
Status of Workshop Facilities in Technical Colleges in Rivers State

By

AMADIKE OKECHUKWU, Ph.D

*Department of Industrial Technology Education,
Michael Okpara University of Agriculture, Umudike,
Umuahia, Abia State.*

and

VINCENT I. A AGWI

*Department of Science and Technical Education,
Rivers State University of Science and Technology,
Port Harcourt.*

Abstract

The study was conducted to investigate the status of workshop facilities in technical colleges in Rivers State. A descriptive survey design was adopted. Three research questions and three null hypothesis were formulated to guide the study. A 28-item questionnaire using a four point scale was developed and used in the study, and was validated by two experts. Data were collected from forty male and twenty female teachers randomly sampled and stratified along teachers in four government owned technical colleges in Rivers State. The finding of this study revealed among other things, that training workshops are not conducive for teaching and learning; tools and equipment in these workshops are obsolete. Equipment are not maintained until they breakdown; there are no workshop attendants to take care of tools and equipment in the workshops; preventive maintenance of tools/equipment in the workshops is not regular. Useful suggestions were made based on the findings.

Technical college is an organized school where specialized type of education aimed at providing skills and knowledge required for employment in an occupation is conducted. One of the major aims of technical education as a programme offered in technical colleges is the acquisition of appropriate skills for the individual to live and contribute to the development of the society (Federal Republic of Nigeria, 2004). To achieve this, it therefore, means that an individual will pass through a formal training programme in any of the technical colleges where technical trade related programmes in welding, electrical works, building, radio and television, mechanical, maintenance

work; mechanical craft practice and pipefitting are offered. Technical training institutions like the technical college normally admit students who are willing to pursue technical oriented programmes. The technical college programme is of three years duration for the pre-vocational training. This precedes another three years vocational training (Nwanoruo, 2012). The type of training to be given to students at the first and second three years of their programme that will enable them acquire appropriate skill for self employment can only be achieved in an environment where there are adequate facilities for teaching and learning.

According to Udofia and Udo (2011), educational facilities include technical workshops which include automobile, mechanical, metal, wood, building, electrical and electronics units which are set for professionally qualified technical teachers and other technical personnel to exhibit their technical know-how and for the learners to acquaint themselves with the facilities available, and as well as imbibing the required skills, like the theatre for medical professionals, practising farm of agriculturists, laboratories for scientists. Kalat (2010) stated that educational facilities in technical colleges are the material things that facilitates teaching and learning in the technical colleges. Hassan and Hassan (2010) stressed the importance of educational facilities; they said that educational facilities are those goods and services that help to facilitate teaching and learning process in educational set up. Kpanep (2011), posited that quality technical/vocational educational facilities assures student learners competency in practical knowledge, skill and mastery of their chosen career which finally will translate into technological education development.

Castali (2013) defined educational facilities as the infrastructural facilities like workshops, laboratories, studios, equipment, machines, tools, consumable materials, instructional materials, etc. which enable a skillful teacher to achieve a level of instructional effectiveness. These facilities are materials and services that help to facilitate teaching and learning in a school system. Educational facilities are the operational input of every instructional programme. The source of any instructional activities are a function of the availability of the necessary educational facilities. It is a well known fact that there is no way a technological teacher can teach effectively the practical aspect of a technical subject when there is no functional required tools, machine or equipment. Puyate (2013) stated that the availability and effective use of educational facilities for training or instruction in any technical college enhance the vital process of skill acquisition, which will in turn empower its beneficiary to be productive and contribute to the national development. Hassan and Hassan (2010) also stated that for achievement to be made by students, the quality of education that the students will receive is directly related to the availability or lack of physical facilities and overall atmosphere in which the learning will take place. Ogbonaya and Okoli (2014) maintained that the main thought of technical/vocational education training is to develop skills in the learners. Skills that are practical in nature. The acquisition of relevant skills

of constructing, designing and repair can only be acquired in a well functional workshop stocked with relevant equipment and facilities.

The type of training to be given to students in the technical training institutions cannot survive without workshop tools and equipment (McCarthy, Jones & Smith, 2012). Fafunwa (1996) argued that one major setback in the teaching of technical subjects in many technical colleges is the lack of training facilities. As it is the case in some technical colleges, workshop building hardly exist let alone the materials for the workshop. Adewumi (2010) said the same thing when he visited some technical colleges and found that many of them were without workshops; where there were workshops the equipment was not installed for use in teaching and learning, when in actual fact, no technical education can be functional without an effective and efficient instructional facilities put in place, which should be utilized to actually inculcate the technology skills that are needed for maximum development.

From the foregoing therefore, it appears that theoretical research emphasis has always been placed on the state of technical workshop facilities in technical colleges, colleges of education and universities, but little or no empirical research study has been carried out on the status of technical workshop facilities in technical training institutions like technical colleges in Rivers State. This scenario seems to create a research-based knowledge gap which this present study will empirically fill.

Statement of the problem

One of the major aims of technical education is the acquisition of appropriate skills by individuals to live and as well contribute meaningfully to the development of the society. These aims can only be achieved in a conducive learning environment where training facilities are available. But carefully look at most of the technical colleges in Nigeria and Rivers State in particular, reveals that training given to students are not adequate enough as to help them acquire better skills due to lack of modern facilities, and consequently acquire poor skills. This poor skill acquisition is evident in poor performance of students in the industries when they are employed to work. This observed poor students after their graduation in the industries is the core problem of this study; hence the importance of the quality of training given to these students raised some doubts about the status of workshops facilities such as:

1. To what extent is the condition of the workshops in the technical colleges conducive for learning?
2. Are the tools/equipment in the technical colleges workshops adequate for teaching and learning?
3. Are the tools/equipment in the technical colleges workshop maintained regularly?

Purpose of the Study

The main purpose of this study was to investigate the status of technical workshop facilities in technical colleges in Rivers State. Specifically, the study was set to;

1. find out the extent of the condition of the workshops in the technical training institution if they are conducive for teaching and learning;
2. find out the extent of tools/equipment in the technical training institutions are adequate for teaching and learning;
3. find out if the tools/equipment in the technical training institutions workshop are maintained regularly.

Research questions

The following research questions were formulated to guide the study;

1. To what extent is the condition of the workshops in the technical training institutions conducive for teaching and learning?
2. Are the tools/equipment in the technical training institutions workshops adequate for teaching and learning?
3. Are the tools/equipment in the technical training institutions workshops maintained regularly?

Hypothesis

The following hypothesis were generated and tested at 0.05% level of significance:

H₀₁: There is no significant difference between the mean responses of male and female teachers on the extent of the condition of the workshops in the technical colleges.

H₀₂: There is no significant difference between the mean responses of male and female teachers on the extent of the adequacy of the tools/equipment in the technical college workshops :

H₀₃: There is no significant difference between the mean responses of male and female teachers on how regular the tools/equipment in the technical college workshops are maintained.

Methodology

The study adopted a descriptive survey research design aimed at finding out the feelings of teachers about the status of workshop facilities and those strategies that can be adopted as to improve the status of workshop facilities for effective teaching/learning process. Status of workshop facilities and strategies of improving the standard of workshop facilities was a self-structured research instrument used in collecting data for the study. The instrument was classified into three (3) sections, namely, condition of the workshops in the technical college, how adequate the tools/equipment in the technical college workshop are and how regular are the tools/equipment in the

technical training institution is maintained. The instrument was based on the Likert type of scale. Items were constructed to elicit information from respondents on the extent of the condition of the workshop, adequacy of tools/equipment in the workshops and regular maintenance culture of tools/equipment in the technical college workshop.

The four point scale has four response categories as; Very High Extent (4), High Extent (3), Low Extent (2), and Very Low Extent (1). The total scores on the extent of the condition of the workshop, adequacy of tools/equipment and regular maintenance of tools/equipment was determined by adding the index of the scale.

The research instrument was validated by three experts in science and technical education department and two experts in measurement and evaluation department from Rivers State University of Science and Technology, Nkpolu-Orowurukwo, Port Harcourt. Pilot test was done to test the reliability of the research instrument. The reliability yielded 0.80 using the Crumbach coefficient Alpha method.

The targeted population of this study consists of one hundred and thirty technical teachers of the four government owned technical colleges in Rivers State namely, Government Technical College Ahoada, Government Technical College, Tombia, Government Technical College, Ele-Ogu and Government Technical College, Port Harcourt. The sample consists of sixty teachers (forty male and twenty female). The institutions were constituted by the purposive sampling technique. Stratified random sampling method was used to select technical education teachers from the technical colleges, who participated as respondents in the study. Mean score were extracted and used to answer research questions and t-test analysis were used to test the three hypothesis at 0.05 level of significance.

Results

The following tables show the summary of the analysis of data in relation to each of the research question.

Research question 1

How is the condition of the workshops in the technical training institutions? The data generated to answer this research question are presented in Table 1.

Table 1: Teachers’ response on the condition of the workshops in the technical Training institutions.

S/N	Statements	X	S.D	Decision
1.	Workshop in your school are conducive for teaching and Learning	2.02	0.26	D
2.	Store rooms in your school workshops are of good size.	2.62	0.33	A
3.	There are enough ventilation points in your school workshop	2.70	0.35	A
4.	The lighting system in your school workshops is good	2.02	0.26	D
5.	The size of your school workshop is sufficiently large to accommodate equipment and students	2.83	0.37	A
6.	Sheaves for tools in your school workshops are located in a suitable position	2.65	0.34	A
7.	Fire escapes and exist in your school workshops are properly positioned for easy assess	1.77	0.23	D
8.	Workshops units hi your school have adequate supply and distribution of water	1.42	0.18	D
9.	The roof and floor of your school workshops are all in Good condition	2.15	0.28	D
10	There are good offices for instructors in your school workshops	1.97	0.25	D

Cut-off = 2.50 N = 60

X = Mean, SD= Standard Deviation, N = Sample Size

Table 2 shows the rating of the respondents on the condition of the workshops in the technical training institutions. It can be seen from the table that the mean ranged from 1.42 to 2.83. The means of four of the responses were above 2.50 which indicates positive response while the means of six that had to do with condition of workshops, lighting system in the workshops, position of fire escapes and exit in the workshop, supply of water in the workshops, condition of roof and floor of the workshops and conditions of offices for the instructors were below 2.50 which indicate negative response.

Research question 2

How adequate are the tools/equipment in the technical training institution workshops? The data generated to answer this question are presented in Table 2.

Status of Workshop Facilities in Technical Colleges in Rivers State

Table 2: Teachers' responses on how adequate the tools/equipment in the technical training institution workshop are.

S/N	Statements	X	S.D	Decision
11.	There are enough tools/equipment in your school workshop	1.85	0.23	D
12.	Workshops tools/equipment in your school are obsolete	3.25	0.42	A
13.	All the tools/equipment in your school workshops are good for training purpose	1.85	0.24	D
14.	Workshop tools/equipment in your school are inadequate for the number of students	3.13	0.40	D
15.	Tools/equipment in your school are the types needed for teaching and learning	1.75	0.23	D
16.	Workshops tools/equipment in your school should be Replaced completely.	3.65	0.47	A
17.	Tools/equipment in your school workshops are bad for sequence of operations in the workshop.	3.12	0.40	A
Cut-off =		2.50,	N =	60

Table 3 shows the rating of the respondents on how adequate are the tools/equipment in the technical training institutions workshop. It can be seen that the mean ranged from 1.75 to 3.65. The means of four of the responses were above 2.50 which indicates positive response while the means of three that had to do with how adequate the tools/equipment in the workshops are were below 2.50 which indicates negative response.

Research question 3

How regular are the tools/equipment in the technical training institutions workshop maintained? The data generated to answer this research questions are presented in Table 3.

Table 3. Teachers' response on how regular are the tools/equipment in the technical training institutions workshop is maintained.

S/N	Statements	X	S.D	Decision
18.	Tools/equipment in your school workshops are normally cleaned regularly at the end of each period of use	3.23	0.42	A
19.	Lubrication of machine parts from time to time in your school workshops is regular	2.87	0.37	A
20.	Bolts of power equipment in your school workshops are normally replaced regularly when they are worn out	2.12	0.27	D
21.	Preventive maintenance of tools/equipment is regularly observed in your school workshops.	2.18	0.28	D
22.	Sharpening of cutting tools in your school workshops is regular	2.65	0.34	A
23.	Machines in your school workshops are normally tested For efficiency before use	1.97	0.25	D
24.	Tools in your school workshop are properly kept in the store room after use.	3.12	0.40	A
25.	Equipment in your school workshop are normally maintained when they breakdown	2.03	0.26	D
26.	Skilled personnel are used to maintain equipment in your school workshops	1.83	0.24	D
27.	Equipment in your school workshops are not normally Maintained until they breakdown	3.68	0.48	A
28	Your school have attendants in all the workshop	1.82	0.23	D
Cut-off = 2.50, N = 60				

Table 4 shows the rating of the respondents on how regular are the tools/equipment in the technical training institution workshops is maintained. It can be seen from the table that the mean ranged from 1.82 to 3.68. The means of five of the responses were above 2.50 which indicates positive response while the means of six that had to do with the maintenance of bolts of power equipment, machines, equipment, types of skilled personnel used to maintain equipment and availability of workshop attendants in the workshops were below 2.50 which indicates negative response.

Hypothesis 1

There is no significant difference between the mean responses of male and female teachers on the extent of the condition of the workshops in the technical colleges. The result is presented in table 4 below.

Status of Workshop Facilities in Technical Colleges in Rivers State

Table 4: Independent t-test analysis of mean responses of male and female teachers' response on the extent of the condition of the workshops in the technical colleges.

Respondent	N	X	SD	DF	t	Sig.	P	Decision
Male	40	22.95	4.67	58	0.32	0.75	0.05	HO ₁
Females		22.55	4.49					Accepted

(Field study, 2015) Note: $P < 0.05$, therefore, there is no significant difference.

Table 4 above indicates the mean and standard deviation of males (22.95 & 4.67) and females (22.55 & 4.49). The t-test result give a value of 0.32, df (58) with significant-value of 0.75 not significant at 2-tailed. Since the significant value of (0.75) for 2-tailed is greater than the chosen alpha of 0.05, the null hypothesis of no significant difference between the male and female teachers. Mean responses on the extent of condition of the workshops on technical colleges is therefore, accepted.

Hypothesis 2

There is no significant difference between the mean responses of male and female teachers' on the extent of the adequacy of the tools/equipment in the technical colleges workshops. The result is presented in table 5 below:

Table 5: Independent t-test analysis response on the extent of the adequacy of the tools/equipment in the technical colleges workshops.

Respondent	N	X	SD	DF	t	Sig.	P	Decision
Male	40	18.35	2.58	58	0.07	0.93	0.05	HO ₂
Females		18.40	2.61					Accepted

(Field Study, 2015) Note: $P < 0.05$, there is a significant difference.

Table 5 above indicates the mean and standard deviation of males (18.35 & 2.58) and females (18.40 & 2.61). The t-test result gave a t-value of -0.07, df (58) with significant-value of 0.93 not significant at 2-tailed. Since the significant value of (0.95) for 2-tailed is greater than the chosen alpha of 0.05, the null hypothesis of no significant difference between the male and female teachers mean responses on the extent of the adequacy of the tools/equipment in the technical college workshops is therefore, accepted.

Hypothesis 3

There is no significant difference between the mean responses of male and female teachers' on how regular the tools/equipment in the technical colleges workshop are maintained.

The result is presented in Table 6 below:

Table 6: Independent t-test analysis of mean responses of male and female teachers response on how regular the tools/equipment in the technical colleges workshop are maintained.

Respondent	N	X	SD	DF	t	Sig.	P	Decision
Male	40	20.85	4.42	58	0.04	0.96	0.05	H ₀
Females		20.80	2.89					Accepted

(Field Study, 2015) Note: $P < 0.05$, there is a significant difference.

Table 6 above indicates the mean and standard deviation of males (20.85 & 4.42) and females (20.80 & 2.89). The t-test result gave a t-value of 0.04, df (58) with significant-value of 0.96 not significant at 2-tailed. Since the significant-value of (0.96) for 2-tailed is greater than the chosen alpha of 0.05, the null hypothesis of no significant difference between the male and female teachers mean responses on how regular the tools/equipment in the technical colleges workshop are maintained is therefore, accepted.

Discussion of Findings

The findings of this study revealed that technical training institutions workshops are not conducive for teaching and learning. Technical training workshops are operating with obsolete tools and equipment. These should be overhauled while modern ones are to be procured, since they are facilities that can enable a skillful teacher to achieve a level of instructional effectiveness that far exceeds what is possible when they are not provided (Castali, 2013).

Lack of good offices for instructors in the training workshops is another problems that has affected the level of performance of instructors in these technical training institutions. This problem should be properly addressed so that the instructors in these technical training institutions will have good offices to stay and plan for their daily teaching task. These offices will equally help the teachers to exhibit their technical know-how (Udofia and Udo, 2011).

The finding of this study also revealed that the tools/equipment in these technical training institutions are bad for sequence of operations in the training workshops. Government should therefore as a matter of urgency completely replace the old tools and equipment in these workshops since the availability and effective use of

these tools/equipment for training or instruction in any technical college enhance the vital process of skill acquisition, which in turn empowers its beneficiary to be productive and contribute to the national development (Puyate, 2013).

Employment of qualified personnel to serve as attendants in all the workshops in these technical training institutions should be considered by the authorities of these institutions since these attendants will help to take care of the tools/equipment in the workshops which are the material things that will facilitate teaching and learning in these technical training institutions (Kalat, 2010).

An aspect of the result of this study reveals no significant difference between the male and female teachers' mean response on the extent of condition of the workshop in technical colleges in Rivers State. Again, the result of this study show no significant difference between male and female teachers mean responses on the extent of the adequacy of the tools/equipment in the technical college workshops. Finally, the result of this study also shows no significant difference between the male and female teachers mean responses on how regular the tools/equipment in the technical colleges workshop are maintained.

Conclusion

The achievement to be made by students and the quality of education that the students will receive is directly related to the availability or lack of physical facilities and overall atmosphere in which the learning will take place. Thus, government should give serious attention to the problem of provision of physical facilities in the technical training institutions because of the nature of the training that is to be given to the students that will enable them acquire useful skills for them to live and contribute to the development of the society after their training in the school.

Recommendations

Following the results of the study, the researchers made the following recommendations:

- Training workshops should be made conducive by providing things like water, light, benches and ceiling fans.
- Good offices should be made available for the instructors in the workshops
- Enough tools should be made available in the workshops for all the students to have access to them during training period in the workshops.
- Obsolete tools and equipment should be replaced with modern ones in these workshops.
- Bad tools and equipment in the workshops should be overhauled
- Lubrication of machine parts should be observed from time to time in the workshops
- Machines in the workshops should be tested for efficiency before use by instructors by the workshop attendants.

- Skilled personnel should be used to maintain equipment in the workshops
- Equipment in the workshops should not be allowed to break down before they are maintained.
- Workshop attendants should be engaged to take care of the tools and equipment in the workshop.

References

- Adewumi, A. (2010). Conducive classroom environment in Science, Technology and Mathematics (STM) education: Infrastructural facilities for effective teaching and learning. Paper presentation at the science teachers association of Nigeria (STAN) at Enugu, 27th August.
- Castali, B. (2013). *Educational facilities, planning, remodeling and management*. Boston: Allyn and Becon.
- Fafunwa, A.B. (1996). *New Perspective in African education*. London: Macmillan Education Ltd.
- Federal Republic of Nigeria (2004). *National Policy on Education, 4th edition*, Lagos Nigeria: Education Research and Development Council (NERDC).
- Hassan, M.M & Hassan, A.M (2010). Strategies for effective utilization and maintenance of physical facilities in technical schools. Proceeding of 20 NATT Annual Conference Kaduna.
- Kalat, I.K (2010). technical and vocational education facilities: A cause of concern in the education reform Agenda. Proceeding of 20th NATT Annual Conference Kaduna.
- Kpanep, F. (2011). Quality assurance in provision and utilization of vocational/technical education Facilities: A catalyst for sustainable TVET in Nigeria. *JONAT* 7(3) 112-113.
- McCarthy, WJ, Jones, E.A & Smith, S.F. (2012). *Machine tool technology*. Liniois: Mark Night Publishing Company.
- Nwanoruo, C.C. (2012). Developing and sustaining safety Consciousness among Students in technical Colleges in Imo State, *Journal of Advancement in Teaching* 1(1), 76-82.

Status of Workshop Facilities in Technical Colleges in Rivers State

Ogbonaya, T.C and Okoli, S.T. (2014). workshop equipment and facilities as critical factors for Sustainable Skill Acquisition through TVET in Nigeria. Retrieved September, 22nd 2015 from *www.transcampus.org/journals*.

Puyate, S.T. (2013). Survey of vocational education facilities in GOVERNMENT technical colleges in Rivers State. *The Journal of Nigeria Association of Teachers of Technology (NATT)* 4 (1), 175 -176.

Udofia, W.U. and Udo, LA. (2011). The State of technical workshop facilities and technical Education reform in Nigeria, proceeding of 20 natt annual conference Kaduna.