IMPACT OF E-PEDAGOGY AND CHALLENGES IN SELECTED LOWER PUBLIC PRIMARY SCHOOLS IN LAGOS, NIGERIA

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Abstract
Rethinking the foundations of education through e-pedagogy is among the modern educational practices. The study examined e-pedagogy and challenges in selected lower public primary schools in Lagos, Nigeria. The population of the study comprised all teachers in Mushin and Surulere Local Government Areas of Lagos state. A sample size of 160 teachers were randomly sampled from sixteen (16) public primary schools in Mushin and Surulere Local Government Areas. A descriptive survey research design was adopted. Questionnaire wasthe instrument used to elicit information from respondents. The questionnaire was subjected to content and face validity by experts in measurement and evaluation and test re-test was adopted for reliability. The reliability coefficient value was at 0.966. The questionnaire was self-administered to the selected respondents and were collected back immediately to avoid loss and external influence. Findings show that innovative pedagogical practices give access to an unlimited amount of learning resources and encourage acquisition of digital competence amongst learners and teachers. It also reduces the rate of pupils' dropout and aid in the reduction of school maintenance expenses. Also, from the results, certain factors among others deter effective innovative pedagogical practices such as poor internet connection and poor bandwidth, incessant power supply, and teachers' incompetency. Based on the findings, it was recommended among others that Teacher Education Programmes be revamped to be more ICTs compliant. PTA, NGOs and schools should provide ICTs gadgets, organise practical training for teachers and provide alternative power supply like generators, inverters, solar among others.

Keywords: E-Pedagogy, Strategies, Challenges, Primary Schools, Teachers, Pupils

Introduction

E–pedagogy is an innovative approach of delivering learning through electronic facilitated, well designed environment to anyone at any time and in any anyplace. E-Pedagogy allows the use of electronic gadgets in teaching and learning process. Rethinking the foundation of education encompasses utilization of technology as a vital tool to be effectively integrated into the curriculum because it acts as a catalyst of change in all forms of educational sectors. However, due to the newness of E-learning in Nigerian

schools, most teachers find it more challenging to effectively adopt E-pedagogy strategies. In credence to the postulation, Torruam (2012) posited that E-Learning is a new paradigm and philosophy in education sector with a charge to serve as a development platform for present day society based-knowledge.

The ability of teachers to use electronic gadgets during instruction enhances e-pedagogy. Salawudeen (2010) opined that E-pedagogy strategies are the use of electronic technology to deliver lessons and monitor learners' performance. The advent of Corona Virus Disease 2019 (COVID-19) in Nigeria in 2020 occasioned educational sector to lockdown; children were at home for several months with no school attendance and teachers with little or no requisite knowledge of E-pedagogy strategies were mandated to teach from home. The challenges encountered therein necessitated that foundation of Nigerian educational practices should be retooled to meet with the challenges of the time.

The Nations Educational Scientific and Cultural Organisation (UNESCO) (2016) postulated that educational processes are still weak in many countries and needed greater attention such as those relating to teaching-learning process in areas of inspection, teacher appraisals, and quality teaching-learning process among others.The Federal Government of Nigeria on the National Policy on Education (FGN, 2014) rightly stipulated that to fully realize the goals of education in Nigeria, educational activities shall be learner-centred for maximum self-development and self-fulfillment where teaching shall be practical, activity-based, experiential and IT-supported. Therefore, primary education target children aged 6-12 years. The main objective of primary education among others is to provide opportunities for children to develop life manipulative skills that will enable the child function efficiently in the society within the confines of the child's ability (FRN, 2014).

Nigeria as a country recognizes quality in education. National Policy on Education (FRN, 2014) positedthat teachers' role in education is pivotal and shall continually be emphasized in educational planning and development. The goals of teachers' education are to produce highly motivated; conscientious and efficient classroom teachers for all levels of the educational system; enhance teachers' commitment to teaching and make the teaching profession more attractive. Despite these goals, utilization of technological gadgets for instruction is not in practice in most primary schools in the country.

As education evolves, changes occur in teaching methodology and techniques. Also, UNESCO (2016) report showed that in supporting and recruiting teachers who will provide quality learning in schools can be challenging. To meet this need, there is need to develop, promote and expand innovative methods for training teachers and administrators to improve the quality of teaching and learning for millions of learners in schools. Innovative pedagogical practices are vital in retooling education to confront and conform to the dynamics of the time. COVID-19 pandemic has proved beyond reasonable doubt that educational practices must be modified to align with the trends of 21st Century pedagogical requirements.

Equal access to quality education is one of the fundamental rights of the child. To fight the inequality of access to quality education, the former President of America, George Bush, came up with Education Act 'No Child Left Behind' (NCLB) in 2001 and 2002 to decrease digital divide that exists among upper and lower class, the minority class, those that speak and understand little English and pupils receiving special education for access to

quality technology-driven education (US Act of Congress, 2001; 2002). This Act rolled away class distinction that disallowed children from lower class not to have access to quality education; and fostered research-based instruction. Some of the sub-set points of Part D of the Act includes assisting states for contemporary educational technology; implementation of technology in elementary and secondary schools; promote and encourage students' academic performance; establish and develop technology initiatives with regards to access to technology; to assist acquisition of technology and increases number of students' access to technology; professional development initiatives for teachers and administrators; and supports for efforts to involve families in education and communication. The 'D' part of the Act is set to improve pupils' academic performance through the use of technology at primary and secondary education while instilling the best practices through integration of technology during instruction (US Act of Congress, 2001; 2002). The rate at which children drop out of school calls for innovative pedagogical practices in schools.

The United Nations Educational, Scientific and Cultural Organisation (UNESCO,2017) and Human Rights Watch, (HRW,2017) stated that in developing countries, the gap between the rich and poor, rural and urban population in terms of access to quality education is attributed to gap in availability of infrastructure and disparity in wealth distribution. The report by UNESCO (2018) put it that 21% of primary school-aged children in Sub-Saharan Africa do not have access to quality primary education. In the same vein, UNESCO Institute of Statistics (UIS,2018) observed that about 65% school-aged children are denied primary education worldwide out of which about 54% are from Sub-Saharan Africa.

Innovative teaching is a blend of traditional teaching and technology-oriented teaching. Rohtak (2019) defined innovation as the introduction of new trends, methods, techniques or practices. It can be development and use of technologies, methods and practices in teaching. Pedagogical styles are reformed through the use of ICTs in order to expand access to quality educational system (World Bank, 2002). Bawaneh (2011) asserted that blended learning is a type of electronic learning that has become popular because of its effectiveness and flexibility in teaching and learning processes. The blended learning approach helps pupils to actively participate in learning at both online and normal traditional classroom settings (Zehra, Azra, Eman&Sumrah, 2019). Traditional classroom teaching methods are not efficient to achieve current learning standards just like only technology approaches which cannot give deep and meaningful experiences. A combination of both the traditional and technological methods would be instrumental to achieving functional education (Vijayalakshmi, 2019).

Innovative pedagogical practices involve adopting new teaching practices that are compliant to use of ICTs and traditional methods. Vijayalakshmi (2019) posited that innovative pedagogical practice is a proactive approach that incorporates inventive teaching strategies and methods. These innovative practices include among others the use of blended learning; embodied learning by doing; gamification of learning; computational learning; and learning through argumentation. The age gap between teachers and pupils is a challenge being digital immigrants/aliens and the pupils digital citizens. Learners are digital citizens who are born in the digital technological age while most teachers and parents are digital immigrants born in analogue age. Prensky (2001) posited that children

in this age are Net generation or Digital natives because they live in the world of television, text messages, camera phones, and IPods', MP3 and interaction video games but parents and teachers are digital immigrants and not brought up in digital age.

Blended learning is a combination and brewing of E- learning and traditional classroom practices which creates a hybrid teaching style (Vijayalakshmi 2019; Maniar 2017). Blended learning is a scientifically acceptable alternative to E- learning and promotes pupils' academic performance as well as less expensive (Salama, 2005). Kenney and Newcombe (2011) reported that blended learning model has high proficiency for learners' academic performance than non-blended learning. Learning by doing is useful scientific tools for laboratory practices. It helps build inquiry skills and improves conceptual understanding and motivation (Vijayalakshmi, 2019).

Teachers are the wheels upon which learning revolves. Selim (2007) posited that for blended learning to effectively take place, teachers' characteristics, pupils' characteristics, and technology should be considered.Blended learning enhances accessibility to content materials and helps to track learners' academic performances (Maniar, 2017). Also, it enhances effectiveness in learners' performance; increases accessibility; and cost-effective (Graham, 2006). Blended learning improves learning and increases pupils' retention, comprehension, recall, interaction and helps in the reduction of cost and seat time (Elearnspace, 2005; Young, 2002). Ricky, Rechell, Kwan-Keung, and Ivan (2017) posited that blended learning promotes efficiency, productivity, social interaction, collaboration, child-centred learning and communication; and reduces rate of dropout of pupils from school. Regha (2017) asserted that blended learning aid reduction of school maintenance expenses and illiteracy but faces challenges of poor electricity supply; low internet connectivity; and corruption among government officials. Extensively research of the use of blended learning model in primary schools is scanty (Hanson & Chem, 2006). Andrew and Nwachukwu (2017) showed that many teachers in primary schools lack knowledge of the use of blended learning model in developing countries.Johnson and Maddux (2003) stated that when computers and technology are utilized in primary schools, teachers will be invoked to see endless opportunities and potentials for altering traditional methods of instruction. Teachers' frequent usage of laptops has drastically increased instructional strategies in the classroom (Bebell& O' Dwyer, 2010; Fleischer, 2012). Klopfer, Sheldom, Perry, and Paas (2012) provided evidence that mobile devices promote exploratory learning and game-based learning. Warschauer (2014) maintained that mobile devices facilitate development of communication, problem-solving skills, and hands-on activities among learners.

Learners who are not exposed to online learning may find it difficult to acquire effective basic skills to blended learning (Alebaikan&Troudi, 2010). Jieming, Chili and Hai- Ning (2019) are of the view that some of the challenges of the blended learning model are a low level of information literacy and poor course organization. The Oxford Group (2013) postulated that learners have a negative attitude towards blended learning model thereby affecting effective implementation. Retooling education involves revolutionizing, modernizing and renovating education by putting in place technological tools and gadgets that enhance teaching and learning. Innovative pedagogical practices can be achieved through quality teachers with quality pedagogical content. Akyeampong, Pryor and

Ampiah (2006) stated that pupils' learning and academic performance is hindered by lapses in teachers' pedagogical content knowledge and classroom practices.

Learning is enhanced in diverse ways. The four (4) ways of development in learning that can enhance knowledge processes according to Garry and Asokan (2000) include scientific discovery and transfer of technology; innovation to particular fields' needs and operating environments; formal and informal dissemination of knowledge and knowledge application through skilled action in fields and other fields of activity for practical result-oriented outcome. Lin and Vassar (2009) reported that ability to cope with technical difficulty and technical skills in technology applications promote learners' performance. Maddux, Johnson and Willis (2001) agreed that computers have the potential to modernize teaching and learning practices. Such platforms include among others zoom, WhatsApp, google hangout, Microsoft teams. In affirmation, Mokolo(2020) stated that e-pedagogy can be done through utilizing technological platform for instruction through Pad let, Tamner, Edmodo, Ning, Twitter, Google hangout, Google Meet, Google forms, You Tube, Live streaming such as Facebook, YouTube, Zoom, Podcasting such as Audacity, Podbean, Blogging such as Wordpress, Wix, Blogger and Tumblr among others.

This study is anchored onZone of Proximal Development theory by Lev Vygotsky in 1978(Jagodowski, 2020). Therefore, Zone of Proximal Development (ZPD) determines the gap between the actual developmental level by problem-solving and the level of accomplishments under the guidance of an adult or help by more capable hands (McLeod, 2012).The ZPD shows what an individual can do on his own without much assistance. The best support for teachers is to identify their ZPD and work with them to accomplish tasks beyond it. The teacher provides support and encouragement to learners.On scaffolding, the teacher tries to have a support system for the learner to meet up with his abilities. As he gains an understanding of the concept, the teacher then gradually reduces the support through step by step direction in favour of nudges and reminders until the learner could complete the task entirely on his own (Jagodowski, 2020). Scaffolding results in effective teaching, which manifests through providing hints or cues, and familiarising them with material or activity through the support system (Copple &Bredekamp, 2009).

It is therefore on the aforementioned premise that this study identifies Impact of E-pedagogy strategies and challenges in selected lower basic schools in Lagos, Nigeria.

Statement of the problem

Teachers' competency in utilizing e-pedagogy can only be achieved through their developmental training and exposure in e-pedagogy. However, most teachers are not competent in such utilization of technology aided instruction; their lack of training, the unavailability and lack of access to such facility hinders their effective and regular use by teachers.The initial teacher training programme did not equip teachers with the pedagogical competence of on-line teachingbecause their training was during analogue age such as the use of chalkboards and notes and as a result, most teachers in primary schools have a great challenge to adapting to the paradigm shift of technology utilization in teaching and learning. The age divide between teachers and pupils; digital aliens and digital natives respectively have posed greater challenges for teachers. There is also the lack of regular training for teachers to enhance their skills on innovative pedagogical practices.

Objective of the study

The objective of the study is to identify impact of e-pedagogy and challenges in selected lower basic schools in Lagos, Nigeria. Specifically, the study is aimed at identifying:

i. ways innovative pedagogical practices retool education in primary schools
ii. the challenges of effective innovative pedagogical practices in teaching and learning processes in primary schools

Research questions

The following research questions guide the study

1. What are the ways innovative pedagogical practices retool education in primary schools?
2. What are the challenges of effective innovative pedagogical practices in teaching and learning processes in primary schools?

Methodology

The study adopted a descriptive survey research design using primary school teachers in Public Lower Basic Primary Schools in Mushin and Surulere Local Government Areas, Lagos, Nigeriaas the population for the study.The sample size was 160 teachers drawn randomly from 16 Lower Basic Primary Schools in both LGAs; eight (8) schools from each LGA using random sampling technique. Ten (10) teachers were randomly selected each from sampled primary schools. A self-structured constructed questionnaire titled 'Impact of E-Pedagogy and Challenges' (IEPC) in four-point Likert scale was used as research instrument. The instrument was subjected to face and content validation by the experts from the Department of Measurement and Evaluation. The instrument was pilot tested on teachers outside the sample population; 20 teachers in Eti-Osa LGA for reliability coefficient. The questionnaire was self-administered to the selected respondents and taken back from the respondents immediately to avoid loss and external influence. Data were analyzed using frequency count, simple percentages, mean rating and standard deviation which were tabulated in a four point Likert rating scale of SA:4, A:3, D:2 andSD:1. The scores obtained by individual respondents on the two occasions were compared to determine the reliability. The reliability coefficient value was at 0.966.

Data analysis and results presentation

Research Question1: In what ways would innovative pedagogical practices retool education in primary schools?

Table 1: Ways Innovative Pedagogical Practices Retool Education in Primary Schools

	Ways InnovativePedagogical Practices Retool Education in Primary Schools							
S/N	ITEM	SA	A	D	SD	NUMBER	MEAN	STD. DEV
1.	Innovative pedagogical practicesencourages interaction and collaborationand provide access to an unlimited amount of learning resources	60 (37.5%)	70 (43.8%)	19 (11.9%)	11 (6.8%)	160	3.11	0.31
2.	Innovative pedagogical practices encourage the acquisition of digital competence amongst learners and teachers	66 (41.3%)	78 (48.7%)	12 (7.5%)	4 (2.5%)		3.28	0.37
3.	Innovative pedagogicalpractices invoke dreams in learners to see endless opportunities and potentials	72 (45%)	68 (42.5%)	12 (7.5%)	8 (5%)		3.27	0.35
4.	Innovative pedagogical practices promote efficiency and productivity	62 (38.8%)	75 (46.9%)	17 (10.6%)	6 (3.7%)		3.20	0.34
5.	Innovative pedagogical practices reduce the rate of pupils' dropout and aid in the reduction of school maintenance expenses	65 (40.6%)	78 (48.8%)	13 (8.1%)	4 (2.5%)		3.27	0.37
6.	Innovative pedagogical practices enhance cooperative and exploratory learning and improves conceptual understanding and motivation	61 (38.1%)	76 (47.5%)	15 (9.4%)	8 (5%)		3.18	0.34
7.	Innovative pedagogical practices enhance knowledge sharing among pupils and teachers.	70 (43.8%)	68 (42.5%)	18 (11.2%)	4 (2.5%)		3.27	0.35
8.	Innovative pedagogicalpractices is flexible and cost-effective and builds	58 (36.3%)	71 (44.4%)	17 (10.6%)	14 (8.7%)		3.08	0.31

	inquiry skills						
9.	Innovative pedagogical practices enhance communication, problem-solving skills, and hands-on activities among learners.	63 (39.4%)	79 (49.4%)	16 (10%)	2 (1.2%)	3.26	0.37

The items 1-9 on ways innovative pedagogical practices retool education in primary **s**chools have in item 1 a mean score of 3.11 and an SD of 0.31 while item 2 has a mean score of 3.28 and an SD of 0. 37. Item 3 has a mean score of 3.27 and an SD of 0.35 while item 4 has a mean score of 3.20 and an SD of 0.34. Item 5 has a mean score of 3.27 and an SD of 0.37. Also, item 6 has a mean score of 3.18 and an SD of 0.34 while item 7 has a mean score of 3.27 and an SD of 0.35. Besides, item 8 has a mean score of 3.08 and an SD of 0.31 while item 9 has a mean score of 3.26 and an SD of 0.37.

Research Question 2: What are the challenges of effective innovative pedagogical practices in teaching and learning processes in primary schools?

Table 2: Challenges of Effective Innovative Pedagogical Practices in Teaching and Learning Processes in Primary Schools

S/N	ITEM	SA	A	D	SD	NUMBER	MEAN	STD. DEV
1.	A poor internet connection and poor bandwidth affects innovative pedagogical practices	67 (41.9%)	73 (45.6%)	18 (11.3%)	2 (1.2%)	160	3.28	0.36
2.	Lack of electricity and poor power supply hampers innovative pedagogical practices	78 (48.8%)	71 (44.4%)	8 (5%)	3 (1.8%)		3.4	0.40
3.	Lack of adequate time allocated to the learning and teaching of new technology gadgets affect innovative pedagogical practices	70 (43.8%)	76 (47.5%)	9 (5.6%)	5 (3.1%)		3.31	0.38
4.	Poverty, age, unavailability of gadgets , and lack of competence affects utilization of innovative pedagogical gadgets	64 (40%)	77 (48.1%)	11 (6.9%)	8 (5%)		3.23	0.36
5.	Poor awareness andlack of specification on the model affected effectiveness of	65 (40.6%)	79 (49.4%)	9 (5.6%)	7 (4.4%)		3.26	0.37

	innovative pedagogical practices in schools						
6.	Innovative pedagogical practices are affected by a low level of information literacy and poor course organization	76 (47.5 %)	78 (48.8 %)	4(2.5 %)	2(1.2 %)	3.42	0.42
7.	Most teachers have not equipped themselves with the pedagogy of innovative pedagogical practices because their initial teacher education programme did not fully equip them with such skills	70(43 .8%)	79(49 .4%)	7(4.3 %)	4(2.5 %)	3.34	0.40
8.	Difficulty in comprehending and implementing innovative pedagogical practices hinder the effectiveness	69(43 .1%)	77(48 .1%)	11(6. 9%)	3(1.9 %)	3.32	0.38
9.	Cost of maintenance of gadgets and fueling of generators affect innovative pedagogical practices in schools	71(44 .4%)	78(48 .8%)	9(5.6 %)	2(1.2 %)	3.36	0.40

In Table 2 item 10 has a mean score of 3.28 and an SD of 0.36 while item 11 has a mean score of 3.4 and an SD of 0.40. Item 12 has a mean score of 3.31 and an SD of 0.38 while item 13 has a mean score of 3.23 and an SD of 0.36. Besides, item 14 has a mean score of 3.26 and an SD of 0.37 while item 15 has a mean score of 3.42 and an SD of 0.42. Also, item 16 has a mean score of 3.34 and an SD of 0.40 while item 17 has a mean score of 3.32 and an SD of 0.38. Item 18 has a mean score of 3.36 and an SD of 0.40.

Discussions of findings

From the data gathered from teachers' responses on Table 1; items 1-9 above, there is a high percentage agreement among others that innovative pedagogical practices encourage interaction and collaboration and provide access to an unlimited amount of learning resources, encourage the acquisition of digital competence amongst learners and teachers, and is flexible and cost-effective and builds inquiry skills as well as enhances communication, problem-solving skills, and hands-on activities among learners. These findings agree with the report by Elearnspace (2005)and Young (2002) who asserted that innovative practices improves learning and increases pupils' retention, comprehension, recall, interaction and helps in the reduction of cost and seat time. The findings corroborated the submission of Rochelle, Rafanan, Bhanot, Estrella, Penuel, and Nussbaum (2010) that mobile devices enhance innovative cooperative learning.

Teachers' responses on Table 2, items 10-18 show that there is a high percentage agreement among others that poor internet connection and poor bandwidth affects effective innovative pedagogical practices; lack of electricity and poor power supply affects

effective innovative pedagogical practices; lack of adequate time allocated to the learning and teaching of new technology gadgets affect effective innovative pedagogical practices; and poverty and illiteracy level of parents deter pupils' access to innovative pedagogical gadgets; and most teachers have not equipped themselves with the pedagogy of innovative practices. Also, the cost of maintenance of gadgets and fueling of generators affect effective innovative pedagogical practices in schools. The report by Hofmann (2014) that one of the challenges of using innovative pedagogical practices is lack of specification on how the learners can effectively use the model which may lead to the failure of the technological application is in line with the result of this study. The result of the study agreed that lack of adequate computer skills as earlier reported by Shraim and Khlaif (2010) can lead to failure in the innovative learning practices.

Conclusion

Teachers' utilization of E-pedagogical strategies is very imperative for their relevance in the present educational practices and to attune to global standard. However, there exists certain challenges teachers encounter such as lack of competency, lack of electronic gadgets, poor bandwidth, irregular power supply, lack of alternative power supply among the rest. Where there are lacks of the gadgets and training; teachers' effective utilization of E-pedagogy strategies will be an aberration and invariably learning outcome is hampered and academic performance of pupils is severed.

Recommendations

Based on the findings of the study, the following are recommended.

1. Government, NGOs, and schools should provide ICTS gadgets in schools for full utilization.
2. NGOs and Schools should organise, encourage and sponsor teachers for professional training programmes to be better equipped with the rudiments of innovative classroom practices and management.
3. Teacher Education Programmes should be revamped to be more ICTs compliant
4. NGOs, PTA, and schools should provide alternative power supply to schools due to the incessant power supply in the country like generators, inverters, solar among others while Government collaborates with outside world for lasting solution to the challenges.
5. Teachers' training emphasis should be on how to use multi -dimensional platform which can record events during online interaction.

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