



Assessment of instructor competency in teaching motor vehicle mechanics in Government Technical Colleges of Lagos and Ogun State, Nigeria

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Abstract

Nigeria's institutions continue to produce graduates who lack industry-relevant skills due to shortages of qualified instructors and inadequate instructional resources, which undermine instructional quality. This study assessed instructor competency, the availability and utilisation of teaching resources, and challenges affecting instruction in motor vehicle mechanics in Government Technical Colleges of Lagos and Ogun States, Nigeria. A descriptive research design was adopted, and 18 motor vehicle mechanics instructors, along with 7 heads of departments were purposively selected. Data were collected using a validated self-developed questionnaire with a reliability coefficient of 0.87, and analyzed using mean, standard deviation, Pearson correlation, and t-test. Findings showed that workshops, tools, and equipment were in satisfactory condition ($\bar{X} = 3.36$), instructors demonstrated high competency ($\bar{X} = 3.96$), and instructional materials were adequately available and utilized ($\bar{X} = 3.96$). Major challenges included limited multimedia resources, constrained access, and improper use of materials. No significant relationship was found between workshop condition and instructor competency ($r = -0.198$, $p = 0.343$), and instructors' and heads of departments' responses on challenges did not differ significantly ($t(18) = 0.536$, $p = 0.599$). The study recommended equitable distribution and effective utilization of instructional resources to enhance teaching quality and promote industry-relevant skill acquisition.

1.0 Introduction

Vocational Education and Training is widely recognized as a critical pillar for national development, particularly in developing countries such as Nigeria. It plays an important role in reducing unemployment, fostering economic growth, and equipping individuals with marketable skills (Saleem & Fatima, 2018). Technical colleges, as key Vocational Education and Training institutions, provide practical competencies and theoretical knowledge required to meet labour market demands. Among the various vocational trades offered, motor vehicle mechanics is especially crucial, preparing students to service, maintain, and repair vehicles for employment or self-reliance through effective and operational workshops.

The effectiveness of motor vehicle mechanics training largely depends on the availability and proper utilization of teaching resources. These resources include well-equipped workshops, modern tools and equipment, instructional materials, and competent instructors (Tuti, 2024). Well-resourced technical environments enhance hands-on learning, foster innovation, and develop critical thinking skills (Lee et al., 2024), aligning with Sustainable Development Goal 4, which advocates inclusive, equitable, and quality education (Adipat & Chotikapanich, 2022). Instructors, as human resources, are central to the learning process, as their theoretical knowledge and practical skills influence students' mastery of competencies (Bakar, 2018). Practical training further relies on a combination of traditional and modern instructional approaches, including simulations, workshop-based tasks, and real-life exercises (Smith & Yasukawa, 2017).

Despite these insights, there is limited empirical research specifically examining motor vehicle mechanics training in Lagos and Ogun State technical colleges, particularly regarding the adequacy and effectiveness of workshops, tools, instructional materials, and instructors' competencies. Moreover, few studies investigate how these resources are assessed, managed, and utilized, or explore the challenges affecting practical training outcomes. This lack of evidence constrains policymakers and administrators in making informed decisions to enhance instructional quality and student employability. This study addresses these gaps by assessing instructor competency, evaluating the availability and utilization of teaching resources, identifying challenges affecting practical instruction, and examining the relationship between workshop conditions and instructor performance in government technical colleges of Lagos and Ogun States, Nigeria. Findings from the study aim to provide practical recommendations for improving resource management, instructional quality, and industry-relevant skill acquisition.

2.0 Materials and Methods

The study employed a descriptive research design because it seeks to systematically assess and describe existing conditions, specifically instructor competency, the adequacy and effectiveness of teaching resources, and challenges affecting instruction, without manipulating variables. A survey type of research was conducted in Lagos State and Ogun State to gather firsthand information from relevant participants. The population of the study consisted of all 18 motor vehicle mechanics instructors and 7 heads of departments from 5 governments technical colleges in Lagos State and 8 technical colleges in Ogun State. A mixed sampling technique was

adopted for this study, combining purposive sampling and total enumeration. Purposive sampling technique was initially used to select 4 technical colleges in Lagos State and 3 in Ogun State because they specifically offer the motor vehicle mechanics programme, ensuring relevance to the study objectives. Within the selected colleges, total enumeration was employed, meaning that all instructors and heads of departments were included in the study comprising of 13 instructors and 4 heads of department in Lagos State, and 5 instructors 3 heads of department in Ogun State. This approach was chosen because the population of 25 respondents was small, accessible, and well-defined, allowing comprehensive coverage of all eligible participants and minimizing sampling bias. The data collection instrument was a self-developed questionnaire divided into four sections: (1) the state of workshops, tools, and equipment containing 15 items; (2) instructor competency containing 15 items; (3) availability and utilization of instructional materials containing 15 items; and (4) challenges affecting the effective utilization of teaching resources for motor vehicle mechanics containing 12 items. The instrument was validated by three experts from the Department of Industrial Technical Education, Tai Solarin University of Education, Nigeria. To establish reliability, 10 copies of the questionnaire were administered to five technical instructors and five heads of departments in technical colleges in Oyo State, which is outside the study area. The responses were analyzed using the Cronbach Alpha technique, yielding a reliability coefficient of 0.87. This indicates a high level of internal consistency, meaning that the items in each section of the questionnaire consistently measure the intended constructs (e.g., instructor competency, resource adequacy, and challenges) and that the instrument is reliable for collecting data in the main study. Data were analyzed using both descriptive and inferential statistics. Descriptive statistics included mean and standard deviation (SD), while inferential statistics included Pearson Product Moment Correlation (PPMC) and t-test. For decision-making on mean values, a 5-point Likert scale was used, with values ranging from 5 to 1. A mean score of 3.00 and above was considered "agreed," while a mean score below 2.99 was considered "disagreed." Correlation decisions were based on both the strength and direction of the relationship, with the following scale: a correlation coefficient (r) of 0.29 and below was considered a weak correlation, 0.30 to 0.69 represented a moderate correlation, and 0.70 to 1.00 represented a strong correlation. Null hypotheses with p-values less than 0.05 were rejected, while those with p-values greater than or equal to 0.05 were accepted.

3.0 Results and Discussions

Table 1: Demographic Information

Variables	Frequency	Percentage
Gender		
Male	25	100%
Female	0	0
Profession		
Instructors	18	72%
Head of department	7	28%
Total	25	100%
Working experience		
16-20 years	12	48.0
21-25 years	10	40.0
26-30 years	3	12.0

Total	25	100.0
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Table 1 above shows the gender of the respondents, 25 of the respondents, representing 100% were male, while no female respondents. Probably because the female gender rarely pick the discipline as a course of study. The table also shows the profession of the respondents, 18 respondents were MVM instructors with 72%, while 7 respondents were MVM heads of department with 28%. Furthermore, the table revealed that 12 respondents representing 48% had 16 – 20 years of experience, and 10 respondents representing 40% had 21 – 25 years of experience, also 3 respondents representing 12% had 26 – 30 years of experience. This means majority of the respondents have the required working experience of more than 5 years.

Research Question 1: What is the state of workshops, tools, and equipment for teaching motor vehicle mechanics?

As presented in Table 2 (see Appendix A), the summary of workshop resources (overall mean = 3.36) suggests that while general workshop availability, safety protocols, and after-hours access are rated positively, there are clear deficits in modern diagnostic equipment, full toolsets, and sustained budgetary allocation (several items rated below the midpoint). This mixed pattern can be explained by legacy workshop infrastructure that supports basic mechanical practice (hence good marks for hand tools and safety) but lacks investment in contemporary diagnostic technologies, a gap that has been documented as hindering graduates' adaptability to evolving industry standards (Simpson et al., 2017). In practice, this means students may learn traditional mechanical skills but will be less exposed to ECU diagnostics, OBD scanners, and other industry-standard equipment that employers now expect. The policy implication is twofold: colleges should prioritise phased acquisition of essential diagnostic tools and establish maintenance and procurement plans to avoid obsolescence; and ministries should consider ring-fenced budgets or industry partnerships to support equipment upgrades. Again, interpretive caution is warranted: perceived availability does not always equal functional availability (equipment may exist but be non-operational), so observational audits of equipment condition would provide more definitive evidence.

Research Question 2: How competent are instructors in teaching both theoretical and practical aspects of motor vehicle mechanics?

As shown in Table 3 (see Appendix B), the result indicates a generally high level of instructor competency in motor vehicle mechanics (overall mean = 3.96), with especially strong scores on hands-on teaching, use of physical instructional materials, and workshop-organization items. The comparatively low scores on audio-visual and electronic instructional materials (means $\approx$ 2.40 and 2.04) suggest that while instructors are confident in traditional, workshop-based pedagogy, they are less able to integrate digital or multimedia tools into instruction. One plausible explanation is that instructors' training and

everyday practice remain oriented toward hands-on, tool-based pedagogy, a pattern observed in other VET contexts where practical skills dominate formal ICT integration (Smith & Yasukawa, 2017). Practically, this profile implies that graduates may be strong in manual and mechanical competencies but underprepared for workplaces that require familiarity with diagnostic software or multimedia learning aids. A policy implication is that professional development should prioritise low-cost, high-impact digital upskilling (short courses on diagnostic software and multimedia lesson design) and that colleges should invest in basic audio visual infrastructure to enhance digital teaching and learning experiences. This interpretation is tempered by limitations in the data: the small sample and self-report format may overestimate competency, so triangulation with observation or competency tests would strengthen the claim.

Research Question 3: To what extent is the availability and utilisation of instructional materials for teaching motor vehicle mechanics work?

The results in Table 4 (see Appendix C), indicate a high extent of availability and utilisation of instructional materials for teaching motor vehicle mechanics in government technical colleges in Lagos and Ogun States, with an overall mean of 3.16. Items such as automotive repair manuals, engine models, and maintenance of instructional materials were rated high, showing that instructors regularly use essential teaching resources. However, items related to computer simulations, multimedia aids, and diagnostic tools were rated low, reflecting a gap in the integration of modern technological tools into instruction. This pattern suggests that while traditional instructional materials are adequately provided and used, the adoption of digital and computer-based teaching tools remains limited. This could be attributed to inadequate funding or lack of training in the use of modern instructional technologies. The finding supports Medugu et al. (2023), who observed that most tools and consumable materials in technical education are generally available and used, which positively affects skill acquisition.

Research Question 4: What are the major challenges that affect the effective utilisation of teaching resources for motor vehicle mechanics?

Table 5 (Appendix D), shows that major challenges affecting the effective utilization of teaching resources include inadequate instructional materials, lack of multimedia resources, insufficient tools for large class sizes, and inaccessibility of materials to students with special needs, with an overall mean of 2.87. These findings highlight that although some materials are available, their quantity, diversity, and accessibility remain insufficient for effective teaching and learning. This result aligns with Ifeanyichukwu et al. (2018), who found that workshop facilities are inadequately provided and that only a small percentage of essential tools are available for technical training. Similarly, Bakare et al. (2017) emphasized the issue of inadequate supply of training facilities

as a major hindrance in technical colleges, particularly in electrical and electronics trades. The findings suggest that the lack of adequate and modern instructional resources limits instructors' ability to deliver effective lessons, thereby hindering skill acquisition and competency development among students. Addressing these challenges would require deliberate investment in facilities and continuous instructor training.

Hypothesis 1: There is no significant relationship between the state of workshops, tools and equipment and instructor's competency in teaching both theoretical and practical aspects of motor vehicle mechanics

Table 6: Relationship between the State of Workshops, Tools and Equipment, and Instructor's Competency in Teaching both Theoretical and Practical Aspects of Motor Vehicle Mechanics.

N1=18, N2=7					
Variables	M	SD	P	R	
1. State of workshops, tools, and equipment	49.72	8.1 9	.343	1	
2. Instructor's competency	59.68	3.0 3	.343	- .19 8	

*. Correlation is significant at the 0.05 level.

Table 6 reveals a correlation coefficient ($r = -.198$, $p < .05$) showing no significant relationship between the state of workshops, tools, and equipment and instructor's competency in teaching both theoretical and practical aspects of motor vehicle mechanics. This implies that instructor competency in government technical colleges is not solely dependent on the condition of workshops or tools, but rather on other factors such as experience, professional training, and pedagogical skill. This finding contrasts with the study of Bakare et al. (2017), who noted that technical competency and work experience can only be effectively developed when training is carried out under conditions similar to actual industry operations, using appropriate tools and equipment. The difference could suggest that the instructors in the current study are highly skilled and adaptable, capable of maintaining teaching quality even when workshop conditions are not ideal. Nevertheless, continuous investment in workshop infrastructure could further enhance instructional effectiveness and alignment with real-world industrial standards.

Hypothesis 2: There is no significant difference between the mean responses of motor vehicle mechanics instructors and motor vehicle mechanics head of department on challenges that affect the effective utilization of teaching resources for motor vehicle mechanics in government technical colleges in Lagos State and Ogun State.

Table 7: T-test Analysis of Instructors' and Heads of Department's Responses on Challenges Affecting the Utilization of Teaching Resources in Motor Vehicle Mechanics Departments of Government Technical Colleges in Lagos and Ogun States

N1=18, N2=7

Variables	N	Mean	S.D	Df	T	P	Remark
MVM instructors	18	43.07	.86	23	.536	.599	NS
MVM HOD'S	7	42.85	.89				

The results in Table 7 show no significant difference ($p = .599$) between the mean responses of motor vehicle mechanics instructors and heads of department regarding the challenges affecting the effective utilization of teaching resources. This implies that both groups share a common understanding of the existing constraints, including inadequate instructional materials, lack of multimedia tools, and limited accessibility for students. This agreement reinforces the notion that these challenges are systemic rather than individual, reflecting broader institutional and funding limitations within government technical colleges. The finding aligns with Medugu et al. (2023), who emphasized the need for adequate training facilities in vocational education, as these resources allow learners to engage actively and make learning more meaningful. Therefore, addressing these shared concerns among instructors and administrators would be essential for improving resource utilization and enhancing instructional quality in motor vehicle mechanics education.

4. Discussion

The study revealed that workshops, tools, and equipment for teaching motor vehicle mechanics are generally in good condition in government technical colleges in Lagos and Ogun States. This likely enhances the teaching and learning process and facilitates students' acquisition of industry-relevant skills. This finding contrasts with Amadike (2015), who reported that technical training workshops were often outdated and inadequate for effective teaching. The difference may reflect recent investments in workshop modernization and improved resource management in Lagos and Ogun States, aligning vocational training with current industry requirements. Well-maintained workshops provide instructors with the capacity to demonstrate complex procedures effectively, fostering practical skill acquisition among students (Eniekenemi, 2021). The study also found that instructors demonstrate a high level of competency in teaching both theoretical and practical aspects of motor vehicle mechanics. High instructor competency is critical because instructors are central to ensuring that students develop the necessary skills and knowledge for the labor market. This result is consistent with Onaga (2022), who found that vocational education instructors in South-East Nigeria scored highly in material usage and practical pedagogy. The contrast with Otiara and Ibeneme (2024), who reported that

many instructors still lack the necessary competencies, especially in emerging tools, technologies (e.g., CAD), and therefore may not be fully effective in their roles. It suggests that instructor competency may not always be high and that competency gaps exist. Competent instructors can optimize even limited resources to achieve learning objectives, reinforcing the need for continuous professional development (Chukwunwendu, 2015).

Regarding instructional materials, the study showed a high extent of availability and utilization of resources, such as engine models, textbooks, and repair manuals, though multimedia and e-learning resources remain limited. The effective use of these materials likely supports the instructors' high competency and enhances students' practical skills. This aligns with Kennedy et al. (2022), who found limited availability and utilization of digital/technological tools in TVET institutions in Nigeria, highlighting the need for improved resource integration. Conversely, Ifeanyichukwu et al. (2018) found low availability of workshop resources, suggesting that resource adequacy varies across regions and trades, possibly due to differences in funding, policy implementation, or institutional prioritization. Despite the overall adequacy of resources, several challenges were identified, including insufficient multimedia resources, improper student use of materials, and limited access for students with special needs. These challenges may impede the effective utilization of teaching resources and reduce learning outcomes. This observation is supported by Okpokor (2025), who found that equipment in technical colleges was inadequate and only moderately functional, thereby constraining practical instruction in workshop settings. These challenges underscore the importance of not only providing resources but also ensuring proper maintenance, access, and utilization strategies.

The study further found no significant relationship between the state of workshops, tools, and equipment and instructors' competency in teaching motor vehicle mechanics. This indicates that instructor competency is influenced more by factors such as experience, professional development, and pedagogical skills than by the mere condition of workshop facilities. This contrasts with Noguera et al. (2024) report that VET teachers and students regard experiential, hands-on learning (including practice with relevant tools and platforms) as central to developing job-ready competencies. In the context of Lagos and Ogun States, it appears that instructors' expertise may mitigate limitations in workshop conditions, highlighting the role of human capital in technical education. Finally, there was no significant difference between the perceptions of instructors and heads of department regarding challenges affecting resource utilization. This implies agreement among stakeholders about the major barriers to effective teaching, including inadequate instructional materials, limited multimedia resources, and restricted access. The finding is consistent with Medugu et al. (2023), who emphasized that adequacy of facilities in vocational training enhances learner

participation and makes practical learning more meaningful. This shared recognition of challenges provides a basis for coordinated policy interventions and resource allocation strategies to improve teaching and learning outcomes.

5.0 Conclusions

This study underscores the crucial role of adequately maintained workshops, tools, and instructional materials in sustaining the quality of motor vehicle mechanics training in government technical colleges across Lagos and Ogun States. The high level of instructor competency observed reflects a strong instructional foundation; however, the persistence of challenges such as insufficient multimedia facilities, limited provisions for students with special needs, and inadequate resources for large class sizes poses a continuing threat to equitable and effective teaching. The absence of a significant relationship between resource condition and instructor competency suggests that skillful instructors can adapt to existing constraints, yet such resilience should not replace systematic resource enhancement. Addressing these issues requires deliberate policy attention and institutional commitment. Policymakers should invest in modern, inclusive, and technology-driven teaching resources that align with industry standards, while also developing strategic frameworks for maintenance, accessibility, and utilisation of existing facilities. Technical college administrators should strengthen monitoring and accountability mechanisms to ensure resources are used optimally and equitably. Moreover, continuous professional development and digital pedagogy training must be embedded into staff development policies to sustain instructional quality amid evolving technological demands. Future research should explore the long-term impact of digital and inclusive teaching innovations on competency outcomes, as well as the effectiveness of industry-school partnerships in improving workshop relevance and sustainability. By advancing these strategies, stakeholders can reinforce the technical education system, improve learner outcomes, and strengthen Nigeria's capacity to produce a skilled and adaptable workforce for the modern industrial economy.

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Appendix

Appendix A: Detailed Responses on State of Workshops, Tools, and Equipment

Keys: $\bar{X}_1$ = Mean responses of motor vehicle mechanic instructors, S.D₁ = Standard Deviation of motor vehicle mechanic instructors response, $\bar{X}_2$ Mean responses of motor vehicle mechanic head of department, S.D₂ = Standard Deviation of motor vehicle mechanic head of department response, $\bar{X}_A$ = Average mean responses of motor vehicle mechanic instructors and head of department, S.D_A = Average Standard Deviation of motor vehicle mechanic instructors and head of department responses.

Table 2: Respondents Mean Responses on the State of Workshops, Tools, and Equipment for Teaching Motor Vehicle Mechanics

		N1=18, N2=7						Remark
SN	STATEMENT	$\bar{X}_1$	S.D ₁	$\bar{X}_2$	S.D ₂	$\bar{X}_A$	SD	
1	Standard workshops are available for motor vehicle mechanics training in the colleges?	3.44	.70	3.71	.48	3.57	.59	Agreed
2	The physical condition of the motor vehicle mechanics workshops in the technical colleges are good?	3.72	1.01	4.00	.81	3.86	.91	
3	The workshops are adequately equipped to meet the needs of students?	3.66	.97	4.00	.00	3.83	.48	Agreed
4	Tools and equipment are frequently maintained?	4.00	1.18	4.42	.97	4.21	1.07	Agreed
5	There are sufficient tools and equipment for the number of students in each class?	2.83	.85	3.00	.81	2.91	.83	Disagreed
6	all types of tools and equipment are available for motor vehicle mechanics workshop practice?	2.16	.61	2.42	.53	2.29	.57	
7	Modern diagnostic tools and equipment are available in the workshops?	1.55	.51	1.71	.48	1.63	.49	Disagreed
8	Outdated tools are often replaced with modern ones?	2.77	1.00	3.14	.89	2.95	.94	Disagreed
9	The tools and equipment in the workshop are aligned with the current trends in the motor vehicle mechanics industry?	2.27	.46	2.42	.53	2.34	.49	Disagreed
10	Safety measures for personnel and equipment are provided in the workshops?	4.27	.46	4.42	.53	4.34	.49	
11	Students have access to the workshops after their regular class hours?	4.16	.61	4.42	.53	4.29	.57	Agreed
12	There is always enough budget allocation for purchasing tools and maintaining the workshops?	2.27	.46	2.42	.53	2.34	.49	
13	The facilities in government technical colleges in terms of quality and quantity are more compare to private institutions in the state?	3.11	1.02	3.42	.97	3.26	.99	Agreed
14	There are some essential tools or equipment that are currently unavailable in the workshop?	4.61	.50	4.57	.53	4.59	.51	
15	To my understanding, students are satisfied with the workshops, tools, and equipment provided?	3.83	.85	4.14	.89	3.98	.87	Agreed
Average Mean						3.36		

Appendix B: Detailed Instructor Competency Scores**Table 3: Mean Responses on Instructors' Competency in Teaching Both Theoretical and Practical Aspects of Motor Vehicle Mechanics N1=18, N2=7**

S/N	ITEMS	$\bar{X}_1$	S.D ₁	$\bar{X}_2$	S.D ₂	$\bar{X}_A$	SD _A	Remark
1	How often do you incorporate interactive teaching methods (e.g., group discussions, problem-solving sessions) into your motor vehicle mechanics classes?	4.27	.46	4.42	.53	4.34	.49	High
2	To what extent do you adapt your teaching strategies to accommodate different learning styles among students?	4.16	.85	3.85	.89	4.00	.87	High
3	How confident are you in assessing students' understanding through formative assessments during lessons?	4.11	.32	4.00	.00	4.05	.16	High
4	How familiar are you with the latest diagnostic tools and technologies used in the automotive industry?	3.05	.87	3.00	.81	3.02	.84	High
5	How proficient are you in demonstrating complex motor vehicle mechanics procedures to students?	4.38	.50	4.42	.53	4.40	.51	High
6	To what extent can you troubleshoot and resolve unexpected issues during practical sessions?	3.72	.46	3.71	.48	3.71	.47	High
7	How frequently do you use physical instructional materials (e.g., engine models, toolkits) in your teaching?	4.61	.50	4.71	.48	4.66	.49	High
8	To what extent do you incorporate audio-visual aids (e.g., videos, simulations) to enhance theoretical lessons?	2.38	.50	2.42	.53	2.40	.51	Low
9	How effectively do you integrate electronic instructional materials (e.g., online resources, software) into your curriculum?	1.94	.80	2.14	.89	2.04	.84	Low
10	How regularly do you participate in workshops or training programs related to motor vehicle mechanics?	4.44	.51	4.28	.48	4.36	.49	High
11	To what extent do you engage in self-directed learning to stay updated with industry advancements?	3.83	.61	3.71	.48	3.77	.54	High
12	How often do you collaborate with fellow instructors to share best practices and teaching strategies?	4.44	.51	4.28	.48	4.36	.49	High
13	How confident are you in managing classroom dynamics to maintain an effective learning environment?	4.66	.48	4.71	.48	4.68	.48	High
14	To what extent do you ensure that all safety protocols are followed during practical sessions?	5.00	.00	5.00	.00	5.00	.00	High
15	How effectively do you organize workshop activities to maximize hands-on learning opportunities for students?	4.72	.46	4.71	.48	4.72	.47	High
Average Mean						3.96		

Appendix C: Detailed Availability and Utilisation of Instructional Materials for Teaching Motor Vehicle Mechanics Scores**Table 4: Mean Responses on the Extent of Availability and Utilisation of Instructional Materials for Teaching Motor Vehicle Mechanics N1=18, N2=7**

S/N	ITEMS	$\bar{X}_1$	S.D ₁	$\bar{X}_2$	S.D ₂	$\bar{X}_A$	SD _A	Remark
1	How sufficient are engine models for teaching motor vehicle mechanics Work in your school?	3.72	.46	3.71	.48	3.72	.47	High extent
2	How readily available are diagnostic tools (e.g., OBD scanners) for practical lessons?	2.16	.61	2.42	.53	2.29	.57	Low extent
3	How often do instructors have access to multimedia instructional aids (e.g., projectors, videos)?	2.83	.61	2.57	.53	2.70	.57	Low extent
4	How adequate are automotive repair manuals and textbooks for instructional use?	4.27	.46	4.42	.53	4.34	.49	High extent
5	To what extent are computer simulation software and e-learning resources accessible for teaching?	1.38	.50	1.28	.48	1.33	.49	Low extent
6	How frequently do you use engine models in your practical teaching sessions?	4.44	.51	4.28	.48	4.36	.49	High extent
7	How often do you incorporate diagnostic tools in demonstrating fault detection and repairs?	2.27	.46	2.42	.53	2.34	.49	Low extent
8	To what extent do you integrate multimedia aids (e.g., videos, projectors) in theoretical lessons?	2.55	.70	2.28	.48	2.41	.59	Low extent
9	How regularly do you refer to automotive repair manuals during instruction?	3.83	.61	3.71	.48	3.77	.54	High extent
10	To what extent do you incorporate computer-based simulation software in your teaching?	1.55	.51	1.71	.48	1.63	.49	Low extent
11	How much does inadequate funding affect the availability and utilization of instructional materials?	4.38	.50	4.28	.48	4.33	.49	High extent
12	How much does the lack of modern instructional materials hinder effective teaching?	4.72	.46	4.71	.48	4.71	.47	High extent
13	To what extent do you receive training on the use of modern instructional materials?	2.27	.46	2.42	.53	2.34	.49	Low extent
14	How effectively does your institution provide maintenance and updates for instructional materials?	3.44	.70	3.71	.48	3.57	.59	High extent
15	To what extent do students have access to instructional materials during practical sessions?	3.44	.70	3.71	.48	3.57	.59	High extent
Average Mean						3.16		High extent

Appendix D: Detailed Challenges that Affect the Effective Utilization of Teaching Resources for Motor Vehicle Mechanics Scores

Table 5: Mean Responses on Identifying the Challenges that Affect the Effective Utilization of Teaching Resources for Motor Vehicle Mechanics
N1=18, N2=7

SN	ITEMS	MEAN	SD	Remark
1	Inadequate instructional materials for teaching motor vehicle mechanics?	4.08	.27	Agreed
2	unavailability of textbooks and manuals for all areas of the curriculum?	2.32	.47	Disagreed
3	lack multimedia resources (e.g., videos, simulations) used in teaching motor vehicle mechanics?	4.08	.86	Agreed
4	Instructors inability to use visual aids like diagrams, charts, and posters in their lessons?	2.56	1.04	Disagreed
5	Excessive use of online resources or e-learning platforms for students?	1.68	.47	Disagreed
6	Provision of personal copies of instructional materials to students?	1.32	.47	Disagreed
7	Lack of practical guides or handbooks available for hands-on activities	2.16	.98	Disagreed
8	The way instructors incorporate instructional materials into their lessons	1.60	.50	Disagreed
9	insufficient instructional materials for the number of students in each class?	3.36	.95	Agreed
10	Improper use instructional materials by students outside the class hours?	3.20	1.11	Agreed
11	Inaccessible instructional materials to students with special needs	3.76	.59	Agreed
12	unclear roles of instructional materials in the assessment of students' performance to both instructors and students.	1.92	.27	Disagreed
Average Mean		2.87		