviation. Decision was made to accept mean scores of 2.5 and above.

Results

Research question 1: How does ICTs training foster teachers' classroom pedagogy?

Table 1: Ways ICTs Training Fosters Teachers' Classroom Pedagogy

S/N	ITEM	SA	A	D	SD	NUMBER	MEAN	STD. DEV.
1.	ICTs training allows teachers to have grip over their subject matter	78 (43.4%)	82 (45.6%)	13 (7.2%)	7 (3.9%)	180	3.28	0.37
2.	ICTs training builds self-worth and confidence in teachers	67 (40.6%)	99 (55%)	11 (6.1%)	3 (1.7%)		3.27	0.41
3.	Teachers who are ICTs trained are more skilled and apt in teaching	73 40.6%)	95 (52.8%)	8 (4.4%)	4 (2.2%)		3.31	0.41
4.	ICTs training helps teachers adopt impressive and diverse pedagogical styles in teaching	79 (43.9%)	93 (51.7%)	6 (3.3%)	2 (1.1%)		3.38	0.42
5.	ICTs training equips teachers more on activity- based learning which they transfer to their pupils	85 (47.2%)	78 (32.3%)	12 (6.7%)	5 (2.8%)		3.35	0.38
6.	ICTs training helps in teachers' job description and performance skills	72 (40%)	89 (49.4%)	14 (7.8%)	5 (2.8%)		3.26	0.38
7.	Innovative skills' training makes teachers to be more resourceful	77 (42.8%)	93 (51.7%)	8 (4.4%)	2 (1.1%)		3.36	0.42
8.	ICTs training helps teachers to teach effectively and facilitate pupils' subject cognition	86 (47.8%)	78 (47.8%)	78 (43.3%)	7 (3.9%)		3.35	0.38
9.	ICTs training enhance teachers' competence in utilisation of ICTs gadgets like computers, laptops, I-Pods among others.	92 (51.1%)	75 (41.7%)	8 (4.4%)	5 (2.8%)		3.41	0.40

Table 1 identifies Ways ICTs Training Fosters Teachers' Classroom Pedagogy**.** Data gathered from **table 1, items 1-9** shows a high mean score result. Item 1 which states that ICTs training allows teachers to have grip over their subject matter has a mean score of 3.24, item 2 which states that ICTs training builds self-worth and confidence in teachers has a mean score of 3.27 while item 3 which states that Teachers who are ICTs trained are more skilled and apt in teaching has a mean score of 3.31. Also, item 4 which states that ICTs training helps teachers adopt impressive and diverse pedagogical styles in teaching has a mean score of 3.38 while item 5 which states that ICTs training equips teachers more on activity-based learning which they transfer to their pupils has a mean score of 3.35. Item 6 which states that ICTs training helps in teachers' job description and performance skills has a mean score of 3.26, while item 7 which states that ICTs training makes teachers to be more resourceful has a mean score of 3.36. Item 8 which states that ICTs training helps teachers to teach effectively and facilitate pupils' subject cognition has a mean score of 3.35 while item 9 which states that ICTs training enhance teachers' competence in utilisation of ICTs gadgets like computers, laptops, I-Pods among others has a mean score3.41. Data gathered showed that ICTs foster classroom pedagogy.

Research Question 2: **What are the challenges of ICTs training on teachers' classroom pedagogy?**

Table 2: **The Challenges of ICTs' Training on Teachers' Classroom Pedagogy**

S/N	ITEM	SA	A	D	SD	NUMBER	MEAN	STD. DEV.
10.	Lack of ICTs facilities by schools hinder innovative skills' training of teachers	88 (48.9%)	78 (43.3%)	9 (5%)	5 (2.8%)	180	3.38	0.38
11.	Lack of ICTs' manipulation competence by teachers hinders innovative skills' training	92 (51.1%)	77 (42.8%)	8 (4.4%)	3 (1.7%)		3.43	0.41
12.	Poor internet bandwidth are challenges to innovative skills' training	85 (47.2%)	91 (50.6%)	3 (1.7%)	1 (0.5%)		3.44	0.44
13.	Skeletal and regular interruption of power hinders innovative skills' training	79 (43.9%)	76 (42.2%)	18 (10%)	7 (3.9%)		3.26	0.35
14.	Most professional training is theory-oriented and lack follow-up and continuity on the trainees	90 (50%)	82 (45.6%)	5 (2.8%)	3 (1.6%)		3.43	0.42
15.	Teachers' poor attitude towards integration of ICTs during instruction hinders their competence	89 (49.4%)	77 (42.8%)	9 (5%)	5 (2.8%)		3.38	0.39
16.	Poor manpower for effective innovative skills' training are impeding factors	91 (50.6%)	85 (47.2%)	3 (1.7%)	1 (0.5%)		3.47	0.44
17.	Lack of alternative source of power such as Solar, Inverters poses challenge to innovative skills' training	86 (47.8%)	91 (50.6%)	2 (1.1%)	1 (0.5%)		3.45	0.45
18.	Teachers and pupils in the outskirts have challenges of regular power supply and poor internet connection	88 (48.9%)	80 (44.4%)	9 (5%)	3 (1.7%)		3.40	0.40

Table 2 identifies the Challenges of ICTs' Training on Teachers' Classroom Pedagogy**.** Data gathered from **table 2, items 10-18** shows from the findings a high mean score affirmatives from the respondents. Item 10 which states that lack of ICTs facilities by schools hinder innovative skills' training of teachers has a mean score of 3.38 while item 11 which states that lack of ICTs' manipulation competence by teachers hinders innovative skills' training has a mean score of 3.43. Item 12 which states that poor internet bandwidth are challenges to innovative skills' training has a mean score of 3.44, while item 13 which states that skeletal and regular interruption of power hinders innovative skills' training has a mean score of 3.26. Item 14 which states that most professional training is theory-oriented and lack follow-up and continuity on the trainees has a mean score of 3.43 while item 15 which states that teachers' poor attitude towards integration of ICTs during instruction hinders their competence has a mean score of 3.38. Item 16 which states that poor manpower for effective innovative skills' training are impeding factors has a mean score of 3.47, while item 17 which states that lack of alternative source of power such as solar, inverters among others poses challenge to innovative skills' training has a mean score

3.45. Item 18 which states that teachers and pupils in the outskirts have challenges of regular power supply and poor internet connection has a mean score of 3.40. Data gathered showed that there are certain impeding factors to the utilisation of ICTs for classroom pedagogy.

Discussion of Findings

Data gathered from **table 1, items 1-9** has a high percentage agreement among others that ICTs' training allows teachers to have grip over their subject matter, helps teachers adopt impressive and diverse pedagogical styles in teaching, helps teachers to teach effectively, and facilitate pupils' subject cognition, equips teachers more on activity-based learning which they transfer to their pupils, helps in teachers' job description and performance skills, and enhances teachers' competence in utilisation of ICTs gadgets like computers, laptops, I-Pods among others. In affirmation, Zachary, Eleazar, and Wilfred, (2016) state that teachers' training facilitates pupils' understanding of the subject matter and propels their cognition. Also, Anita, Miguel, Hugo, and Javier (2015) posit that if teachers training is activity-based pupils' learning will follow the same trend.

Data gathered from **table 2, items 11-18** has a high percentage agreement on challenges of ICTs training on teachers' instructional delivery include among others, that teachers' poor attitude towards integration of ICTs during instruction hinders their competence, Skeletal and regular interruption of power hinders innovative skills' training, and lack of alternative source of power such as solar, inverters among others poses challenge to innovative skills' training. In affirmation, DiPiertro, Biagi, Costa,Karpiriski, and Mazza(2020) postulate that virtual learning will expose educational inadequacies more, and the vulnerable pupils who have less advantaged backgrounds will not have access to relevant digital facilities like computers, laptops, internet connectivity among others, and they also lack suitable learning environment that is void of noise and distractions added to the lack of support from parents unlike other advantaged children. Also, the sudden exodus from the traditional face-to-face instruction brought about three gaps- the access/digital gap (lack of internet and technological gadgets), the use gap (limited quality time to use of the gadgets), and the gap in teachers' skills (adapting to utilisation of the facilities and online class management) (Miralles-Martinez, Gomez-Carrasco, & Sanchez-Ibanez, 2014).

Conclusion

Innovative pedagogy equips teachers with the tenets of educational demands of the time. Also, the new wave of instruction has proved that for teachers to remain relevant in the educational system they must undergo innovative training which will equip them with the prerequisite skills of instruction and practice of the time. This will foster learning and enhance pupils' academic performance to a large extent. Moreover, teachers can conveniently compete with their counterparts globally and be relevant in the modern technological era.

Recommendations

From the findings of the study, the following recommendations are found worth-while:

1. Training teachers innovatively on ICTs skills should be a top priority of the Government, NGOs and schools owners.
2. Government, NGOs and School owners should provide Information and Communication Technologies gadgets for use in schools.
3. Government should advise network providers to enhance and upgrade bandwidth.
4. Teachers should regularly collaborate with colleagues who are more ICTs competent for necessary assistance.
5. Government, NGOS and School owners should provide alternative power supply in schools such as generators, inverters, solar among others.

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