

**Utilization of Workshop Facilities for Skill Acquisition on Auto Mechanics Students in Technical
Colleges in Delta State**

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Abstract

This study examines the utilization of workshop facilities on skill acquisition of auto mechanics students in Technical Colleges in Delta State. Two research questions were raised to guide the study and one null hypothesis was formulated for the study. The descriptive survey design was employed for the study. The population of the study was 164 students of auto mechanic in Technical Colleges in Delta State. Due to the low number of the population, the entire population was used as the sample for the study. The instrument designed for this study was a questionnaire titled: Utilization of Workshop Facilities for Skill Acquisition of Auto Mechanic Students (UWFAAMS). The validation of the instrument was done by three research experts from Nnamdi Azikiwe University Awka. Pearson Product Moment Correlation Co-efficient known as Pearson r was used to determine the coefficient of reliability of the research instrument and a reliability coefficient of 0.89 was established. Mean and standard deviation were used to analyze the data for the study, while hypothesis was tested using Pearson Product Moment Correlation at 0.05 level of significance. The findings of the study showed that the available workshop facilities in auto mechanics in Technical Colleges in Delta State are not adequately utilized. The under-utilization of the workshop facilities in Technical College workshops has a significant influence on the skill acquisition of auto mechanic students in Technical Colleges in Delta State. The study recommended that government should improve the provision of consumable materials required for the utilization of workshop facilities in technical colleges, funds should be made available for periodic repair and maintenance of the available facilities in the Technical Colleges' workshops and well-meaning individuals as well as non-governmental organizations should partner with the government in the funding, provisions, and repairs of workshop facilities in Technical Colleges in Delta State.

Keyword: Utilization, Workshop Facilities and Skill Acquisition

Introduction

According to National Board for Technical Education (NBTE) (2013), a workshop is a place where technical activities are carried out. While facilities are buildings, equipment, and tools that are provided for the purpose of carrying out a specific task. Workshop facilities therefore, are the buildings tools, and equipment that are built and provided for the purpose of carrying out a specific task. There are different types of workshops. However, they are classified according to the activities being carried out inside the workshop. More so, it is this activity carry out inside the workshop that determines the facilities that are been or should be provided. An auto mechanics workshop is a workshop built with tools and equipment for the repair and maintenance of an auto mechanics. In Technical Colleges, these workshops are built, and tools and equipment are provided with the specific objective of teaching and equipping auto mechanics students with the skills required to function in auto mechanics as craft men and master craft men. Agbonghale and Adavbiele (2018) stated that the importance of workshop facilities in the achievement of the goals and objectives of Technical College programmes cannot be overemphasized, therefore a need for urgent intervention by appropriate authorities. This major objective of providing facilities cannot be achieved until the facilities are put to adequate use during teaching and learning process in technical colleges. It is therefore no gain saying that the effective teaching and learning of Technical College courses depend largely on the availability, adequacy and utilization of workshop facilities for instructional process.

Utilization of workshop facilities is the process in which the tools, equipment and appliances in the workshop are put into use during teaching and learning process. Nwandiani and Ugolo (2011) defined utilization of workshop facilities as the ability of the instructor and students to demonstrate with the tools and equipment in the workshop. Workshop facilities when effectively utilized by competent instructors, makes teaching and learning easier, interesting and rewarding. It gives students the

opportunity to demonstrate with the tools and equipment in the workshop. Although literature abounds on the use of various instructional strategies for the achievement of the curriculum objectives of auto mechanics technology courses, the use of workshop facilities and other instructional resources is also germane especially when the focus is on the practical acquisition of skills. Usman, Kareem and Akinpade (2020) also stated that the major objective of using workshop facilities for training of students is to expose them to current technological skills required in the world of work.

Skill can be defined as a physical or mental ability acquired through training or education to performed certain activity or task. Skills and knowledge are the driving forces of economic growth and social development. Appropriate skill development through effective training programme provides an opportunity for effective productivity and national development. Babayo and Abdul (2017) stated that one of the processes of skill acquisition in Technical Colleges is the use of workshop facilities in teaching learning process. It enables students to acquire the appropriate skills whether manipulative, cumulative or life skills. More so, Okotubu (2020) further revealed that effective utilization of workshop facilities increases the academic achievements of students and subsequently enhance the acquisition of appropriate skills. It offer students the opportunity for practical training in skill acquisition in their trade area. It is a known fact that the effective teaching and learning of auto mechanic technology courses depend greatly on the adequacy of human, material, and physical resources as well as the utilization of the available facilities for the instructional process. In other to achieve this goal, there is a need for the appropriate use of workshop facilities for the instructional process.

In line with this postulation, studies such as Agbonghale and Adavbiele (2018), Babayo and Abdul (2017), and Ogbu (2015) have revealed that some of the poor learning outcomes in auto mechanics courses in Technical Colleges were closely linked with non-availability and poor utilization of

workshop facilities and resources as well as the shortage of qualified auto mechanics technology instructors that can effectively use the workshop facilities for instruction. However, Okotubu (2022) affirmed the fact that workshop facilities are available in auto mechanic workshops in technical colleges. Therefore, could this poor learning outcome among auto mechanics students in Technical Colleges be caused by poor utilization of workshop facilities in auto mechanic workshops? This has necessitated the need for the study to investigate the level of utilization of the available workshop facilities in auto mechanics workshops in Technical Colleges in Delta State as well as the influence of utilization of workshop facilities on effective skill acquisition of auto mechanics technology students in Technical Colleges in Delta State. It is therefore the objective of this paper to investigate the influence of the utilization of workshop facilities on effective skill acquisition of automobile technology students in Technical Colleges in Delta States.

Purpose of the Study

The main purpose of this study was to find out the influence of the utilization of workshop facilities on skills acquisition of auto mechanics students in Technical Colleges in Delta State. Specifically, the study aimed at finding out:

1. The extent to which the available workshop facilities are effectively utilized for skill acquisition of auto mechanics students in Technical Colleges in Delta State.
2. The extent to which the available auto mechanics workshop facilities utilization influences the skill acquisition of auto mechanics students in Technical Colleges in Delta State.

Research Questions

The following research questions were raised to guide the study:

1. To what extent are the available workshop facilities in auto mechanics utilized for skill acquisition of

automobile technology students in Technical Colleges in Delta State?

2. To what extent does the utilization of the available auto mechanics workshop facilities influence the acquisition of skills in auto mechanics technology students in Technical Colleges in Delta State?

Hypothesis

The null hypothesis was formulated and tested at 0.05 level of significance.

There is no significant relationship between the extent of utilization of workshop facilities and skill acquisition of auto mechanics students in Technical Colleges in Delta State.

Method

The study employed a descriptive survey. The populations of the study consist of 164 Automobile Technology students of Technical Colleges in Delta State. The researchers used the total population as a sample for the study. The entire 164 students of the auto mechanic option of Technical Colleges in Delta State were used. Due to small number of the population, no sampling technique was required. The instrument designed for this study was a questionnaire titled: Utilization of Workshop Facilities for Skill Acquisition of Auto Mechanic Students (UWFSAAAMS). The questionnaire was divided into two sections. Section A contains the demographic variables while section B comprises of the questionnaire items. The research instrument was subjected to thorough scrutiny by three research experts. Suggestions from them were incorporated in the final draft of the instrument to ensure its content validity. The test re-test method was used to determine the reliability of the instrument. The instrument was administered to twenty students who were not part of the study and after two weeks intervals, the instrument was also re-administered to the same group of students. Data collected were analyzed using Pearson Product Moment Correlation Co-efficient known as Pearson r and the reliability co-efficient of 0.89 was obtained. The questionnaire was distributed to there spondents by the researchers with the assistance of a trained research assistant. This was done after the introduction of self and the purpose of

the research. All completed copies of the questionnaire were collected on the spot to enhance the process of instrument recovery. The whole exercise lasted for four weeks. The data for this study were analyzed using mean and standard deviation for the research questions, while the hypotheses were tested using Pearson Product Moment Correlation at 0.05 level of significance. Variable with a mean response of 2.50 and above was perceived as a positive influence, while the variable with less than a mean response of 2.50 was perceived as a negative influence. The hypothesis was also accepted at p-value of .000. Testing at an alpha level of 0.05 level of significance.

Presentation of Result

In answering the research questions, the mean (\bar{X}) of 2.50 was regarded as the benchmark. Hence, any response equal to or greater than the mean (\bar{X}) of 2.50 was regarded as High Utilized or agreed, and any response with a mean (\bar{X}) of less than 2.50 was regarded as Not Utilized or disagreed. The hypotheses were tested at 0.05 level of significance.

Research Question One

To what extent are the available workshop facilities in auto mechanic utilized for skill acquisition of auto mechanic students in Technical Colleges in Delta State?

Table 1: Mean rating of the extent of available workshop facilities in auto mechanic utilized for skill acquisition of auto mechanics students in Technical Colleges in Delta State.

S/N	Tools/Equipment	Mean (\bar{X})	SD	Decision
1.	Complete set of Tools Box	2.27	1.097	Not Utilized
2.	Ball Pein Hammer	2.22	.991	Not Utilized
3.	Hacksaws with Extra Blades	2.51	1.018	Highly Utilized
4.	Socket Spanners sets, with extension	2.30	1.137	Not Utilized
5.	Flat Spanners (Long and Short)	2.09	.983	Not Utilized
6.	Ring Spanners (6 -32mm)	2.12	1.073	Not Utilized
7.	Energy Stone/Block Cloth	2.07	1.046	Not Utilized
8.	Spanners	2.26	1.072	Not Utilized
9.	Magnets Spanners	2.29	1.045	Not Utilized
10.	Oil Cans	2.38	1.030	Not Utilized

11.	Feeler Gauges	2.25	1.041	Not Utilized
12.	Allen Keys	2.82	1.047	Highly Utilized
13.	Grease Guns	2.57	1.052	Highly Utilized
14.	Spark Plug Files	1.97	1.036	Not Utilized
15.	Combination Pliers	2.20	.996	Not Utilized
16.	Longnose Pliers	2.26	1.138	Not Utilized
17.	Wire Cutter	2.11	1.074	Not Utilized
18.	Tyre Pressure Gauges	2.77	1.083	Highly Utilized
19.	Electric Hand Drill	2.40	.964	Not Utilized
20.	Drill Bits	2.71	.820	Highly Utilized
21.	Set of Stock and Dies	2.32	1.124	Not Utilized
22.	Taps and Wrenches	2.24	1.020	Not Utilized
23.	Thread file	2.35	.977	Not Utilized
24.	Roller type Thread Restorer	2.10	1.089	Not Utilized
25.	Screw (Stud) Extractor Set	2.53	.868	Highly Utilized
26.	Vernier Caliper	2.35	1.139	Not Utilized
27.	Hand Gloves/Apron	2.15	1.048	Not Utilized
28.	Surface Plates	1.77	.809	Not Utilized
29.	Vee Blocks	2.56	1.092	Highly Utilized
30.	Micrometer Internal & External	2.59	1.112	Highly Utilized
31.	Dial Gauge Indicator	1.96	.978	Not Utilized
32.	Grinding Machines	2.12	1.030	Not Utilized
33.	Workshop surface Gauges	1.90	.931	Not Utilized
34.	Valve Grinding Machine	1.98	1.085	Not Utilized
35.	Soldering Iron	1.90	1.043	Not Utilized
36.	Compressor (3 Phase Motor)	2.28	.937	Not Utilized
37.	Wheel Balance (Rim 13-15)	2.13	1.170	Not Utilized
38.	Portable Tire Inflator	2.13	1.024	Not Utilized
39.	Weld Master Vulcanizer	2.48	1.018	Not Utilized
40.	Steam Cleaner (Complete set)	2.62	1.018	Highly Utilized
41.	High-Pressure Washer	2.42	.966	Not Utilized
42.	Tire Changer (Complete set)	2.21	1.090	Not Utilized
43.	Various Sizes of Wheel Braces	2.15	.874	Not Utilized
44.	Tyre Repair Kit	2.06	1.019	Not Utilized
45.	Pipe Wrench, Clamp or Vice	2.20	.892	Not Utilized
46.	Wheel Alignment Gauge	2.24	1.067	Not Utilized
47.	Clutch Alignment Gauge	2.19	1.054	Not Utilized
48.	Adjustable Wrench	2.32	1.073	Not Utilized
49.	Injector Repair Machine	2.27	1.070	Not Utilized
50.	Injector Needle Service Kit	2.13	1.054	Not Utilized
51.	Spark Plug Tester	1.92	1.124	Not Utilized
52.	Workbench with Vices	2.30	1.110	Not Utilized
53.	Portable Engine Hoist	1.99	1.172	Not Utilized
54.	Diesel Engine Phasing	2.02	1.033	Not Utilized
55.	Electrical Test Bench	2.02	1.068	Not Utilized
56.	Cylinder Boring Machine	2.17	1.049	Not Utilized

57.	Honing Machine	2.12	1.047	Not Utilized
58.	Bottle Jack (Hydraulic)	2.46	.999	Not Utilized
59.	Trolley Jacks	2.20	1.069	Not Utilized
60.	Armature Growler	1.98	1.054	Not Utilized
61.	Hydraulic Nipple forming Tool	1.96	.871	Not Utilized
62.	Coil Spring Compressor	2.39	1.048	Not Utilized
63.	Torgue Wrench Pre-set Type	2.28	.890	Not Utilized
64.	Torgue Wrench Dial Type	1.76	.971	Not Utilized
65.	Carburetor Service Kit	2.02	1.118	Not Utilized
66.	Piston Ring Compressor	2.09	1.006	Not Utilized
67.	Axle Stand	2.51	1.105	Highly Utilized
68.	Diagnostic Testing Machine	1.94	1.007	Not Utilized
69.	Fire Extinguisher	2.43	1.147	Not Utilized
70.	Sand Buckets	1.91	1.080	Not Utilized
71.	Water Buckets	2.57	1.135	Highly Utilized
72.	First Aid Box	2.70	1.022	Highly Utilized
73.	Camshaft Grinding Machine	2.29	1.074	Not Utilized

Table 1 showed that the respondents rejected items 1-11, 14-17, 19, 21-24, 26-28, 31-39, 41-66, and 68-69 because the mean (\bar{X}) was below 2.50 which was used as the benchmark with the exception of items 3, 12, 13, 18, 20, 25, 29, 30, 40, 67, 71 and 72 were accepted because the mean (\bar{X}) was above 2.50. This implies that the tools/equipment are not utilized.

Research Question Two

To what extent does the utilization of the available auto mechanic workshop facilities influence the acquisition of skills of auto mechanic students in technical Colleges in Delta State?

Table 2: Mean rating of the extent of utilization of the available auto mechanic workshop facilities on the acquisition of skill of auto mechanic students in Technical Colleges in Delta State

S/N	Statement	Mean (\bar{X})	SD	Decision
1.	The level of utilization of workshop tools/equipment influences the skills acquisition of auto mechanics students	2.86	.913	Agreed

Table 2 showed that the respondents accepted all the items because the mean (\bar{X}) was above 2.50 used as the benchmark. It showed that the level of utilization of workshop tools/equipment influences the skills acquisition of auto mechanics students.

Hypothesis

There is no significant difference between the utilization of workshop facilities and the skill acquisition of auto mechanic students in technical Colleges in Delta State.

Table 3: Pearson Product Moment Correlation between the utilization of workshop facilities and skill acquisition of auto mechanic students in Technical Colleges in Delta State

Variables	N	Pearson (r)	Sig (p-value)	Decision
Utilization	164	-.414	.000	Rejected
Skill Acquisition	164			

Table 3 showed the Pearson Product Moment Correlation between the utilization of workshop facilities and skill acquisition of auto mechanic students in Technical Colleges in Delta State. It showed a correlation value (r) = -.414 and a p-value of .000. Testing at an alpha level of .05 the p-value is less than the alpha level. Therefore, the null hypothesis is rejected. This means that there is a significant difference between the utilization of workshop facilities and skill acquisition of auto mechanic students in Technical Colleges in Delta State.

Discussion of Findings

The finding from research question one as shown in table 1 revealed that auto mechanic workshop facilities in Technical Colleges in Delta State are not adequately utilized. This is because 61 items out of 73 items, had their mean (\bar{X}) below 2.50 which implies that the tools/equipment are not utilized. This finding is in line with the finding of Ogbu (2015), Babayo and Abdul (2017), and Agbonghale and

Adavbiele (2018) who revealed that some of the poor learning outcomes in automobile technology courses in technical colleges were closely linked with poor utilization of workshop facilities for instruction.

The finding also revealed that the level of utilization of workshop tools/equipment influences the skill acquisitions of auto mechanics students in Technical Colleges. This is evident in the fact that research question 2 as shown in table 2 revealed that all 164 respondents accepted all the items because the mean (\bar{X}) was above 2.50 which used as the benchmark. This finding is in line with that of Usman, Kareem and Akinpade (2020) and Okotubu (2022) who affirmed that the level of utilization of workshop tools/equipment influences the skill acquisitions of auto mechanics students in technical colleges.

Conclusion

To produce Technical College graduates that can be gainfully employed, effective skill training through the effective utilization of workshop facilities is imperative. These facilities must be adequately utilized for the technical college programs as stipulated in the curriculum. Adequate and effective utilization of workshop facilities can promote students' interest, increase students' active participation in auto mechanics workshops and enhance skills acquisition that will enable graduates of technical colleges to be employable in the world of work.

Recommendation

Based on the findings, the study therefore recommends as follows:

1. Government should improve the provision of consumable materials required for the utilization of workshop facilities in technical colleges.
2. Funds should be made available for periodic repair and maintenance of the available facilities in the technical colleges' workshops.

3. Well-meaning individuals as well as non-governmental organizations should partner with the government in the funding, provisions and repairs of workshop facilities in technical colleges in Delta State.

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