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Perceived Relevance of Practical Skills in Content Development of Motor Vehicle Mechanic Works Trade in Technical Colleges in Nigeria for Global Competitiveness

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Abstract

The study was carried out to identify the practical skills in motor vehicle mechanic works at the technical colleges in Nigeria that are relevant for global competitiveness. The survey design was adopted to carry out the study in Rivers State in southern part of Nigeria. The population of the study was 33, comprising of 21 Technical college teachers and 12 workshop attendants in six government technical colleges in the State. The entire population was used as respondents, since the researcher considered the population to be of manageable size. A structured questionnaire titled "Practical Skills Relevant in Motor Vehicle Mechanic Works at Technical Colleges" in Nigeria. The instrument consisted of five sections with 91 items statements, structured based on a 5-point rating scale. The instrument was validated by three specialists from the Faculty of Education, Rivers State University, Port Harcourt. And the reliability of the instrument was established using test re-test method. Copies of the instrument were administered to 30 respondents at Government Technical and Science Colleges Ahoada, who were not part of the study sample but has similar characteristics with the study population. The reliability index .92, .87, .88, 92, & .79 were achieved using cronbach Alpha formula. This figure guaranteed the reliability of the instrument. The copies of the questionnaire were administered to the respondents by the researcher with the help of one research assistants from each of the institutions under study. All copies of the instrument which were administered on face to face to the respondents on the first visit were retrieved immediately they were completed. This ensured that there was a 100% returned rate, and all the returned instrument were found useable and considered adequate for the analysis. The data collected from the respondents were analyzed by the aid of using Statistical Package for Social Sciences (SPSS). The research questions were answered with Mean statistic while the hypotheses were tested with t-test statistical technique at the 0.05 level of significance. The decision for the research questions was based on the range for which any item mean response value that falls either below or above the real lower limit 2.50 shall be regarded as not relevant and relevant for below and above respectively. T-test was used to test the

hypotheses of no significant difference at a 0.05 probability level. Items whose P-Value is greater than 0.05 were accepted while Items whose P-value is less than 0.05 were rejected. The study found 91 practical skills relevant in content development of motor vehicle mechanic works in technical colleges in Nigeria for global competitiveness. It also found no significant difference in the mean responses of teachers and workshop attendants on the practical skills contents in motor vehicle mechanic works in Nigeria technical college that are relevant for global competitiveness. Hence, it recommended that teachers and workshop attendants in technical colleges should always apply effective instructions techniques in delivering practical skills courses in motor vehicle mechanic works. That the curricula of the Nigeria technical colleges should be reviewed to accommodate latest practical skills contents in motor vehicle mechanic works and that there should be industrial training (IT) for students who pass through motor vehicle mechanic works in technical colleges to have field experience that will consolidate on their class room experiences.

Key Words: Technical Education, Technical College, Motor Vehicle Mechanic Works, Practical Skills

Introduction

Education generally aims at inculcating knowledge, attitudes, skills, values, and benefits into an individual to assist them achieve a reasonable degree of competence in the various facets of everyday life. Education functions as a means for the provision of appropriate skills, abilities, and competencies of both mental and physical nature as necessary equipment for the individual to be productive in the society (Thomas and Amaechi, 2016). However the noble intentions of the nation, experts have argued that Nigeria is a developing nation that is mainly subsisting on the technology of advanced countries. This is due to the nations' inability to harness the full potential of her vocational and technology education programme. Though vocational and technology education programme were recognized world over as bedrock to meaningful development of any nation's technological quest. Nigeria seems not to accord this very important educational programme its due regard. According to Okeke (2012) vocational and technology education is considered as the cornerstone for any sustainable technological economy. Therefore, a nation that seek development technology wise must place priority on its vocational and technology education programmes to improve on the level of her human capacity building/manpower development. Strengthening Nigerian vocational and technology education programme (courses) from the lower up to the upper level of education will enhance the countries technological advancement (Adamu, 2012).

Vocational and technology education (VTE) programme when properly implemented serves as a tool for human capital development and a key to development of the nation indigenous technology. The expected benefits of training human capital for national development in developing countries are not forth coming because of gender disparity in education provision in those countries. Also, change in policies and development of technical education is linked to human resources development and economic development worldwide (Hina, 2017).

Technical skills are the prime mover of economic and social development of any nation; therefore, investment in human capital is an investment for the future of any countries. Skill development and training is central to youth employment and enable the youths to be prepared for work in formal and informal sectors of the economy and thus play important role in employment opportunity. Most countries in the world are faced with the challenges of improving the capital of their workforce to respond to their own national development needs and the demands of a rapidly changing and globally competitive world. The future success of nations, individuals, enterprises and communities increasingly depends on existence and possession of transferable and renewable skills and knowledge. Hence, in recognition of the major role of VTE in equipping individual with relevant skills and knowledge, which enables people to effectively participate in social, economic and technological innovation processes. The globalization process, knowledge economy, advances in technology and increased competition due to liberalization are major forces driving change in the world of work which have important implication for the demand of skills, human resource development and training (UNESCO, 2008).

Vocational education with its characteristic comprehensiveness in nature and responsiveness to emerging technologies remains a veritable tool for training manpower needed for national development anywhere. As a workshop – based education, it is concerned with the methods of processing materials using tools and equipment, into products of economic value. Vocational and Technology education programmes are designed to prepare the individuals for specialize skills, abilities, trade, industrial, agriculture and business for self-reliance and it is generally linked with manual and practical skills and commonly does not include academic abilities (Azubuike, 2011). The aim of vocational and technology education programmes is to produce/provide trained manpower in various applied fields, to provide technical knowledge and vocational skills. Technical and vocational education programmes provide the labor market with skilled and semi-skilled workforce in different trades (Al-said, 2007). Hence, vocational & technology education had more to do with practical work leading to a particular occupation or career. It provides activities for learning by doing and enables individuals' differences to be catered for. In fact, no attempt is made to create homogeneities in groups of children by practice like streaming and ability grouping (Azubuike, 2011).

Vocational and Technology education is an aspect of education that exposes the learner to the acquisition of demonstrable skills that could be transformed into economic benefits and sustainable livelihood (Akerele as cited by Thomas & Amaechi, 2016). It could also be viewed

as that aspect of education which leads to the acquisition of practical, basic scientific knowledge, which involves special manipulative skills, creative minds, and attributes relating to occupations in various sectors of the economic and social life (Aina, et al 2013). The Federal Republic of Nigeria (FRN, 2013) also defined technical and vocational education as a comprehensive terms referring to those aspect of the educational process involving, in additional to general education, the study of technologies and related sciences and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in the various sectors of economic and social life (P 29). The study of technical and vocational education programmes begins at the secondary school level called Technical Colleges.

Technical colleges are the principal vocational institutions in Nigeria which is designed to prepare the individuals to acquire practical skills, knowledge and aptitude required of technicians at sub-professional level. Technical colleges offer basic academic knowledge but focuses on practical and manual (vocational) technological training to prepare its recipients for employment in lower level technical positions (Al-said, 2007). Technical education programmes at the technical colleges (secondary school level) is used for the development of future intermediate level manpower needs of the country. Technical education courses offered at this stage are designed to prepare individuals to acquire practical skills, basic scientific knowledge and attitude required as craftsmen and technicians at sub-professional level (Akpan, 2013). This implies that the cardinal focus of teaching technical trades such as Motor Vehicle Mechanic Works in technical colleges is to impact the appropriate technical and practical skills in its recipients that will enable the individuals to live and contribute meaningfully to the development of not just the immediate community but the society at large (Amaechi & Thomas, 2016). Acquisition of required skills entails carefully and methodically prepared special course of fairly long duration even for the performance of a restricted number of operations (Timar as cited by Maria, 2009).

The National Board for Technical Education (NBTE, 2012) maintained that technical education trades provide training that leads to the production of skilled personal like craftsman and technicians who could either secure employment at the end of their training, set up their own business (entrepreneurs) or further their studies in polytechnics, colleges of Education (Technical) and Universities. Technical college provides students through training with the relevant and adequate knowledge, skills and attribute for employment under the guidance of a teacher in related occupations. Technical colleges give full craftsman training intended to prepare individuals for entry into various occupations of their interest. One of the areas includes motor vehicle mechanic works trade.

Motor vehicle mechanic works is a technical trade offered in the technical college, which involves the acquisition of scientific knowledge in design, selection of materials, construction, operation and maintenance of motor vehicles. It is designed to produce competent auto mechanics craftsmen in various automobile trades such as repairs and maintenance of brake, transmission, engine, fuel, cooling and lubricating systems on a motor vehicle. According to the National Board for Technical Education (NBTE, 2001) an auto mechanics craftsman is expected to test, diagnose service and completely repair any fault relating to the conventional automobile assembly main units and systems to the manufacturers specification. The programme is designed to prepare the individual for a specific occupation. To prepare the recipient for gainful employment as semi-skilled or skilled worker or technician or sub-profession in recognized occupation and in new and emerging occupations or to prepare individual for enrolment in advanced technical education programme (Ugwaja, 2010). Accordingly, students in motor vehicle mechanic works need to acquire the following skills and abilities; an interest in auto-mobile/electronic system in motor vehicle, good problem solving ability, good vision, hearing and sense of smell, manual dexterity and mechanical aptitude, ability to communicate well in English, physical fitness and strength, ability to drive a variety of vehicles, ability to read technical diagrams and illustration, have concern for safety and responsible work attitude, and interest in keeping up to date with technology. It means therefore that Motor Vehicle mechanic works trade in the Government Technical College was designed to equip the students with both the necessary theoretical knowledge and practical skills that will enable them secure paid employment, be able to set up their workshop and be self-employed and even employ others.

Acquisition of practical skills would be one of the yardsticks for adjudging the products of technical colleges in Nigeria. Acquisition of practical skills entails carefully and methodically prepared special course of fairly long duration even for the performance of a restricted number of operations (Timar as cited by Maria, 2009). Skill acquisition is regarded as the process by which individuals learn and continuously practice a particular task till the learner becomes proficient in the operation and can perform them when required (Aliezer, 2014). Hence, to possess a skill is to demonstrate the habit of acting, thinking and behaving in a specific activity in such a way that the process becomes natural to the individual through purposeful repetition or practice in that occupation (Okeke, 2010). Acquisition of selectable technical skills is the answer to the Nations unemployment among the youths (Thomas & Amaechi, 2016).

Based on the foregoing, it is evident that some skills may have been perceived relevant for motor vehicle mechanic works students to acquire, especially the manual dexterity and mechanical

aptitude skills content in technical college's curriculum that account for global competitiveness. Hence, the problem of this study is to spotlight the practical skills in motor vehicle mechanic works in technical colleges in Nigeria that are relevant for global competitiveness?

Purpose of the Study

The study sought to identify the practical skills in content development of motor vehicle mechanic works trade in technical colleges in Nigeria that are relevant for global competitiveness.

Hence the study will specifically:

1. Find out the service station mechanic work practical skills in motor vehicle mechanic works in technical colleges in Nigeria that are relevant for global competitiveness
2. Determine the petrol engine maintenance work practical skills in motor vehicle mechanic works in technical colleges in Nigeria that are relevant for global competitiveness
3. Investigate the diesel engine maintenance work practical skills in motor vehicle mechanic works in technical colleges in Nigeria that are relevant for global competitiveness
4. Identify the engine reconditioning work practical skills in motor vehicle mechanic works in technical colleges in Nigeria that are relevant for global competitiveness
5. Examine the auto electrical/ electronic work practical skills in motor vehicle mechanic works in technical colleges in Nigeria that are relevant for global competitiveness

Research Questions

The following research questions were postulated to guide the study:

1. What are the service station mechanic work practical skills in motor vehicle mechanic works in technical colleges in Nigeria that are relevant for global competitiveness?
2. What are the petrol engine maintenance work practical skills in motor vehicle mechanic works in technical colleges in Nigeria that are relevant for global competitiveness?
3. What are the diesel engine maintenance work practical skills in motor vehicle mechanic works in technical colleges in Nigeria that are relevant for global competitiveness?
4. What are the engine reconditioning work practical skills in motor vehicle mechanic works in technical colleges in Nigeria that are relevant for global competitiveness?
5. What are the auto electrical/electronic work practical skills in motor vehicle mechanic works in technical colleges in Nigeria that are relevant for global competitiveness?

Hypotheses

The following null hypotheses were formulated and tested at 0.05 significant level

1. There is no significant difference between the mean responses of teachers and workshop attendants on service station mechanic work practical skills contents in motor vehicle mechanic works in technical colleges in Nigeria that are relevant for global competitiveness.
2. There is no significant difference between the mean responses of teachers and workshop attendants on petrol engine maintenance works practical skills contents in motor vehicle mechanic works in technical colleges in Nigeria that are relevant for global competitiveness.
3. There is no significant difference between the mean responses of teachers and workshop attendants on diesel engine maintenance works practical skills contents in motor vehicle mechanic works in technical colleges in Nigeria that are relevant for global competitiveness.
4. There is no significant difference between the mean responses of teachers and workshop attendants on engine reconditioning works practical skills contents in motor vehicle mechanic works in technical colleges in Nigeria that are relevant for global competitiveness.
5. There is no significant difference between the mean responses of teachers and workshop attendants on auto electrical/electronic works practical skills contents in motor vehicle mechanic works in technical colleges in Nigeria that are relevant for global competitiveness.

Methods and Materials

The study adopted the survey design, carried out in Rivers State in southern part of Nigeria. The population of this study was 33, comprising of 21 Technical college teachers and 12 workshop attendants in six government technical colleges in Rivers State. The entire population was used as respondents, since the researchers considered the population to be of manageable size and they are expected to supply information to the study.

The instrument for data collection was a structured questionnaire titled “Practical Skills Relevant in Motor Vehicle Mechanic Works at Technical Colleges (PSRMVMWTC)” in Nigeria. The instrument consisted of five sections with 91 items statements, structured based on a 5-point response rating scale. The instrument was validated by three specialists from the Faculty of Education, Rivers State University, Port Harcourt. And the reliability of the instrument was established using test re-test method. Copies of the instrument were administered to 30 respondents at Government Technical and Science Colleges Ahoada, who were not part of the study sample but has similar characteristics with the study population. The reliability index .92,

.87, .88, 92, & .79 were achieved using Cronbach Alpha formula. This figure guaranteed the reliability of the instrument.

The researchers visited the schools in person and administered copies of the questionnaire to the respondents with the help of one research assistants from each of the institutions under study. All copies of the instrument which were administered on face to face to the respondents on the first visit were retrieved immediately they were completed. This ensured that there was a 100% returned rate, and all the returned instrument were found useable and considered adequate for the analysis.

The data collected from the respondents were analyzed using Statistical Package for Social Sciences (SPSS). The research questions were answered with Mean statistic while the hypotheses were tested with t-test statistical technique at the 0.05 level of significance.

The responses were rated as stated below:

Categories	Value Points	Real Limited
Most Relevant (MR)	5	4.50 - 5.00
Very Relevant (VR)	4	3.50 - 4.49
Relevant (R)	3	2.50 - 3.49
Less Relevant (LsR)	2	1.50 - 2.49
Least Relevant (LeR)	1	0.50 - 1.49

The decision for the research questions was based on the range for which any item mean response value which falls either below or above the real lower limit of 2.50. The response is relevant if it falls from 2.50 and above but not relevant if it falls below 2.50.

T-test was used to test the hypotheses of no significant difference at a 0.05 level of Significance. Any item whose P-Value is greater than 0.05 was accepted while any Item whose P-value is less than 0.05 was rejected.

Results and Discussion

1. What are the service station mechanic works practical skills contents in motor vehicle mechanic works in technical colleges in Nigeria that are relevant for global competitiveness?

Ho1. There is no significant difference between the mean responses of teachers and workshop attendants on service station mechanic work practical skills contents in motor vehicle mechanic works in technical colleges in Nigeria that are relevant for global competitiveness.

Table 1: *t-test analysis of the mean responses of technical teachers and workshop attendants on service station mechanic work practical skills in motor vehicle mechanic works in technical colleges in Nigeria that are relevant for global competitiveness.*

S/N	Practical skills services station mechanic works involves the ability to perform the following tasks:	$\bar{X}$ 1	$\bar{X}$ 2	$\bar{X}$ G	Remark	P<0.05	Results
1	**Engine Maintenance:** Change engine oil	3.03	4.28	3.65	Relevant	1.518	NS
2	Replace Spark plugs	4.03	3.13	3.58	Relevant	1.010	NS
3	Service carburetor	4.23	3.92	4.08	Relevant	1.010	NS
4	Replace brake pads	3.05	4.34	3.70	Relevant	-.113	NS
5	Setting contact Breaker Points	4.05	3.95	4.00	Relevant	1.010	NS
6	Changing drum brake pad disc	3.08	4.23	3.66	Relevant	-.878	NS
7	**Battery maintenance work:** Battery leakage test	4.66	3.87	4.27	Relevant	-.614	NS
8	Charging the battery	4.17	3.95	4.06	Relevant	-.614	NS
9	Checking specific gravity with hydrometer	3.13	4.28	3.71	Relevant	1.010	NS
10	Removal and Replacing burnt headlights and other electric bulbs	3.92	3.13	3.53	Relevant	1.010	NS
11	**General Maintenance:** Checking for Radiator leaks, tighten and replace broken radiator hoses	4.04	3.92	3.98	Relevant	-.113	NS
12	Carry out the inspection of the cylinder head for ward page	3.95	4.04	4.00	Relevant	1.288	NS
13	Removal and replacing cylinder head gasket	4.23	3.91	4.07	Relevant	1.779	NS
14	Spark and compression Ignition Engine – cleaning cylinder head	3.87	4.03	3.95	Relevant	1.288	NS
15	Carry out wheel alignment, Camber, Toe and Caster	3.29	4.23	3.76	Relevant	1.909	NS
16	Carry out wheel balancing	4.13	3.05	3.59	Relevant	-.414	NS
17	Change a tire correctly	3.13	4.05	3.59	Relevant	1.909	NS

Key: X1 = mean Teachers, X2 = mean of Shop Attendants, XG = grand mean, N = 33, P<0.05

Data presented in Table 1 above, revealed that the respondents had grand mean range of 3.53 to 4.27 which is above the lower real limit of 2.50 this indicate that both the teachers and work shop attendants in technical colleges agreed that all the items listed as practical skills contents in service station mechanic works in motor vehicle mechanic motor vehicle mechanic works in technical colleges in Nigeria that are relevant for global competitiveness. Also, Table 1 shows that all the items had their p-value greater than the stated ±0.05 probability level. This implies that there was no significant difference between the mean responses of teachers and workshop attendants on service station mechanic work practical skills contents in motor vehicle mechanic works in technical colleges in Nigeria that are relevant for global competitiveness.

2. What are the petrol engine maintenance work practical skills contents in motor vehicle mechanic works in technical colleges in Nigeria that are relevant for global competitiveness?

Ho2. There is no significant difference between the mean response of workshop attendants and technical teachers on the petrol engine maintenance work practical skills contents in motor vehicle mechanic works in technical colleges in Nigeria that are relevant for global competitiveness.

Table 2: *t-test analysis of the mean responses of teachers and workshop attendants on petrol engine maintenance work practical skills contents in motor vehicle mechanic works in technical colleges in Nigeria that are relevant for global competitiveness.*

S/N	Practical skills in petrol engine maintenance work involves the ability to perform the following tasks:	$\bar{X}$ 1	$\bar{X}$ 2	$\bar{X}$ G	Remark	P<0.05	Results
1	Diagnose petrol engine faults listening and observation.	3.18	3.03	3.11	Relevant	1.010	NS
2	Diagnose petrol engine faults using electronic equipment.	3.13	4.03	3.58	Relevant	1.010	NS
3	Carry out complete service of a carburetor	3.92	4.23	4.08	Relevant	-.113	NS
4	Clean and set contact breaker points to manufacturers' specification.	3.14	3.05	3.10	Relevant	1.288	NS
5	Determine petrol engine ignition point using timing light.	3.95	4.05	4.00	Relevant	1.779	NS
6	Carry out valve adjustment to makers' specification.	4.23	3.08	3.66	Relevant	1.288	NS
7	Check and test condenser for serviceability.	3.87	4.66	4.27	Relevant	1.909	NS
8	Adjust sparkplug to makers' specification.	3.99	4.12	4.06	Relevant	-.414	NS
9	Carry out engine service: change engine fuel system.	4.18	3.13	3.66	Relevant	1.909	NS
10	Trace and repair leakage in the engine fuel system.	3.13	3.92	3.53	Relevant	1.089	NS
11	Overhaul petrol engine fuel pump.	3.92	4.14	4.03	Relevant	1.518	NS
12	Determine correctness of engine dwell angle using dwell meter.	4.14	3.95	4.05	Relevant	1.010	NS
13	Rewire the ignition system of a petrol engine.	3.95	4.23	4.09	Relevant	1.010	NS
14	Remove, inspect, replace and adjust engine fan belt.	4.23	3.87	4.05	Relevant	-.113	NS
15	Demonstrate the ability to flush engine water cooling system	3.87	3.99	3.93	Relevant	1.010	NS

Key: X1 = mean Teachers, X2 = mean of Shop Attendants, XG = grand mean, N = 33, P<0.05

Data presented in Table 2 above, revealed that the respondents had grand mean range of 3.10 to 4.27 which are above the lower real limit of 2.50. This indicate that both the teachers and work shop attendants in technical colleges agreed that all the items listed as practical skills contents in petrol engine maintenance works in motor vehicle mechanic works in technical colleges in Nigeria that are relevant for global competitiveness. Also, Table 2 shows that all the items had their p-value greater than the stated ±0.05 probability level. This implies that there was no significant difference between the mean response of workshop attendants and teachers on the petrol engine maintenance work practical skills contents in motor vehicle mechanic works in technical colleges in Nigeria that are relevant for global competitiveness.

3. What are the diesel engine maintenance work practical skills in motor vehicle mechanic works in technical colleges in Nigeria that are relevant for global competitiveness?

Ho3. There is no significant difference between the mean response of workshop attendants and technical teachers on the diesel engine maintenance work practical skill contents in motor

vehicle mechanic works in technical colleges in Nigeria that are relevant for global competitiveness.

Table 3: *t-test analysis of the mean responses of teachers and workshop attendants on diesel engine maintenance work practical skill contents in motor vehicle mechanic works in technical colleges in Nigeria that are relevant for global competitiveness.*

S/N	Practical skills in diesel engine maintenance work involves the ability to perform the following tasks:	$\bar{X}$ 1	$\bar{X}$ 2	$\bar{X}$ G	Remark	P<0.05	Results
1	Diagnose fault by running the engine on road test.	3.18	3.03	3.11	Relevant	1.288	NS
2	Removing fuel injector assembly in correct sequence	3.13	4.03	3.58	Relevant	1.779	NS
3	Replace fuel injection pump can shaft: bearings on gear and gaskets.	3.92	4.23	4.08	Relevant	1.288	NS
4	Inspecting component parts of an injector for wear: camshaft lobe for wear	4.24	3.05	3.65	Relevant	1.909	NS
5	Replace defective parts of an injector: fuel control and government linkage.	3.95	4.05	4.00	Relevant	-.414	NS
6	Carrying out injection test with standard equipment: Check and adjusting injection pump timing	4.23	3.08	3.66	Relevant	1.909	NS
7	Adjusting injection pump timing	3.87	4.66	4.27	Relevant	1.089	NS
8	Removing in-line injection pump unit from engines clean and inspect serviceable parts for wear serviceability	3.69	4.38	4.04	Relevant	1.518	NS
9	Changing fuel filter.	4.58	3.33	3.96	Relevant	1.010	NS
10	Testing, Examine Mechanical Fuel Pump.	3.13	3.92	3.53	Relevant	1.010	NS
11	Testing, Examine Electric Fuel Pump	3.92	4.34	4.13	Relevant	-.113	NS
12	Bleed a Diesel Fuel Injection System	4.04	3.95	4.00	Relevant	1.010	NS
13	Prime Diesel Injector Pumps	3.95	4.23	4.09	Relevant	-.878	NS

Key: X1 = mean Teachers, X2 = mean of Shop Attendants, XG = grand mean, N = 33, P<0.05

Data presented in Table 3 above, revealed that the respondents had grand mean range of 3.11 to 4.27 which is above the lower real limit of 2.50. This indicate that both the teachers and work shop attendants in technical colleges agreed that all the items listed as practical skills contents in diesel engine maintenance works in motor vehicle mechanic works in technical colleges in Nigeria that are relevant for global competitiveness. Also, Table 3 shows that all the items had their p-value greater than the stated ±0.05 probability level. This implies that there was no significant difference between the mean response of workshop attendants and teachers on the diesel engine maintenance work practical skill contents in motor vehicle mechanic works in technical colleges in Nigeria that are relevant for global competitiveness.

4. What are the engine reconditioning work practical skills contents in motor vehicle mechanic works in technical colleges in Nigeria that are relevant for global competitiveness?

Ho4. There is no significant difference between the mean response of workshop attendants and technical teachers on the engine reconditioning works practical skills contents in motor vehicle mechanic works in technical colleges in Nigeria that are relevant for global competitiveness.

Table 4: *t-test analysis of the mean responses of teachers and workshop attendants on engine reconditioning work practical skills contents in motor vehicle mechanic works in technical colleges in Nigeria that are relevant for global competitiveness.*

S/N	Practical skills involves the ability to perform the following tasks:	$\bar{X}$ 1	$\bar{X}$ 2	$\bar{X}$ G	Remark	P<0.05	Results
1	Checking alignment and re-alignment of connecting rods: Big-end clearance.	3.87	4.19	4.03	Relevant	1.288	NS
2	Use instrument and special fixtures to diagnose engine fault engine fault: cylinder compression test.	3.90	3.23	3.57	Relevant	1.909	NS
3	Examination of Engines with different arrangement of cylinder: fitting cylinder liners	4.18	3.92	4.05	Relevant	-.414	NS
4	Installing piston and connecting rod and ensuring side clearance.	3.13	4.14	3.64	Relevant	1.909	NS
5	Valve clearances: checking and adjustment.	3.52	3.85	3.69	Relevant	1.089	NS
6	Dismantling examination inspecting and installing rocker arm and bearing.	4.04	4.23	4.14	Relevant	1.288	NS
7	Dismantling examining, Overhaul and refitting petrol free pump.	3.95	3.67	3.81	Relevant	-.113	NS
8	Mechanical pump fuel pump	3.87	3.99	3.93	Relevant	1.288	NS
9	Dismantling examining, Overhaul and refitting petrol free pump. Electrical pump	3.59	4.08	3.84	Relevant	1.779	NS
10	Use Instrument and special fixtures to diagnose engine fault: Test the Auto Vacuum System	3.53	3.13	3.33	Relevant	1.288	NS
11	Compression Testing	3.92	3.72	3.82	Relevant	1.909	NS
12	Power Balance Test	4.12	4.04	4.08	Relevant	-.414	NS
13	Performing cylinder leakage test	3.97	3.95	3.96	Relevant	1.909	NS
14	Testing vehicle Exhaust manifold leaks	4.03	4.25	4.14	Relevant	1.089	NS
15	Demonstrate the ability to Change the Valve Guides	3.87	3.97	3.92	Relevant	1.518	NS

Key: X1 = mean Teachers, X2 = mean of Shop Attendants, XG = grand mean, N = 33, P<0.05

Data presented in Table 4 above, revealed that the respondents had grand mean range of 3.33 to 4.14 which is above the lower real limit of 2.50. This indicate that both the teachers and work shop attendants in technical colleges agreed that all the items listed as practical skills contents in engine reconditioning works in motor vehicle mechanic works in technical colleges in Nigeria that are relevant for global competitiveness. Also, Table 4 shows that all the items had their p-value greater than the stated ±0.05 probability level. This implies that there was no significant difference between the mean response of workshop attendants and teachers on the engine reconditioning works practical skills contents in motor vehicle mechanic works in technical colleges in Nigeria that are relevant for global competitiveness.

5. What are the Auto electrical/ electronic work practical skills contents in motor vehicle mechanic works in technical colleges in Nigeria that are relevant for global competitiveness?

Ho5. There is no significant difference between the mean response of workshop attendants and teachers on the Auto electrical/ electronic work practical skills contents in motor vehicle mechanic works in technical colleges in Nigeria that are relevant for global competitiveness.

Table 5: *t-test analysis of the mean responses of teachers and workshop attendants on Auto electrical/ electronic work practical skills contents in motor vehicle mechanic works in technical colleges in Nigeria that are relevant for global competitiveness.*

S/N	**Practical skills in auto electrical electronics involves the ability to perform the following tasks:**	$\bar{X}$ **1**	$\bar{X}$ **2**	$\bar{X}$ **G**	**Remark**	**P<0.05**	**Results**
1	Testing Diagnose/common battery faults symptoms, cracked case and under charge.	3.90	4.10	4.00	Relevant	.243	NS
2	Battery leakage test: cracked case	4.22	3.14	3.68	Relevant	.931	NS
3	Battery load test: (How well a battery performance under a load)	3.13	3.72	3.43	Relevant	1.011	NS
4	Battery drain test	3.52	4.12	3.82	Relevant	1.031	NS
5	Conducting specific gravity test.	4.04	3.90	3.97	Relevant	.741	NS
6	Carrying out open circuit voltage test	3.91	4.20	4.06	Relevant	.121	NS
7	Carry out battery capacitance test.	3.80	3.03	3.42	Relevant	.104	NS
8	Diagnosing a dead battery cell.	3.54	3.23	3.39	Relevant	.223	NS
9	Conducting a battery charge	3.53	4.11	3.82	Relevant	.241	NS
10	Cleaning battery terminals to prevent corrosions	3.90	3.53	3.76	Relevant	.932	NS
11	Securing a battery to chassis with appropriate battery clamp.	4.32	3.82	4.07	Relevant	1.012	NS
12	Securing a Battery clamp	3.91	4.54	3.87	Relevant	1.032	NS
13	Diagnosing a faulty Alternator	3.90	3.75	3.83	Relevant	.742	NS
14	Servicing faculty of alternator by replacing worn parts. Alternator rotor: coil.	4.19	4.23	4.21	Relevant	.122	NS
15	Diagnose a Bad starter on a motor vehicle	3.03	3.57	3.30	Relevant	.104	NS
16	Dismantling starter motors disassemble starter motors.	3.62	3.09	3.36	Relevant	.223	NS
17	Replacing coil pack	4.02	4.08	4.05	Relevant	.243	NS
18	Installing new coil pack	3.82	3.33	3.58	Relevant	.932	NS
19	Check an ignition coil pack for fault/ correct operations.	3.91	3.32	3.62	Relevant	1.011	NS
20	Diagnose/ Trace/rectify fault in electronic instrument panel	3.62	4.24	3.93	Relevant	1.031	NS
21	Bench test a starter motor.	3.53	3.55	3.54	Relevant	.742	NS
22	Disassembling and assembling the starter motor.	3.91	4.23	4.07	Relevant	.121	NS
23	Determine wear, checking and replacing parts of a starter motor; Armature. Bushings, brushes field coils, grower.	4.22	3.67	3.95	Relevant	.104	NS
24	Installing the starter motor.	3.90	3.09	3.50	Relevant	.221	NS
25	Assembling the starter motor	3.91	4.38	4.15	Relevant	.242	NS
25	Checking the 12v relay for connects operation and output.	4.03	3.43	3.73	Relevant	.933	NS
27	Checking the headlights for correct operation and out-put.	3.13	3.72	3.43	Relevant	1.012	NS
28	Checking the ground wire for continuity.	3.62	4.11	3.87	Relevant	1.032	NS
29	Voltage drop testing, testing circuit for excessive resistance	4.05	3.93	3.99	Relevant	.743	NS
30	Diagnosing the trafficator/ indicator for correct operation and speed.	3.93	4.20	4.07	Relevant	.120	NS
31	Removing and testing a multifunction switch.	3.92	3.85	3.89	Relevant	.104	NS

Key: X1 = mean Teachers, X2 = mean of Shop Attendants, XG = grand mean, N = 33, P<0.05

Data presented in Table 5 above, revealed that the respondents had grand mean range of 3.30 to 4.21 which is above the lower real limit of 2.50 this indicate that both the teachers and work shop attendants in technical colleges agreed that all the items listed as practical skills contents in Auto

electrical/ electronic works in motor vehicle mechanic works in Nigeria technical college that are relevant for global competitiveness. Also Table 5 shows that all the items had their p-value greater than the stated ±0.05 probability level. This implies that there was no significant difference between the mean response of workshop attendants and teachers on the Auto electrical/electronic work practical skills contents in motor vehicle mechanic works in Nigeria technical college that are relevant for global competitiveness.

Discussion of findings

The findings of the study revealed that all 91 practical skills in content development of motor vehicle mechanic works trade in technical colleges in Nigeria are relevant for global competitiveness. Technical college teachers and workshop attendants expressed their views alike about the relevance of practical skills in content development of motor vehicle mechanic works trade in technical colleges in Nigeria which are very relevant for global competitiveness. The findings further showed that there is no significant difference in the mean responses of technical teachers and workshop attendants on the practical skills in motor vehicle mechanic works in technical colleges in Nigeria that are relevant for global competitiveness. The findings of this study were in line with Thomas & Amaechi (2016) who emphasized that acquisition of selectable technical skills is the answer to the Nations unemployment among the youths. Hence when emphasis is placed on practical skills the recipients on graduation become well equipped with skills to earn daily living

Conclusion

Technical teachers and workshop attendants of technical colleges expressed their views alike on the practical skills contents in motor vehicle mechanic works in Nigeria technical college that are relevant for global competitiveness.

The Nigeria technical college offer practical skills contents in motor vehicle mechanic works in that are relevant for Nigeria to surface in the global trend of doing things.

Recommendations

1. Teachers and workshop attendants in technical colleges should always apply effective instructions techniques in delivering practical skills courses in motor vehicle mechanic works that are relevant for global competitiveness.

2. The curricula of the Nigeria technical colleges should be reviewed to accommodate latest practical skills contents in motor vehicle mechanic works that are very relevant for global competitiveness.

3. There should be industrial training (IT) for students who pass through MVM and technical colleges to have field experience that will consolidate on their class room experiences.

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