International Journal of Education, Management, and Technology

e-ISSN : 3026-5444
p-ISSN : 3026-4200

Index : Harvard, Boston, Sydney University, Dimensions, Lens, Scilit, Semantic, Google, etc

https://doi.org/10.58578/IJEMT.v2i1.2859

EXPLORING THE EFFICACY OF VOCATIONAL TRAINING PROGRAMS IN MOTOR VEHICLE AND MECHANIC WORKS TRADE: A CASE STUDY OF SCIENCE AND TECHNICAL COLLEGES IN NORTHEAST NIGERIA

Samaila Yerima Sule[1], Ojo Joshua Lare[2], John Ebenezer Oguntokun[3]
[1]School Engineering Technology Adamawa State Polytechnic, Yola, Nigeria;
[2]Federal College of Education (Technical), Potiskum, Yobe State, Nigeria;
[3]Modibbo Adama University, Yola, Adamawa State, Nigeria
isaacjohn@mau.edu.ng

Article Info:

Submitted:	Revised:	Accepted:	Published:
Mar 15, 2023	Mar 27, 2023	Apr 1, 2023	Apr 4, 2024

Abstract

This study aimed to explore the efficacy of vocational training programs in Motor Vehicle and Mechanic Works Trade: a case study of science and technical colleges in northeast Nigeria. The study adopted a survey research design and was carried out in northeast Nigeria. The Zone includes the states of Adamawa, Bauchi, Borno, Gombe, Taraba, and Yobe, and is situated at latitude 6.260 East and longitude 4.920 North East of Nigeria. The population of the study was 621 comprising 128 MVMW trade teachers, 126 administrators (Principals and two Vice Principals), and 367 students from the 42 science and technical colleges in Northeast Nigeria. The study adopted Simple random sampling to select a sample size of 234 respondents using Krejcie and Morgan (1970) sample size table. The instrument for data collection was a structured questionnaire titled: "Efficacy of Vocational Training Programs in Motor Vehicle and Mechanic Works Trade Questionnaire, (EVTPMVMWTQ)". The data for the study was analyzed using mean and standard deviation to answer the research questions. The findings of the study revealed that the curriculum adequately covers essential topics, practical training facilities are well-equipped, instructors demonstrate expertise,

IJEMT Journal is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License

safety protocols are emphasized, and opportunities for hands-on experience are provided. The findings further revealed that the high agreement levels, with mean scores above 4.0, across various aspects of the training program in Motor Vehicle and Mechanic Works (MVMW), suggest a positive perception among students regarding the effectiveness of the program. It was recommended that the government should upgrade and provide modern automotive equipment and tools to ensure vocational training programs have access to current resources. Collaborate with industry partners to facilitate equipment provision and ensure practical training aligns with industry standards.

Keywords: Efficacy, Vocational Training Programs, Motor Vehicle and Mechanic Works Science and Technical Colleges, Northeast Nigeria

INTRODUCTION

In Nigeria, vocational education plays a crucial role in addressing unemployment and skill shortages (Okoro, 2019). However, the efficacy of vocational training programs, particularly in Motor Vehicle and Mechanic Works Trade, remains understudied. Motor Vehicle and Mechanic Works Trade is pivotal due to its relevance in economic development and job creation (Agunwa et al., 2018). Northeast Nigeria, with its unique socioeconomic challenges exacerbated by insurgency, requires robust vocational training to foster economic recovery and stability (Baba & Asuke, 2017). The Science and Technical Colleges (STCs) in Northeast Nigeria serve as critical institutions for vocational education (Olayinka, 2016). These colleges offer training in various trades, including Motor Vehicle and Mechanic Works Trade, aiming to equip students with practical skills for the workforce (Ibrahim & Adamu, 2018). However, the effectiveness of these programs in meeting industry demands and addressing local needs remains uncertain (Ojo et al., 2020).

The curriculum of vocational training programs in Nigeria, including Motor Vehicle and Mechanic Works Trade, is meticulously crafted to resonate with contemporary industry standards and equip students with the requisite practical skills demanded by the evolving workforce (Odunaike et al., 2019). These curricular frameworks are meticulously designed to blend theoretical understanding with hands-on experiences, ensuring graduates are adept at navigating real-world challenges within their chosen field. However, despite the robustness of these curricula on paper, the translation of their intended outcomes into effective teaching and learning experiences is often impeded by a myriad of challenges pervasive within the educational landscape (Dada & Adewale, 2018).

Foremost among these hurdles is the prevalence of outdated facilities, which stand as relics of a bygone era, ill-equipped to meet the demands of contemporary vocational education (Dada & Adewale, 2018). Dilapidated workshops, obsolete machinery, and insufficient technological infrastructure not only undermine the practical efficacy of training but also stifle students' ability to develop competencies aligned with modern industry practices. Moreover, the acute scarcity of adequate resources compounds these challenges, constraining the capacity of institutions to provide students with the requisite learning materials, consumables, and tools essential for hands-on skill acquisition.

Furthermore, the chronic shortage of qualified instructors exacerbates the efficacy crisis plaguing vocational training programs in Science and Technical Colleges (STCs) across Nigeria (Dada & Adewale, 2018). While curriculum guidelines may be meticulously drafted, the lack of experienced educators proficient in both theoretical knowledge and practical application severely compromises the delivery of quality instruction. This scarcity of skilled instructors not only hampers the transfer of technical know-how but also diminishes the mentorship opportunities vital for nurturing the next generation of automotive technicians and industry professionals.

Consequently, these multifaceted challenges collectively conspire to impede the efficacy of vocational training programs within STCs, undermining their ability to adequately prepare students for the rigors of the automotive industry. Without concerted efforts to address these systemic deficiencies and fortify the foundations upon which vocational education stands, the aspirations of students seeking to carve a niche within the automotive sector may remain perpetually out of reach. Thus, urgent interventions are imperative to rejuvenate vocational training, ensuring it remains a beacon of opportunity for aspiring automotive technicians, driving both personal growth and national development.

The insights garnered from student perspectives on vocational training in Motor Vehicle and Mechanic Works Trade serve as invaluable pillars upon which to gauge the efficacy of such programs (Ajayi & Adeleke, 2019). As the primary beneficiaries of vocational education, students' satisfaction levels, perceptions of the curriculum's relevance, and the quality of practical training experiences hold profound implications for the overall success of these initiatives (Akanbi et al., 2020). Indeed, the efficacy of vocational programs hinges upon their ability to resonate with students' aspirations, cater to their educational needs, and equip them with the competencies requisite for success in their chosen field.

Within the context of Northeast Nigeria, characterized by pervasive socioeconomic disruptions stemming from factors such as insurgency and economic instability, understanding the unique challenges and experiences encountered by students undergoing vocational training assumes heightened significance (Yakubu & Mainoma, 2017). Against this backdrop of adversity, the efficacy of vocational programs faces intensified scrutiny, necessitating a nuanced understanding of the intricacies shaping students' educational journeys. By delving into the lived experiences of students navigating vocational training amidst socio-economic turmoil, stakeholders gain invaluable insights into the systemic barriers hindering program effectiveness and the pathways towards meaningful improvement.

Moreover, student perspectives serve as potent catalysts for program refinement and innovation, offering invaluable feedback on areas warranting attention and enhancement (Ajayi & Adeleke, 2019). By actively soliciting and incorporating students' voices into the pedagogical discourse, vocational training programs can adopt a student-centric approach, tailored to meet the evolving needs and aspirations of its beneficiaries. From critiquing the adequacy of practical training facilities to evaluating the relevance of theoretical coursework in real-world contexts, students' perspectives provide a holistic vantage point from which to assess and iterate upon programmatic interventions.

Furthermore, student engagement in the evaluation and improvement of vocational training programs fosters a sense of ownership and empowerment, cultivating a conducive learning environment conducive to personal and professional growth (Akanbi et al., 2020). By actively involving students in decision-making processes and soliciting their input on matters ranging from curriculum design to pedagogical methodologies, vocational institutions can foster a culture of collaboration and inclusivity, wherein students feel valued as active participants in their educational journey.

In essence, student perspectives represent a linchpin in the quest to enhance the efficacy of vocational training programs in Northeast Nigeria and beyond. By centering students' voices within the discourse surrounding vocational education, stakeholders can glean invaluable insights into the challenges, aspirations, and opportunities shaping students' educational experiences. Through collaborative efforts to address systemic deficiencies, cultivate student-centered learning environments, and foster a culture of continuous improvement, vocational training programs can fulfill their mandate of equipping students

with the skills, knowledge, and resilience requisite for success in the automotive industry and beyond.

The effectiveness of vocational training programs in Motor Vehicle and Mechanic Works Trade is intricately intertwined with government policies and initiatives, which wield significant influence over the trajectory and efficacy of these educational endeavors (Nwanna, 2017). Recognizing the pivotal role of vocational education in driving economic growth, fostering innovation, and addressing skills shortages, governments often enact policies aimed at bolstering vocational training infrastructure, enhancing curriculum development, and bolstering teacher training initiatives (Owoeye & Adeyemo, 2019). By investing in these foundational pillars of vocational education, policymakers endeavor to fortify the foundations upon which vocational training programs stand, thereby augmenting their capacity to deliver high-quality, industry-relevant instruction.

However, the translation of these well-intentioned policies into tangible improvements within the realm of vocational education is contingent upon their effective implementation at the regional level, where contextual nuances and local challenges come to the fore (Ibrahim et al., 2018). In the case of Northeast Nigeria, a region grappling with resource constraints, security concerns, and socio-economic disruptions stemming from insurgency and conflict, the implementation of government policies pertaining to vocational education encounters formidable hurdles (Ibrahim et al., 2018). Limited financial resources, infrastructure deficiencies, and the precarious security landscape pose formidable obstacles to the seamless execution of vocational education initiatives, impeding progress and hindering program efficacy.

Moreover, the efficacy of government interventions in vocational education hinges upon their ability to address the multifaceted needs and challenges confronting stakeholders within the Motor Vehicle and Mechanic Works Trade sector (Nwanna, 2017). Beyond infrastructural enhancements and curriculum reforms, effective government policies must also prioritize the provision of targeted support mechanisms aimed at bolstering the capacity of vocational institutions to adapt to evolving industry demands, foster industry-academic partnerships, and provide students with access to practical training opportunities (Owoeye & Adeyemo, 2019).

Furthermore, sustainable progress in vocational education necessitates a holistic approach that transcends policy formulation to encompass robust monitoring and evaluation

mechanisms aimed at tracking the impact of government interventions and facilitating iterative improvements (Nwanna, 2017). By fostering a culture of accountability and transparency, policymakers can ensure that resources are allocated judiciously, interventions are targeted effectively, and outcomes are aligned with the overarching goals of vocational education reform.

In conclusion, while government policies and initiatives hold immense potential to enhance the efficacy of vocational training programs in Motor Vehicle and Mechanic Works Trade, their successful implementation at the regional level necessitates a nuanced understanding of local contexts, challenges, and opportunities. By addressing the unique needs of Northeast Nigeria and leveraging targeted interventions to surmount resource constraints and security concerns, policymakers can foster an enabling environment conducive to the growth and sustainability of vocational education initiatives, thereby empowering individuals to thrive in the automotive industry and contribute to the broader socio-economic development agenda.

Statement of the Problem

Despite the increasing emphasis on vocational education as a means to meet the evolving demands of the automotive industry, there exists a significant gap in understanding the effectiveness of these programs in adequately preparing students for their future careers. The lack of clarity surrounds various aspects of these programs, including the relevance of the curriculum, the sufficiency of infrastructure and facilities, the quality of instruction delivered by faculty members, and the overall satisfaction levels of students participating in these programs. This gap in understanding not only hinders the potential of students to thrive in their chosen field but also poses a challenge to the overarching goal of vocational education to address the skills gap and foster sustainable socio-economic development within the region. Thus, there is a critical need to delve into the efficacy of vocational training programs in Motor Vehicle and Mechanic Works Trade within Science and Technical Colleges in Northeast Nigeria.

Purpose of the Study

This study aimed to explore the efficacy of vocational training programs in Motor Vehicle and Mechanic Works Trade: a case study of science and technical colleges in northeast Nigeria. Specifically, the study sought to:

1. Determine whether the vocational training programs in Motor Vehicle and Mechanic Works Trade in Science and Technical Colleges in Northeast Nigeria align with industry standards.
2. Determine the perceptions of students enrolled in Motor Vehicle and Mechanic Works Trade regarding the effectiveness of the curriculum and training methodologies.
3. Identify the challenges instructors and administrators encounter in delivering vocational training programs in Motor Vehicle and Mechanic Works Trade.
4. Identify the support mechanisms available to facilitate the successful implementation of vocational training programs in Motor Vehicle and Mechanic Works Trade.

Research Questions

The following research question guided the study

1. How do vocational training programs in Motor Vehicle and Mechanic Works Trade in Science and Technical Colleges in Northeast Nigeria align with industry standards?
2. What are the perceptions of students enrolled in Motor Vehicle and Mechanic Works Trade regarding the effectiveness of the curriculum and training methodologies?
3. What challenges do instructors and administrators encounter in delivering vocational training programs in Motor Vehicle and Mechanic Works Trade?
4. What support mechanisms are available to facilitate the successful implementation of vocational training programs in Motor Vehicle and Mechanic Works Trade?

METHODS

The study adopted a survey research design and was carried out in northeast Nigeria. The Zone includes the states of Adamawa, Bauchi, Borno, Gombe, Taraba, and Yobe, and is situated at latitude 6.260 East and longitude 4.920 North East of Nigeria. The population of the study was 621 comprising 128 MVMW trade teachers, 126 administrators (Principals and two Vice Principals), and 367 students from the 42 science and technical colleges in Northeast Nigeria. The study adopted Simple random sampling to select a sample size of 234 respondents using Krejcie and Morgan (1970) sample size table. The

instrument for data collection was a structured questionnaire titled: "Efficacy of Vocational Training Programs in Motor Vehicle and Mechanic Works Trade Questionnaire, (EVTPMVMWTQ)". The questionnaire responses were organized on a 5-point scale with two different response options: Strongly Agreed = 5 points, Agreed = 4 points, Undecided = 3 points, Disagreed = 2 points, Strongly Disagreed = 1 point. The questionnaire was subjected to face validation by three experts from the Department of Technology Education, Modibbo Adama University Yola, Adamawa State. A reliability index of 0.91 was obtained using Cronbach Alpha. The data for the study was analyzed using mean and standard deviation to answer the research questions. All items with a mean score of 3.50 or higher were judged "Agreed " while those with a mean score of less than 3.50 were rated "Disagreed ".

RESULTS

Research Question 1: How do vocational training programs in Motor Vehicle and Mechanic Works Trade in Science and Technical Colleges in Northeast Nigeria align with industry standards?

Table 1: Vocational Training Programs in MVMW Alignment With Industry Standards

				N = 234
SN	**ITEMS**	$\bar{x}$	***SD***	**Remark**
1.	The curriculum of the vocational training program adequately covers essential topics related to motor vehicle maintenance and repair	4.29	0.63	Agreed
2.	The practical training facilities provided by the college are equipped with the necessary tools and equipment required for motor vehicle servicing according to industry standards	4.23	0.82	Agreed
3.	The instructors demonstrate a high level of expertise and competence in teaching motor vehicle and mechanic work trade	4.09	0.79	Agreed
4.	The vocational training program emphasizes safety protocols and procedures in motor vehicle servicing	4.11	0.71	Agreed
5.	The program offers opportunities for students to gain hands-on experience through internships or apprenticeships with industry professionals	3.90	0.87	Agreed
6.	The curriculum includes up-to-date information on emerging technologies and trends in the automotive industry	4.14	0.72	Agreed
7.	The vocational training program effectively prepares students for industry-recognized certifications in motor vehicle maintenance and repair	3.76	0.62	Agreed

8.	The college collaborates with local automotive businesses or workshops to provide real-world learning experiences for students	4.14	0.78	Agreed
9.	The assessment methods used in the program adequately measure students' proficiency in motor vehicle and mechanic work trade	4.14	0.72	Agreed
10.	I believe that the vocational training program adequately prepares students for entry-level positions in the automotive industry	4.19	0.67	Agreed
	Grand Mean	**4.10**		**Agreed**

Table 1 assesses the alignment of vocational training programs in Motor Vehicle and Mechanic Works Trade (MVMW) with industry standards in Science and Technical Colleges in Northeast Nigeria. Table 1 reveals a high level of agreement among respondents regarding the alignment of vocational training programs with industry standards. The mean scores for all items range from 3.76 to 4.29, indicating generally positive perceptions across various aspects of the programs. Specifically, respondents agreed that the curriculum adequately covers essential topics, practical training facilities are well-equipped, instructors demonstrate expertise, safety protocols are emphasized, and opportunities for hands-on experience are provided. Additionally, the curriculum includes up-to-date information, and assessment methods effectively measure students' proficiency. Furthermore, respondents believe that the vocational training programs adequately prepare students for industry-recognized certifications and entry-level positions in the automotive industry. The grand mean of 4.10 further supports the overall agreement with the alignment of the programs with industry standards.

Research Question 2: What are the perceptions of students enrolled in Motor Vehicle and Mechanic Works Trade regarding the effectiveness of the training methodologies?

Table 2: Perceptions of Students Enrolled in MVMW Regarding the Effectiveness of Training Methodologies

				N = 234
SN	**ITEMS**	$\bar{x}$	***SD***	**Remark**
1.	The training materials provided in the Motor Vehicle and Mechanic Works Trade program adequately cover essential concepts and skills	3.76	0.91	Agreed
2.	The instructors effectively communicate complex automotive concepts and techniques during the training sessions	4.02	0.84	Agreed
3.	The hands-on practical sessions in the Motor Vehicle and Mechanic Works Trade program enhance understanding and	4.11	0.63	Agreed

	retention of automotive knowledge and skills			
4.	The availability of modern equipment and tools facilitates learning and practical application in the training sessions	4.19	0.63	Agreed
5.	The pace of the Motor Vehicle and Mechanic Works Trade program allows sufficient time for students to grasp and master automotive concepts and techniques	4.14	0.72	Agreed
6.	The organization of the training sessions in the Motor Vehicle and Mechanic Works Trade program is conducive to effective learning	4.14	0.81	Agreed
7.	The opportunities for group collaboration and peer learning contribute positively to the overall learning experience in the Motor Vehicle and Mechanic Works Trade program	4.21	0.72	Agreed
8.	The feedback provided by instructors on student performance helps in identifying areas for improvement and enhancing learning outcomes	4.12	0.63	Agreed
9.	The assessment methods used in the Motor Vehicle and Mechanic Works Trade program accurately measure students' understanding and proficiency in automotive technology	3.95	0.70	Agreed
10.	I am satisfied with the effectiveness of the training methodologies employed in the Motor Vehicle and Mechanic Works Trade program	4.00	0.86	Agreed

Table 2 presents the perceptions of students enrolled in the Motor Vehicle and Mechanic Works Trade regarding the effectiveness of the training methodologies. The majority of students agree with the effectiveness of the training methodologies, as evidenced by the mean scores ranging from 3.76 to 4.21. Particularly noteworthy is the high agreement levels (mean scores above 4.0) across most items, indicating a positive perception among students regarding various aspects of the training program. These aspects include the adequacy of training materials, effectiveness of instructors' communication, benefits of hands-on practical sessions, availability of modern equipment, suitability of the program's pace, conducive organization of training sessions, positive impact of group collaboration and peer learning, helpfulness of instructor feedback, accuracy of assessment methods, and overall satisfaction with the training methodologies employed.

Research Question 3: What challenges do instructors and administrators encounter in delivering vocational training programs in Motor Vehicle and Mechanic Works Trade?

Table 3: Challenges Instructors and Administrators Encounter In Delivering Vocational Training Programs in MVMW

				N = 234
SN	**ITEMS**	$\bar{x}$	***SD***	**Remark**
1.	The curriculum for Motor Vehicle and Mechanic Works Trade adequately covers the essential topics	2.93	0.80	Disagreed
2.	The availability of up-to-date equipment and tools enhances the effectiveness of vocational training in Motor Vehicle and Mechanic Works Trade	4.09	0.83	Agreed
3.	Instructors possess sufficient expertise and experience to deliver high-quality instruction in Motor Vehicle and Mechanic Works Trade	2.19	0.74	Disagreed
4.	Administrative support and resources allocated to the Motor Vehicle and Mechanic Works Trade program are adequate	2.33	0.65	Disagreed
5.	The organization of practical sessions and hands-on training activities facilitates effective learning in Motor Vehicle and Mechanic Works Trade	4.14	0.73	Agreed
6.	The level of student engagement and participation in Motor Vehicle and Mechanic Works Trade classes is satisfactory	2.29	0.85	Disagreed
7.	The assessment methods used in Motor Vehicle and Mechanic Works Trade adequately measure students' understanding and skills	1.24	0.70	Disagreed
8.	The availability of internship or apprenticeship opportunities enhances the vocational training experience in Motor Vehicle and Mechanic Works Trade	4.10	0.70	Agreed
9.	Instructors face challenges in adapting the curriculum to meet the evolving demands of the automotive industry	3.86	1.06	Agreed
10.	Administrative bureaucracy and paperwork hinder the smooth delivery of vocational training programs in Motor Vehicle and Mechanic Works Trade	3.90	1.09	Agreed
	Grand Mean	**3.11**		**Disagreed**

Table 3 presents the challenges encountered by instructors and administrators in delivering vocational training programs in Motor Vehicle and Mechanic Works Trade (MVMW). Specifically, respondents agreed that the availability of up-to-date equipment and tools, the organization of practical sessions, the level of student engagement, the availability of internship/apprenticeship opportunities, and the challenges faced in adapting the curriculum to industry demands enhance the effectiveness of vocational training in

MVMW. On the other hand, respondents disagreed with statements related to the adequacy of curriculum coverage, instructors' expertise, administrative support and resources, suitability of assessment methods, and the impact of administrative bureaucracy on the smooth delivery of vocational training programs in MVMW.

Research Question 4: What support mechanisms are available to facilitate the successful implementation of vocational training programs in Motor Vehicle and Mechanic Works Trade?

Table 4: Support Mechanisms Available to Facilitate the Successful Implementation of Vocational Training Programs in MVMW

				N = 234
SN	**ITEMS**	$\bar{x}$	***SD***	**Remark**
11.	The availability of modern automotive equipment and tools adequately supports my learning experience in the vocational training program	4.17	0.72	Agreed
12.	The curriculum content of the vocational training program effectively aligns with the current demands and trends in the motor vehicle and mechanic works industry	4.19	0.82	Agreed
13.	The instructors demonstrate sufficient expertise and competence in delivering the curriculum content related to motor vehicle and mechanic works	4.13	0.77	Agreed
14.	The administrative support provided by the institution contributes positively to the smooth operation of the vocational training program	4.19	0.68	Agreed
15.	The availability of industry partnerships and collaborations enhances my understanding of real-world applications in motor vehicle and mechanic works	3.98	0.80	Agreed
16.	The provision of practical hands-on training opportunities significantly enhances the development of my skills in motor vehicle and mechanical works	4.19	0.78	Agreed
17.	The availability of career guidance and counseling services assists me in making informed decisions about my prospects in the motor vehicle and mechanic works industry	3.92	0.66	Agreed
18.	The availability of financial support options, such as scholarships or tuition assistance, positively influences my participation and engagement in the vocational training program	4.13	0.74	Agreed
19.	The provision of internships or apprenticeships opportunities facilitates my transition from vocational training to actual employment in the motor vehicle and mechanic works field	4.05	0.86	Agreed
20.	The support system provided by the institution effectively addresses the challenges faced by students enrolled in the motor vehicle and mechanic works vocational training program	4.10	0.88	Agreed
	Grand Mean	**4.11**		**Agreed**

Table 4 presents the support mechanisms available to facilitate the successful implementation of vocational training programs in Motor Vehicle and Mechanic Works Trade (MVMW). The participants generally agreed that the availability of modern automotive equipment and tools, alignment of curriculum content with industry demands, instructors' expertise, administrative support, practical hands-on training opportunities, financial support options, provision of internships or apprenticeships, and the effectiveness of the institution's support system positively contribute to the successful implementation of vocational training programs in MVMW. "Grand Mean" of 4.11 indicates a high overall level of agreement among respondents regarding the effectiveness of support mechanisms in facilitating the successful implementation of vocational training programs in MVMW.

DISCUSSION

The study revealed that the curriculum adequately covers essential topics, practical training facilities are well-equipped, instructors demonstrate expertise, safety protocols are emphasized, and opportunities for hands-on experience are provided. Furthermore, the vocational training programs adequately prepare students for industry-recognized certifications and entry-level positions in the automotive industry. These findings align with the submission of Curtis (2018). According to Curtis, the curriculum adequately covers essential topics in automotive technology and is consistent with research emphasizing the importance of comprehensive curricula in vocational training. Well-structured and up-to-date curricula ensure that students gain the necessary knowledge and skills to meet industry standards and demands (Bragg, 2019). The presence of well-equipped practical training facilities is crucial for effective vocational training in automotive technology. Oliver and Jackson (2019) highlights the significance of hands-on learning experiences in vocational education, which contribute to skill acquisition and competency development. To further buttress the findings, Gibb and Hannon (2017) stressed the importance of competent instructors in vocational education and training. Skilled instructors play a vital role in delivering quality instruction, providing guidance, and fostering student learning and development. Providing opportunities for hands-on experience is fundamental in vocational training programs, as practical learning enhances skill acquisition and prepares students for real-world challenges (Mulder et al., 2018). Hands-on experiences also foster problem-solving skills and promote experiential learning, which are crucial for success in

the automotive industry. The study's finding that vocational training programs adequately prepare students for industry-recognized certifications and entry-level positions reflects the alignment of program outcomes with industry needs and standards (Tuckett & Sellick, 2020). Industry-recognized certifications validate students' skills and competencies, enhancing their employability and career prospects.

The high agreement levels, with mean scores above 4.0, across various aspects of the training program in Motor Vehicle and Mechanic Works (MVMW), suggest a positive perception among students regarding the effectiveness of the program. This aligns with previous research indicating that positive perceptions of vocational training programs are associated with increased student satisfaction and engagement (Bragg, 2019). Specifically, the high mean score regarding the availability of modern automotive equipment and tools supporting the learning experience reflects findings from studies emphasizing the importance of hands-on learning experiences in vocational education (Dai & Sternberg, 2019). Similarly, the positive perception of curriculum alignment with industry demands echoes research highlighting the importance of industry-relevant curriculum in vocational training programs (Hodkinson & Hodkinson, 2015; Griffin & Care, 2015). Moreover, the high mean score for instructors' expertise and competence underscores the significance of qualified instructors in delivering effective vocational education.

The findings of the study reveal a nuanced perspective on the efficacy of vocational training programs in Motor Vehicle and Mechanic Works (MVMW). Respondents expressed agreement with factors such as the availability of modern equipment and tools, well-organized practical sessions, high levels of student engagement, and the provision of internship/apprenticeship opportunities, all of which were perceived to enhance the effectiveness of vocational training in MVMW (Smith et al., 2021; Johnson & Williams, 2021). However, there were dissenting opinions regarding the adequacy of curriculum coverage, instructors' expertise, administrative support and resources, suitability of assessment methods, and the impact of administrative bureaucracy on program delivery, indicating areas where improvements are needed to optimize the outcomes of vocational training in MVMW (Brown & Davis, 2022; Thompson, 2021). These findings underscore the importance of addressing various facets of vocational training programs to ensure they meet the evolving needs of the industry and adequately prepare students for careers in MVMW.

The findings of this study revealed a high level of agreement among respondents regarding the effectiveness of support mechanisms in facilitating the successful implementation of vocational training programs in MVMW. Similar sentiments were expressed by Adeyemi and Adegoke (2019) emphasize the importance of modern equipment and tools in vocational education, highlighting their role in enhancing learning experiences. Ibrahim et al. (2020) underscore the significance of practical hands-on training opportunities in fostering skills development, thereby aligning with the notion that experiential learning enhances vocational training effectiveness. Additionally, Ojo et al. (2018) highlight the critical role of institutional support mechanisms in addressing challenges encountered by students, thereby promoting the smooth operation and success of vocational training programs in MVMW. Collectively, these studies underscore the multifaceted nature of support mechanisms, including resource provision, practical training opportunities, and institutional support, all of which are essential for the successful implementation of vocational training programs in MVMW across Nigeria.

CONCLUSION

In conclusion, this study has provided valuable insights into the efficacy of vocational training programs in Motor Vehicle and Mechanic Works Trade (MVMW) within Science and Technical Colleges in Northeast Nigeria. Through a comprehensive examination of support mechanisms and stakeholder perspectives, it has been demonstrated that these programs play a crucial role in preparing students for careers in the automotive industry. The findings indicate a high level of agreement among respondents regarding the effectiveness of various support mechanisms, including the availability of modern equipment, alignment of curriculum content with industry demands, instructor expertise, administrative support, practical hands-on training opportunities, and institutional support systems. These findings underscore the importance of robust support mechanisms in facilitating the successful implementation of vocational training programs in MVMW, thereby contributing to the development of skilled manpower and the overall socio-economic advancement of the region. However, further research and continuous improvements are necessary to address any identified gaps and ensure the sustained efficacy and relevance of vocational training programs in MVMW across Northeast Nigeria.

Recommendations

1. The government should upgrade and provide modern automotive equipment and tools to ensure vocational training programs have access to current resources. Collaborate with industry partners to facilitate equipment provision and ensure practical training aligns with industry standards.
2. Regularly update the curriculum to match the current demands and trends in the motor vehicle and mechanic works industry. Include emerging technologies, industry best practices, and relevant skills to prepare students for the evolving field.
3. Offer professional development opportunities for instructors to improve their expertise in delivering curriculum content. Focus on pedagogical methods, technological advancements, and industry updates to enhance teaching effectiveness.
4. Enhance support services such as career guidance, financial aid, and internship placements to facilitate students' transition into the workforce. Provide ongoing support and mentorship to assist students in overcoming challenges and navigating career pathways effectively.

REFERENCES

Adeyemi, A., & Adegoke, A. (2019). Enhancing Vocational and Technical Education for Sustainable Development in Nigeria. *International Journal of Education, Learning and Development, 7*(2), 69-78.

Agunwa, J., Ozioko, R., & Uzoka, F. (2018). Impact of Vocational Education and Training on Youth Employment and Entrepreneurship in Nigeria. In Proceedings of the 3rd International Conference on European Studies (ICES 2018).

Aina, B., Olaoye, S., & Oyekanmi, M. (2019). Factors influencing the Quality of Vocational Education and Training Programme Delivery in Nigeria. Mediterranean Journal of Social Sciences, 10(3), 915.

Ajayi, A., & Adeleke, B. (2019). Students' Perception of Vocational and Technical Education in Nigeria. Global Journal of Educational Studies, 5(2), 101107.

Akanbi, A., Salau, O., & Ogunleye, A. (2020). Assessment of the Relevance of Vocational and Technical Education Curriculum in Nigeria. Journal of Education and Practice, 11(18), 8392.

Baba, M., & Asuke, F. (2017). Boko Haram Insurgency and SocioEconomic Development in Nigeria: A Study of Borno State. International Journal of Sustainable Development and Planning, 12(7), 11221130.

Bragg, D. D. (2019). Career and Technical Education (CTE) Curriculum Quality: A Systematic Review and Future Research Agenda. *Journal of Vocational Education & Training, 71*(4), 457–479.

Bragg, D. D. (2019). Student perceptions of vocational training programs: A qualitative study. Journal of Vocational Education, 32(2), 87-102.

Brown, A., & Davis, B. (2022). Enhancing Vocational Training: Strategies for Curriculum Development in the Motor Vehicle and Mechanic Works Industry. *Journal of Vocational Education, 15*(2), 45-58.

Curtis, D. D. (2018). *The Curriculum: Theory and Practice (7th ed.)*. SAGE Publications.

Dada, D., & Adewale, O. (2018). Enhancing Technical and Vocational Education in Nigeria: The Roles of Stakeholders. Journal of Technical Education and Training, 10(2), 3139.

Dai, D. Y., & Sternberg, R. J. (2019). Hands-on learning in vocational education: A meta-analysis. *Journal of Educational Psychology, 111*(2), 258-273.

Gibb, A., & Hannon, P. D. (2017). *Leading vocational education and training: The professional and managerial challenges*. Routledge.

Griffin, C., & Care, E. (2015). *Effective teaching in vocational education and training: Engaging and empowering learners*. Routledge.

Hodkinson, P., & Hodkinson, H. (2015). *The significance of individuals' dispositions in vocational education and training: The complex, messy and essential*. Routledge.

Ibrahim, H. I., Abdullahi, I., & Nasiru, M. (2020). Enhancing the Relevance of Vocational and Technical Education in Kano State, Nigeria. *International Journal of Vocational and Technical Education Research, 6*(4), 47-57.

Ibrahim, H., & Adamu, B. (2018). SocioEconomic Implications of Insurgency in Nigeria: A Case Study of Northeast. Journal of Poverty, Investment and Development, 40, 3544.

Ibrahim, S., Garba, M., & Abdu, A. (2018). The Role of Technical and Vocational Education in Human Resource Development: A Study of Bauchi State, Nigeria. International Journal of Advanced Research and Publications, 2(2), 6674.

Johnson, C., & Williams, D. (2021). Practical Sessions and Student Engagement: Key Factors in Effective Vocational Training Programs. *Technical Education Journal, 25*(3), 112-125.

Liu, J., & Chiang, F. K. (2017). Enhancing the effectiveness of vocational training programs: A review of research and implications for policy and practice. *International Journal of Training Research, 15(*2), 79-94.

Mulder, M., Weigel, T., Collins, K., & Smerdon, B. (2018). *Vocational education and training for a global economy: Lessons from four countries*. Springer.

National Institute for Occupational Safety and Health [NIOSH]. (2018). Workplace Safety & Health Topics: Young Worker Safety in Restaurants. https://www.cdc.gov/niosh/topics/youth/restaurant.html

Odunaike, B., Okunuga, R., & Okunuga, S. (2019). Relevance of Technical and Vocational Education in Nigeria: A Review. Journal of Education and Practice, 10(23), 612.

Ojo, A. A., Oyelami, R. O., & Okonkwo, U. C. (2018). Institutional Support Mechanism and Effectiveness of Technical and Vocational Education: The Enugu State Experience. *Journal of Education and Practice, 9*(12), 23-31.

Ojo, S., Adepoju, G., & Olowookere, K. (2020). Technical and Vocational Education Training (TVET) in Nigeria: Challenges and the Way Forward. Journal of Education and eLearning Research, 7(1), 915.

Okoro, J. (2019). Vocational and Technical Education for Sustainable Development in Nigeria. International Journal of Multidisciplinary Research and Development, 6(2), 110116.

Olayinka, S. (2016). Technical and Vocational Education and Training in Nigeria: The Journey So Far. Journal of Educational and Social Research, 6(2), 2530.

Oliver, M., & Jackson, D. (2019). *Vocational Education and Training: A Global Perspective*. Routledge.

Olukotun, I., Afolabi, R., & Adu, E. (2017). Technical and Vocational Education and Training (TVET) for Sustainable Development in Nigeria: Challenges and the Way Forward. American Journal of Educational Research, 5(10), 10711078.

Owoeye, J., & Adeyemo, A. (2019). Evaluation of Technical and Vocational Education and Training (TVET) Programs in Nigeria. Journal of Technical Education and Training, 11(1), 4249.

Smith, J., et al. (2021). Internship and Apprenticeship Opportunities: Enhancing Vocational Training in Motor Vehicle and Mechanic Works. *Journal of Technical Education, 30*(4), 78-91.

Thompson, R. (2021). Administrative Support and Bureaucracy in Vocational Training Programs: Challenges and Solutions. *Education Policy Review, 40*(1), 20-35.

Tuckett, A., & Sellick, T. (2020). *Vocational Education and Training (VET) and the Future of Work*. In M. Mulder, P. Herweijer, J. Biemans, & M. Bohlinger (Eds.), International Handbook of Vocational Education and Training (2nd ed., pp. 231–256). Springer.

Yakubu, S., & Mainoma, M. (2017). Vocational and Technical Education in Nigeria: Revitalizing Nigeria's Educational System for Economic Growth and Development. Journal of Education and Practice, 8(6), 7579.