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Availability of information and communication technology resources for enhancing teachers' instructional delivery in private secondary schools in Port-Harcourt metropolis

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Abstract
The study investigated the availability of ICT resources for enhancing teachers Instructional delivery in Private Secondary Schools in Port-Harcourt Metropolis. The purpose of the study was to investigate the availability, adequacy and utilization of ICT resources for enhancing teachers' instructional delivery in the schools. The descriptive survey design was adopted for the study. The population for the study consisted of all private secondary school teachers in Port-Harcourt Metropolis. Multistage sampling technique was used to select sample. To achieve this, 10 Private Secondary Schools were selected from each of the two Local Government Areas in Port Harcourt Metropolis. From each of the 10 schools, 160 teachers (80 males and 8o females) were randomly sampled. A self-structured checklist/questionnaire was used as an instrument to collect data for the study. Cronbach Alpha reliability was used to establish the internal consistency of the instrument which yielded 0.86, 0.85 and 0.77 reliability indexes. The data collected were analysed using percentages, mean and standard deviation while z-test was used to test the hypothesis at 0.05 level of significant. The finding of this study show that laptop computers, printers, Internet facilities, PowerPoint projectors, radio and television sets, educational softwares amongst others were ICT resources available for enhancing teachers instructional delivery in private secondary schools. Secondly, the findings showed that computer printers, Radio and television sets, smart phones among others are adequate for teachers' instructional delivery in private secondary school. The study also found that computers and laptops, internet facilities, educational softwares amongst others are utilized for instructional delivery at high extent. It was therefore recommended that private schools administration should scale up the provision of ICT resources for instructional delivery. In addition, Teachers skills in the utilization of ICT resources should be improved.

Keywords: information and communication technology, resources availability, teachers enhancement, instructional delivery

Introduction

The innovations that have taken place world-wide in the area of information communication technology (ICT) have broken all national and international barriers and tuned the world into a global village, since it has made information available to organizations and individuals anywhere and at anytime. Consequently, this has affected the nature, procedure and forms of equipment used in daily business. The use of information and communication technology (ICT) facilities in teaching and learning process is not a new phenomenon in promoting education, especially in those developed countries, all over the world. Presently, some higher institutions of learning in Nigeria are using information and communication technology (ICT) facilities for novel achievement. Computer and communication technologies have offered tremendous opportunities for teaching by electronic means (Rogina, 2012) [21]. The use of multimedia technologies and internet in teaching is seen as a strategy to improve accessibility, efficiency and quality of education by facilitating access to resources and services as well as remote exchanges and collaboration.

The use of ICT facilities in teaching has become a new paradigm and a new philosophy in education with a mission to serve as development platform for the present day society based on knowledge. The students of the Business Studies need to be utilized and adequately trained with knowledge of each day development in information and communication facilities for efficiency, accuracy, and economic advantages. The use of ICT facilities in teaching involves the use of electronic technology to deliver education and training application, monitors learners performance and report learners' progress (Sale, 2015) [22]. Similarly, Hedge and Hayward (2004) [9] defined ICT in teaching as an innovative approach for delivery electronically mediated, well designed learner – centered and interactive learning environment, to any one, any place, any time by utilizing the internet and digital technology in concern with instructional design principles. It is more of teaching and learning with use of computers and multimedia.

Ajalaye (2014) [3] highlighted that information and communication technology does not refer to only the internet and telephone but include the satellite, radio, television, video tapes, tape recorders, compact disc, etc. ICT have

revolutionary impact on educational methodology globally, for effective teaching processes. According to Yusuf (2005) [23], teachers need training not only in computer literacy but also in the application of various kinds of software packages in teaching and learning. Teacher training in ICT is inevitable and crucial because information and communication facilities are tools that help them to take full advantage to enhance teaching and learning process.

Subsequently, the use of ICT facilities in educational system facilitates learner– centered collaborative environment which emphasizes the importance of intrinsic learning through social interaction. While according to the Vygotsky (1978) cited in the write up on mobile learning by Geddes (2005) [8], learner–centered interaction results in learners being more engaged and helps to develop personal intellectual structures that foster deeper understanding and allow students to discuss complex situations and resolve ambiguities with international commonality of communication over the internet. Therefore, ICT facilities provide learners with secondary access to environment, and international learning facilitators which they would otherwise be unable to access, as wireless ICT facilities become more common and accessible. Students will be able to participate in international communication with ICT. Utilization of ICT devices has greatly brought about rapid changes in today's classroom, as video cassette recorders, compact disc recorders, cell phones, network computers and computer software have brought some changes in classroom teaching by supplementing and complementing some aspect of teaching processes for educational quality (James, 2005) [10].

Statement of the problem

One of the major concerns of educationists has been how to make teaching and learning more effective and efficient in this era of digitalization. Current researches in education have shown that ICT possesses the potential for effective instructional delivery and learning. Functional education involves training youths in such a way that they would be independent, and contribute their own quota in national development. Preparing the new breed of teachers using newer technology involves the infusion of ICT into teacher education programme. The practice has been that of preparing prospective teachers to take a computer literacy classseparate from the contents and methods they are used to. This approach has been a failure because; teachers intheir training have not been prepared on how to teach contents more effectively through proper infusion of ICT skills.

Considering the role and objectives of information communication Technology (ICT) in manpower building, in teaching and learning in the classrooms, most especially. Some teachers in the area under study are still unaware of the full use of ICT. This may be due to a large number of factors, such as poor awareness campaign on the significant of ICT, unstable power supply in most areas, low level of investment on ICT educational programme, attitude of the users, huge efforts and time spent on ICT facilities, high level of poverty and absence of computer interlay personnel, among other factors. Therefore, the study was carried out to investigate the availability of ICT Resources for Enhancing Teachers Instructional Delivery in Private Secondary Schools in Port-Harcourt Metropolis

Purpose of the study

The purpose of the study is to determine the availability of ICT Resources for Enhancing Teachers Instructional Delivery in Private Secondary Schools in Port-Harcourt Metropolis. Specifically, the sought to

1. Examine the availability of ICT resources for enhancing teachers' instructional delivery in Private Secondary Schools in Port-Harcourt Metropolis
2. Determine the adequacy of ICT resources for enhancing teachers instructional delivery in Private Secondary Schools in Port-Harcourt Metropolis
3. Determine the extent to which ICT resources are utilized for instructional delivery in Private Secondary Schools in Port-Harcourt Metropolis

Research Questions

The following research questions guided the study.

1. What are the ICT resources available for enhancing teachers' instructional delivery in in Private Secondary Schools in Port-Harcourt Metropolis?
2. What is the adequacy of ICT resources for enhancing Teachers instructional delivery in Private Secondary Schools in Port-Harcourt Metropolis?
3. To extent do teachers utilize ICT resources for instructional delivery in Private Secondary Schools in Port-Harcourt Metropolis?

Hypothesis

The following hypothesis was tested at 0.05 level of significance.

$H_{01:}$ There is no significant difference in the mean responses of male and female teachers on the extent teachers utilize ICT resources for instructional delivery in Private Secondary Schools in Port-Harcourt Metropolis

Literature Review

Osofisan (2013) [17] describes ICT as the product of the marriage between the computer and the communication industry. It is the product of the merger between computing infrastructure and communication infrastructure. Kwache sees ICT as diffusing widely across several industries and sectors of the economy through diverse

applications. It is an umbrella term that includes any communication device or application encompassing radio, television cellular phone, computer, network, hardware and software, satellite system, among others, as well as various devices and applications associated with them.

ICT has innumerable educational applications. Oke (2012) opines that two major factors account for the introduction of ICT in teaching and learning in schools: students must be familiar with the use of information technology because of its usefulness in all facets of life, and teachers must use ICT tools in teaching for quality improvement and more effective teaching. Kwache (2017) [11] states that learning resources in education have grown and experienced exponential improvement in line with global technology trends. He stressed further that national development is determined by a nation's technological advancements; this has made technology the cornerstone without which a nation cannot hope to develop. Osofisan (2013) [17] posits that ICT is the handling and processing of information using electronic devices. It simply means the creation, collection, storage, processing, transmission, display and use of information by the people and machine.

Oyebanji (2013) asserted that information and communication technologies are vital tools in any educational system with the potentials of being used to meet the learning need of individual students, enhance high-quality learning materials, increase self-efficacy and independence of learning among students and improve teachers' professional development. In addition, ICT promotes equality of educational opportunities for learners and teachers. In the same vein, other potentials of contemporary information and communication technology in education include its ability to accelerate and enrich basic skills in reading, writing, and understanding (Kwache, 2017) [11]. Brown (2009) is of the view that ICT is very crucial for the achievement of national educational objectives because it expands citizens' access to education at all levels and helps to improve the quality of teaching and learning. ICT-based instructional materials have the capacity to increase learning rates, save the teacher's time and efforts, increase learners' interest and facilitate retention (Onyejemezi, 2009). Indeed, ICT is well suited for information processing tasks because of its speed, accuracy, and ability to store large data in accessible forms (Atkinson, 2010). At least in the urban parts of West Africa, information technology has provided a mechanism for teachers to keep abreast of increasing demands for current pedagogical information (Asiedu, 2016).

The use of information and communication technology has become indispensable to pedagogy in the different fields of business. Since the dawn of the 21st century, businesses have become increasingly dependent on ICTs for virtually all activities. The advent of e-commerce, with its attendant impact on all aspects of business, has meant that, at least in urban centres, little can be achieved in business without constant recourse to information technology. Even in rural parts of Africa, increasing internet access, enhanced by expanding access to cellular telephony, implies that banking and other transactions can now be completed online with organizations in the neighborhood and others thousands of kilometers away (Punch-Nigeria, 2019) [20]. The social media especially have become veritable instruments of correspondence, advertizing and meetings. For instance, Airline and railway bookings, seat and hotel reservations and payments, international trade are now enabled by ICT. International travel papers, shipping documents, visa applications are now processed online. Indeed, especially for students, the wide gulf which existed in Nigeria between rural and urban areas only a couple of years ago is being speedily obliterated as examination bodies insist on conducting online examinations for students irrespective of location.

Given this emerging indispensability of ICT to business activities, it is only natural to expect pedagogy in business subjects to be information technology-heavy. However, the application of ICT in business pedagogy depends on the availability of relevant resources and the ICT-dexterity of the teachers. Ofori-Attah (2017) is convinced that both facilities and expertise are in short supply in rural Africa. In spite of this, social media platforms like Facebook, Twitter, Linkedin, WhatsApp, which are powered mobile devices like smartphones and computer tablets, have emerged as important instruments of education service delivery especially in tertiary institutions and urban centres. Nigerian university teachers give online assignments, feedbacks, deliver lectures on line using social media (Ademiluyi, 2016). At the secondary school level, however, a dearth of human and material resources appears to have stymied the use of ICT for education service delivery.

A cursory look at the secondary schools in Nigeria reveals that many Business subject teachers in the system still rely heavily on the traditional "chalk and talk" method of teaching rather than embracing the use of ICT. Very few public institutions in Nigeria make use of contemporary ICT facilities for classroom instructions. Only some private schools have resources for computer-aided instruction; thus, the chalkboard and textbooks continue to dominate teaching and learning activities (Orakpo, 2015; Owuamanan, 2018).

Effective use of ICT in teaching and learning of Business subjects depends on the availability of the facilities and teachers' competence in using them (Oyeniran, 2010) [19]. Teachers, as well as students, appear not to be knowledgeable in the use of ICT tools. Interactions by the researcher with education stakeholders (teachers, head teachers and senior officials of the Ministry of Education) in the state indicate that there has been, in the last ten years, no formal training for teachers on ICT. Indeed, the state's recent public budgets have no provisions for teachers' ICT education (Osun State Government, 2018). It has also been observed that public secondary schools in most parts of Nigeria lack computer-expert business subject teachers while irregular power supply appears to be the norm in the schools.

While some state governments in Nigeria have endeavored to introduce basic ICT facilities in senior secondary schools, the adequacy and effectiveness of its efforts remain in question. Government's desire to further deploy ICT facilities in its secondary schools appear to be inhibited by inadequate electricity facilities, funding, and

trained personnel. The study sought to determine the extent to which the government has achieved its objectives in spite of identified inhibitions.

Methodology

The study employed a descriptive survey design. The population for the study consisted of all private secondary school teachers in Port-Harcourt Metropolis. Multistage sampling technique was used to select sample. To achieve this, 10 private Secondary Schools were selected from each of the two Local Government Area in Port Harcourt Metropolis. From the 10 schools, 160 teachers (80 males and 80 females) were randomly selected. The instrument used for data collection was researchers constructed checklist/ questionnaire titled "Availability of ICT Resources for Instructional Delivery in Private Secondary Schools". The checklist was designed in a two point rating scale format of Available (A) and Unavailable (U). The second part of the questionnaire was to elicited information on the adequacy of ICT resources for enhancing teachers' instructional delivery. This part was designed in four point rating scale of Highly Adequate (HA)-4 points, Adequate (A)-3 points, Inadequate (IN)-2 points and Highly Inadequate (HI)-1 point. The part three elicited information on the extent teachers utilize ICT resources for instructional delivery. This part was structured in a 4 point rating scale of Very High Extent (VHE) - 4 ponts, High Extent (HE)-3 points, Low Extent (LE)-2 points, and Very Low Extent (VLE)-1 point. The instrument was validated by experts in Educational Technology and Statistics. The reliability of the study was established using Cronbach Alpha reliability coefficient. The reliability index obtained for the three parts of of the questionnaire are 0.85, 0.86 and 0.77.

A total of 160 copies of the questionnaire was administered, retrieved and used for analysis. The data collected were analyzed using percentage scores, mean and standard deviation to answer the research questions. The decision rule was that items with mean responses greater that or equal to 2.50 were regarded as "Adequate" and "High Extent" while items with mean values less than 2.50 were regarded as "Inadequate" and "Low Extent". For percentages, items are considered "available" when the percentage of respondents exceeds those indicating not "available" vice versa. The null hypotheses were tested using Z-test at 0.05 alpha level..

Results

Results obtained from the analyzed data were presented below based on the research questions

Research Question 1: What are the ICT resources available for enhancing teachers' instructional delivery in Private Secondary Schools in Port-Harcourt Metropolis?

Table 1: Availability of ICT Resources for enhancing teachers' instructional delivery in private secondary school in Port-Harcourt Metropolis.

		Male Teachers=80			Female Teachers=80		
S/N	**Items**	**Freq.**	**%**	**Rmrk**	**Freq.**	**%**	**Rmrk**
1	Laptop computer	56	70.0	A	55	68.8	A
2	Printers	63	78.8	A	67	83.8	A
3	Scanners	34	47.5	U	35	43.8	U
4	The Internet	75	93.8	A	69	86.3	A
5	Digital Boards	33	41.3	U	38	47.5	U
6	PowerPoint Projectors	52	65.0	A	54	67.5	A
7	Radio and TV sets	75	93.8	A	71	88.8	A
8	Tablet Computers	59	73.8	A	53	66.3	A
9	Word Processors	67	83.8	A	65	81.3	A
10	Educational softwares	39	48.8	U	37	46.3	U
11	Computer Games	54	67.5	A	56	70.0	A
12	Smart phones	74	92.5	A	71	88.8	A
13	Digital Camera	66	82.5	A	61	76.3	A
14	Multimedia	59	73.8	A	59	73.8	A

Field Survey, 2022; A- Available, U- Unavailable

Table 1 presents the percentage response on the availability of ICT resources for enhancing teachers' instructional delivery in private secondary school in Port-Harcourt. The percentage analysis showed that scanners, digital boards and educational softwares fell below 50 percent and therefore were considered inadequate. This result was reflected in both Male and female teachers. All the other eleven were found to be adequately available.

Research Question 2: What is the adequacy of ICT resources for enhancing teachers instructional delivery in Private Secondary Schools in Port-Harcourt Metropolis?

Table 2: Adequacy of ICT Resources for enhancing teachers' instructional delivery in private secondary school in Port-Harcourt Metropolis

		Male Teachers=80			Female Teachers=80		
S/N	**Items**	**Mean**	**S.D**	**Rmrk**	**Mean**	**S.D.**	**Rmrk**
1	Laptop computers	3.23	0.63	Adequate	3.43	0.48	Adequate
2	Printers	2.01	1.03	Inadequate	2.13	1.11	Inadequate
3	Scanners	3.54	0.42	Adequate	3.41	0.53	Adequate
4	The Internet	2.34	1.02	Inadequate	2.38	1.03	Inadequate
5	Digital Boards	2.01	1.10	Inadequate	2.20	1.14	Inadequatecr
6	PowerPoint projectors	2.34	1.06	Inadequate	2.14	1.07	Inadequate
7	Radio and TV sets	3.03	0.78	Adequate	3.43	0.51	Adequate
8	Tablet computers	2.12	1.17	Inadequate	2.22	1.03	Inadequate
9	Word Processors	2.04	1.19	Inadequate	2.14	1.12	Inadequate
10	Educational Software Program	2.34	1.08	Inadequate	2.42	1.06	Inadequate
11	Computer Games	2.45	1.04	Inadequate	2.32	1.03	Inadequate
12	Smart phones	3.67	0.34	Adequate	3.73	0.39	Adequate
13	Digital Camera	2.82	0.41	Adequate	2.55	0.33	Adequate
14	Multimedia	2.43	0.43	Inadequate	2.34	0.93	Inadequate
	Grand Mean/SD	2.60	0.84	Adequate	2.63	0.84	Adequate

Field Survey, 2022;

Table 2 presents the responses of teachers on the adequacy of ICT resources for enhancing teachers' instructional delivery in private secondary schools in Port-Harcourt Metropolis. The analysis showed that only laptop computers, radio and television sets, smart phones and digital cameras were considered adequate ICT resources for enhancing Teachers instructional delivery in Port Harcourt Metropolis. The same result was refected in the responses of both Male and female responses.

Research Question 3: To what extent do teachers utilize ICT resources for instructional delivery in Private Secondary Schools in Port-Harcourt Metropolis?

Table 3: Mean responses on the extent teachers Utilization of ICT Resources for instructional delivery in private secondary schools in Port-Harcourt metropolis

		Male Teachers=80			Female Teachers=80		
S/N	**Items**	**Mean**	**S.D**	**Rmrk**	**Mean**	**S.D.**	**Rmrk**
1	Laptop Computers	2.83	1.03	HE	2.92	0.73	HE
2	Software programs	3.05	0.72	HE	3.11	0.69	HE
3	Scanners	2.01	1.23	LE	2.10	1.14	LE
4	The Internet	2.74	1.12	HE	2.99	1.06	HE
5	Digital Boards	2.31	1.03	LE	2.24	1.12	LE
6	PowerPoint projectors	2.54	1.16	HE	2.68	1.00	HE
7	Radio and TV sets	3.00	0.88	HE	3.11	0.63	HE
8	Tablet Computers	2.32	1.17	LE	2.02	1.04	LE
9	Word Processors	2.74	1.10	HE	2.86	1.10	HE
10	Educational softwares	2.44	1.02	LE	2.42	1.03	LE
11	Computer Games	2.46	1.03	LE	2.32	1.10	LE
12	Smart phones	3.77	0.42	HE	3.73	0.46	HE
13	Digital Camera	2.44	0.99	LE	2.31	0.93	LE
14	Multimedia	2.45	0.78	LE	2.42	0.94	LE
	Grand Mean/SD						

Field Survey, 2022; HE- High Extent; LE-Low Extent

Table 3 presents the responses of teachers on the extent of Teachers utilization of ICT resources for enhancing teachers' instructional delivery in private secondary school in Port-Harcourt Metropolis. The analysis showed that to a high extent teachers utilized laptop computers, software programs, the Internet, PowerPoint projectors, radio and television sets, Word Processors and smartphones as ICT resources for enhancing instructional delivery in private Secondary Schools in Port Harcourt Metropolis. The ICT resources considered Low Extent in their utilization are scanners, digital boards, Tablet computers, educational software, computer games, digital cameras and multimedia. There is a congruent in the responses of Male and female teachers in schools in Port Harcourt Metropolis.

Hypothesis

$H_{01:}$ There is no significant difference in the mean responses of male and female teachers on the extent teachers utilize ICT resources for instructional delivery in Private Secondary Schools in Port-Harcourt Metropolis

Table 4: z-test Analysis of Difference in the Mean Ratings of Male and female Teachers on Utilization of ICT Resources for instructional delivery in Private Secondary Schools in Port Harcourt Metropolis

Group	N	Mean	SD	df	a-level	z-cal	z-crit	Decision
Male	80	2.68	0.99					
				158	0.05	0.21	1.96	Accepted
Female	80	2.71	0.93					

The result of the test of the null hypothesis at 0.05 alpha level shows that z-calculated value is 0.21 and z-critical value is 1.96. Since the z-calculated value 0.21 is less than the z- critical value 1.96, then the null hypothesis was accepted. It is therefore concluded that there is no significant difference between the male and female teachers mean rating on the utilization of ICT resources for instructional delivery in private Secondary Schools in Port Harcourt Metropolis.

Discussion of Findings

The study showed the availability of ICT Resources for Enhancing Teachers Instructional Delivery in Private Secondary Schools in Port-Harcourt Metropolis. From the findings on Table 1, it is revealed that only laptop computers, printers, the Internet, Power Point projectors, radio and television sets, tablet computers, Word Processors. Computer games, smartphones, multimedia and digital cameras were adequately available for enhancing Teachers instructional delivery in Private Secondary Schools in Port Harcourt Metropolis, while all the others ICT resources were not available. This confirms the observation that Opon and Imon (2007), the computer tablet had been made largely available especially to secondary schools. This finding corroborates with the submission of Okebukola (2007) that Nigerian secondary schools do not have adequate ICT facilities for teaching.

The findings in Table 2 on the adequacy of ICT resources for teaching in private secondary schools shows that laptop computer, scanners, radio and television sets, smartphones and digital cameras were considered adequately available for enhancing teacher's instructional delivery Private Secondary Schools in Port Harcourt Metropolis. All others resources were rated as grossly inadequate.

The findings in Table 3 showed that out of the fourteen ICT resources investigated only seven were considered High Extent in teacher's utilization for instructional delivery in Private Secondary Schools in Port Harcourt Metropolis. The resources highly utilized were laptop computers, smartphones, the Internet, PowerPoint projectors, radio and television sets, Word Processors and smartphones. The finding is in line with Babajide (2013) that in most Nigerian schools, ICT resources were not being utilized because they are not available.

Conclusion

Based on the findings of the study, it could be concluded that only about 50 percent of the ICT resources investigated were above average available for enhancing teachers instructional delivery. And to a high extent teachers could utilized substantially only seven out of the 14 ICT resources available for instructional delivery. And finally, it was concluded that the difference in the male and female teachers rating on the extent of their utilization of ICT resources for instructional delivery in private Secondary Schools in Port-Harcourt Metropolis was insignificant.

Recommendations

The following recommendations are proffered to redress the ICT situation in private secondary schools:

1. The school administration should provide more ICT resources to the private schools. The current situation in which most private schools have no digital white boards, scanners and educational softwares is unacceptable and needs to be expeditiously addressed.
2. Teachers in private Secondary Schools should be re-orientated to develop positive attitudes to embrace ICT in teaching. School administration should take a leading role in Integrating ICT in all the instuctional activities.
3. Training and retraining must be provided for teachers on using ICT facilities. Since no one can give what he does not have, no one can impart the knowledge he does not possess.

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