

Utilization of Workshop and Equipment for Students Craft Work in Teaching of Basic Technology in Junior Secondary Schools in Port Harcourt Metropolis, Rivers State, Nigeria.

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Abstract

This study examined the utilization of workshop and equipment for student's craft work in teaching of Basic Technology in Junior Secondary Schools in Port Harcourt Metropolis, Rivers State, Nigeria. The study adopted the descriptive research survey design. The population of the study was 270 Basic Technology teachers in Port Harcourt Metropolis in public schools. The population of 270 teachers was also used as the sample size to ensure generalization since the population was not a large one. The instrument for data collection was a self-made questionnaire titled "Utilization of Workshop and Equipment for Students Craftwork in Teaching Basic Technology (UWESCWTBT)". The instrument was structured on a four point likert scale. The instrument was validated by three experts in Measurement and Evaluation Department, Uniport. A reliability coefficient of 0.80 was obtained using Cronbach Alpha method via SPSS (Statistical Package for Social Science) software. The study further revealed that workshops are not available for the teaching of craft work in Basic Technology in public Junior Secondary Schools in Port Harcourt Metropolis. Also, the study further revealed that workshop equipments are available for the teaching of craft work in Basic Technology in Public Junior Secondary Schools in Port Harcourt Metropolis of Rivers State.

Keywords: Utilization, Workshop and Equipment, Students Craft Work.

Introduction

Basic education is the foundation that develops a student's vocational and technical skill. The basic technology curriculum inculcates the development of student's vocational and technical skills in woodwork, metal work, technical drawing, first aid treatment, etc. Ugwu (2017) observed that the future of any nation lies on the skills, knowledge and abilities of her citizens that are expected to be acquired from junior secondary schools, senior secondary schools and technical education offered in technical institutions. In recent years, there have been discussions and debates on the falling standard of education. The blame has always been on teachers, parents and students. In spite of the contributions of teachers, parents and even the students towards the failing standard of education in Nigeria, research have also found that lack of utilization of workshop and equipment for student's craft work is also a potent factor. Workshop building and equipment are important for the teacher to enhance teaching and learning of craft work by students in schools.

The workshop building and equipment as defined by Abdu-Raheem (2016) as an essential building and significant tools needed for teaching and learning of craftwork, in school which promotes teachers' efficiency and improve students' performance. According to Ogbu (2015), utilization of instructional facilities is the process of using procured and accessible facilities, tools, components, equipment and appliances to make teaching and learning process easier, interesting and rewarding. Gujjar, Khan, Baig, Ramzan and Saifi (2019) were of the opinion that the proper utilization of instructional and physical facilities would improve the performance and output of students in junior (basic secondary school). It is therefore presumed that the adequate utilization of instructional facilities (workshop & equipment) in the teaching and learning of craft work would improve the performance an output of the student in junior secondary school. This will make them relevant competent in their chosen vocation with little or no need for pre-employment training. Nwadiani and Ugolo (2022) noted that teaching and learning facilities constituted one of the major factors contributing to students' academic achievement which is a measure of the extent to which a student has performed in a particular set of tasks that have been taught and practiced. It is commonly measured by examination or continuous assessment. Utilization of workshop and equipment for craft work by students are essential for enhancing teaching and learning because they provide means of widening students' learning experience, expose students to a wide range of learning activities, increase the efficiency of the teacher by providing tutorials and response guidance for individual students and small groups.

They also facilitate increased interest in learning; hold learners' attention, provide opportunities of interacting with the social and physical environment and promote knowledge gathering (NTI Manstal, 2016). The use of workshop facilities/equipment is necessary for building students' knowledge in craft work more especially in woodwork, metal work, electrical/electronic work, among students in the junior secondary schools. It is perceived that students in junior public schools sometime find it difficult to comprehend immediately what is being taught by the teacher due to non-utilization of workshop facilities/equipment to convey the concept and topics taught to the learners. It is imperative to assert that utilization of workshop facilities/equipment in public junior secondary schools is important.

One of the most widely used measures in educational research and practice is retention and dropout, typically defined as a two side of the same coin. Student's retention and dropout is a major concern for educational institution around the world. It is not only a problem for educational institutions but has a direct link to the social, economic and political growth of a country, for which educational institutions provides strong foundation. According to Astin (2014) defines retention as staying in school until completion of an academic programme and dropping out as leaving school prematurely. Student's retention indicates how well a school ensures academic success or completion. Therefore, the function of technology teachers is to ensure students acquire requisite skills while undertaking craft and handwork subjects to instill in them skills for higher education and self-reliance even after junior secondary education, Mbazu (2024). The successful implementation of any academic programme greatly depends on the utilization of resources, therefore, their presence are good predictors of a well facilitated and effective programme. In this regard, Offorma (2020) disclosed that teaching is usually facilitated, and it is more effective when there is active participation of the learners and utilization of appropriate teaching materials. Instructional resources and environment of study place an important role to learners when it has to do with technological and scientific subject. Zhou & Bity (2024), Motivation by the use of instructional resources in teaching spurs up interest of learners thereby achieving maximum success in teaching and learning.

The use of instructional materials/resources changes the behavior of learners, promoting better learning outcome and creating a conducive learning environment, Aneke (2021). The active participation of the learner is facilitated by the availability and effective utilization of resource materials for effective teaching in public junior secondary schools in Port Harcourt, Rivers State. It is against this background that the researcher hopes to find out the extent of utilization of workshop and equipment for student craft work in teaching of Basic Technology in Junior Secondary Schools in Port Harcourt Metropolis, Rivers State, Nigeria.

Statement of the Problem

There cannot be effective teaching and learning of craft work in Basic Technology without the use of workshop and equipment. In order for the students to acquire the needed knowledge and skills, they must be taught in the right environment and equipment, they will find in the industries and also to effectively demonstrate such knowledge and skills which they are being trained. Though, workshops and equipment are lacking in most public junior secondary schools, their utility by teachers has also been questionable.

This is in variance with the National Policy on Education (FRN, 2013), where it was categorically stated that learning experiences for children shall be made more meaningful with the provision and effective use of innovative materials in schools. These innovative materials are broad-based instructional materials needed for teaching-learning process in public junior secondary schools. It is against this background that the researchers' hope to assess the utilization of workshop and equipment for student's craft work in teaching of basic technology in junior secondary schools in Port Harcourt Metropolis, Rivers State, Nigeria.

Purpose of the Study

The study is aimed at ascertaining the utilization of workshop and equipment for student's craft work in teaching of basic technology in junior secondary schools in Port Harcourt Metropolis, Rivers State. Specifically, the study was to:

- (1) Examine the extent workshops are available for the teaching of craftwork in basic technology in city areas in public junior secondary schools in Port Harcourt Metropolis, Rivers State.
- (2) To ascertain the availability of workshop equipment for the teaching of craftwork in basic technology in city areas in public junior secondary schools in Port Harcourt Metropolis, Rivers State.

Research Questions

- (1) To what extent are workshops available for teaching of craftwork in basic technology in Phalga and Obalga public junior secondary schools in Port Harcourt metropolis?
- (2) To what extent are workshops equipment available for the teaching of craftwork in basic technology in Phalga and Obalga public junior secondary schools in Port Harcourt metropolis?

Hypotheses

The study was guided by the following null hypotheses at 0.05 level of significance.

- (1) There is no significant difference in the mean rating of junior secondary school teachers from Phalga and Obalga city area on the extent of availability of workshop for the teaching of craftwork in basic technology in public junior secondary schools in Port Harcourt metropolis, Rivers State.
- (2) There is no significant difference in the mean ratings of teachers from Phalga and Obalga city areas on the extent of workshop equipment available for the teaching of craftwork in basic technology in public junior secondary schools in Port Harcourt metropolis, Rivers State.

Methodology

The study adopted the descriptive research survey design. The population of the study was 270 basic technology teachers in Phalga and Obalga city areas in Public Junior Secondary Schools. The population of 270 Basic technology teachers was also used as the sample size to ensure generalization since the population was not a large one. Instrument of data collection was a self-made questionnaire titled "Utilization of Workshop and Equipment for Students Craft Work in Teaching Basic Technology (UWESCWTBT). The instrument was structured on a four point likert scale; very great extent (VGE), great extent (GE) low extent (LE), very low extent (VLE). The instrument were validated by three experts in Educational Psychology, Measurement and Evaluation from University of Port Harcourt. A reliability coefficient of 0.80 was obtained using cronbach alpha method via SPSS (Statistical Package for Social Sciences) software. The research questions were answered with mean and standard deviation while hypothesis were tested with t-test at 0.05 level of significance.

Results

Research Question 1: To what extent are workshops available for the teaching of craftwork in Basic Technology in Phalga and Obio/Akpor Public Junior Secondary Schools in Port Harcourt Metropolis?

Table 1: Mean and Standard Deviation of Responses of Teachers in Phalga and Obio/Akpor on the Availability of Workshop in the Teaching of Craftwork in Basic Technology.

N= 270											
S/N	Item description	Phalga			Obalga			Grand			Decision
		N ₁	X ₁	SD ₁	N ₂	X ₂	SD ₂	N	X _g	SD _g	
1	Workshop Buildings	108	1.10	0.36	162	1.23	0.51	270	1.17	0.44	low extent
2	Converted Classroom Block	108	2.50	1.23	162	2.53	1.08	270	2.52	0.16	Great extent
3	Wood Work Unit	108	1.11	0.34	162	1.30	0.61	270	1.21	0.48	low extent
4	Metal Work Unit	108	1.16	0.52	162	1.28	0.65	270	1.22	0.59	low extent
5	Display Unit	108	1.09	0.35	162	1.28	0.63	270	1.19	0.49	low extent
6	Muster Point	108	1.15	0.38	162	1.27	0.58	270	1.21	0.48	low extent
Cluster Mean and standard deviation								1.42	0.61	low extent	

Source: Rivers State universal basic education board (RSUBEB) 2023

Analysis of data as presented in Table1 shows the mean responses of teachers in Phalga and Obalga on the extent of workshops available for the teaching of craftwork in Basic Technology in Public Junior Secondary Schools in Port Harcourt metropolis with their corresponding standard deviation.

Data presented in table 1 above revealed that mean response is of low extent except item 2 with a mean score of 2.52 while response to item 1, 3, 4, 5, and 6 shows a low extent of utilization and mean values of 1.17, 1.21, 1.22, 1.19 and 1.21.

Research question 2

To what extent are workshop equipment available for the teaching of craftwork in basic technology in public junior secondary schools in Port Harcourt metropolis?

Table 2: Mean and Standard Deviation of Responses of Teachers in Phalga and Obalga on Workshop Equipment Available for the Teaching of Craftwork in Basic Technology

N= 270

S/ N	Item description	Phalga			Obalga			Gran			Decision
		N ₁	X ₁	SD ₁	N ₂	X ₂	SD ₂	N	X _g	SD _g	
1	Hand tools (screwdrivers, hammer, saw)	108	2.60	1.07	162	2.58	0.94	270	2.60	1.01	Great extent
2	Machines (circular, saw, surface planner)	108	1.48	0.90	162	1.30	0.62	270	1.40	0.76	Low extent
3	Snips/shears	108	1.34	0.50	162	1.31	0.53	270	1.33	0.55	Low extent
4	Measuring Tape	108	2.71	1.01	162	2.66	1.10	270	2.69	1.06	Great extent
5	Outside and Inside Caliper	108	1.36	0.68	162	1.24	0.43	270	1.30	0.56	Low extent
6	Layout table	108	1.12	0.38	162	1.31	0.48	270	1.22	0.43	Low extent
Cluster Mean and standard deviation								1.76	0.73	Low extent	

Source: Rivers State universal basic education board (RSUBEB) 2023

Analysis of data as presented in table shows the man responses of teachers in Phalga and Obalga on the extent of workshop equipments available for the teaching of craftwork in Basic Technology in Public Junior Secondary Schools in Port Harcourt metropolis with their corresponding standard deviation.

Data presented in table above revealed that the respondents agreed on terms 1 and 4 respectively with mean scores of 2.60 and 2.69 while the respondents disagree with items 2, 3, 5 and 6 with a total mean value of 1.40, 1.33, 1.30 and 1.22 respectively.

Hypotheses 1

There is no significant difference in the mean rating of teachers from Phalga and Obalga on the extent of availability of workshop for the teaching of craftwork in Basic Technology in Public Junior Secondary Schools in Port Harcourt metropolis.

Table 3: t-test Analysis of the Responses of Teachers in Phalga and Obalga on the Extent of Availability of Workshop for the Teaching of Craftwork in Basic Technology in Public Junior Secondary Schools.

Respondent	N	Mean	Std. Dev	Std. Error Mean	df	T	Sig	α -level	Remarks
Phalga teachers	108	8.11	1.997	.192	268	-2.678	0.026	0.05	Rejected
Obalga teachers	162	8.90	2.567	2.567					

No. of Phalga teachers = 108, No. of Obalga teachers = 162, X_1 = Mean of Phalga teachers, X_2 = mean of obalga teachers, $DF=268$, P -Value = 0.026

Table 3 is a t-test analysis of the responses of teachers in Phalga and Obalga on the extent of availability of workshop for the teaching of craftwork in Basic Technology in Public Junior Secondary Schools in Port Harcourt metropolis. The table showed that, $df = 268$, $t = 2.678$, $sig = 0.026$ is less than alpha value = 0.05. Since the sig value (0.026) is less than the alpha value (0.05), the result is significant hence, the null hypothesis is rejected. This means that there is significant differences in the mean ratings of teachers in Phalga and Obalga on the extent to which a workshop is available for the teaching of craftwork in basic technology in public junior secondary schools in Port Harcourt metropolis.

Hypothesis 2

There is no significant difference in the mean ratings of teachers from Phalga and Obalga on the extent of workshop equipment available for the teaching of craftwork in basic technology in public junior secondary schools in Port Harcourt metropolis.

Table 4: t-test Analysis of the Responses of Teachers in Phalga and Obalga on the Extent of Availability of Workshop Equipment for the Teaching of Craftwork in Basic Technology in Public Junior Secondary Schools.

Respondent	N	Mean	Std. Dev	Std. Error Mean	df	T	Sig	α -level	Remarks
Phalga teachers	108	10.62	2.379	.229	268	.730	.961	0.05	Accepted
Obalga teachers	162	10.41	2.329	.183					

No. of Phalga teachers = 108, No. of Obalga teachers = 162, X_1 = Mean of Phalga teachers, X_2 = mean of obalga teachers, $DF=268$, P -Value = .961

Table 4 is a t-test analysis of the responses of teachers in Phalga and Obalga in Port Harcourt metropolis. The table shows that $df = 268$, $t = .730$, $sig = .961$ and alpha value = 0.05. Since the sig value (.961) is greater the alpha value (0.05), the result is not significant hence, the null hypotheses is accepted. This means that there is no significant difference in the mean ratings of workshop equipment available for the teaching of craftwork in basic technology in public junior secondary schools in Port Harcourt metropolis.

Discussion

Result from table 1 above shows the mean score rating of respondent on the availability of workshop in the teaching of craftwork in Basic technology in public junior secondary schools in Port Harcourt metropolis, Rivers State. The result showed that responses was of low extent on the utilization and availability of workshop and equipment for teaching craft work while one item out of six indicated very great extent (VGE) item with a mean score rating of 2.52 and a t-test analysis of $df = 268$, $t=2.678$, $sig=0.026$ which is less than alpha vale =0.05. This shows lack of availability of workshop for effective teaching of craft work. The findings agree with the findings of Erickson (2016), who reported that poor infrastructural facilities and ill-equipped laboratories and workshops for technological and scientific studies in our school will lead to poor output. Also Mandah (2026) noted that the destiny of an individual/nation is determined by its level of commitment to quality of instructional resource available for teaching and learning. This simply confirms the statement of "gargabe in garbage out" (GIGO). The input equals the output. One of the implication here is a decrease in student's interest in science subjects due to lack of conducive space and equipment.

Also from our second research question, the result upholds Akariwor (2005), that opined that for effective dissimilation of knowledge there should not exist any gap from a structured pattern of learning and necessary gadgets, tools and apparatus. Dike (2016) also asserted that evaluation of student's performance on practical subjects should be carried out looking at all areas that should be explored in the curriculum. One major implication here is that the subject will not be taught well by teacher due to lack of sufficient equipment.

Result of table 2 reviewed that respondents agreed on two items with a mean scores of 2.60 and 2.69 and a t-test analysis of $df=268$, $t=.73$, $sig=0.961$ which is greater than alpha value of 0.05. This shows that there are available workshop equipment for effective teaching of craft work.

Conclusion

From the result of the study, the following conclusions were made. Firstly, there is significant difference in the mean ratings of teachers in Phalga and Obalga on the extent to which workshop is available for the teaching of craftwork in basic technology in public junior secondary schools in Port Harcourt metropolis. Secondly, there is no significant difference in the mean ratings of workshop equipment available for the teaching of craftwork in basic technology in public junior secondary schools in Port Harcourt metropolis, Rivers State.

Recommendations

For effective teaching of a vocational subject like basic technology, the following recommendations were made.

- (1) The government should ensure workshops are built in junior secondary schools through its intervention fund to enhance effective teaching of basic technology in our public schools
- (2) The government should ensure the workshops are well equipped to improve student's technical skills at the junior secondary level.
- (3) The government, private bodies, NGOs, should help in equipping schools with information and communication technology gadgets to also improve the student's technical skills.

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