Collaboration Between Technical Colleges and Industries for Skills Acquisition in Motor Vehicle Mechanic Works in Edo State, Nigeria

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ABSTRACT

The study investigated strategies for improving collaboration between technical colleges and industries for skill acquisition in Motor Vehicle Mechanic Works (MVMW) in Edo State, Nigeria. Four (4) research questions were raised to guide the study and one hypothesis was formulated and tested at 0.05 level of significance. The study adopted a descriptive survey research design. The population of the study consisted 80 respondents, which comprised 53 technical teachers from five public technical colleges and 27 managers of automobile industries in Edo State. The entire population was used as the sample because it was of manageable size. The research instrument used for data collection in the study was a structured questionnaire with 18 item statements arranged in clusters. The instrument was validated by three experts in the Department of Vocational and Technical Education, Faculty of Education, University of Benin, Benin City, Edo State, Nigeria. In order to establish the stability of the instrument, Cronbach alpha coefficient formula was used. The test yielded an overall coefficient of 0.85. The findings of the study revealed that there was no adequate collaboration between technical colleges and industries for skill acquisition in motor vehicle mechanic works in Edo State. Based on the findings, it was recommended that industries should collaborate with technical colleges by training and re-training technical teachers, providing modern teaching and learning facilities and granting permission for students to use its facilities during students' industrial work experience scheme.

Key Words: Collaboration, Skills, Acquisition and Motor Vehicle.

INTRODUCTION

The collaboration between Technical Colleges and Industries could be seen as a means of enhancing innovation through the exchange of knowledge and technical skills. While the technical colleges provides the foundation for skills acquisition by conducting theoretical and practical classes for students, the industries provides the work environment where graduates from the technical colleges are expected to put acquired skills into practical application for production, self-reliant and national development. Federal Republic of Nigeria [1] in the National Policy on Education (2013) stated that technical colleges' curricular shall be structured in foundation and trade modules and shall establish and operate a production unit within the college premises for on-the-job training of students and for commercial activities. This could facilitate the acquisition of relevant skills by the students. Several researchers have identified various areas through which industries could collaborate with technical colleges such as developing and reviewing curriculum content, providing teaching and learning facilities, training and re-training of technical teachers amongst others. Osuyi and Obanewa[2] (2019) stated that in the technical colleges, youths acquire skills as technicians in bricklaying, carpentry, painting, motor vehicle repair and electrical/electronics. Other skilled areas offered by technical colleges includes agricultural equipment and implement mechanics works, automobile-electrical works, electrical installation and maintenance works, welding and fabrication, mechanical engineering craft practice, electronics works, refrigeration and air conditioning works, vehicle body repair works, appliance maintenance and repair, foundry craft practice, marine engineering, ship building craft practice.

Automobile is a wheeled motor vehicle used for transporting goods or passengers, which also carries its own engine or motor. The word 'automobile' comes from the ancient Greek word autós, meaning 'self' and the Latin word mobilis meaning 'movable'. Therefore, automobile means a vehicle that moves itself (National Council of Educational Research & Training[3], 2023). Automobile technology comprises automobile electrical works and motor vehicle mechanic works. The National Business and Technical Examinations Board[4] (2007) explains that an automobile technology craftsman is someone that is required to test, diagnose, service and completely repair any fault relating to automobile main assembled units and systems according to the manufacturer's specifications. The modular contents for Motor Vehicle Mechanic Works (MVMW) are petrol engine maintenance, diesel engine maintenance, engine reconditioning, auto electrical works and transmission, suspension, steering and braking systems. The repair and maintenance of these various systems requires the use of modern tools and equipment. However, Technical College graduates may not be fully equipped with the knowledge and skills required to handle, manipulate and use these modern tools and equipment probably because the colleges where they were trained lack or do not have adequate number of these equipment. There could be another challenge of non-functionality of teaching and learning facilities. In addition, most of the vocational and technical teachers currently teaching in our technical colleges were trained by teachers who were only exposed to the technologies of the 70's and 80's and might not have the knowledge and skills to use modern tools for the repair of motor vehicles. (Osuyi & Obanewa[2], 2019) The implication is that most technical teachers may lack the exposure of teaching the right knowledge and skills in the 21st century colleges in the area of emerging technologies and hence they may need training and re-training. Another issue is that of obsolete curriculum which could be as a result of none participation of industries during curriculum review process.

To keep up with the rapid rate of technological development and advancement in the automobile industry, new skills are needed which the technical colleges are expected to provide and support the development of such skills. Magbagbeola[5] (2020) stated that skills acquisition must enhance task performance through harmonization of theoretical and practical knowledge. The author further stated that for acquired skills to be sustainable, training has to be given in skills that are appropriate for gainful employment; in a conducive environment, through constructive ideas and must be carried out by competent, experienced and qualified instructors.

The importance of skills acquisition in the present Nigerian society cannot be overemphasized. Skills acquisition provides a workforce that is empowered with necessary knowledge and qualifications that could lead to gainful employment and competitiveness in the dynamic global market (Audu, Yusri & Muhammad[6], 2013). According to the World Bank[7] (2018) Annual Report, the reputation of Technical and Vocational Education and Training (TVET) institutions is hinged on its ability to produce dynamic personnel who will be useful to the modern workplace. It is correct knowledge that the output of the technical colleges serves as one of the major input to the industries. Production wheels cannot turn, even with the presence of sophisticated machinery, if the right man-power is not available (Edeh, Mbah, Chigozie[8], 2023). Therefore, technical colleges are expected to maintain close collaboration with the industries. According to Keyton[9] (2020) "collaboration is a type of interaction in which individuals, or team or organizational members, work together to reach a common shared goal, activity, or production" (p. 1). Hence, collaboration between technical colleges and industries implies that they jointly work together to produce skilled manpower. Abu[10] (2014) is of the view that Industry-institution collaboration programme can bridge technological gap by providing appropriate knowledge and skills required to handle modern technologies all around the world and that modern industries are equipped with sophisticated technologies that technical college students are not familiar with.

It could be observed that some graduates of motor vehicle mechanic works may perform below expectations, finding it difficult to carryout maintenance works to the satisfaction of customers. This trend could be attributed to a mismatch between the skills that graduates of MVMW acquired in the course of their studies in technical colleges and the one required in the industry, as a result of archaic teaching and learning facilities. The World Bank[7] (2018) Annual Report further revealed that facilities and equipment of most public technical colleges are outdated and materials for practical demonstration and training are limited or not available at all. Hence, Daluba[11] (2013), opined that despite several efforts made to catch up with the industrialized nations of the world through science and technology, Nigeria continues to grapple with the rising cases of unemployment and under-employment due to lack of knowledge and skills required in modern industries. Learning outcomes have been largely theory driven rather than skill driven. Industries can collaborate with technical colleges to close this skill gap through the provision of modern teaching and learning facilities to technical colleges.

Furthermore, most technical teachers, including Motor Vehicle Mechanic Works teachers, may not have attended any cognate training and re-training programme, to enable them remain current with innovations in their various fields and trades, since they were employed. Hence, they could still continue to teach and train students on the basis of their old knowledge- using methods, procedures and equipment that are no longer relevant in the industries. According to Roger[12] (2017), training involves those learning activities which can contribute to successful economic performance and tangible economic and social gains, while re-training is the act of upgrading existing skill or acquiring a new one. Furthermore, Banka and Okwori[13] (2019) emphasized that training and retraining of teachers will lead to effective implementation of skills and knowledge acquired during training. Therefore, industries can collaborate with technical colleges by organizing training and re-training programmes for technical teachers in the automobile industries in modern methods and procedures to make them better equipped to train students. Graduates from the technical colleges will then be better placed to fit into the industries since they have acquired the requisite skills needed to function.

Industries could collaborate with the colleges through participation in the curriculum review process of technical colleges. This will assist in ensuring that the standards of the industries are adequately captured in the curriculum. The employment needs of the industries may be satisfied if such needs are addressed through the curriculum with which students will be trained. There will be a mismatch if the standards required by the industry is different from the standards contained in the curriculum guiding the training of students. Nungse, Ugwoke, Ogbuanya and Shetima[14] (2020) are of the view that if industries are allowed to participate in schools curriculum review process, students can acquire and develop effective skills that could meet the demands of labour market. Hence, for the curriculum to reflect industrial standards, the industries may have to be fully involved in the process of planning and reviewing the curriculum of technical colleges, which may not be so at present.

Students Industrial Work Experience Scheme (SIWES) is an initiative of the Industrial Training Fund (ITF). Established by Decree 47 of 1971 and amended in the 2011 ITF Act, the ITF has operated consistently within the context of its enabling laws. It has the mission to set and regulate training standards and provide need-based Human Capital Development Interventions using crops of highly competent professionals in line with global best practices. The aim of the SIWES is to provide avenue for students, such as those in the field of engineering and technical colleges, to have industrial exposure during the course of their study (Osuyi & Owenvbiugie[15], 2015). This can only be possible through collaboration between technical colleges and industries. For students of motor vehicle mechanic works, the scheme exposes students to industry-based skills in vehicle maintenance thereby providing for seamless transition from the college to work. Therefore, automobile industries are encouraged to open up their facilities for use during student industrial work experience scheme.

The man power needed to make the industries function effectively are being developed in the educational institutions, including technical colleges. Therefore, the need for a close relationship between the industries and technical colleges cannot be over emphasized.

STATE OF THE ART

Amos, Abdulkadir and Raymond[16] (2022) conducted a study on "Generic and Technical Skills Needed by Motor Vehicle Mechanics in Maintenance and Repairs of Modern Automotive in Niger State, Nigeria". The study investigated the generic and technical skills needed by motor vehicle mechanic in maintenance and repairs of modern automotive in Niger state, Nigeria. Two research questions, two specific purposes and two null hypotheses guided the study. A descriptive survey research design was adopted for the study. The study was conducted in all the registered automobile mechanic workshops in the three senatorial zones of Niger State. A proportionate stratified random sampling techniques was used to draw 10% of the total population for the study. Therefore, sampled population for the study was 720 respondents comprising of 210 highly experienced, 480 moderately experienced Motor vehicle mechanics, 17 Motor vehicle mechanic maintenance teachers and 13 automobile lecturers respectively but 715 respondents returned the questionnaire. A 109 items structured questionnaire titled Motor Vehicle Mechanic, Generic and Technical Skills Maintenance and Repairs Questionnaires developed by the researchers and validated by three experts was used for the data collection for the study. The reliability coefficient of the instrument was determined to be 0.83, using Cronbach Alpha Statistics. Mean and standard deviation were used to answer the questions while z-test statistics was used to test the two null hypotheses formulated for the study at 0.05 level of significance. The findings revealed that generic

skills such as perfect commitment to duties, habit of punctuality at work, moral integrity on the job, readiness skills at work and loyalty to duty are needed by the motor vehicle mechanics. The finding on the technical skill needed revealed that ability to detect worn disc plate, competence in recognizing a defective Anti-lock Braking System (ABS) warning light, skills in identifying different types of clutch and ability to service different types of clutch among others are technical skills needed by motor vehicle mechanics. This study is related to the present study in methodology, research design, method of data collection and analysis.

Ogbuanya and Tongshuwal[17] (2020) conducted a study on "Improving Skill Acquisition of Electrical Installation and Maintenance Work Students through Collaboration between Technical Colleges and Industries in Plateau State". The study was carried out to determined ways that could be used to improve skill acquisition of electrical installation and maintenance work students through collaboration between Technical Colleges and Industries in Plateau State. Two specific purpose of the study was itemized. The study adopted the descriptive survey research design. The population for the study consists of 58 electrical industrial supervisors and 22 electrical teachers from selected Industries and Technical Colleges in Plateau State. No sampling because the population was manageable size. The instrument for data collection was 43 items structured questionnaire. The questionnaire was subjected to face-validation by three experts. Two research questions and a null hypothesis were formulated. Cronbach alpha method was used to determine the reliability coefficient of the instrument which yielded 0.85. Frequency count and weighted mean was used to analyze the data for answering the research questions while t-test was used to test the null hypothesis of no significant different at 0.05 level of significance. The results showed that jointly organizing seminars and workshop by technical colleges and industries, assessment of training facilities of technical colleges to ensure adequate background in occupations required in industries and involving technical teachers working in production process using industrial machines so as to upgrade their knowledge and skill to keep abreast with new technological advancement were needed. The methodology, research design, method of data collection and analysis is related to the present study.

Ojo[18] (2019) conducted a research on "Analysis of Collaboration between Technical Colleges and Industries for Skill Acquisition in Motor Vehicle Mechanic Works in Osun State", to analyse the level of collaboration between technical colleges and industries for skill acquisition in motor vehicle mechanic works. Four specific purpose of the study were itemized. Four research questions and two hypothesis were formulated by the researcher. A survey research was adopted for the study. The population size for the study was 80, which comprised 22 teachers in motor vehicle mechanic works and 58 supervisors of automobile industries. Since the population size was relatively small, it was adopted as the sample size. A 40 items structured questionnaire, validated by three experts, was used to collect data. Cronbach alpha method was used to determine the reliability coefficient of the instrument which yielded 0.86. Mean and standard deviation was used to analyze the data while t-test was used to test the null hypothesis at 0.05 level of significance. The findings shows that there is no significant difference between the mean ratings of motor vehicle mechanic works teachers and industry supervisors in areas of collaboration for skill acquisition in motor vehicle mechanic works in Osun State. The study is related to the present study in methodology, research design, method of data collection and analysis.

SUMMARY OF REVIEWED LITERATURE

Several related empirical studies were reviewed as it relates to the current study. However, the study that is most related to the current study is the work of Ojo[18] (2019). The study was on Analysis of Collaboration between Technical Colleges and Industries for Skill Acquisition in Motor Vehicle Mechanic Works in Osun State. It covered variables such as training and re-training of technical teachers, provision of workshop facilities, training links for skills acquisition and administrative strategies for improved college-industry collaboration. The study was carried out in Osun State, Nigeria. In addition to the variables covered by the most related empirical study reviewed, the current study covered areas of collaboration between technical colleges and industries through support for Students Industrial Work Experience Scheme and participation in technical college curriculum review. This study was carried out in Edo State, Nigeria. This is the gap the current study bridged.

Statement of the Problem

Technical colleges are saddled with the responsibility of producing skilled middle-level manpower in the various modular subjects including Motor Vehicle Mechanic Works. The recipients are expected to work in the industries

for national development, poverty reduction, self-reliance and employability, in line with Nigeria's national goals.

However, the advent of Millennium Motor Vehicles seems to have hindered the achievement of these purposes. The use of trial and error method in diagnosing faults might no longer be effective. It was believed that education in our technical colleges, coupled with exposure to the industry during students' industrial work experience scheme would enhance productivity in the workplace when students eventually graduates. But this seems not to be so, especially in recent times. For example, it is common knowledge that some industries are reluctant in giving certain tasks to students or allowing students handle certain equipment during industrial attachment with the claim that these equipment are expensive and could be easily damaged if students are allowed to use them for practice. Therefore, many students finish their industrial attachments without acquiring the requisite industrial knowledge and skills. Furthermore, adequate teaching and learning facilities are lacking in most technical colleges. The researchers are worried that if this situation is not improved, graduates of motor vehicle mechanic works from technical colleges might no longer leave up to expectations. Therefore, an improvement in college-industry collaboration in the areas of industries providing tools, equipment and separate workshop for students on industrial training, training and re-training of technical teachers, participating in technical college curriculum development and review and employment of technical college graduates could provide the needed recipe for students to acquire the appropriate and relevant skills. Hence, this study was conducted on the need for collaboration between technical colleges and industries for skills acquisition in motor vehicle mechanic works in Edo State, Nigeria.

Purpose of the Study

The main purpose of this study was to determine ways of improving collaboration between technical colleges and industries for skills acquisition in Motor Vehicle Mechanic Works (MVMW) in Edo State. Specifically, the study determined the extent to which:

1. technical teachers are trained and re-trained on emerging technologies in motor vehicle mechanic works in Edo State, Nigeria;

2. industries provide teaching and learning facilities in motor vehicle mechanic works in Edo State, Nigeria;

3. industries support students' industrial work experience scheme in Edo State, Nigeria;

4. industries participate in technical college curriculum development and review in Edo State, Nigeria;

Research Questions

The following research questions guided the study:

1. To what extent do industries support training and re-training of technical teachers on emerging technologies in motor vehicle mechanic works in Edo State, Nigeria?

2. To what extent do industries provide teaching and learning facilities in motor vehicle mechanic works in Edo State, Nigeria?

3. To what extent do the industries support students' industrial work experience scheme in Edo State, Nigeria?

4. To what extent do industries participate in technical college curriculum development and review in Edo State, Nigeria?

Hypothesis

One null hypothesis was tested at a significant level of 0.05.

H[1]: There is no significant differences between the mean ratings of technical teachers and managers of automobile industries on ways of improving collaboration between technical colleges and industries for skills acquisition in motor vehicle mechanic works in Edo State, Nigeria.

It is against this background that the study investigated the strategies for improving collaboration between technical colleges and industries for skill acquisition acquisition in motor vehicle mechanic work in Edo State.

METHODOLOGY

The descriptive survey research design was used for this study. Descriptive survey is a research design that uses a representative sample of the population to describe the opinion, beliefs, attitude of the people about a particular phenomenon (Manjunatha [19], 2019). The result obtained from the sample could be used to generalise for the entire population. This design was found to be suitable for this study because a representative sample of technical teachers and managers of automobile industries were used to generalise for the entire technical teachers and managers of automobile industries in Edo State. Collaboration between technical colleges and automobile industries is the independent variable, while skill acquisition in motor vehicle mechanic works is the independent variable.

The population of the study consisted 80 respondents. This was made up of 53 technical teachers from five public technical colleges and 27 managers of registered automobile industries in Edo State (Edo State Government [20], 2023). The sample size for the study was 80 respondents, made up of 53 technical teachers currently in the five technical colleges and 27 managers of automobile industries in Edo State. The entire population was used as the sample because it was of manageable size.

The instrument for data collection was a questionnaire titled Strategies for Collaboration between Technical Colleges and Automobile Industries for Skill Acquisition Questionnaire (SCTCAISAQ). The instrument was made up of two sections, A and B. Section A elicited respondents' bio-data such as occupation, while section B contained 18 item statements arranged in clusters according to the number of research questions. Items for each cluster contains four response category each. The response categories are Very High Extent (VHE), High Extent (HE), Low Extent (LE) and Very Low Extent (VLE) rated 4, 3, 2 and 1 respectively. The instrument was validated by three experts in the department of Vocational and Technical Education, Faculty of Education, University of Benin, Benin City, Edo State, Nigeria. In order to establish the stability of the instrument, it was administered once to twenty respondents made up of ten technical teachers and ten managers of automobile industries in Delta State. The data obtained was subjected to Cronbach alpha statistics and it yielded a coefficient of 0.85.

The questionnaire was administered to the respondents in the technical colleges and automobile industries in Edo State. The researcher was assisted by 12 research assistants (5 technical teachers from the various colleges and 7 administrative staff from automobile industries) who were briefed on how to administer the instrument. The research assistants administered the instrument to the respondents and retrieved same 100% in five days.

The data collected were analysed with the aid of Statistical Package for Social Sciences (SPSS). The research questions were answered with Mean (X) and Standard Deviations (SD) statistics while Z-test statistics was used to test the hypothesis at 0.05 level of significance. The decision rule was based on the criterion mean of 2.50. Therefore, any calculated mean value equal or greater than 2.50 was regarded as high extent, whereas mean value less than 2.50 was considered as low extent. For Z-test, a p-value equal or less than 0.05 alpha means that the hypothesis was rejected whereas p-value greater than 0.05 alpha means that the hypothesis was retained.

PRESENTATION OF RESULTS

Research Question One

To what extent do industries support training and re-training of technical teachers on emerging technologies in motor vehicle mechanic works?

Table 1: Mean and standard deviation showing industries support for training and re-training of technical teachers on emerging technologies in motor vehicle mechanic works.

S/N	Item	N	Mean ($\bar{X}$)	SD	Remarks
1	Anti-lock Braking System (ABS).	80	2.04	.863	Low Extent
2	Electronic ignition and petrol injection system.	80	1.86	.882	Low Extent
3	Emission control system.	80	1.86	.853	Low Extent
4	Mechatronic gearbox and torque converter.	80	1.86	.896	Low Extent
5	Variable Valve Timing Intelligence (VVTI).	80	1.85	.797	Low Extent
	Cluster Mean		**1.89**	**0.04**	**Low Extent**

Note: SD (Standard Deviation), N (Sample Size)

The data analysis presented in Table 1 depicts the extent to which industries support training and re-training of technical teachers on emerging technologies in motor vehicle mechanic works. The respondents' rated item one to five as low extent with a mean rating ranging from 1.85 to 2.04 while the standard deviation also ranges from .797 to .896. The cluster mean disclosed a mean of 1.89. The above mean score shows that the extent to which industries support training and re-training of technical teachers on emerging technologies in motor vehicle mechanic works was low.

Research Question Two

To what extent do industries provide teaching and learning facilities in motor vehicle mechanic works in Edo State?

Table 2: Mean and standard deviation showing the extent industries provide teaching and learning facilities in motor vehicle mechanic works.

S/N	Item	N	Mean ($\bar{X}$)	SD	Remarks
6	Feeler Gauge, Vernier Caliper, Micrometer Screw Gauge and Pneumatic Torque Wrench.	80	1.78	826	Low Extent
7	Wheel Alignment Gauge, Tire Changer, and Work Holding Devices.	80	1.88	.891	Low Extent
8	Vehicle for Workshop Demonstration.	80	1.80	.863	Low Extent
9	Usable Materials. (Lubricants, Bolts & Nuts, Poston & Rings, Headlamps, Timing Chain, Gaskets & Valves).	80	1.80	818	Low Extent
10	Automatic Automotive Diagnostics Equipment.	80	1.79	837	Low Extent
	Cluster Mean		**1.81**	**0.03**	**Low Extent**

Note: SD (Standard Deviation), N (Sample Size)

Research question two reveals the extent industries provide teaching and learning facilities in motor vehicle mechanic works in Edo State. The respondents rated items six to ten as low extent with a mean rating ranging from 1.78 to 1.88 while the standard deviation ranges from .818 to .891. The cluster mean indicated a mean of 1.81. With these results, the extent to which industries provide teaching and learning facilities in motor vehicle mechanic works in Edo State was low.

Research Question Three

To what extent do the industries support students' industrial work experience scheme in Edo State?

Table 3: Mean and standard deviation showing the extent industries support students' industrial work experience scheme.

S/N	Item	N	Mean ($\bar{X}$)	SD	Remarks
11	Industries grant permission for the use its facilities for students' industrial work experience scheme.	80	2.31	963	Low Extent
12	Industry allows students on students' industrial work experience scheme to handle and manipulate industrial machines.	80	2.18	.965	Low Extent
13	Students' attachment in the industries during students' industrial work experience scheme is compatible with students' area of specialization	80	2.33	.991	Low Extent
14	Students' acquire a reasonable level of skills and an understanding of work methods and procedures at the end of the period of students' industrial work experience scheme.	80	2.30	1.060	Low Extent
	Cluster Mean		**2.28**	**0.05**	**Low Extent**

Note: SD (Standard Deviation), N (Sample Size)

Data in Table 3 revealed the extent industries support students industrial work experience scheme in Edo State. Table 3 showed that the respondents rated items eleven to fourteen as low extent with a mean rating ranging from 2.18 to 2.33 while the standard deviation also ranges from .963 to 1.060. The cluster mean showed a mean of 2.28. The mean result show that the extent to which the industries support students' industrial work experience scheme in Edo State is low.

Research Question Four

To what extent do the industries participate in technical college curriculum review in Edo State?

Table 4: Mean and standard deviation showing extent the industries participate in Technical college curriculum development and review

S/N	Item	N	Mean ($\bar{X}$)	SD	Remarks
15	Attend curriculum review meetings.	80	1.90	.851	Low Extent
16	Communicate current industrial requirement to National Board for Technical Education (NBTE) for possible inclusion in the curriculum.	80	1.95	940	Low Extent
17	Technical college consult the industries to identify areas of emerging technologies.	80	1.95	870	Low Extent
18	Involve industry professionals in the development of motor vehicle mechanic works curriculum.	80	1.85	828	Low Extent
	Cluster Mean		**1.91**	**0.05**	**Low Extent**

Note: SD (Standard Deviation), N (Sample Size)

In response to research question four, Table 4 showed that the respondents rated item fifteen to eighteen as low extent with a mean rating ranging from 1.85 to 1.95 while the standard deviation also ranges from .828 to .940. The cluster mean recorded a mean of 1.91. With these results, it means that the extent to which industries participated in technical college curriculum development and review in Edo State was low.

Hypothesis There is no significant differences between the mean responses of technical teachers and managers of automobile industries on ways of improving collaboration between technical colleges and industries for skills acquisition in motor vehicle mechanic works in Edo state, Nigeria.

Table 5: z-test analysis showing mean difference between the mean responses of technical teachers and managers of automobile industries on ways of improving collaboration between technical colleges and industries for skills acquisition in motor vehicle mechanic works in Edo State, Nigeria

Respondents	N	Mean	SD	df	z-value	p-value	Decision
Technical Teachers	57	2.14	0.53				
				78	2.090	.040	Significant
Managers of Automobile Industries	23	1.90	0.33				

P-Value Significant at 0.05 level (2-tailed) (Reject Hypothesis) SD: Standard deviation

DF: Degree of freedom

The result in Table 5 reveals the mean responses of technical teachers and managers of automobile industries on ways of improving collaboration between technical colleges and industries for skills acquisition in motor vehicle mechanic works. Technical teachers had a mean of 2.14 and managers of automobile industries had a mean of 1.90 while their corresponding standard deviations were 0.53 and 0.33 respectively. The z-value of 2.090, at degree of freedom of 78, which shows that it was significant at p-value of .040. Testing at an alpha value of 0.05, the null hypothesis was rejected since the p-value is less than alpha value. Thus, there was a significant difference between the mean responses of technical teachers and managers of automobile industries on ways of improving collaboration between technical colleges and industries for skills acquisition in motor vehicle mechanic works.

DISCUSSION OF FINDINGS

The finding of research question one showed that the extent industries support training and re-training of technical teachers on emerging technologies in motor vehicle mechanic work is low. This could be as a result of Government not directly involving the industries, by way of policy, the funding of education in general and technical education in particular. The finding is in line with that of Banka and Okwori[13] (2019) who emphasized that training and retraining of teachers will lead to the acquisition of new ideas, methods and research skills for increased academic performance, professional development and effective implementation of skills and knowledge.

The result of research question two indicated that the extent to which industries provide teaching and learning facilities in motor vehicle mechanic works in Edo State is low. Industries that pays so much tax to the Government and run their production processes on fuel may incur high cost of production and as such lack the resources for direct intervention in support of education. The finding is in agreement with that of Audu, Umar and Idris[21] (2013) who state industries and Non-Governmental Organizations (NGOs), should be encouraged in the funding of technical and vocational education institutions for the smooth running of technical and vocational education in terms provision of infrastructural and workshop facilities such as tools, equipment and machines so that technical and vocational education graduates will acquire skills, knowledge and attitude for gainful employment and to contribute to the socio-economic development of the nation

The findings of research question three showed that the extent the industries support students' industrial work

experience scheme in Edo State is low. Industries who spend much funds in acquiring tools and equipment for production may not want those expensive equipment get damaged by students on industrial training due to lack of experience. The finding aligns appropriately with the view of Osuyi and Owenvbiugie[15] (2015) that one of the serious challenge facing students' industrial work experience scheme is non-acceptance of students by some industries. This, the authors said, is evident in the fact that many students came back after several weeks to complain that they could not get any place for training.

In research question four, it was found out that the extent to which industries participate in technical college curriculum development and review in Edo State is low. This could be as a result of Government not inviting industries to be part of curriculum development and review process. The finding supports the study carried out by Nungse et al[14] (2020) which revealed that upgrading the curriculum to meet the labour market demand through industry participation were among the identified institutional strategies for improving school-Industry collaboration for effective skill development of technical education students. The findings further supports the view of Ojo[18] (2019) who stated that during the planning, development and review stages of TVET curriculum, the industries whose interest is to be served at the long run, are usually not consulted.

CONCLUSION

Based on the findings of the study, it was concluded that there is no adequate collaboration between technical colleges and industries in the areas of training and re-training of technical teachers on emerging technologies, provision of teaching and learning facilities, supporting students' industrial work experience scheme and participation in technical college curriculum development and review for skill acquisition in motor vehicle mechanic work in Edo State, Nigeria.

RECOMMENDATIONS

Based on the findings of the study and the conclusions drawn, the following recommendations are made:

1. Industries are encouraged to collaborate with technical colleges by training and re-training technical teachers to enhance their capacity on.emerging technologies in motor vehicle mechanic works in Edo State, Nigeria.

2. Industries are encouraged to collaborate with technical colleges by assisting in the provision of modern teaching and learning facilities in motor vehicle mechanic works.

3. Industries are encouraged to support skills acquisition in motor vehicle mechanic works by granting permission for students to use its facilities during students' industrial work experience scheme.

4. Federal and State governments as a matter of policy, should ensure that industries participate in the planning and review process of technical colleges, thereby ensuring that industry standards are captured in the curriculum

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