TOOLS AND EQUIPMENTS AS A MEANS OF ENHANCING PRACTICAL SKILL ACQUISITION IN AUTOMOBILE WORKSHOP IN NIGERIAN SECONDARY SCHOOLS AND TECHNICAL COLLEGES.

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Abstract

Automobile technology as a trade in Nigerian secondary schools and technical colleges, requires good modern tools and equipment to enhance practical skills . Graduate from either secondary schools or technical colleges lack good working skills that assist them perform their jobs. The study examined availability of modern tools and equipment in schools Automobile workshops, if tools and equipment in the workshops are functional etc,

 Data for the study was collected using questionnaire. The questionnaire contains twenty seven (27) items that the students responded to. Data was analysed using mean and t-test calculation, according to the research questions and hypothesis formulated,
Findings made were:

Many automobile workshop in Nigerian secondary schools and technical colleges lack tools and equipments. Tools and equipment are not functional when operated etc,

Based on the findings , the following recommendations were made to enhance practical skill acquisition in Automobile workshops. Government should assist schools by building ultra modern workshop in secondary schools and technical colleges. Ministry of education, examining bodies should inspect the functionality of tools and equipments in workshops etc.

Key words

Introduction, statement of problem, research questions, hypothesis, data analysis, discussion of findings, recomendations, reference.

Introduction

Automobile technology as a trade in Nigeria secondary schools and technical colleges is designed to equip every Nigerian student that offers the trade as a subject at the secondary school or technical college level with modern Automobile skills after graduation from school. Itedjere (2005), stated that one of the primary aims of the new national policy of education called 6-3-3-4 system, now (9-3-4) that was designed by the Federal Government in 1981 was to equip every Nigerian child with basic skills that will enhance them for the purpose of technological development and advancment in Nigeria. Comparing this to other developed countries like United state of America, Germany, Switzerland, China, Britain and South Korea. It will be observe that Nigeria as a country could not achieve the goals and objective of which the 6-3-3-4 system of education was designed for. Federal Government in its own wisdom, came up with a new policy on education termed (UBE) meaning Universal Basic Education that started since 2000. The purpose was to ensure that every Nigerian child after Secondary School or Technical College education, must learn and acquire skills in one trade to help equip them for job opportunity in industries or self employment.

The acquisition of good skills, after secondary school or technical college education in Automobile trade, will be achieved in a good and well established workshop, that has good working tools and equipment. A workshop is a generic term that describes any building, room or area dedicated to the small scale manufacturer or repairs of products (New Universal Library 1969). The New Oxford Advance Learner Dictionary (2005), defined a workshop as a room or where jobs take place. Tools in a workshop are handy objects that are used in carrying out practical jobs (Dolan 1971) . Crous and Anglin (1993), described tools as object that the hand supplies energy to,to be able to perform a job during usage. Hornby (2004),define tools as instrument that is handled by hand to carry out a job in a workshop. Good tools easy job performance in a workshop. Example of tools used in an Automobile workshop are spanner, screw driver, hammer, ring compressor, Allen keys, axle stand etc(Crous and Anglin 1993). Tools are also powered using electricity. Fadayomi (2009), described power tools as light machines that are power driven, they do not require fixing them to the floor of the workshop.

Workshop equipment is different from hand tools or power portable tools. Ayangbesan (2004), described workshop equipment as machine, because of their characteristics. According to him, "equipment are used to perform jobs or detect fault in Automobile workshop". Crous and Anglin (1993) listed some of the equipment found in a good ultra modern Automobile workshop. Example are dial indicator, bench grand pneumatic and lift, vacuum cleaner, spray washer, drill press, spray machine, cutting lathe, etc.

From all the explanation about workshop, tools and equipment, it can be conluded that good skills can only be acquired when a workshop is well equipped with good modern tools and equipment.

Statement of Problem

A well designed, equipped and established Automobile workshop is expected to equip students with good practical skills, after graduation from the secondary school or technical colleges. Students trained in a well established and equipped Automobile workshop are expected to demonstrate the problem solving skills, after graduation from school, by being able to diagnose fault in modern vehicles, finding solutions to problems discovered in vehicles.

Many secondary school and technical college graduates lacks problem solving skills because they do not possess good quality skills, that will enable them carry out repairs in the workshop. The poor skills demonstrated by students after graduation could be caused by the poor tools and equipment, none availability of tools and equipment in the workshop etc.

Research question

Answers were provided to the following research questions.

1. Are there tools and equipment in Nigerian secondary schools and technical college Automobile workshop?
2. Are the existing tools and equipment found in most Nigerian Secondary schools and technical college Automobile workshop functional?
3. Do teachers use some of these available tools and equipment to teach students during workshop practice?

Hypothesis

Three hypotheses were formulated to guide the study.

HO$_1$: There is no significant difference between availability of tools, equipment in the workshop and students skills acquisition.

HO$_2$:   There is no significant difference between tools, equipment functionality in the workshop and students skills acquisition.

HO$_3$: There is not significant difference between the usage of tools, equipment to teach students and students skills acquisition.

Population of The Study

All the senior students in the two secondary schools and two technical colleges , where Automobile trade was taught as a subject was used for the study.

Sample

The sample size of the study was selected by applying random sampling technique. Students were selected from the three classes of the secondary school (SSI-SSIII), and the three classes of technical colleges (VOCI-VOCIII). Twenty (20) students was selected from each school making a total sample size of eighty (80) students that was used for the study. The four selected schools are Delta State University Secondary School, Abraka (DSS), Federal Government College Warri (FGC), Sapele Technical College Sapele (STC), Ogor Technical College Ogor Ughelli all in Delta State Nigeria.

Instrument

Three different check lists were designed as instrument for data collection. Each of the check list contain ten (10) items that was drafted, except for research question II that contain seven (7) items. A total number of twenty seven (27) items were drafted based on the research questions and hypotheses.

The instrument was validated by two experts drawn from the Department of Vocational and Technical Education and Department of Mathematics Education all in Delta State University Abraka in Nigeria.

A reliability test for internal constituency was conducted using person moment correlation formular that gave a coefficient of 0.80. this shows that the instrument was reliable for the study.

Method of Data Collection

The instrument was administered to the students directly in their classrooms through the assistant of the class teacher, twenty (20) copies of the instrument was administered in each of the selected schools, given a total of eighty (80) copies of the questionnaire that was administered to the respondents in the four schools used for the study. The questionnaire was retrieved from the student immediatly, the return after the exercise was 100%. Data collected was analyzed using mean and t-test analysis. Based on the research questions and hypothesis stated.

Data Analysis

Data collected was analysed based on each research question and hypothesis shown in tables.

Research question I

Are there tools and equipment in Nigerian Secondary Schools and technical colleges Automobile workshop?

Table I:

Table showing raw data of respondents in research question I.

Item	1	2	3	4	5	6	7	8	9	10	Total
A	51	56	58	58	60	64	65	46	54	67	579

| D | 29 | 24 | 22 | 22 | 20 | 16 | 15 | 34 | 26 | 13 | 221 |

Key note

A = number of respondent Agreed

D = number of respondent Disagreed

Table II

Table Showing Group Statistics Mean Response of Respondents in Research Question I

Group	N	Mean	SD	std error mean
Agreed	10	57.9000	6.52261	2.06263
Disagreed	10	22.1000	6.52261	2.06263

From the table II above, it shows that the mean response of Agreed (57.9000) is higher than the mean response of Disagreed (22.1000). Therefore, there is a significant difference between students that agreed that there are no tools and equipment in their schools Automobile workshop and those that disagreed.

Hypothesis I (HO$_1$)

In testing hypothesis I the t-test analysis was used to determine the level of significant difference at 0.05 significant level shown in the table below.

Table III: Summary Table of t-test Analysis of hypothesis I.

Group	N	Mean	SD	Dt	t-crit	t-cal	Decision
Agreed	10	57.9000	6.52261	18	2.101	12.27	HO$_1$
Disagreed 2	10	22.1000	6.52261	2.063			Rejected

From the table III above, t-crit (2.101<t-cal (12.27). based on t-cal (12.27) the hypothesis I is rejected. Therefore there is a significant difference between availability of tools and equipment in the Automobile workshop and student skill acquisition. Meaning none availability of tools and equipment in secondary schools and technical college Automobile workshop have a negative effect on students performance, that makes them not to acquire good skills that will assist then in their jobs after graduation from school.

Research question II

Are the existing tools and equipment found in most Nigerian secondary schools and technical college automobile workshop functional?

Table IV

Table showing raw data of respondents in research question II.

Item	1	2	3	4	5	6	7	Total
A	53	12	62	52	19	59	49	306
D	27	68	18	28	61	21	31	254

Table IV

Table showing group statistics mean response of respondents in research question II.

Group	N	Mean	SD	std error mean
Agreed	7	43.7143	19.86382	7.50782
Disagreed	7	36.2857	19.86382	7.50782

From the table IV above it shows that the mean response of Agreed (43.7143) is higher than the mean response of Disagreed (36.2857). Therefore, mean that there is a significance difference between students that agreed that tools in the automobile workshop are not functional and student that disagreed.

Hypothesis II (HO$_2$)

There is not significant difference between tools, equipment functionality in the workshop and students skill acquisition.

In testing hypothesis two the t-analysis was used to test for level of significant 0.05 significant level.

Table VI:

Summary table of t-test analysis of hypothesis II.

Group	N	Mean	SD	Dt	t-crit	t-cal	Decision
Agreed	7	43.7143	19.86382	12	2.179	0.700	HO$_2$
Disagreed	7	36.2857	19.86382				Accepted

From table VI above, t-crit (2.179)>t-cal (0.700). Based on t-cal (0.700) hypothesis II is accepted. Therefore, mean that there is no significant difference between functionality of tools and equipment in secondary schools and technical colleges in Nigeria and skill acquisition by student.

Research Question III

Do teachers use some of these available tools and equipment to teach students during workshop practice?

Table VII

Table showing raw data of respondents in research question III

Item	1	2	3	4	5	6	7	8	9	10	Total
A	53	57	52	43	60	14	54	30	56	68	487
D	27	23	28	37	20	66	26	50	24	12	313

Table VIII

Table showing the group statistics mean response of respondents in research question III.

Group	N	Mean	SD	STD ERROR MEAN
Agreed	10	48.7000	15.86786	5.02
Disagreed	10	31.3000	15.86786	5.02

From the table VIII above, it shows that the mean response of Agreed (48.7000] is higher than the mean response of Disagreed (31.3000]. Therefore, mean that there is a significant difference between students that agreed, that teacher in the secondary schools and technical colleges uses the available tools and equipment to teach student during workshop practice.

Hypothesis III (HO$_3$)

There is no significant difference between the usage of tools and equipment to teach students and students skill acquisition.

Table IX: Summary table of t-test Analysis of Hypothesis III

Group	N	Mean	SD	Dt	t-crit	t-cal	Decision
Agreed	10	48.7000	15.86786	18	2.101	2.452	HO$_3$
Disagreed	10	31.3000	15.86786				Rejected

From the table IX above, t-crit. (2.101)<t-cal (2.45). Based on t-cal. (2.452) hypothesis III is rejected. Therefore, means that there is a significant difference between usage of tools, equipment in the workshop to teach students, by the teacher during workshop practice and students skill acquisition. It can be concluded that teacher do not making use of available tools and equipment in the workshop that has negative effect on students skill acquisition in the workshop.

Findings of the Study

Findings of the study was based on the data collected from the response of students. The findings are stated as follows:

Most Automobile workshop in secondary schools and technical colleges have no tools and equipment. The few tools and equipment available in the workshop can not be used. Based on this factor students are not taught practicals. The problem of lack of tools and equipment has gone a long way to affect student performance in the trade.

Most tools and equipment that are found in the secondary schools and technical college, automobile workshop are not functional. The few available ones are not enough for students usage during workshop practice. Also the few available ones are not serviced as at when due after long usage. The none function of tools and equipment in the secondary schools and technical college Automobile workshop, has effect on workshop practice. That lead to poor student interest and performance.

Students are not taught workshop practice, because teachers don't make use of tools during teach. There for students level of skill acquisition, intrest, and performance is affected.

Recommendations

Based on the findings of the study the following recommendations were made to improve workshop practices that will help to enhance student practical skill acquisition.

1. Government should equip schools Automobile workshop with modern tools and equipment.
2. Government should help to build ultra modern workshop to help enhance student practical skills.
3. Teacher should involve students in practical to equipp them with modern skills.
4. Ministry of education and other examining bodies like West African school certificate examination council (WASC), National Examination Council (NECO), should inspect tools and equipment available in schools workshop, to improve the upgrading of workshop, by school management.
5. Government, school owners and managers should provide fund or budget allocation to create room for frequent servicing of tools and equipment in the workshop to avoid poor condition of tools and equipment.

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