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Integration of Vocational Education and Training in Secondary School Curriculum: Exploring Practical Implementation

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Abstract
This study explores factors influencing the effective implementation of integrated Vocational Education and Training (VET) in secondary school curricula in Tanzania. Using a cross-sectional design, 136 participants were selected through simple random and stratified sampling. Data were collected via Likert-scale questionnaires, open-ended questions, interviews, and document analysis involving teachers, students, school heads, and the District Education Officer. Quantitative data were analyzed using frequencies, percentages, and descriptive statistics, while qualitative data were thematically analyzed. Findings reveal that teacher competence, preparation, and motivation are critical for delivering quality vocational education. Many trainers lack technical skills and modern teaching methods, limiting students' acquisition of labor-market-relevant skills. Adequate infrastructure, learning resources, and financial support also significantly influence VET quality and accessibility. Additionally, it was found that, stakeholder perceptions particularly the view that vocational pathways are less valuable than academic education affect student enrolment and motivation. Collaboration with industries and local communities is also noted as essential for practical exposure and workplace experience, yet weak partnerships restrict apprenticeship opportunities. Moreover, while classroom learning remains dominant, students increasingly engage in practical and extracurricular activities, developing skills in crafts, industrial tasks, and self-employment. The study concludes that integrated VET enhances practical skill development and entrepreneurial competence but faces challenges including language barriers, limited resources, and staff shortages. Recommendations focus on improving teacher training, expanding practical exposure, upgrading infrastructure, and instituting regular monitoring and evaluation to strengthen programme effectiveness.
Key words: *Curriculum Implementation, Curriculum Integration, Secondary School Curriculum, Teacher Competence, Vocational Education and Training (VET)*
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1. Introduction

The effective implementation of integrated Vocational Education and Training (VET) in secondary schools largely depends on teacher competence and readiness. Studies in Tanzania indicate that many trainers lack both technical expertise and modern teaching methods, which hinders the delivery of quality training aligned with labour market demands (Hakielimu, 2021; Munishi, 2016; URT, 2014). Low teacher preparation and motivation further reduce curriculum effectiveness, limiting students' acquisition of employability skills. Adequate infrastructure and learning resources are critical for VET, which relies on hands-on practice. Workshops, laboratories, tools, and specialized materials are often unavailable, constraining practical learning (Koobonye, 2020; REPOA, 2020). Financial limitations also affect the maintenance and expansion of vocational programmes, leading to uneven implementation across regions.

Stakeholder perceptions influence VET uptake and effectiveness. Vocational pathways are often considered inferior to academic routes, discouraging enrolment and reducing student motivation (The Guardian, 2024; Sumra & Katabaro, 2017). Teachers may also perceive vocational subjects as less prestigious, further undermining delivery. Collaboration with industries and local communities is essential to provide workplace exposure and practical experience; however, weak partnerships restrict apprenticeship opportunities and alignment of student skills with labour market needs (Maclean, 2022).

Policy and institutional support remain crucial. Despite government reforms, challenges persist due to unclear guidelines, weak coordination, and limited monitoring (Lema, 2024). Technical schools are scarce, with only 14 out of 5,926 secondary schools in Tanzania being technical (NECTA, 2022; MoEST, 2021). Without strong

policies, funding, and supervision, VET integration remains inconsistent. Local socio-economic contexts further shape implementation. In Mbeya City, demand for skilled labour is high due to agriculture, mining, and trade (Davis, 2017). Yet schools face limited facilities, weak industry collaboration, and low awareness of vocational pathways, creating a gap between the potential and actual contribution of VET to youth employment.

The integration of VET in secondary education is increasingly important due to rising youth unemployment and the demand for skilled labor in blue-collar jobs (Lelei & Weidman, 2012). Effective implementation requires involvement from all stakeholders, competent teachers, sufficient funding, labor market linkages, and a supportive learning environment (Brown, 2019). However, the dominance of non-VET curricula, resource shortages, and low awareness hinder progress (Ziganyu, 2020; UNESCO, 2023; World Bank, 2015). Schools often rely on improvisation and local initiatives to develop curricula relevant to socio-economic needs (Ismail et al., 2018).

Despite these insights, research on the practical implementation of integrated VET in Tanzanian secondary schools is limited. This study investigates the extent of VET integration in Mbeya City, focusing on students' engagement in practical activities, exposure to industrial tasks, and acquisition of skills that support self-employment.

2. Research Methodology

This study adopted a mixed-methods approach, integrating quantitative and qualitative research to provide both measurable data and contextual insights on the factors influencing the implementation of integrated Vocational Education and Training (VET) in secondary schools (Creswell & Creswell, 2023). The quantitative component allowed the researcher to identify patterns, relationships, and challenges, while the qualitative component provided depth and clarification of stakeholders' perspectives. A concurrent embedded research design was employed, wherein qualitative and quantitative data were collected simultaneously, with qualitative data supplementing the quantitative findings (Creswell & Creswell, 2023). This design enabled efficient data collection from students, teachers, heads of schools, and district education officers, ensuring diverse perspectives were captured and analyzed effectively using tables, graphs, and percentages.

The study was conducted in Mbeya City, Tanzania, where only two secondary schools had implemented integrated VET since 2024. These schools were purposively selected to provide insights into programme effectiveness, challenges, and prospects. The target population included students, teachers, school heads, and district education officers, who are directly involved in VET implementation. A total of 136 respondents participated: 116 students, 16 teachers, 2 school heads, and 2 district education officers. Purposive sampling was used for schools, heads, and officers, while simple random and stratified sampling techniques selected teachers and students to ensure equal participation opportunities.

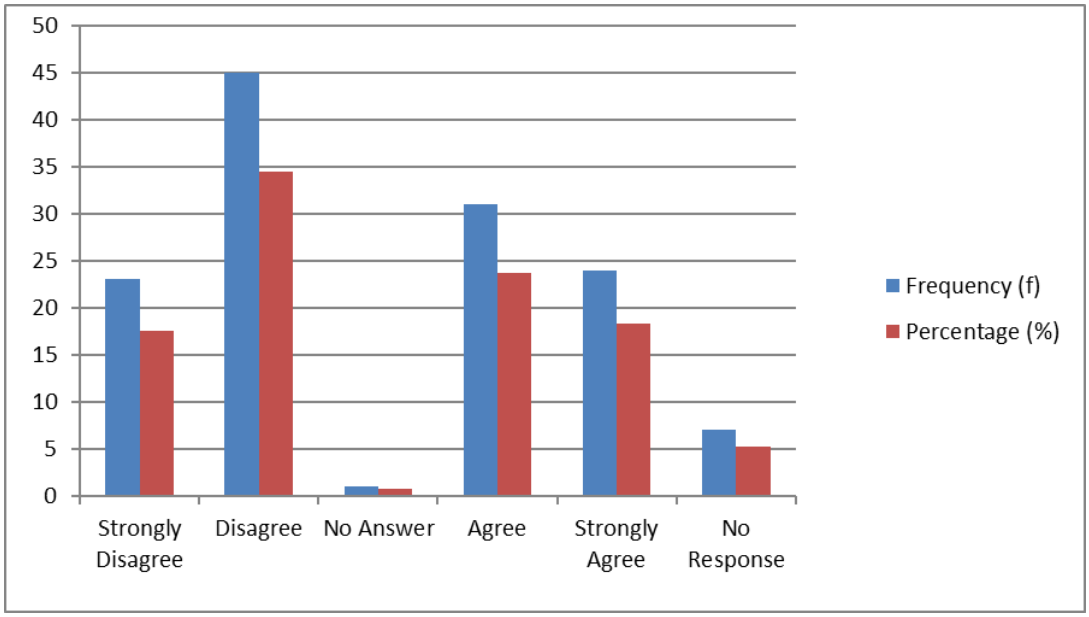
Data were collected through questionnaires, interviews, and document review. Questionnaires captured broad perspectives from teachers and students, interviews provided in-depth insights from school heads and district officers, and document review verified and supplemented primary data. Data analysis was conducted using SPSS version 21.0. Descriptive statistics, including frequencies, percentages, means, and standard deviations, summarized quantitative data, which were presented in tables and charts. Qualitative data were thematically analyzed to complement quantitative findings. Only instruments demonstrating acceptable consistency were used, ensuring that the study's findings were credible, dependable, and provided a robust basis for conclusions and recommendations.

3. Results and Discussion

3. 1. Extent of Student Participation in Practical versus Classroom Activities under Integrated VET

This section presents and discusses the findings on students' engagement in practical and extracurricular activities compared to classroom-based learning under the integrated VET programme, summarized in Figure 4.1. Data from students, school heads, and the District Education Office were organized into tables and enriched with illustrative quotations to provide a clear and comprehensive understanding of students' participation.

Figure 4.1: Extent of Students' Engagement in Practical and Extracurricular Activities Compared to Classroom Activities under Integrated VET



The survey findings revealed varying perceptions among respondents regarding the amount of time students dedicate to practical or extracurricular activities compared to classroom-based learning under the integrated VET programme. Of the 131 respondents, 23 (17.6%) strongly disagreed that students spent more hours outside the classroom, while 45 (34.4%) disagreed. One respondent (0.8%) did not provide a response. Conversely, 31 respondents (23.7%) agreed, and 24 respondents (18.3%) strongly agreed that students spent substantial time in outside activities. Additionally, 7 respondents (5.3%) did not respond to this item. Collectively, these data indicate that a significant proportion of respondents (42%, combining agree and strongly agree) observed that students engage meaningfully in activities beyond formal classroom settings.

The analysis highlights mixed perceptions regarding student engagement outside the classroom. The majority (34.4%) disagreed, suggesting that many students may still spend more time in classroom-based learning or that practical activities are not consistently prioritized. Nevertheless, a notable proportion (42%) agreed or strongly agreed, indicating that integrated VET encourages participation in practical or field-based learning experiences, thereby increasing active learning hours outside traditional classroom instruction. The 17.6% of respondents who strongly disagreed further underscores the variability, which may be influenced by factors such as school resources, programme implementation, or student motivation.

These findings suggest that integrated VET programmes promote a balance between classroom instruction and practical engagement. Students involved in structured outside activities—such as internships, community projects, or vocational training—acquire practical skills that complement their classroom learning. This aligns with empirical evidence from other contexts: Maldonado & Vargas (2024) found in Mexico City that scholarship programmes increased students' out-of-class study time by 1.0–1.3 hours daily. Similarly, Mboi and Nyambedha (2013) in Kenya reported that extra tuition sessions outside school hours, though time-consuming, enhanced academic outcomes. In Tanzania, Lyoba & Mwila (2022) demonstrated that well-structured extracurricular programmes improved student engagement, physical fitness, and confidence. These studies support the view that outside activities within VET frameworks can positively contribute to students' overall learning, skill development, and personal growth.

Head of School (HoS1) stated:

"Some programmes require students to spend more time in the classroom due to shortages of materials, especially in science and technology. For example, students in upper forms lack practical computer skills and internet access, which hinders learning. Teachers often rely on borrowed resources or improvised materials.

However, in most programmes, students spend more time in outside activities, which help them develop entrepreneurial skills and improve their employability."

In the same line, Teacher (T3) noted that:

"The curriculum requires students to learn by doing and practicing outside the classroom. Yet, scarcity of materials and limited time to cover the syllabus reduce opportunities for practical learning. Still, in many programmes in my school, students spend more time engaging in activities outside the classroom."

In addition, the District Education Officer (DEO) further highlighted:

"Students in the integrated VET programme spend more time on practical and field-based activities than in traditional classroom lessons. Classroom learning remains important, but greater emphasis is placed on hands-on experiences such as industrial tasks, crafts, and workplace visits. This exposure equips students with employable skills, fosters entrepreneurship, and prepares them for labour market demands. Teachers and schools are increasingly supporting this shift to ensure students gain both theoretical knowledge and practical competence."

These findings are consistent with existing literature on student engagement in extracurricular and practical activities. Lyoba & Mwila (2022) demonstrated that structured extracurricular programmes enhance participation, engagement, and overall development, highlighting that adequate support can increase time spent on activities beyond formal classroom hours. Similarly, Maldonado & Vargas (2024) observed that interventions such as scholarships increase study time outside school, showing that external incentives and structured opportunities can influence how students allocate their time. The results also resonate with Mboi &Nyambedha (2013), who found that intensive after-school tutoring, although academically beneficial, can limit opportunities for personal development and leisure. This parallels the present study's finding that a notable proportion of respondents disagreed that students spend more hours on outside activities, suggesting that structured school or home routines may restrict engagement in practical VET activities.

Generally, the survey indicates that while many students under integrated VET participate in outside activities, classroom-based learning remains the primary focus. Engagement in practical learning is shaped by curriculum structure, student motivation, and institutional support. To strengthen the effectiveness of integrated VET, schools should allocate more time, resources, and guidance to outside learning opportunities, thereby achieving a better balance between theoretical instruction and practical skill development.

3.2. Craft Activities in Integrated VET

This section presents and discusses the types of craft activities students engage in under the integrated VET programme, based on data collected from students, teachers, school heads, and district education officers. The findings indicate that students participate in a variety of industrial and vocational activities, including carpentry, plumbing, electrical work, mechanical repairs, ICT, and basic business tasks. Through these activities, students acquire practical skills and hands-on experience both in school workshops and during visits to local industries, enhancing their employability and entrepreneurial competence.

Table 4.1. The craft activities that students are exposed to through integrated VET

Response Category	Frequency (f)	Percentage (%)
Strongly Disagree	2	1.5
Disagree	4	3.0
No Answer	1	0.8
Agree	82	62.1
Strongly Agree	33	25.0
No Response	10	7.6
Total	132	100.0

Source: Field Data, 2025

The findings in Table 4.1 indicate that the majority of students reported being exposed to craft activities through the integrated VET programme. Out of 132 respondents, 82 (62.1%) agreed and 33 (25.0%) strongly agreed, giving a combined total of 115 (87.1%) in favour. In contrast, only 4 (3.0%) disagreed and 2 (1.5%) strongly disagreed, while a small number either did not answer (0.8%) or provided no response (7.6%). These results suggest that most learners perceive craft activities as a core component of their vocational training, offering opportunities to develop creativity and practical skills.

Teachers' responses reinforced these findings. During interviews, most teachers reported that craft activities, including carpentry, weaving, pottery, and creative design, were regularly incorporated into lessons. They noted that such activities enhance problem-solving skills and promote teamwork. However, some teachers acknowledged that the implementation of these activities is not always consistent due to shortages of materials, limited hands-on training, and time constraints. This demonstrates that while teachers recognize the importance of craft activities, practical barriers can affect their consistent delivery.

The head of one school (HoS1) explained:

"After obtaining professional qualifications such as Senior Skilled Craftsman, National Skilled Craftsman, and National Youth Skilled Craftsman, trainees meet the conditions to remain in the school as teachers."

This statement underscores the argument that practical skills have enduring value for students, enabling them to utilize locally available resources effectively and cost-efficiently. Basically, the findings suggest that teachers generally acknowledge the importance of practical craft activities within the integrated VET curriculum. Students are increasingly engaged in hands-on learning, which supports the development of skills necessary for self-employment and industrial opportunities.

Both the DEO and school heads emphasized students' active participation in a variety of industrial activities. For instance, the DEO noted:

The 2024 revised education policy emphasizes equipping students with both knowledge and practical skills. The Form Two National Assessment timetable includes a wide range of vocational subjects, providing essential hands-on experience. As the world rapidly changes, practical activities must be emphasized to prepare students for the industrial sector.

The strong emphasis on practical skills within the integrated VET curriculum is further reflected in the official Form Two National Assessment Timetable for 2025. The alignment between national policy, examination practice, and student experience—where 87.1% of respondents reported exposure to craft activities—demonstrates a concerted effort to ensure the curriculum delivers hands-on, industrially relevant skills necessary for the evolving economy.

Similarly, HoS2 highlighted:

"Students spend substantial time in school workshops and on visits to local industries, which reinforce practical skill development and prepare them for self-employment and future careers. In my school, only a few programs do not provide enough time for practical activities due to limited materials and qualified teachers. However, for the majority of programs, there is no problem."

Both officials agreed that craft activities play a key role in enhancing technical skills and student confidence. They stressed the importance of ongoing support from teachers and industry partners to ensure meaningful industrial exposure.

These results are consistent with Ogutu, Gödecke and Qaim (2020), who found in Kenya that art and craft activities, such as painting and clay modelling, enhance imagination, problem-solving, and emotional development. Likewise, the present study shows that Tanzanian students value craft activities as integral to their vocational training. Concerns about teacher preparedness echo the findings of Msigwa & Tandika (2024) in Tanzania, which reported that many teachers lack the necessary skills to integrate art and craft effectively. Both studies indicate that while crafts are widely recognized as valuable for learners' creativity, their success depends on professional development and pedagogical support for teachers.

In conclusion, the survey demonstrates that craft activities constitute a significant component of the integrated VET curriculum, with 87.1% of students reporting exposure. The perspectives of teachers, school heads, and the DEO confirm their importance but also highlight challenges, including material shortages and insufficient teacher training. Overall, the findings suggest that while craft activities enhance creativity, cooperation, and practical skills, sustained investment in resources and teacher capacity is essential for consistent and effective implementation.

3.3. The Role of Integrated VET in Developing Students' Skills for Self-Employment

Information on the extent to which integrated VET has enabled students to acquire skills for self-employment was collected from students, school heads, and the District Education Office. The data were systematically organized into tables and complemented with quotations from respondents to provide a comprehensive understanding of the programme's impact indicating that many have gained confidence in applying practical skills and engaging in entrepreneurial activities, reflecting a shift from the previous system, which emphasized primarily theoretical instruction as summarized in Table 4.2 below.

Table 4.2 The extent to which integrated VET has enabled students to acquire skills for self-employment

Response Category	Frequency (f)	Percentage (%)
Strongly Disagree	9	6.8
Disagree	7	5.3
No Answer	5	3.8
Agree	46	34.9
Strongly Agree	58	43.9
No Response	7	5.3
Total	**132**	**100**

The findings in Table 4.2 indicate the extent to which integrated VET has enabled students to acquire skills for self-employment. Out of 132 respondents, 58 students (43.9%) strongly agreed, while 46 students (34.9%) agreed that the programme had helped them gain self-employment skills. Only 9 students (6.8%) strongly disagreed, and 7 (5.3%) disagreed. Meanwhile, 5 respondents (3.8%) did not provide an answer, and 7 students (5.3%) did not respond. Overall, 78.8% of students perceived the VET programme as effective in developing self-employment skills, reflecting a positive outcome of the integrated curriculum.

Teacher perspectives mirrored those of the students. Most teachers observed practical skill development, particularly in trades such as tailoring, carpentry, and small-scale business management. They reported that students were able to initiate small ventures, apply problem-solving techniques, and develop entrepreneurial thinking. However, a minority of teachers (around 12%) noted that some students struggled to apply skills independently due to limited community resources or insufficient entrepreneurial exposure. This underscores the importance of both curriculum content and contextual support in facilitating self-employment outcomes.

The combined responses suggest that integrated VET significantly equips students with skills necessary for self-employment. The high level of agreement (78.8%) demonstrates that practical, hands-on learning is effective in nurturing entrepreneurial competencies. Nevertheless, challenges remain for a small proportion of students, highlighting the need for continuous curriculum improvement and resource allocation.

The District Education Officer (DEO) emphasized the policy perspective:

"The VET curriculum for secondary schools emphasizes skills development, critical thinking, and real-world application, taking into account students' home backgrounds and the Tanzanian learning environment. Vocational education provides practical skills directly linked to future careers, offering better employment opportunities."

This aligns with Parasnis, Deshpande and Khanolkar (2022), who note that vocational education is increasingly valued, with employers expecting practical skills for immediate workforce entry and self-support after secondary education.

School heads also emphasized the importance of VET. HoS3 stated:

"Integrated VET is essential in secondary schools as it enables youth to acquire skills for self-employment in the global market. Delays in its implementation could negatively affect society and the national economy."

HoS2 added:

"The readiness and positive attitude of teachers and students are crucial for effective implementation of VET. Stakeholder engagement is a key factor for success."

Interviews further highlighted the programme's impact. The DEO noted:

"Through increased practical activities and exposure to entrepreneurial tasks, students have developed confidence in applying skills in real-life contexts. VET also fosters interpersonal, communication, problem-solving, and teamwork skills, as well as independence, initiative, punctuality, and work ethic."

The DEO further emphasized:

"The recruitment of skilled teachers, availability of materials, clearly defined curriculum, and competence-based training have enabled students to initiate small businesses and participate effectively in income-generating activities. This contributes to youth employment and national economic growth."

Additionally, a head of school (HoS1) added:

"The programme has shifted students' learning from theoretical knowledge to practical engagement, enabling hands-on skills in trades such as carpentry, electrical work, ICT, and basic business operations."

Together, these accounts confirm that integrated VET equips students with practical competencies and an entrepreneurial mindset, promoting life skills and economic independence.

These findings align with empirical research. Bahaw, Mack, Ghulfam and Stephens (2025) found that combining TVET with entrepreneurship education empowers marginalized groups toward self-employment. Similarly, Basilotta-Gómez-Pablos, Matarranz, Casado-Aranda and Otto (2022) reported that integrated vocational programmes improve youth employment outcomes through practical skill development and support services.

Tanzanian studies corroborate these conclusions: Kibitanyi & Ismail (2024) note that VET graduates often start self-employment ventures, and Bahaw et al., (2025) highlights VET's role in enhancing productivity and job readiness. Collectively, these studies confirm that integrated VET, when supported by relevant curricula and adequate resources, effectively fosters self-employment.

3.3.1. Availability of resources for the implementation of vocational training curriculum in secondary schools

Through document analysis guide researchers gathered data on the extent resources were available in the surveyed secondary schools which were implementing VET in their curriculum. Information on the availability of materials required in each program and its distribution was summarized in Table 4.3 and 4.4 below.

Table 4.3. Document analysis information on the availability of resources in the implementation of vocational education training in secondary schools curriculum

Programs	*No of students*		*No of teachers*	*Materials available*	*satisfactory materials*	*Unsatisfactory materials*	*Deficiency*
	School A						
1.Sports and games	20	Football	02	-80 balls -@students9 jerseys -@student 5 pairs of shoes, first kit box, fire extinguishers	satisfactory	-	-
		Netball		-balls 48 -@student 9 jerseys @ student 5 pairs of shoes, first kit box, fire extinguishers	satisfactory	-	-
2.Drawing and paints	14	-	01	Papers (Sketchbooks), glue, ink, marker pens, ruler, measuring tapes, protractor, divider, colored pencils, colors acrylic, oil, watercolor, brushes, a palette for mixing, water containers, and surfaces like canvas or wood panels, computers, manila sheets, first kit box, fire extinguishers	satisfactory	-	-
School B							
1. Electrical Installation	(I=38, II=30) Total =68		3	Wires, cables, conduits, junction boxes, switches, and outlets, safety devices such as circuit breakers and fuses, and protective materials like electrical tape. Others are wire strippers, insulated pliers, screwdrivers, and voltage testers, first kit box, fire extinguishers	satisfactory	-	-
2. Carpentry Joinery	I= 9,II=14 Total =23		2	Carpentry machines, Wood, nails, screws, glue, saws, tape measure, hammers, drills, sanders, nail guns, miter, circular, first kit box, fire extinguishers	-	Unsatisfactory	Sanders, kelver gloves, steel tore tools, woods, nails, nails gums
3. Painting and Sign writing	I=8 II=9 Total =17		1	colored pencils, colors acrylic, oil, watercolor, brushes, first kit box, fire extinguishers	Satisfactory	-	-
4. Computer programming	I=32 II=44 Total =76		4	Laptops or desktops, 8 GB of RAM and low power resolution monitors, rooter,	Satisfactory	-	-
5. Masonry and birch	I=38 II=44 Total =82		2	Bricks, stone, concrete blocks, cement, sand, aggregate, and water to make mortar and concrete, first kit box, fire extinguishers	Satisfactory	-	-
6. Plumbing and pipe	I=39 II=40 Total			Copper, Stainless Steel, and Brass, PVC, CPVC, PEX, and ABS, thread seal tape, first kit box, fire	Satisfactory	-	-

fitting	=79			extinguishers			
7. Motor vehicle mechanics	I=10 II=31 Total =41		1	One car, engine blocks, piston,	-	unsatisfactory	Engines, spear parts
8. Welding/ metal fabrication	I=18 II=15 Total =33		2	Welding machines, protectors, generator, first kit box, fire extinguishers	-	unsatisfactory	Electrodes, gases, unreliable power, petrol

Source: Field Data (2025)

The findings in Table 4.3 present information collected through the document analysis guide regarding the availability and deficiencies of materials across various VET programmes. According to Mulder (2014), successful implementation of VET in secondary school curricula requires adequate time and resources, including opportunities for staff to maintain industry-relevant skills and engage in professional development with teachers from other schools. Teachers also need time to develop the expertise required to run effective programmes. In some cases, staff maintain their skills through training when students are off-campus or engaged in workplace learning.

The results indicate that the surveyed schools generally had sufficient materials for most VET programmes. However, mechanical engineering faced notable constraints: School B had only one car available for students' practical exercises, and some car spare parts were insufficient relative to the number of students. Overall, the schools had adequate resources, including qualified facilitators and teaching and learning materials, which support the effective implementation of integrated VET. The availability of sufficient resources enhances programme delivery, contributing not only to institutional development but also to students' skill acquisition. These findings align with Ogbulogo, George and Olukanni (2024), who emphasizes that for governments aiming to strengthen VET implementation and align curricula with labour market demands, access to sufficient and high-quality materials is a critical factor in achieving programme objectives.

Moreover, the available resources in the implementation of vocational education training in secondary schools' curriculum were distributed by the heads of schools as presented in table 4.4. Below.

Table 4.4. Distribution of the heads of schools on the availability of resources for the implementation of vocational training curriculum in secondary schools

Statements	***Very unsatisfactory***		***Unsatisfactory***		***No answer***		***Satisfactory***		***Very satisfactory***		***No Response***	
	f	%	f	%	f	%	f	%	f	%	f	%
Syllabus	-	-	-	-	-	-	2	100	-	-	-	-
Library resource			1	50	-	-	1	50	-	-	-	-
Laboratory equipment/chemicals	1	50	-	-	-	-	1	50	-	-	-	-
Field time table	-	-	-	-	2	50	-	-	-	-	-	-
Skilled teachers	-	-	1	50	-	-	1	50	-	-	-	-
Lab time table	-	-	-	-	-	-	2	50	-	-	-	-
Machines	1	50	-	-	-	-	1	50	-	-	-	-
"Logbook"	-	-	-	-	-	-	2	50	-	-	-	-
Instructional materials	-	-	1	50	-	-	1	50	-	-	-	-
Power	-	-	1	50	-	-	1	50	-	-	-	-

Source: (Field Data, 2025).

The findings in Table 4.4 revealed that the implementation of VET in secondary schools was generally effective. All heads of schools (100%) reported satisfaction with the availability of the VET syllabus, and similarly, 100% confirmed that logbooks were properly prepared by teachers. The availability of laboratory timetables was also satisfactory, providing guidance for supervising and monitoring students during laboratory and fieldwork.

Responses regarding the availability of skilled teachers were mixed, with 50% of heads satisfied and 50% unsatisfied. This aligns with findings from Kenya, where Olukanni, Aderonmu, Ogbiye and Akinwumi (2014) observed that engineering programmes introduced practical skills through supervised workshops and laboratory exercises, enabling students to acquire essential discipline-specific knowledge and competencies. The District Education Officer (DEO) noted that:

"The current VET implementation differs from previous competency-based education (CBE) models, as increased government funding and employment of competent teachers have enhanced effectiveness. For example, 28 secondary schools received approximately four billion Tanzanian shillings to prepare environments and recruit qualified staff for VET implementation."

Similarly, Muchira, Morris, Wawire and Oh (2023) found that CBE models improved problem-solving, self-efficacy, lifelong learning, and learner autonomy. However, some challenges remain. Heads of schools reported a shortage of skilled teachers in specialized areas, such as engineering and computer studies. One head noted the challenge of using English as the medium of instruction:

"Students majoring in science often have limited English proficiency. Most equipment and instructions are in English, which may reduce the efficiency of program implementation. The government might consider using Kiswahili for instruction, given that the focus is on skill acquisition rather than memorization."

This finding is consistent with Mathias, Mwamakula and Mhagam (2023) who identified factors influencing CBE implementation in Magu District, Tanzania, including large class sizes, inadequate infrastructure, insufficient staff, and limited knowledge. Makunja (2016) similarly noted that insufficient resources, overcrowded classrooms, and low student readiness impede effective implementation. Evidence from Nigeria also highlights lack of vocational teachers, underfunding, and poor technology as major constraints to VET growth (Maldonado & Vargas, 2024). These challenges indicate that productivity and competitiveness in Tanzania's economy depend on a well-educated, skilled, and adaptable workforce.

Compared to Kenya, the surveyed Tanzanian schools demonstrated more effective VET implementation, with sufficient professional teachers, clear policies, and adequate resources. Studies in Kenya identified negative factors affecting VET implementation, such as limited teacher training opportunities, low funding, inconsistent pedagogical approaches, unclear educational policies, lack of ICT infrastructure, and questions regarding validity and reliability of learner assessments (Cheruiyot, 2024; Kubai, 2023; Njiru & Odundo, 2024). In contrast, the Tanzanian schools surveyed showed evidence of skilled personnel, proper policies, and resource availability that support successful VET delivery.

4. Conclusion and Recommendations

The study demonstrates that integrated Vocational Education and Training (VET) in secondary schools significantly enhances students' practical learning, skill development, and readiness for self-employment. While classroom activities still occupy much of students' time, many engage extensively in field-based and practical activities, reflecting a shift toward a balanced curriculum that combines theory with hands-on experience. Students acquire skills in crafts, industrial tasks, and entrepreneurship, gaining confidence and preparedness to participate in local and international labour markets. Teachers play a key role in promoting positive attitudes toward vocational education, though some students remain hesitant, highlighting the need for parental encouragement. Challenges affecting effective implementation include language barriers, insufficient instructional materials, limited laboratory equipment, and staff shortages. Addressing these issues is critical to improving the quality and efficiency of integrated VET.

Based on the study findings, the following recommendations are proposed:

i. School authorities should prioritize field-based and hands-on activities alongside theoretical instruction to ensure students gain sufficient practical experience.
ii. Both government and school authorities need to recruit qualified teachers and provide continuous professional development to strengthen the delivery of integrated VET.

iii. Both government and school authorities should ensure sufficient laboratories, machinery, instructional materials, and reliable power supply to facilitate effective learning and practical skill acquisition.
iv. School authorities and curriculum developers should both consider using Kiswahili alongside English for practical instructions in technical subjects to improve comprehension and maximize learning outcomes.
v. Quality assurers should conduct regular assessments to identify gaps, monitor progress, and ensure that students' skills meet current and future labour market needs.
vi. School authorities should provide internet access and digital resources to support instructors and students in enhancing practical knowledge, research skills, and overall understanding of subjects.

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