



Workshop facilities for practical skill acquisition in building and woodwork technology in Akwa Ibom State technical colleges, Nigeria

Dr. Samuel Amos Ikpe, Williams Kennedy George

Department of Technical Education, Akwa Ibom State College of Education, Afaha Nsit, Nigeria

Abstract

The study assessed the availability of building and woodwork workshop facilities for practical skills acquisition in Technical Colleges in Akwa Ibom State, Nigeria. Two research questions were formulated to guide the study. Descriptive survey research design was adopted. The population of the study consisted of 48 teachers, comprising 26 Building and 22 Woodwork instructors from six public Technical Colleges in Akwa Ibom State. Simple random sampling technique was used to select 30 (15 Building and 15 Woodwork) teachers. A structured questionnaire was used for data collection. The instrument was face-validated by three experts in Industrial Technology Education from the University of Uyo, Uyo and its reliability determined using Cronbach Alpha statistic, yielding a coefficient of 0.81, confirming its reliability. Research questions were answered using frequency counts and percentages. Findings of the study revealed that core building and woodwork workshop facilities such as construction drawing boards, workbenches, masonry tools, circular and band saws and hand tool cabinets, were generally available, whereas specialized equipment such as material testing laboratories, levelling tools, tenoning and sanding machines were moderately accessible. Based on these findings of the study, the researchers recommended that Akwa Ibom State Technical Colleges should invest in specialized, advanced equipment and implement regular maintenance schedules.

Keywords: Technical colleges, workshop facilities, building technology, woodwork technology, akwa ibom sta

Introduction

Technical and Vocational Education and Training (TVET) in Nigeria provides students with practical skills that prepare them for employment and self-employment in various trades. Technical Colleges operate as the primary institutions for delivering vocational training at the secondary and post-secondary levels. Their objectives include producing skilled personnel for applied sciences, technology and business, equipping students with the knowledge and expertise required for economic activities and fostering self-reliance among graduates. In line with national policies, Technical Colleges offer programs at craft, advanced craft and technician levels, covering trades such as block laying, carpentry and joinery, electrical installation, automobile technology, metalwork, fabrication, welding and general woodwork (FRN, 2013; NBTE, 2013).

Building and woodwork technology are integral components of technical education, focusing on construction, structural assembly and furniture production. In building technology, students gain practical skills in masonry, carpentry, surveying and the application of modern construction techniques, which are essential for employment in the construction sector. Woodwork technology emphasizes the manipulation of timber to create functional and decorative products. Students learn to operate hand tools and woodworking machinery, construct joints, prepare and apply finishes and assemble various structures and objects according to technical specifications (Oviawe, 2021) [19]. These trades combine manual dexterity, technical

knowledge and the capacity to execute tasks in workshop settings.

Workshop facilities provide the environment in which students translate theoretical instruction into practical competence. Effective skill acquisition in Technical Colleges depends on the availability of functional tools, machines and equipment relevant to specific trades. For building technology, this includes access to masonry tools, measuring instruments, leveling devices and drafting equipment. Woodwork workshops require saws, planers, routers, sanding machines and joinery tools. The quality and condition of these facilities directly influence students' ability to acquire the technical proficiency demanded by industry (Ajayi & Salako, 2021; Aina, 2019) [3, 4]. Students exposed to well-maintained workshops demonstrate higher levels of problem-solving, precision and workmanship, which are necessary for professional practice.

The condition of workshop facilities in many Nigerian Technical Colleges, including those in Akwa Ibom State, presents a challenge to skills acquisition. Equipment and machinery are often outdated, non-functional, or insufficient to meet curricular requirements (Ikpe, George & Udom, 2020) [10]. Limited funding for infrastructure and consumables, poor maintenance practices and weak oversight contribute to the deterioration of training environments (Olawale & Ajibola, 2021) [17]. In such circumstances, students are compelled to rely more on theoretical instruction than hands-on practice. This limitation undermines the objective of technical education,

which emphasizes mastery of practical skills through continuous engagement with tools and materials.

In building technology, inadequate workshop facilities impede students' ability to execute masonry, carpentry and surveying tasks effectively. The absence of modern measuring tools, drafting boards and construction aids constrains learning and reduces exposure to standard construction procedures. In woodwork technology, the lack of functioning saws, routers and finishing tools restricts students' capacity to produce high-quality timber products. The gap between available equipment and industry requirements generates skill deficiencies, leaving graduates underprepared for professional tasks or entrepreneurial ventures (Oviawe, 2019) ^[18]. These deficiencies also affect students' confidence and competence in performing technical operations.

The connection between workshop facility availability and student performance has been highlighted in several studies. Students who receive training in adequately resourced workshops tend to achieve higher levels of practical proficiency and perform better in final examinations (Obi & Onu, 2020; Okwelle & Owo, 2017) ^[15, 16]. Conversely, graduates from poorly equipped institutions struggle to meet labor market expectations, particularly in tasks requiring precision, problem-solving and technical judgment. This disparity contributes to unemployment among technical college graduates and limits their participation in self-employment or small-scale enterprises.

In Akwa Ibom State, Technical Colleges offer programs in building and woodwork technology that are structured to meet national vocational standards (Akpan, Ekong & George, 2023) ^[5]. Despite this, facility limitations remain a recurrent problem. Many colleges lack sufficient machines, consumables and workspace, which restricts the frequency and scope of practical exercises. Students are often unable to complete projects according to specifications or practice essential techniques repeatedly, resulting in lower technical competence (Ajayi & Salako, 2021) ^[4]. The discrepancy between curriculum demands and available workshop resources underscores the need for a systematic assessment of facility availability to ensure that students acquire skills aligned with industry expectations.

Modern technical education emphasizes not only the possession of tools but also their relevance to current trade practices. In building technology, students must be trained in techniques reflecting contemporary construction methods and materials, while in woodwork technology, exposure to machine-assisted cutting, jointing and finishing processes enhances employability. Workshops must therefore maintain equipment that is functional, safe and reflective of industry standards. Continuous inspection, maintenance schedules and equipment replacement are necessary to preserve the integrity of training environments and support sustained skill acquisition.

The policy framework governing Technical Colleges, including oversight by the National Board for Technical

Education (NBTE), provides standards for curriculum delivery and facility requirements. However, practical enforcement of these standards often falls short due to budgetary constraints and administrative challenges (NBTE, 2013). Consequently, gaps remain in workshop provision and the quality of hands-on training. Evaluating facility availability in Akwa Ibom State Technical Colleges provides empirical evidence that can inform targeted interventions, such as resource allocation, infrastructure improvement and instructor capacity development. Addressing these gaps can improve student outcomes and align training with labor market demands.

Skill acquisition in building and woodwork technology is closely linked to the functional state of workshop facilities. Access to operational tools, machines and materials, combined with competent instruction, allows students to practice repeatedly, refine techniques and develop trade-specific expertise. Practical exercises, including timber preparation, joint construction, assembly and finishing, are essential for internalizing trade knowledge. Without these opportunities, students' technical development is incomplete, affecting employability and entrepreneurial readiness. By focusing on facility availability and functionality, Technical Colleges can better prepare graduates for professional engagement and sustainable livelihoods.

This study seeks to examine workshop facility availability in building and woodwork technology programs within Akwa Ibom State Technical Colleges. The assessment considers the quantity, quality and functionality of equipment, the adequacy of learning spaces and the presence of qualified instructors to support practical training. Findings from this study will provide a foundation for improving practical training environments, ensuring that graduates acquire competencies aligned with occupational requirements and industry practices.

Statement of the Problem

In Akwa Ibom State, Technical Colleges offer courses in masonry, carpentry and timber production, structured to meet national standards set by the National Board for Technical Education (NBTE, 2013). Students are expected to gain proficiency through workshop exercises that involve operating machinery, constructing joints, preparing materials and applying finishes to projects. Despite these objectives, the availability of functional workshop facilities remains limited. Many institutions operate with outdated tools, insufficient machinery and inadequate consumables, constraining students' ability to practice and refine essential skills (Ikpe, George & Udom, 2020; Olawale & Ajibola, 2021). In building technology workshops, the lack of measuring instruments, construction tools and drafting equipment restricts practical engagement. In woodwork, the absence of planers, saws, routers and finishing tools prevents students from completing tasks to standard. These limitations reduce opportunities for repeated practice, skill consolidation and technical mastery.

Teachers' shortages compound the challenge, as students require guidance to operate equipment safely, apply trade knowledge accurately and develop competence in practical tasks (Eze & Umeh, 2018; Akpan, Ekong & George, 2023). Without access to adequate facilities and skilled supervision, students graduate with incomplete technical proficiency. This gap between training environments and industry expectations contributes to low employability, reduced entrepreneurial potential and underutilization of vocational programs. The need for systematic assessment of workshop facility availability is pressing. Evaluating the quantity, condition and functionality of tools and machines in building and woodwork technology workshops can provide empirical evidence to guide interventions. Addressing these gaps will support skill acquisition, enhance student performance and improve alignment between vocational training and labor market requirements.

Purpose of the Study

The main objective of the study was to availability of building and woodwork workshop facilities for skills acquisition in Technical Colleges in Akwa Ibom State, Nigeria. Specifically, the study:

1. Assessed the availability of Building workshop facilities for skills acquisition in Akwa Ibom State Technical Colleges.
2. Identified the availability of Wood workshop facilities for skills acquisition in Akwa Ibom State Technical Colleges.

Research Questions

The study answered the following research questions:

1. What are the available Building workshop facilities for skills acquisition in Akwa Ibom State Technical Colleges.
2. What are the available Wood workshop facilities for skills acquisition in Akwa Ibom State Technical Colleges?

Research Hypotheses

The following null hypotheses were formulated to guide the study:

HO₁: Building workshop facilities available in Technical Colleges in Akwa Ibom State is significantly adequate for skill acquisition.

HO₂: Wood workshop facilities available in Technical Colleges in Akwa Ibom State is significantly adequate for skill acquisition.

Review of Relevant Empirical Studies

Workshop facilities shaped the nature and depth of practical training offered in Technical Colleges, particularly in building and woodwork technology programs. Empirical study conducted in Nigeria revealed persistent shortages in tools, machines and supporting infrastructure, which constrained hands-on instruction and limited students'

exposure to trade practices expected in the labour market. Adebayo and Yusuf (2023) ^[1, 2] examined building technology workshops in Technical Colleges located in different regions of Nigeria. Their investigation covered equipment presence, spatial conditions and safety provisions. Data collected from institutional inventories and workshop inspections showed that fewer than half of the colleges possessed essential construction equipment such as concrete mixers, block molding machines and surveying instruments. Workshop layouts were frequently congested, ventilation systems were inadequate and protective devices were scarce. Students enrolled in institutions with better-equipped workshops demonstrated higher competence in masonry, carpentry and plumbing tasks during practical assessments. In contrast, students trained in colleges with limited equipment depended on classroom instruction and improvised demonstrations. The findings linked restricted access to functional equipment with weak technical performance and incomplete skill formation.

In a study conducted by Bello and Adamu (2021) ^[6, 7] on policy execution and funding practices connected to workshop development in building technology programs, reviewed budgetary records, policy documents and case studies from selected Technical Colleges. Results indicated that although national education policies prioritized infrastructure development, execution remained inconsistent. A substantial proportion of allocated funds did not translate into physical upgrades of workshop facilities due to administrative lapses and weak financial control. Colleges that maintained active partnerships with construction firms recorded improved workshop conditions following equipment donations and staff support initiatives. Students in such institutions gained wider exposure to current construction tools and work routines, which strengthened enrolment levels and graduate placement outcomes. The study linked workshop improvement to industry collaboration rather than policy statements alone.

Similarly, Adebayo and Eze (2023) ^[1, 2] conducted a nationwide assessment covering accredited Technical Colleges offering woodwork programs. Using survey instruments, instructor interviews and physical inspections, the study reviewed machine availability, operational status and maintenance conditions. Band saws, surface planers, spindle molders, mortisers and dust extraction units were either absent or non-operational in many institutions. Only a minority of colleges possessed workshops that met equipment benchmarks expected for modern wood processing instruction. Equipment age and mechanical failure limited instructional depth, forcing instructors to rely on manual methods. Students trained under such conditions recorded low proficiency in furniture construction, joinery accuracy and finishing techniques. Colleges equipped with functional machines produced graduates who adjusted more easily to industrial furniture production settings.

In the same vein, Ogunbanjo and Nwachukwu (2022) ^[13] concentrated on Technical Colleges located in South-South

Nigeria, using surveys, instructor discussions and workshop audits. Their findings revealed that a high proportion of woodwork workshops operated with obsolete or broken machinery. Computer-controlled woodworking equipment was largely absent, safety devices were inadequate and routine maintenance was rare. Graduates from colleges with functioning workshops obtained employment more readily in timber processing and furniture manufacturing firms. Graduates from poorly resourced colleges required retraining before placement. The study attributed slow adoption of advanced woodworking practices in Technical Colleges to weak engagement between institutions and wood-based industries.

Bello and Hassan (2021) [6, 7] evaluated partnerships formed between Technical Colleges and woodworking industries. Through document reviews and interviews, the study traced funding flows and equipment acquisition processes. Findings showed that public funding alone did not sustain workshop upgrades, as disbursement patterns fluctuated and implementation delays persisted. Colleges that entered formal partnerships with furniture manufacturers and woodworking firms recorded notable improvements in machine availability and instructional support. Industry partners supplied modern equipment, organized technical training for instructors and created placement opportunities for students. These arrangements enhanced workshop utilization and exposed students to current production techniques. The absence of binding frameworks limited continuity in colleges that lacked such partnerships.

Research Methods

The study was conducted in Akwa Ibom State, Nigeria, which was created on 23 September 1987 from the former Cross River State by the Federal Military Government under General Ibrahim Babangida. Uyo served as the administrative capital. The State covered approximately 8,412 square kilometres and had a population exceeding five million based on the 2006 national census, with 1,983,202 males and 1,918,849 females (Akwa Ibom State Ministry of Information, 2014). Akwa Ibom State lies in the southern coastal region of Nigeria between latitudes 4°32'N and 5°33'N and longitudes 7°25'E and 8°25'E (Peter, Okpa & Okoi, 2020) [20]. It shares boundaries with Cross River State to the east and the Atlantic Ocean to the south. The population comprised three primary ethnic groups: Ibibio, Annang and Oron. The State consisted of thirty-one Local Government Areas and corresponding senatorial districts. Economic activities included farming, fishing, crafts and skilled trades, which provided a context for technical education. Public Technical Colleges in the State offered vocational training in building and woodwork technology, making the location appropriate for examining workshop facility availability for skill acquisition.

The study adopted a descriptive survey design, which involved collecting data to describe conditions and characteristics of a defined population (Nworgu, 2015;

Jumere, 2017) [11, 14]. This design enabled the researcher to gather data directly from technical college teachers regarding the availability of workshop facilities for skill acquisition. The design was suitable because it focused on identifying the current status of resources rather than manipulating variables. The population of the study consisted of 48 teachers which comprised of 26 Building and 22 Woodwork teachers in the six public Technical Colleges in Akwa Ibom State. The population represented all instructors responsible for workshop instruction and supervision in their respective trades. Simple random sampling technique was used to select 30 teachers, comprising of 15 Building and 15 Woodwork teachers in the six public Technical Colleges in Akwa Ibom State.

A-30 item questionnaire instrument titled: Availability of Building and Wood Workshop Facilities for Skills Acquisition Questionnaire (ABWWFSAQ) was developed by the researchers to collect data for the study. The instrument consisted of three parts; Part A was used to elicit information on respondents' demographic data, Part B and C items on availability of Building and Woodwork Technology workshop facilities for skills acquisition in Akwa Ibom State Technical Colleges. A scale options of Available (A), Not Available (NA) and No Idea (NI) was used for data collection. The use of the options helped in confirming the knowledge and opinions of the respondents on the study.

The data collection instrument was face validated by three experts in the Departments of Industrial Technology Education; Measurement and Evaluation from the University of Uyo, Uyo, Akwa Ibom State. The experts examined the contents of the instrument with respect to their constructs. They experts also ensured clarity, appropriateness of language, ability to elicit accurate information and suitability in line with the objectives of the study and research questions. The expert comments, corrections and modification were incorporated into the final copy of the instrument. Their suggestions lead to adjustment of the instrument, especially in terms of ambiguous statements, excessive wordiness, difficult vocabulary and numbers of items. In order to ensure the reliability of the instrument, the researcher administered the questionnaire to 30 respondents who were not be part of the study but possess the same qualities and characteristics of those used for the study. Cronbach Alpha statistics was used to analyze the data which yielded a reliability coefficient of 0.81.

The researchers administered the instrument directly to the respondents with the help of three research assistants who were informed on what was required. A letter of consent was provided to the respondents. Since the questionnaire was distributed face to face, the participants read the letter of information and consent form and confirmed their voluntary participation. The researcher recorded 100% collection rate of the instrument after completion. The data collected from the various respondents in this research were analyzed and computed in form of tabulation, frequencies

and percentages. Frequency and percentage distribution were used for analysis of respondents' opinions on a given item of the research questions. Item with response above average was considered available.

Data Presentation and Analysis

Research Question 1: What are the available Building workshop facilities for skills acquisition in Akwa Ibom State Technical Colleges?

Table 1: Opinions of teachers on availability of Building facilities in Technical Colleges in Akwa Ibom State

S/No	Item Statement	Available		Not Available		No Idea	
		Freq	%	Freq	%	Freq	%
1.	Construction drawing/design board	13	86.7	2	13.3	0	0
2.	Workbenches with masonry tools	11	73.3	3	20.0	1	6.7
3.	Site safety kits	10	66.7	4	26.7	1	6.7
4.	Material testing laboratory	8	53.3	5	33.3	2	13.3
5.	Levelling and plumb tools station	8	53.3	6	40.0	1	6.7
6.	Tile cutting machine	10	66.7	3	20.0	2	13.3
7.	Water supply system	11	73.3	2	13.3	2	13.3
8.	Cement storage shed	10	66.7	4	26.7	1	6.7
9.	Scaffolding and formwork station	9	60.0	4	26.7	2	13.3
10.	Surveying instruments	8	53.3	5	33.3	2	13.3
11.	Compaction equipment	9	60.0	4	26.7	2	13.3
12.	Curing tanks	9	60.0	5	33.3	1	6.7
13.	Vibrating table	10	66.7	5	33.3	0	0
14.	Brick/block cutting machine	11	73.3	4	26.7	1	6.7
15.	Concrete mixing machine	10	66.7	4	26.7	1	6.7
	Overall Frequency/Percentage	147	122.5	60	50.0	19	15.8

The analysis of Table 1 on the availability of building workshop facilities in Technical Colleges in Akwa Ibom State indicated a mixed level of provision across the surveyed institutions. Construction drawing or design boards were present in 86.7% of workshops, while workbenches equipped with masonry tools and water supply systems were each available in 73.3% of cases, suggesting that foundational tools for practical instruction were relatively accessible. Equipment supporting specific construction processes, such as tile cutting machines, cement storage sheds, vibrating tables and concrete mixing machines, were each available in 66.7% of workshops, reflecting moderate facility coverage. However, some specialized resources demonstrated lower accessibility: material testing laboratories, levelling and plumb tool stations, surveying instruments and curing tanks were reported available in just over half of the workshops (53.3%) and scaffolding and formwork stations, as well as compaction

equipment, were available in 60% of cases. The frequency distribution showed that out of a total of 226 responses across all facility items, 147 (65%) indicated availability, 60 (26.5%) indicated non-availability and 19 (8.4%) respondents were uncertain. These findings suggested that while core facilities for building technology instruction were generally provided, gaps remained in specialized and supporting equipment, potentially constraining comprehensive hands-on skill acquisition. Limited access to advanced tools such as material testing laboratories and surveying instruments may reduce students' exposure to standard industry practices and diminish opportunities for repeated practical engagement, highlighting the need for targeted investment in workshop infrastructure to enhance competency development.

Research Question 2: What are the available Wood workshop facilities for skills acquisition in Akwa Ibom State Technical Colleges?

Table 2: Opinions of teachers on availability of Wood workshop facilities in Technical Colleges in Akwa Ibom State

S/No	Item Statement	Available		Not Available		No Idea	
		Freq	%	Freq	%	Freq	%
1.	Circular saw	12	80.0	3	20.0	0	0
2.	Band saw	12	80.0	2	13.3	1	0
3.	Jointer and planer	11	73.3	4	26.7	0	0
4.	Thickness machine	9	60.0	5	33.3	1	0
5.	Wood lathe	11	73.3	4	26.7	0	0
6.	Mortising machine	10	66.7	5	33.3	0	0
7.	Tenoning machine	9	60.0	5	33.3	1	6.7
8.	Sanding machine	9	60.0	6	40.0	0	0
9.	Scroll saw	8	53.3	6	40.0	1	0

10.	Woodwork benches with clamps	13	86.7	2	13.3	0	0
11.	Hand tools cabinet (chisels, mallets, saws)	12	80.0	3	20.0	0	0
12.	Dust extraction system	10	66.7	4	26.7	1	6.7
13.	Finishing station (polishing, varnishing)	11	73.3	4	26.7	0	0
14.	Dry lumber storage	9	60.0	6	40.0	0	0
15.	First aid and fire safety station	12	80.0	3	20.0	0	0
	Overall Frequency/Percentage	158	131.7	62	51.7	5	1.7

The analysis of Table 2 on wood workshop facilities in Akwa Ibom State Technical Colleges revealed a generally moderate level of availability across the surveyed institutions, with some core equipment widely accessible. Woodwork benches with clamps were present in 86.7% of workshops, while circular and band saws, hand tool cabinets and first aid/fire safety stations were each available in 80% of cases, indicating that primary workstations and essential safety provisions were largely provided. Machines for shaping and finishing timber, including jointers and planers, wood lathes and finishing stations, were accessible in 66.7% to 73.3% of workshops. Conversely, specialized machinery such as thicknessing, tenoning, sanding, scroll saws and dry lumber storage were available in only 53.3% to 60% of the surveyed workshops, reflecting gaps in exposure to advanced woodworking processes. Analysis of the overall responses across all 15 facility items showed that 158 (65%) were marked available, 62 (25.5%) were reported unavailable and 5 (2.1%) were uncertain. These findings revealed that while fundamental woodwork facilities were largely provided, limited access to certain specialized and finishing equipment could constrain students' practical competence development and restrict engagement with processes aligned with current industry standards, emphasizing the need for targeted enhancement of workshop infrastructure.

Discussion of Findings

The findings of Research Question One revealed that building workshop facilities in Technical Colleges in Akwa Ibom State were variably available. Core facilities such as construction drawing/design boards (86.7%), workbenches with masonry tools (73.3%) and water supply systems (73.3%) were highly available, while equipment supporting specific construction processes, including tile cutting machines, vibrating tables, cement storage sheds and concrete mixing machines (66.7%), demonstrated moderate availability. Specialized facilities such as material testing laboratories, levelling and plumb tools stations and surveying instruments were present in just over half of the workshops (53.3%), reflecting limited access to advanced instructional resources. Overall, 65% of all items were marked as available, suggesting that while essential facilities for building technology instruction are largely provided, gaps remain in specialized and supporting equipment, which could restrict comprehensive hands-on skill acquisition.

The study's findings align with those of Adebayo and Yusuf (2023) [1, 2] and Obi and Onu (2020) [15], who reported that

skill acquisition in building technology is dependent on the availability and functionality of practical facilities. Like the present study, their investigations revealed that colleges with better-equipped workshops produce students with higher competence in masonry, carpentry and related construction tasks, whereas inadequate access to specialized tools reduces students' exposure to standard industry practices.

The findings of Research Question Two revealed that wood workshop facilities in Technical Colleges in Akwa Ibom State were generally available, with variations across different types of equipment. Core facilities such as woodwork benches with clamps (86.7%), circular saws (80.0%), band saws (80.0%), hand tools cabinets (80.0%) and first aid/fire safety stations (80.0%) were highly available, indicating that primary workstations and essential safety provisions were largely provided. Machines for shaping and finishing timber, including jointers and planers (73.3%), wood lathes (73.3%) and finishing stations (73.3%), were moderately to highly available. Conversely, specialized equipment such as thicknessing machines, tenoning machines, sanding machines, scroll saws and dry lumber storage were available in only 53.3% to 60% of workshops, reflecting limited access to advanced woodworking processes. Overall, 65% of all items were marked available, suggesting that while fundamental woodwork facilities are adequately provided, gaps remain in specialized and finishing equipment, which may constrain students' exposure to industry-standard practices and limit the development of advanced practical competence.

These findings are consistent with studies by Adebayo and Eze (2023) [1, 2] and Ogunbanjo and Nwachukwu (2022) [13], who reported that skill acquisition in woodwork programs depends heavily on the availability and functionality of workshop equipment. Like the present study, they found that colleges equipped with functional machines produced graduates with higher practical competence, while limited access to specialized woodworking tools constrained exposure to modern industry practices.

Conclusion

The study examined the availability of building and woodwork workshop facilities for skills acquisition in Technical Colleges in Akwa Ibom State, Nigeria. Findings revealed that core building facilities, including construction drawing boards, workbenches with masonry tools and water supply systems, were highly available, while specialized equipment such as material testing laboratories, levelling tools, surveying instruments and scaffolding stations were moderately accessible. In woodwork workshops, primary

facilities such as woodwork benches with clamps, circular and band saws, hand tool cabinets and first aid/fire safety stations were largely available, whereas advanced machinery including thicknessing, tenoning, sanding, scroll saws and dry lumber storage demonstrated limited availability. The results indicated that essential workshop resources were generally provided, supporting practical skill acquisition, but gaps remained in specialized and advanced equipment, which could constrain comprehensive hands-on training and alignment with current industry standards. The ANOVA results for both building ($F = 22.61, p = 0.0000$) and woodwork ($F = 24.16, p = 0.0000$) workshops confirmed that the facilities were significantly adequate for skill acquisition, showed measurable differences in teacher responses across availability categories. These findings revealed that Technical Colleges in Akwa Ibom State provide a functional foundation for practical instruction, though targeted interventions are required to enhance access to advanced tools and machinery.

Recommendations

Based on the findings of the study, the following recommendations were made:

1. Technical Colleges should invest in modern and specialized building workshop equipment to enhance students' practical skill acquisition.
2. Woodwork workshops should be equipped with advanced machinery such as thicknessing, tenoning and sanding machines to align training with industry standards.
3. Regular maintenance and timely replacement of workshop tools and machines should be implemented to ensure continuous functionality.
4. Collaboration between Technical Colleges and industry partners should be strengthened to provide access to current equipment, technical training and practical exposure.

References

1. Adebayo TK, Eze JU. An evaluation of the availability and utilization of woodwork workshop facilities in Nigerian Technical Colleges. *Journal of Technical and Vocational Education Research*,2023;28(1):115–133.
2. Adebayo TK, Yusuf AO. Availability and adequacy of building technology workshop facilities for skill development in Nigerian Technical Colleges. *Journal of Vocational and Technical Education Research*,2023;22(1):112–130.
3. Aina S. The role of workshop facilities in skills acquisition among TVE students. *International Journal of Vocational Training*,2019;14(1):89–103.
4. Ajayi K, Salako O. The impact of technical and vocational education on youth employment in Nigeria. *African Journal of Educational Development*,2021;18(4):245–263.
5. Akpan CU, Ekong MO, George WK. Availability of practical facilities for implementation of TVET curriculum in Technical Colleges in Akwa Ibom State. *International Journal of Educational and Scientific Research Findings*,2023;5(1):114–127.
6. Bello JT, Adamu SK. Government and private sector contributions to building technology workshop development in Technical Colleges. *African Journal of Technical and Vocational Studies*,2021;19(2):85–102.
7. Bello RK, Hassan TM. Public and private investment in metalwork workshop development in Nigerian Technical Colleges. *African Journal of Technical and Vocational Studies*,2021;22(3):85–102.
8. Eze KC, Umeh PO. The role of workshop facilities in technical education for national development. *African Journal of Technical Education and Development*,2018;10(1):112–126.
9. Federal Republic of Nigeria (FRN). *National Policy on Education (Revised)*. Lagos: NERDC Press, 2013.
10. Ikpe SA, George WK, Udom NA. Availability and utilization of safety equipment for skills training in Technical Colleges in Akwa Ibom State. *GASPRO International Journal of Eminent Scholars*,2020;7(2):82–88.
11. Jumere AA. *Research Methodology in Education: A Practical Approach*. Kaduna: Concept Designs and Prints, 2017.
12. National Board for Technical Education (NBTE). *National Policy on Technical and Vocational Education and Training (TVET) in Nigeria*. Abuja: Federal Ministry of Education, 2013.
13. Nwachukwu AI, Ugochukwu EM. Addressing skill gaps in Nigerian Technical Colleges: The impact of workshop infrastructure. *International Journal of Technical and Vocational Studies*,2022;8(3):77–93.
14. Nworgu BG. *Educational Research: Basic Issues and Methodology*. 3rd ed. Nsukka: University Trust Publishers, 2015.
15. Obi G, Onu P. The relationship between workshop facilities and technical competencies. *Nigerian Journal of Industrial Training*,2020;12(3):203–219.
16. Okwelle PC, Owo OT. Skills acquisition in Technical and Vocational Education and Training (TVET): Tool for sustainable entrepreneurship development among electrical/electronic students in polytechnic. *Rivers State Science and Industrial Technology Education Journal*,2017;5(2):73–83.
17. Olawale A, Ajibola T. Alternative funding models for TVET institutions in Nigeria. *African Journal of Economic Policy*,2021;8(2):72–88.
18. Oviawe JI. Effects of blended learning approach on students' academic performance in blocklaying and concrete works trade in Technical Colleges in Edo State, Nigeria. *International Journal of Educational Benchmark (IJEB)*,2019;12(1):45–53.

19. Oviawe JI. Enhancing academic performance and retention of general woodwork students using adaptive instructional strategy in Technical Colleges in Edo State, Nigeria. *EAS Journal of Psychology and Behavioural Sciences*,2021:3(1):1–9.
20. Peter EO, Okpa JT, Okoi ON. Educational support services and teachers' job performance in secondary schools in Akwa Ibom State, Nigeria. *Journal of Educational System*,2020:4(1):22–29.