(RESEARCH ARTICLE)

Strategies for mitigating challenges facing the effective collaboration between technical colleges and industries for skill acquisition in motor vehicle mechanic works in Edo state, Nigeria

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Abstract

This study investigated the strategies for mitigating challenges facing collaboration between technical colleges and industries for skill acquisition in motor vehicle mechanic works in Edo State. Three research questions and one hypothesis tested at 0.05 level of significance were used. The study adopted a descriptive survey research design with a population of 80 respondents, which comprised technical teachers and managers of automobile industries in Edo State. The entire population was adopted as the sample because it is of manageable size. A structured questionnaire with 17 items arranged in clusters was used as instrument for data collection. The instrument was validated by three experts. Cronbach alpha coefficient formula was used test the reliability of the instrument and it yielded an overall coefficient of 0.85. The findings of the study revealed that collaboration between technical colleges and industries for skill acquisition is facing a lot of challenges, such as industry's unwillingness to support students' industrial work experience scheme, amongst others. Based on the findings, it was recommended, amongst others, that industries should establish school-based workshop as a strategies for improving collaboration between technical colleges and industries for skills acquisition.

1. Introduction

Collaboration between Technical Colleges and Industries is a means of enhancing skill acquisition through the exchange of knowledge. Technical colleges provides the foundation for skills acquisition by means of theoretical and practical classes. On the other hand, 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, in line with Nigeria's national goals. Federal Republic of Nigeria [1] (2013), succinctly captures Nigeria's national goals to includes 'the building of a united, strong and self-reliant nation, a great and dynamic economy and a land full of bright opportunities for all citizen', amongst others. The policy further stipulates that Industrial Training (I.T) shall be a component of each trade offered in the technical colleges. This is expected to equip graduates of motor vehicle mechanic works from the technical colleges, called Motor Vehicle Mechanic or Auto Mechanic Craftsman, to apply technical knowledge and skill to repair, service and maintain all types of automobile in the industries.

The National Council of Educational Research & Training [2] (2023) describes an automobile as a wheeled motor vehicle used for transporting goods or passengers, which also carries its own engine. Hence, a motor vehicle mechanic, also

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called automobile technician, is expected to use tools to adjust, test, trouble shoot (diagnose), service and completely repair any fault in the motor vehicle for safe and reliable operations, according to manufacturer's specifications. In large workshops, the motor vehicle mechanic may specialize in the repair, maintenance and servicing of a particular system of vehicle such as suspension system, steering system, transmission system, gearing system and the braking system. Hiller, Coombes and Rogers[3] (2014) stated that a motor vehicle mechanic is a skilled personnel whose specialty is motor vehicle maintenance, repairs and modification of certain component of motor vehicle

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. According to the World Bank[4] (2018) 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. Therefore, technical colleges are expected to maintain close collaboration with the industries for the production of skilled technician, even during period of economic uncertainties.

Economic uncertainties has further supported the need for skills acquisition. Economic uncertainties refers to a situation in which future economic environment is difficult to predict. One major event that brought economic uncertainty globally, and to Nigeria in particular, is the covid-19 pandemic. The measures taken to contain it, such as lock-down, social and physical distancing, amongst others, caused significant economic uncertainties. However, studies reveal that while some Small and Medium-scale Enterprises (SMEs) suffered economically during covid-19, activities of motor vehicle mechanics and generator repairers thrived (Osuyi & Uwaifo[5], 2023). Other sources of economic uncertainties in Nigeria in recent times is the removal of fuel subsidy by the Federal Government, whereby prices of petroleum product is determined by market forces, as well as the floating of Nigerian currency (naira) exchange rate in the foreign exchange (forex) market. All of which have led to rapid price fluctuations and a geometric increase in the cost of goods and services. At such times, technical school graduates who probably acquired saleable skills, are better equipped to cope as they may render services based on economic realities at each point in time.

According to Keyton[6] (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. Hence, collaboration between technical colleges and industries implies that they jointly work together to produce skilled manpower. The rapid innovation in technology, leading to the development of precision machines, demands that students visit industries frequently in order to become aware of the skills and competencies that will fit the contemporary workplace after graduation. Abu[7] (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.

However, collaboration between technical colleges and industries in Edo State in particular, and Nigeria in general seems to be facing challenges. For example, industries may have limited involvement in Students' Industrial Work Experience Scheme (SIWES) arising from complaints that their equipment will be damaged by students on industrial attachment. Other challenges could include industry's lack of interest to invest in technical and vocational education in general, non-involvement of industries in the review of technical and vocational education curriculum and lack of incentives for students and the industries by the Government (Ojo[8], 2019). Furthermore, Osuyi and Owenvbiugie[9] (2015) identified industry's unwillingness to support students' industrial work experience scheme as part of the challenges facing effective collaboration between technical colleges and industries. All of these could pose some hindrance to enhanced skill acquisition in motor vehicle mechanic works in particular, and in other fields of vocational and technical education in general.

The twenty-first century automobile industry is one that is filled with sophisticated equipment, including equipment used for servicing and repair of motor vehicles. Hence, it is pertinent to determine ways of achieving collaboration between technical colleges and industries. Collaboration between technical colleges and industries for skill acquisition in motor vehicle mechanic works is expected to be achieved by partnering with schools in research activities, provision of scholarship to students studying technical courses, participation of industry professionals in giving special lectures to college students, establishing skill acquisition scheme for students and granting visits and excursions to students in automobile industries for relevant exposure to practical work. (Nungse, Ugwoke, Ogbuanya & Shetima[10], 2020).

In addition, strategies for collaboration could include granting work study permits to students of technical and vocational education, preparing skill training programmes that will suit school's academic calendar, industry personnel

participating in giving special lectures to technical teachers and students, establishing skill acquisition centres for students, encouraging joint development projects by the technical colleges and industries to engender entrepreneurship skills in students, award of scholarship for further studies by the industries to indigent students or students who may have distinguished themselves in their various fields of training and organizing joint seminars for technical teachers and industry professionals for cross fertilization of ideas in emerging technologies. (Mbah, Obi, and Ehimen[11], 2018). These strategies if properly implemented could assist in mitigating challenges facing the effective collaboration between technical colleges and industries leading to employment generation, self-sufficiency and economic growth in Edo State, Nigeria.

1.1. Statement of the Problem

Technical colleges are saddled with the responsibility of producing skilled middle-level manpower who are to work in the industries for national development, poverty reduction and self-reliance, in line with Nigeria's national goals. In the field of Motor Vehicle Mechanic Works (MVMW), technical college graduates are expected to be skilled in the act of testing, trouble shooting, servicing and repairing of any fault and faulty parts in motor vehicle for safe and reliable operations according to manufacturer's specifications, using the right tools and equipment.

With the advent of Millennium Motor Vehicles, 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 will 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. Hence, these students finish their industrial attachments without acquiring the requisite industrial knowledge and skills. Since adequate workshop facilities and practical training may not be available in most technical colleges in Edo State, the researchers are worried that graduates of motor vehicle mechanic works from technical colleges may no longer leave up to expectations if these challenges are not urgently resolved. The graduates seem to lack adequate and relevant skills required to operate in the modern automobile industry where vehicles are designed and controlled by electronic components which are scarcely available in technical colleges. Therefore, an effective college-industry collaboration could provide the needed recipe for students to acquire the appropriate and relevant skills. This could close the gap between classroom experience and industry skills demand in Motor Vehicle Mechanics Works in Edo State.

1.2. Purpose of the Study

The main purpose of this study was to determine the strategies for mitigating challenges facing effective collaboration between technical colleges and industries for skills acquisition in Motor Vehicle Mechanic Works (MVMW) in Edo State, Nigeria. Specifically, the study determined:

- The areas of collaboration between technical colleges and industries in Edo State, Nigeria.
- The challenges facing collaboration between technical colleges and industries in Edo State, Nigeria.
- The strategies for mitigating the challenges facing the effective collaboration between technical colleges and industries for skill acquisition in motor vehicle mechanic works in Edo State, Nigeria.

1.3. Research Questions

The following research questions guided the study

- What are the areas of collaboration between technical colleges and industries in Edo State, Nigeria?
- What are the challenges facing collaboration between technical colleges and industries in Edo State, Nigeria?
- What are the strategies for mitigating the challenges facing the effective collaboration between technical colleges and industries in Edo State, Nigeria?

1.4. Hypothesis

Ho: There is no significant differences between the mean responses of technical teachers and managers of automobile industries on the strategies for mitigating the challenges facing the effective collaboration of technical colleges and industries for skills acquisition in motor vehicle mechanic works.

1.5. Related Literature Reviewed

Ogbuanya and Tongshuwal[12] (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.

Abubakar, Rufai, Abdulkadir and Abutu[13] (2020) conducted a study on "hindrances to skill acquisition in technical college Motor Vehicle Mechanics Work (MVMW) programme in Niger State, Nigeria" using a 21 item 5-point rating scale questionnaire on a population of 397 respondents which comprised of 42 MVMW teachers and 355 MVMW students from all the seven technical colleges situated in Niger State. The population was adopted as the sample size because of its manageable size. The study was to survey the hindrances to skill acquisition in motor vehicle mechanic works in technical colleges in Niger State. Two specific purposes and two research questions were raised. Mean and standard deviation were used to answer the research questions while z-test statistics was used to test the null hypotheses at 0.05 level of significance. The questionnaire was validated by three experts and the reliability of the instrument was found to be 0.89 using Cronbach Alpha reliability statistics. The hindrances were broken into teacher related and student related factors to skill acquisition. Findings of the study revealed, among others, that the MVMW teachers are faced with the hindrances of non-availability of adequate training facilities to teach practical skills needed by industry while students of motor vehicle mechanic works are faced with hindrance posed by acquisition of obsolete skills that cannot enhance industrial development. The study is similar to the present study in instrumentation, research design, method of data collation and analysis.

Ojo[8] (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.

1.6. Summary of Literature Reviewed

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[8] (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, challenges facing collaboration between technical colleges and industries and the strategies for mitigating the challenges facing the effective collaboration between technical colleges and industries for skill acquisition in motor vehicle mechanic works. Furthermore, this study was carried out in Edo State, Nigeria. This is the gap the current study bridged.

2. Method

The descriptive survey research design was used for this study to determine strategies for mitigating challenges facing the effective collaboration between technical colleges and industries for skills acquisition in motor vehicle mechanic works in Edo State. 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. 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 opinion were used to generalise for the entire technical teachers and managers of automobile industries in Edo State. Challenges facing effective collaboration between technical colleges and automobile industries was the independent variable, while skill acquisition in motor vehicle mechanic works was the independent variable.

The population of the study consisted 80 respondents. This was made up of 57 technical teachers from public technical colleges and 23 managers of automobile industries in Edo State. These data were obtained from Board for Technical and Vocational Education and Training (BTVET) and Ministry of Education, Benin City, Edo State, Nigeria. The sample size for the study was 80 respondents, made up of 65 technical teachers in technical colleges and 15 managers of automobile industries in Edo State. The entire population was used as the sample because it was of manageable size.

One instrument titled "Technical Teachers and Managers of Automobile Industries Questionnaire" (TTMAIQ) was used to collect data from technical teachers and managers of automobile industries. The instrument was made up of two sections, A and B. Section A elicited respondents bio-data such as occupation, while section B contained 17 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 Strongly Agree (SA), Agree(A), Disagree(D) and Strongly Disagree (SD) 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, Cronbach alpha coefficient formula was used. The instrument was administered to 20 respondents once, comprising 10 technical teachers and 10 managers of automobile industries in Delta State. The test yielded an overall coefficient of 0.85. The questionnaire was administered to the respondents in the technical colleges and automobile industries in Edo State. The researchers were assisted by 8 research assistants (5 technical teachers from the various colleges and 3 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.

The data collected were analysed with the aid of Statistical Package for Social Sciences (SPSS). The research questions were answered with Mean ($\bar{X}$) and Standard Deviations (SD) statistics while Z-test statistics were 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. Furthermore, a p-value equal or less than 0.05 alpha, obtained from the Z-test, means that the hypothesis was rejected whereas p-value greater than 0.05 alpha means that the hypothesis was retained.

3. Presentation of Results

3.1. Research Question One

What are the areas of collaboration between technical colleges and industries in Edo State?

Table 1 showed the areas of collaboration between technical colleges and industries in Edo State. The respondents rated items one to five as Disagree, with a mean rating ranging from 1.86 to 2.28 while the standard deviation also ranges from 0.827 to 1.052. The cluster mean showed a mean of 2.07. With these results, the above mean scores shows that all the respondents did not agree that there is collaboration between technical colleges and the industries in the areas of research/development, provision of scholarship, participation of industry professionals in giving special lectures to technical teachers and college students, establishing skill acquisition scheme and granting industrial visits/excursions to students.

Table 1 Mean and standard deviation showing areas of collaboration

S/N	Item	N	Mean ($\bar{X}$)	SD	Remarks
1	Partnering in research/development	80	2.14	1.052	Disagreed
2	Provision of scholarship to technical and vocational education student.	80	1.86	0.838	Disagreed
3	Participation of industry professionals in giving special lectures to technical teachers and college students.	80	1.95	0.840	Disagreed
4	Establishing skill acquisition scheme for students.	80	2.11	0.827	Disagreed
5	Granting industrial visits/excursions to students for relevant exposure to practical work.	80	2.28	0.993	Disagreed
	Cluster Mean		2.07	0.100	Disagreed

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

3.2. Research Question Two

What are the challenges facing collaboration between technical colleges and industries in Edo State?

Table 2 Mean and standard deviation showing challenges facing collaboration

S/N	Item	N	Mean ($\bar{X}$)	SD	Remarks
6	Industry's lack of interest in investing in technical and vocational education.	80	2.56	1.112	Agreed
7	Non-involvement of industry in the planning and review of technical and vocational education curriculum.	80	2.63	1.129	Agreed
8	Industry's unwillingness to support students' industrial work experience scheme.	80	2.69	1.001	Agreed
9	Technical colleges' inability to develop collaborative networks with industries.	80	2.74	1.028	Agreed
10	Lack of incentives for students and the industries by the Government.	80	2.65	1.137	Agreed
11	Shortage of qualified technical teachers.	80	2.48	1.180	Disagreed
	Cluster Mean		2.63	0.070	Agreed

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

Table 2 reveals the challenges facing collaboration between technical colleges and industries in Edo State. The respondents rated items six to ten as Agree with a mean rating ranging from 2.56 to 2.74 while item eleven was rated as Disagree with a mean of 2.48. The standard deviation ranges from 1.001 to 1.180. The cluster mean indicated a mean of 2.63. The above mean scores shows that the respondents agreed that the factors listed are the challenges facing the effective collaboration between technical colleges and industries in Edo State. However, the results also reveal that the shortage of technical teachers in the technical colleges in Edo State is not one of the challenges facing the effective collaboration between technical colleges and industries.

3.3. Research Question Three

What are the strategies for mitigating the challenges facing the effective collaboration between technical colleges and industries in Edo State?

Table 3 Mean and standard deviation showing strategies for mitigating the challenges facing the effective collaboration between technical colleges and industries

S/N	Item	N	Mean ($\bar{\text{X}}$)	SD	Remarks
12	Encouraging joint development projects initiatives.	80	2.86	0.725	Agreed
13	Narrowing the gap between theory/practical through field trips/excursions.	80	2.84	0.920	Agreed
14	Engagement of qualified automobile industry professional in part-time teaching.	80	2.80	0.863	Agreed
15	Organizing joint seminars for technical college teachers and industry professionals for cross fertilization of ideas in emerging technologies.	80	2.91	0.830	Agreed
16	Establishment of school-based workshop by the industries.	80	2.90	0.851	Agreed
17	Industries award scholarship to students for further studies.	80	2.88	0.933	Agreed
18	Industries permit students' to use their facilities for industrial training	80	2.83	0.953	Agreed
19	Industries permit students' excursion visit to their facilities	80	2.93	0.961	Agreed
20	Industry's participation in development and review of curriculum for technical colleges.	80	2.88	0.933	Agreed
21	Industries permit the use of their facilities for training and re-training of technical college teachers on industrial best practices	80	2.89	0.940	Agreed
22	Provision of modern teaching and learning facilities to technical colleges	80	2.90	0.851	Agreed
	Cluster Mean		2.87	0.070	Agreed

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

Table 3 depicts the strategies that can mitigate the challenges facing the effective collaboration between technical colleges and industries in Edo State. The respondents' rated item twelve to twenty-two as Agree with a mean rating ranging from 2.80 to 2.93 while the standard deviation also ranges from 0.725 to 0.961. The cluster mean disclosed a mean of 2.87. The above mean score shows that all the respondents agreed that encouraging joint development projects initiatives, engaging field trips, organizing joint seminars for technical college teachers and industry professionals and establishment of school-based workshop by the industries are strategies that can be used to mitigate the challenges facing effective collaboration between technical colleges and industries in Edo State.

3.4. Hypotheses One

There is no significant differences between the mean responses of technical teachers and managers of automobile industries on the strategies for mitigating the challenges facing the effective collaboration of technical colleges and industries for skills acquisition in motor vehicle mechanic works in Edo State.

Table 4 Z-test analysis showing mean difference between the mean responses of technical teachers and managers automobile industries on collaboration of technical colleges and industries for skills acquisition in motor vehicle mechanic works in Edo State

Respondents	N	Mean ($\bar{\text{X}}$)	SD	df	t-value	p-value	Decision
Technical Teachers	57	2.14	0.53				
				78	2.090	0.040	Significant
Managers of Automobile Industries	23	1.90	0.33				

Value Significant at 0.05 level (Reject Hypothesis) SD: Standard Deviation. df: degree of freedom

The result in Table 4 reveals the mean responses of the significant difference between the mean score of technical teachers and managers of automobile industries on strategies to mitigate challenges facing effective collaboration of

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 t-value of 2.090, at degree of freedom of 78, which shows that it was significant at p-value of 0.040. 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 collaboration of technical colleges and industries for skills acquisition in motor vehicle mechanic works.

4. Discussion

Research question one findings indicated that the areas where there need to be more collaboration between technical colleges and industries in Edo State are research/development, provision of scholarship, participation of industry professionals, establishing skill acquisition scheme and granting industrial visits/excursions to students. This finding is supported by Nungse et al[10] (2020) that identified some areas of collaboration to include granting work study permits to technical and vocational education students, granting technical and vocational education students opportunity to participate in students' industrial work experience scheme, partnering with school in research and development activities, provision of scholarship to TVET students, preparing skill training programmes that will suit school's academic calendar, industry personnel participating in giving special lectures to technical teachers and students, establishing skill acquisition centers for students, organizing workshops/seminars on contemporary issues in industrial operations and granting industrial visit to schools for relevant exposure to practical work.

The result of research question two showed that challenges facing collaboration between technical colleges and industries ranges from industry's lack of interest in investing in technical and vocational education, non-involvement of industry in the planning and review of technical and vocational education curriculum, industry's unwillingness to support students' industrial work experience scheme, technical colleges' inability to develop collaborative networks with industries and lack of incentives for students and the industries by the Government. This finding agrees with the views of Osuyi and Owenvbiugie[9] (2015) and Ojo[8] (2019) that none involvement of the industries in the planning of technical and technical and vocational education curriculum and industry's unwillingness to support students' industrial work experience scheme are part of the challenges facing collaboration between technical colleges and industries.

The finding in research question three indicated that encouraging joint development projects initiatives, narrowing the gap between theory/practical through field trips/excursions, engagement of qualified automobile industry professional in part-time teaching, organizing joint seminars for technical college teachers and industry professionals and establishment of school-based workshop by the industries are strategies that can mitigate challenges facing effective collaboration between technical colleges and industries in Edo State. This finding supports that of Nungse et al[10] (2020) and Mbah et al[11] (2018) who are of the view that encouraging joint development projects initiative between school and industry and encouraging entrepreneurship development among the students through industry oriented experiences are very important strategies for enhancing collaboration between technical colleges and industries. The findings also supports that of Amadi[14] (2013) who identified visitation by industry professionals to various schools to expose students to practical work and industries opening up its facilities for technical and vocational education students to have the opportunity for industrial work experience as collaborative strategies.

The findings of hypothesis one revealed that there is a significant difference between the mean score of technical teachers and managers of automobile industries on strategies for mitigating the challenges facing effective collaboration of technical colleges and industries for skills acquisition in motor vehicle mechanic works. The null hypothesis is, therefore, rejected.

5. Conclusion

Based on the findings of the study, it was concluded that strategies that can mitigate the challenges facing effective collaboration between technical colleges and industries for skill acquisition in motor vehicle mechanic works in Edo State includes joint development projects, engaging field trips, organizing joint seminars for technical college teachers and industry professionals and establishment of school-based workshops.

Recommendations

The following recommendations are made:

- Technical colleges and industries should collaborate in the areas of research development, provision of scholarship, participation of industry professionals in giving special lectures to technical teachers and college students, establishing skill acquisition scheme and granting industrial visits/excursions to students.
- To mitigate the challenges facing effective collaboration between technical colleges and industries for skills acquisition in motor vehicle mechanic works, managers of technical colleges and the industries should engage in joint development projects initiatives, granting field trips/excursions for students, engaging qualified automobile industry professional in part-time teaching, organizing joint seminars for technical college teachers and industry professionals.
- Industries should endeavor to establish school based workshops for on-the-job training of technical teachers and practicals for students.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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