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DETERMINATION OF AVAILABILITY AND APPLICATION OF TECHNOLOGICAL FACILITIES BY THE TEACHERS FOREFFECTIVE TEACHING AND LEARNING PROCESS IN SECONDARYSCHOOLS IN ONITSHA NORTH LOCAL GOVERNMENT AREA, ANAMBRA STATE

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ABSTRACT

The world has been revolutionized by the advances in technology which has eased the way of doing things. These advanceswhich resulted in technological facilities haveprovided fast means of accessing, generating, transferring, storing or processing information to multitude of people in different locality in all fields of endeavours with far reaching impact to life in generality and in education particularly. It has been proven that technological facilities infuse new and innovative forms of support to teachers and students in the learning process through transformation in teaching and learning method thereby enlarging opportunities for quality education. Unfortunately, it has been observed that the secondary education system has not approximate technological facilities which may be unconnected with the non-availability and consequently poor utilization. Therefore, it recommended that the government and other stakeholders in education should ensure adequate technological facilities to improve teaching and learning in education among others.

Keywords: Availability; Application; Technological Facilities; Teachers; Effective Teaching and Learning; Process

Introduction

Education is vital to the development of people and the nation. The importance of education is overwhelming and cannot be overemphasized. This is why the United Nations Educational and Scientific and Cultural Organization (UNESCO) in 2014 declared that Education is a vehicle for and indicator of development. Education is regarded as the instrument for sharpening the intellectual powers of man.It is one of the building blocks for human development which has a formative effect on the mind and character and accelerates the development of knowledge, skills and attitude (Oyedeji, 2015). The teachers are at the heart of education. They play vital roles in education.

According to Enyiuche and Obi (2014), achieving academic excellence which entails the inculcation of the right type of knowledge, skills, values and attitudes to the learner to enable him/her function effectively and efficiently within the society and to ensure societal survival can mainly be achieved through a disciple and committed teacher. A disciplined and committed teacher is the teacher who is sincerely ready, devoted and willing to do his job which is teaching in line with the rules and regulations guiding the school. In assertion of Kabiru (2000) and Nnadozie (2004), a teacher is one with positive attitude for teaching, concerned with classroom methodical in preparation and execution of his/her job effectively to produce well refined and developed human beings capable of living and contributing to the development and survival of the society.A teacher is a person who has undergone approved professional training in education at appropriate levels capable of imparting knowledge, attitude and skills to the learner (Ikediugwu, 2005).The teachers are described not only as transmitters of knowledge but also as agents of nature, bearers of sacred truth and mentors who help to prepare the children to be ready for changes and challenges of the society and develop positive attitude to the

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surrounding (Akata & Egbue quoted in Enyiuche, & Obi, 2014).

It is no doubting the fact that the centrality of teacher lies in the overall process of teaching and learning. At secondary level of education, teachers are known to embark on the onerous task of proving and enhancing functional learning for students. The teachers engage in series of research in order to be adequately equipped to deliver the lessons. As noted by Obanya (2007), teachers are managers of learning process who are groomed in specialized areas, highly organized, energetic, self-motivated, possess brilliant inter-personal skills, have capacity to cope with pressure, possess excellent strategic thinking ability, ready to take challenges, demonstrate desire to learn, develop and most importantly be computer literates.

Technology is the branch of scientific or engineering knowledge that deals with the creation and practical use of digital or computerized devices, methods, systems among others. It is refers to the systems, hardware and processes that use digital data or signals to achieve a particular set of user-defined results (Designing Building Wiki, 2021).Technologies are electronic tools, systems, devices and resources that generate, store or process information (United Nations, 2020). In addition, it is the application of digital electronics, any significant piece of knowledge from information technology (Wikipedia, 2021). The researcher definedtechnological facilities as those electronic devices or tools that aidthe reception and transfer of information as well as knowledge and skills from one person to another; and from one location to another in the learning environment. Technological facilities are significant facilitators in educational system in this era which is characterized by globalization and competitiveness, and constitute a strong source of competitive capabilities. Development in computers, tablets, information and communication gadgets, among others are making learning easier by merging efforts of teachers as well as learning resources and learners separated in time and space, become accessible and available to the learners (Enyiuch& Obi, 2014) in the secondary schools.

In fulfilling their required obligation as regards teaching and learning, the teachers as professionals need to acquire, possess and update their knowledge both intellectually and technically in consonance with the advances in on information, communication and technological facilities to enhance acquisition and transfer of knowledge as well as enhancement of teaching and learning process in the school. The technological facilities include computer, computer laboratory, internet connectivity, audio-visual equipment: educational software and e-books, multimedia projector, digital camera, school phones/ smart phones, photocopying machines, scanners/Scanning machines among others.

Statement of the problem

Globally, technology has revolutionized and eased the way of doing things. It has provided fast means of accessing, generating, transferring, storing or processing information to multitude of people in different locality in all fields of endeavours at the same time.It has far reaching impact and has tremendously improved life in generality and in education particularly. It has been accented that technology plays a vital role in bringing new and innovative forms of support to teachers, students and the learning process. Also, it has the capacity to transform teaching and learning method thereby enlarging opportunities for quality education. Unfortunately, the secondary education system has not leverage appropriately on technology to maximize the benefits of technology in education. Also, it seems thattechnological facilities are either lacking or grossly inadequate in publicsecondary schools in the state.It is observed that some of these technological facilitieshave not been utilized to aid learning process. It is against this backdrop that this paper sought to determine the availability of technological facilities and the extend they are being appliedby the teachers in teaching and learning process in secondary schools in Onitsha North Local Government Area, Anambra State.

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Research questions

1. What is the extent of availability of technological facilities for teaching and learning process in secondary school in Onitsha North LGA, Anambra State?
2. To what extent do teachers apply the available technological facilities in teaching and learning process in secondary schools in Onitsha North LGA, Anambra state?

Hypotheses

1. There is no significant difference in the mean ratings of male and female teachers on the availability of technological facilities for teaching and learning process in secondary school in Onitsha North LGA, Anambra State.
2. There is no significant difference in the mean ratings of male and female teachers on the extent of application of the available technological facilities in teaching and learning process in secondary schools in Onitsha North LGA, Anambra state.

Research Method

Descriptive survey design was adopted for the study. The population of the study consisted 1,325teachers teaching in the 31 public secondary schools in Onitsha zone (Onitsha North, Onitsha South and Ogbaru) in Anambra State, (Anambra State Post Primary Education Board, 2014). Simple random sampling technique was used to for the study. 6 teachers were purposively drawn from each 31 public secondary schools. The female teachers were 101, while the male teachers were 85, making a total of 186 teachers.A checklist on availability of technological facilities and self-developed questionnaire titled: Determination of Availability and Applicationof Technological Facilities by the Teachersfor Effective Teaching and Learning Process (DAADTETL) was used for data collection. The instrument has two parts (1&2). Part 1: sought information on the demography of the respondents, while Part 2 was on the issue of the study. The questionnaire contained 25 items. The response format for extent is very high extent= 4, high extent=3, moderate extent, low extent= 1. The responses were rated on a four-point scale as follows: A-4; Na-3; Anf-2; Nsf1. The face and content validation of the instrument was established by an expert in measurement and evaluation and two experts in the department of educational management and policy at Nnamdi Azikiwe University, Awka. Their comments and corrections were effected in the final draft of the instrument. The co-efficient of stability of the instrument was determined through test-retest reliability method using Pearson Product Moment Formula. The overall value was 0.83. The researcher with the help of a trained research assistant administered 186 questionnaires to the teachers. Out of the questionnaires administered, 155were completely filled and returned. Data were analysed using mean, standard deviation and t-test. The null hypotheses were tested at 0.05 level of significance using t-test.

Presentation of Results

Research Question 1: What is the extent of availability of technological facilities for teaching and learning process in secondary school in Onitsha North LGA, Anambra State?

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Table 1: Mean Ratings and Standard Deviation Scores of Male and Female Teachers on the Available Technological Facilities for Teaching and Learning Process

S/N	ITEMS	Male Teachers (n 74=)			Female Teachers (n =81)		
		Mean	SD	Decision	Mean	SD	Decision
1	Computer laboratory in the school	2.61	1.09	High Extent	2.57	1.10	High Extent
2	Enough computers	2.38	1.01	Low Extent	2.42	0.98	Low Extent
3	Internet connectivity	2.41	1.11	Low Extent	2.35	1.05	Low Extent
4	Printers	2.52	1.00	High Extent	2.54	1.15	High Extent
5	Photocopying machines	2.54	1.07	High Extent	2.56	1.07	High Extent
6	Scanners	2.65	0.98	High Extent	2.48	1.17	Low Extent
7	Audio-visual equipment	2.47	1.16	Low Extent	2.37	1.13	Low Extent
8	Educational software and e-books	2.39	1.06	Low Extent	2.45	1.11	Low Extent
9	Multimedia projector	2.30	1.13	Low Extent	2.37	1.10	Low Extent
10	Digital Camera	2.35	0.91	Low Extent	2.41	1.14	Low Extent
11	School telephone /Smartphone	2.61	1.02	High Extent	2.58	1.03	High Extent
12	Video devices	2.50	1.12	High Extent	2.51	1.11	High Extent
13	Electronic whiteboard	2.40	1.08	Low Extent	2.34	1.05	Low Extent
	Cluster Mean	**2.47**	**1.06**	**Low Extent**	**2.46**	**1.09**	**Low Extent**

The results of data analysis presented on Table 1 showed that mean scores of male and female teachers for items 1, 4, 5, 11 and 12 are higher than the criterion mean value of 2.50 and this indicated there was high extent of availability of technological facilities as regard the items. The male and female teachers mean ratings for items 2, 3, 7, 8, 9, 10 and 13 are below the cut off mean score of 2.50 indicating low extent of availability of technological facilities as regard the items. Male teachers indicated high extent of availability of item 6, while female teachers indicated low availability of the item. The overall standard deviation scores of male and female teachers are 1.06 and 1.09 and it indicated that there was homogeneity amongst their responses indicating a similar consensus of opinion. The male and female cluster means of 2.47 and 2.46 which are below 2.50 indicated that low extent of availability of technological facilities for teaching and learning process in secondary school in Onitsha North LGA, Anambra State

Research Question 2: To what extent do teachers apply the available technological facilities in teaching and learning process in secondary schools in Onitsha North LGA, Anambra state?

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Table 2: Mean Ratings and Standard Deviation Scores of Male and Female Teachers on their Application of their Technological facilities in Teaching and Learning Process

S/N	ITEMS	Male Teachers (n 74=)			Female Teachers (n =81)		
		Mean	SD	Decision	Mean	SD	Decision
14	Utilize computer laboratory for practical classes	2.71	1.03	High extent	2.81	0.94	High Extent
15	Use computer system in teaching and learning in the class	2.64	1.02	High Extent	2.65	1.11	High Extent
16	Use internet to get more resource for teaching and learning	2.50	1.14	High Extent	2.52	1.13	High Extent
17	Use audio-visual equipment for voice projection and enhancement of teaching and learning.	2.46	1.06	Low Extent	2.41	1.06	Low Extent
18	Use the printer to print relevant materials for teaching and learning process.	2.81	1.08	High Extent	2.86	1.14	High Extent
19	Utilize photocopying machines to duplicateeducational resources for teaching the students.	2.64	0.06	High Extent	2.81	1.15	High Extent
20	Use scanners to duplicate teaching materials for instructional delivery	2.65	1.11	High Extent	2.76	1.09	High Extent
21	Apply educational software in teaching the students	2.43	1.10	Low Extent	2.41	1.04	Low Extent
22	Use smartphone in souring materials for teaching students	2.56	1.06	High Extent	2.640	1.14	High Extent
23	Use projector equipment to project and expand certain concepts during teaching and learning process in the class.	2.45	1.08	Low Extent	2.46	1.03	Low Extent
24	Apply digital camera to monitor classroom activities of students	2.41	0.97	Low Extent	2.43	1.02	Low Extent
25	Utilize video devices to record the teaching and learning process	2.49	1.15	Low Extent	2.44	1.03	Low Extent
26	Use electronic whiteboard to deliver instruction to students	2.45	1.12	Low Extent	2.48	1.02	Low Extent
	Cluster Mean	**2.55**	**1.00**	**High Extent**	**2.59**	**1.07**	**High Extent**

As shown on Table 2, the mean scores of male and female teachers for items 14, 15, 16, 18, 19, 20 and 22 are higher than the criterion mean value of 2.50 and this indicates there was high extent of application of the available technological facilities as regard the items. The male and female teachers mean ratings for items 17, 21, 23, 24, 25 and 26 are below the cut off mean score of 2.50 indicating low extent of application of the available digital technological facilities as regard the items. The overall standard deviation scores of male

and female teachers which stood at 1.00 and 1.07 respectively are closer to the mean indicating similarity in their responses in each cluster. The male and female cluster means of 2.55 and 2.59 which are above 2.50 indicated that there was high extent of teachers' application of the available technological facilities for teaching and learning process in secondary school in Onitsha North LGA, Anambra State

Ho$_1$: There is no significant difference in the mean ratings of male and female teachers on the availability of technological facilities for teaching and learning process in secondary school in Onitsha North LGA, Anambra State.

Table 3: The t-test summary of Male and Female Teachers Mean Ratings of Availability of Technological Facilities for Teaching and Learning Process

Respondents	N	$\bar{x}$	SD	t.cal	t. crit.	Df	∞	Remark
Male Teachers	74	2.47	1.06	0.06	1.96	153	0.05	Not Significant
Female Teachers	81	2.46	1.09					

Data presented on Table 3 revealed that the t-calculated value of 0.06 is less than t-critical value of 1.96 at 0.05 level of significance and 153 degree of freedom. Thus, the null hypothesis is not significant. Therefore, there is no significant difference in the mean ratings of male and female teachers on the availability of technological facilities for teaching and learning process in secondary school in Onitsha North LGA, Anambra State

Ho$_2$: There is no significant difference in the mean ratings of male and female teachers on the extent of application of the available technological facilities in teaching and learning process in secondary schools in Onitsha North LGA, Anambra state.

Table 4: The t-test summary of Male and Female Teachers Mean Ratings on the extent they apply the Available Technological Facilities in Teaching and Learning Process

Respondents	N	$\bar{x}$	SD	t.cal	t.crit.	Df	∞	Remark
Male Teachers	74	2.55	1.00	0.24	1.96	153	0.05	Not Significant
Female Teachers	81	2.59	1.09					

As shown on Table 4, the t-calculated value of 0.24 is less than t-critical value of 1.96 at 0.05 level of significance and 153 degree of freedom. Thus, the null hypothesis is not significant. Therefore, there is no significant difference in the mean ratings of male and female teachers on the extent they apply the available technological facilities in teaching and learning process in secondary schools in Onitsha North LGA, Anambra state.

Discussion of Results

From the results, it was found out that there was homogeneity in the responses of male and female teachers and low extent on the availability of technological facilities such as computers, internet, printers among others for teaching and learning process in the secondary. This corroborates the findings of Anuonye (2016) that there was inadequate computer gadget for teaching and learning. More so, Osadolar (2008) indicated that public schools lack most of the computer facilities for teaching and learning. From the above, it showed that lack of computers and other technological facilities are evidently inadequate for teaching and learning process in the public secondary schools and the trend in different location or region.

More so, it was found that there was low extent of teachers' application of available technological facilities for teaching and learning. This means that teachers rarely apply

or use available technological facilities for teaching and learning in secondary schools. This is in tantrum with Osadolar (2008) who found out that the computer was only used for typing. This implied that when though the technological facilities may be available, teachers low extend of use may affect teaching and learning process negatively. The low extent of application could be as a result of lack of instructional media in the school which give low level of their usage in teaching and learning (Anujong, 2016).

Conclusion

It has been proven that technological facilities are indispensably crucial in education. They have improved the process of teaching and learning in secondary. This is why it is an essential part of learning. Despite the importance of technological facilities in education, the study revealed that the extent of availability of these facilities is still low. More so, the extent of application of these technological facilities has militated the achievement of objectives of secondary schools. Therefore, there should be synergy between the government and the educational stakeholders in providing technological facilities. Also, teachers should be trained to improve applicability of these facilities in teaching and learning process in secondary schools.

Recommendations

Based on the finding, the following recommendations were made:

1. Government and other stakeholders in education should carryout periodic needs assessment in secondary schools to determine availability of technological facilities for teaching and learning process.
2. Government and other stakeholders in education should ensure adequate of technological facilities to improve teaching and learning in secondary education in Onitsha North Local Government Area.
3. The teachers should undergo periodic training on technological facilities to ensure improve application of them. This is important because when the teachers are equipped with practical skills in the use of the technological facilities, it will ultimately lead to high extent of application and consequently improved teaching and learning in secondary education.

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