Quality and Relevance of Vocational Education and Training in Laikipia County, Kenya

Sarah Roelker[1], Paul Mathubi[1], Peter Githae[2]*, Lucy Mugo[2]
[1]Comundo/St. Martin Catholic Social Apostolate (CSA), Nyahururu, Kenya
[2]Laikipia University, Kenya
***Corresponding Author**

Abstract
Vocational Education and Training (VET) is recognized worldwide as critical for addressing pressing global challenges and building resilience. Through effective skills development, VET is a strategic tool for increasing employability and job prospects while enhancing social inclusion. This study evaluated the quality and relevance of VET in Laikipia County, Kenya, with a focus on courses, curricula, institutional systems, and operational effectiveness. The study was anchored in Total Quality Management (TQM) Theory. Using a mixed-methods approach, the study collected both quantitative and qualitative data from respondents through questionnaires, checklists, and an interview schedule. A purposive sampling technique was used to select four Vocational Training Centres (VTCs) based on their establishment level and location, while proportionate random sampling determined the student sample size from each VTC to ensure representativeness. The study collected data from 360 respondents, including trainees, trainers, administrators, industry stakeholders, and county officials. The study revealed significant misalignments between the courses offered and local labour market demands, primarily due to outdated equipment, inconsistent industry linkages, and curriculum deficiencies. Additionally, infrastructural inadequacies, limited pedagogical skills among trainers, and systemic operational challenges, such as delayed funding, employment instability, and inadequate facilities, hamper training quality and delivery. Socioeconomic and logistical barriers further restrict equitable access, especially for marginalized and rural populations. The study underscores the need for industry linkages, infrastructure upgrades, capacity development, and responsive governance frameworks. Recommendations include establishing industry partnerships, improving funding mechanisms, expanding student support schemes, and strengthening policy frameworks to enhance the relevance, efficiency, and inclusiveness of VET in Laikipia County. Ultimately, the study advocates for strategic reforms to produce industry-ready graduates who can contribute to regional development and economic growth.

Keywords: County Government Laikipia, labour market needs, quality, relevance, vocational education and training

Introduction

Technical and Vocational Education and Training (TVET) is globally recognized as a key driver of employability, social inclusion, and lifelong learning. In Kenya, TVET plays a crucial role in addressing youth unemployment and supporting the country's economic development goals outlined in Vision 2030. Following the 2010 Constitution's decentralization of TVET

administration, County Governments have been tasked with managing Vocational Education and Training (VET) at Vocational Training Centres (VTCs).

The role of VET in navigating global challenges and building resilience cannot be overstated. It is regarded as a critical tool for developing the competencies the market and industry require for growth and development (Jwan, 2022). Globally, there is a shift toward improving VET quality by adopting relevant curricula and using experiential learning methods. In the United States, project-based learning and simulations have been linked to improved skill acquisition and job readiness (Sofyan et al., 2022). These methods allow learners to apply knowledge in practical, real-world scenarios.

Similarly, competency-based assessments have been embraced, focusing on whether learners can apply their skills and knowledge in practical scenarios. Many countries incorporate workplace assessments into their vocational training programs and integrate on-the-job assessments with theoretical learning, providing a comprehensive evaluation of learners' skills in real-world settings (Krebs & Jansen, 2023).

VET plays an important role in technology diffusion by transferring knowledge and skills (Ziderman, 2016). As such, responsive systems that adapt to changes in the global landscape and, more broadly, effective policy frameworks should guide it. In addition, well-prepared and regularly updated labour market information and the monitoring of employment prospects are essential for promoting needs-related VET. Competency development measures should not focus solely on formal productive employment but must also include the informal sector. This reflects a need not only for a more knowledgeable and skilled workforce but also for one that can adapt quickly to emerging technologies in a cycle of continuous learning (Marope et al., 2015).

Onditi (2015) notes that VTCs face a myriad operational challenges. These challenges stem from the framework under which they operate. The structure of educational programmes can determine the nature and quality of the programmes' trainees.

VTCs face several challenges, including low quality, limited linkage to the labour market, low participation rates, gender disparities across programmes, and inadequate and obsolete teaching and instructional facilities and equipment (Government of Kenya, 2005). This research aimed to evaluate the current state of VTCs in Laikipia County, focusing on their courses, curricula, systems, and overall effectiveness. It sought to determine whether the courses offered meet local labour market demands, adhere to industry standards, and align with the County's strategic development goals.

In addition, the study analysed the organizational and operational aspects of VTCs, including governance, management, and resource allocation. It evaluated leadership effectiveness, administrative processes, infrastructure, staff recruitment and development, and quality assurance mechanisms. The study aimed to recommend strategies to streamline operations, strengthen governance, and optimize resource utilization. Ultimately, the goal was to enhance VTCs' efficiency and effectiveness, ensuring they deliver high-quality vocational training that meets industry standards and regional development objectives.

The study sought to evaluate the quality and relevance of Vocational Education and Training in Laikipia County, Kenya, and was guided by the following specific objectives: to evaluate the relevance of the courses offered in VTCs and determine their alignment with local labour market needs, industry standards, and Laikipia County's vision and aspirations; to analyse the current curriculum, skills training, and assessment at VTCs to identify gaps and provide recommendations for improvement; and to examine the systems, structures, and processes of VTCs to evaluate their efficiency and effectiveness and how they affect the delivery of VET programs in VTCs. The study

thus sought to answer the following research questions: Are the courses offered in VTCs in Laikipia County relevant, and do they align with local labour market needs and industry standards? What are the gaps in the current curriculum and skills training, and how can they be addressed? To what extent do the existing systems, structures, and processes of the VTCs in Laikipia County affect the efficiency and effectiveness of the delivery of VET programmes?

Literature Review

The study reviewed the existing literature related to vocational training centres (VTCs), focusing on course relevance, curriculum adequacy, skills training, assessment practices, institutional systems, and their alignment with labour market needs. It emphasized the importance of aligning VTC offerings with industry demands to improve employability and support local development goals, such as Laikipia County's vision.

Based on experiences in other countries, public-private partnerships and social partnerships are critical to developing high-quality vocational education and training. Public-private partnerships play a major role in linking the education sector and employers. The partners in this case include government, civil society organizations, enterprises, labour representatives, and educators. Such partnerships should, for instance, develop, administer, and assess the curriculum. This will not only help align courses with the labour market but also help establish funding mechanisms (Klimczuk & Tomczyk, 2020).

In Kenya, however, there exists a disconnect due to inadequate labour market information systems and limited stakeholders' engagement, leading to skills mismatch and low employment rates among VTC graduates (Wambui & Njenga, 2023; Kamau, 2023). Mutua (2023) notes that Kenyan VTCs often struggle to update curricula to keep pace with rapid technological and industry changes; as a result, curricula are often criticized for being outdated and not reflecting employers' current needs. This misalignment creates a skills gap, leaving graduates unprepared for the labour market (Wambui & Njenga, 2023).

Globally, curricula are shifting towards competency-based, modular, and flexible models that incorporate industry input and adaptive technologies, as seen in Australia and Sweden (Johnson & Green, 2022; Nylund & Virolainen, 2019). Kenya's efforts, including reforms such as the TVET Authority (2022), aim to enhance curriculum relevance, yet implementation challenges persist, especially in rural areas (Karanja, 2023).

Skills and training approaches in Kenya remain predominantly traditional, with limited practical exposure and outdated resources, undermining graduates' quality and employability (Mwangi & Kamau, 2023). International examples emphasize experiential learning, industry integration, and technology use to improve skills acquisition (Krebs & Jansen, 2023; Tan & Lim, 2024). The skills gap persists because of rapid industry changes and resource constraints, especially in rural VTCs, which require greater industry involvement and investment.

Assessment practices in Kenyan VTCs rely heavily on theoretical exams, with limited practical or performance-based evaluations that do not adequately measure industry readiness (TVETS, 2022). Globally, institutions increasingly adopt competency-based and workplace assessments, often supported by digital tools to improve evaluation accuracy (Krebs & Jansen, 2023). Improving assessment relevance requires stakeholder participation and upgrades to resources.

Institutionally, Kenya's VTC system operates under a complex framework of multiple agencies and legislation (Ngerechi, 2003; TVET Act, 2013). Despite reforms aimed at standardization and quality assurance, challenges persist in funding, infrastructure, and human

resource management, particularly in rural settings (Ziderman, 2016; Kamau, 2023). Effective vocational training requires responsive systems that foster industry linkages, continuously update curricula, and allocate adequate resources to produce industry-ready graduates and support economic development (Marope et al., 2015; Onditi, 2015).

Theoretical and Conceptual Framework

The study was anchored in the Total Quality Management (TQM) Theory. The theory provides a structured approach to improving organizational performance through continuous improvement. It calls on all stakeholders to commit to enhancing processes, products, and services to improve quality, increase efficiency, and boost customer satisfaction (Ajayi, 2021). The theory was well suited to the study, given that the overall aim was to identify ways in which the key players in VET within Laikipia County can synergise to make it more efficient and effective. The study followed the conceptual framework shown in Figure 1.

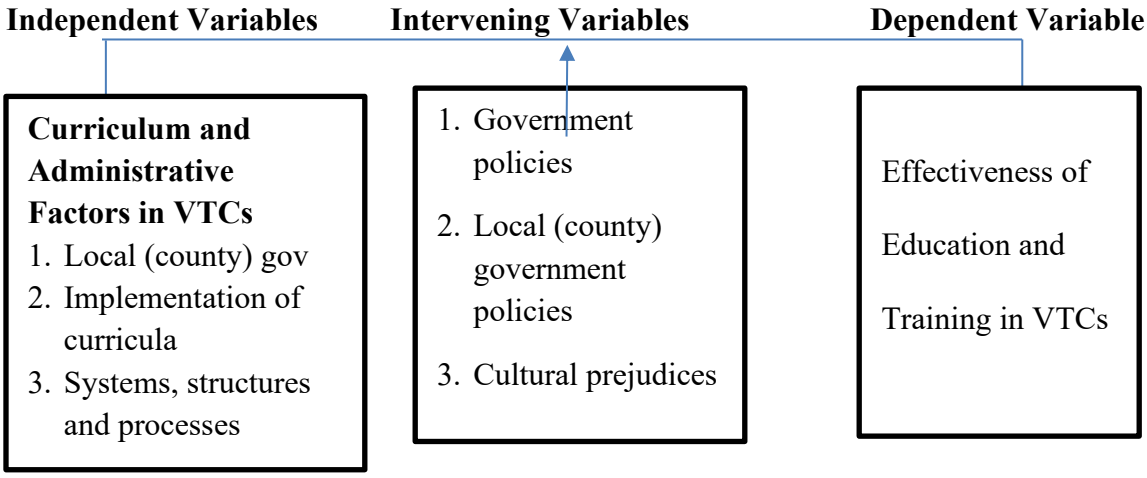


Fig.1: Inter-relationship of the Study Variables

The framework shows that curriculum and administrative factors influence the effectiveness of education and training in the VTCs. These factors include the relevance of courses in the curriculum; curriculum implementation, including delivery and assessment; and the systems, structures, and processes in the VTCs. In addition, the study identified three intervening factors that are likely to influence the relationship between the independent and dependent variables. These factors include government TVET policies, local county education policies, and cultural prejudices in local communities. The study controlled for these variables by analysing their effects on the dependent variable independently.

Methodology

The study adopted a mixed-methods research design, integrating qualitative and quantitative approaches. This approach enabled a balanced analysis of numerical data and detailed narratives, both essential for understanding the dynamics of VET in VTCs in Laikipia County.

The target population included trainees, VTC graduates, administrators, and teaching and non-teaching staff across the ten VTCs in Laikipia County, as well as industry stakeholders, community leaders, and County Education officers. The VTCs were distributed across six sub-counties, with a total student population of approximately 2,000. A purposive sampling technique

was used to select four VTCs based on their establishment level and location (urban versus rural). Student participants were sampled proportionally using Krejcie and Morgan's Table, resulting in 200 students across the sampled centres. Data were also collected from 28 trainers, 4 administrators (Centre Managers), 3 County officials, industry stakeholders, and 2 alumni per course, totalling 360 respondents.

Data collection instruments included questionnaires, interview schedules, checklists, and observation schedules. Before data collection, the researchers obtained permits from NACOSTI and sought ethical approval from Laikipia University's Ethics Review Committee. Participants provided informed consent and were assured of confidentiality and voluntary participation.

Data analysis involved systematic coding and processing of quantitative data using SPSS Version 26.0, employing descriptive statistics. Qualitative data from interviews and open-ended responses underwent content analysis, with themes identified and supported by excerpts.

Results and Discussion

The study included 360 respondents, of whom 232 completed the questionnaires. Respondents included 200 trainees, 28 trainers, and 4 managers. The study conducted semi-structured interviews with various stakeholders, including 5 Board of Governors members, 5 VTC managers, 3 county officials, VTC graduates, and industry players. The study also used checklists to evaluate curriculum implementation and guided lesson observations to assess teaching quality and adherence to curriculum requirements.

Relevance of the Courses Offered in the VTCs

The first objective sought to evaluate the relevance of the courses offered in VTCs and determine their alignment with local labour market needs and industry standards. The following data were mainly drawn from the interviews conducted with different stakeholders.

A key concern among interviewed managers and board members was a clear misalignment between the equipment available at VTCs and current industry standards, suggesting the courses offered do not match market demands. Many participants emphasized that limited funding significantly hampers adaptation to rapid industry changes, constraining the acquisition and upgrading of essential equipment. While most VTCs have computer labs, often through donor support or external organizations, many still lack modern machinery and up-to-date tools needed to meet evolving industry demands. One manager remarked:

> *There is some equipment we see in the market, but we are not offering that here. For example, in welding, the machines used in the industry are different from what we have in our centres. We would like to provide such training, but we are unable due to lack of the appropriate machines. Comparing our facilities to those in the market, we are somewhat behind.* (Manager 2)

This statement underscores how equipment gaps directly affect the scope and quality of training provided. Courses such as electrical wiring tend to be easier to sustain because they require fewer materials and less complex machinery:

> *The electrical courses seem easier to maintain because they don't need many materials or sophisticated equipment.* (Manager 2)

Similarly, training motor vehicle mechanics faces challenges because of reliance on outdated vehicles, which limits students' exposure to current automotive technologies:

> *In motor vehicle mechanics, we mainly use old models. That limits students' practical experience with modern vehicles.* (BoG 1)

Curriculum alignment remains a persistent challenge. Several managers highlighted a disconnect between training content and industry needs. For instance, one manager observed:

> *We train carpenters for nine months, but there is a significant gap between what we teach and what is actually required in the industry. Our curriculum does not fully reflect current market practices.* (Manager 4)

This was also echoed by industry stakeholders:

> *There is a gap between what they learn in the VTC and what they are expected to do on the job…so they look a bit misplaced.* (Industry stakeholder)

Additionally, disparities exist between rural and urban VTCs, as well as between newer and older centres. These differences may be influenced by varying levels of stakeholder engagement and partner support, which affect the centres' capacity to upgrade facilities and align curricula with industry standards.

Attachment is an important component of aligning courses with market demands, as it gives trainees the opportunity to gain industry experience. Attachment models in VTCs predominantly emphasize providing trainees with practical field experience at the conclusion of their courses, a requirement mandated by the national government. In some institutions, attachment opportunities are integrated into the curriculum, allowing students to undertake practicals during holidays or when instructors are engaged in external work. For example, one board member explained:

> *The students sometimes go for practicals. Even the construction project nearby was initiated by the national government, and students from here participated. They constructed that structure.* (BoG 2)

This approach is widely adopted across many institutions, offering trainees valuable hands-on exposure. However, implementing these attachments often depends on the trainer's availability and willingness to involve students in external work, leading to inconsistencies and unpredictability in placement opportunities. Some centres facilitate attachments during holidays, but access to these opportunities is not uniform for all students. In one instance, a trainer personally took her entire group of trainees to her workshop during the holidays, exemplifying individual initiative to provide practical experience.

The success and availability of attachment placements depend heavily on managers' and board members' proactive engagement in establishing industry links. A manager highlighted this effort:

> *We have partners. I have several partners who believe in us. For example, five hotels are supporting us. We are starting attachments with them at the end of November. They are waiting for us.* (Manager 3)

Despite these efforts, securing sufficient attachment placements remains challenging. Managers and board members often submit multiple proposals to industry partners to secure placements for their trainees. Geographical location significantly influences attachment opportunities; centres located far from urban centres face greater difficulty establishing industry links. A board member remarked:

> *We have attachment opportunities, but in limited numbers, especially for courses like electrical engineering and power. We would like our students to be attached there, but the logistics make it difficult.* (Board of Management Member 3)

As a result, it is more feasible to offer courses with stronger local industry linkages, where access to attachment opportunities is more consistent and manageable. In some cases, trainees must actively seek their own attachments, as a manager explained. Post-graduation employment prospects remain a critical concern. Many trainees struggle to secure jobs, partly because employers often prefer uncertified workers who accept lower wages. One respondent lamented:

> *Nowadays, when you need a carpenter, you just call someone with a hammer - that's all.*

This situation underscores the need for stronger industry linkages and employment support mechanisms to improve the transition from training to meaningful employment (Karanja, 2023; Marope et al., 2015). All VTCs expressed a need to introduce short courses and new offerings, such as mobile phone repair. They emphasized the importance of certifying these courses to enhance employability.

Curriculum and Training Delivery

The second objective was to analyse the current curriculum, skills training, and assessment in VTCs to identify gaps and recommend improvements. The study found that several curricula are currently offered simultaneously. These include KNEC and NITA certification, and CDAC-CBET, which is being introduced, causing confusion.

Skills training delivery was found to be below standards due to a lack of training materials, as exemplified:

> *Then we go to practical. (...) theory is OK. Because she or he normally uses chalk. And we have the training books. But the challenges that we are facing are when we come to the practical. There are no materials.* (Manager 2)

Generally, all interviewees emphasized the importance of practicals for skills delivery but highlighted challenges related to material availability, as corroborated by other authors (Mwangi & Kamau, 2023; Johnson & Green, 2022).

Regarding the adequacy of trained and accredited trainers, it was observed that trainers are largely insufficient in number and are primarily trained only in their technical areas, with limited or no pedagogical training. Data from trainers indicated that nearly 57.14 percent of respondents had no formal pedagogical training. This highlights a significant gap in teaching capacity that must be addressed to enhance training quality. Trainers also need upskilling in technical aspects, as

continuing professional development (CPD) opportunities seem insufficient or poorly implemented.

Evaluation of workshop, laboratory, and studio equipment received a moderate average rating of 2.75 on a scale of 1 to 5. Most VTCs lack adequate equipment and sufficient space, with workshops often too small to accommodate the required number of workstations per trainee. While most workshops are equipped with basic utilities such as water and electricity, none possess specialized facilities like fume chambers, highlighting a need for alternative power sources. Furniture and workbenches are generally inadequate and not securely fixed. Although some workshops are customized to specific programmes, many do not conform to safety standards. Table 1 shows that, according to the trainers, the facilities/workshops and libraries are, in many cases, inadequate.

Table 1: Teachers' Responses on The Adequacy of Facilities in Their VTCS

	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree
Training laboratories, workshops and studios are suitably designed and equipped to serve their respective disciplines	2 7.1%	6 21.4%	14 50.0%	4 14.3%	2 7.1%
The library is well stocked with physical reference materials as well as e-resources for all courses	10 35.7%	11 39.3%	5 17.9%	1 3.6%	1 3.6%

Regarding ICT infrastructure, only two VTCs have a sufficient number of computers, though these are outdated. Electricity is available but inadequate, as it operates on a single-phase system. A three-phase power supply would be recommended for better reliability and performance. Additionally, none of the sampled VTCs currently has Wi-Fi connectivity.

In terms of sanitation and hygiene, most VTCs have inadequate washroom facilities for students and staff, often poorly designed and maintained. Some washrooms are not clean and lack proper gender separation. Some common areas in some VTCs are not well designed for trainees living with disabilities.

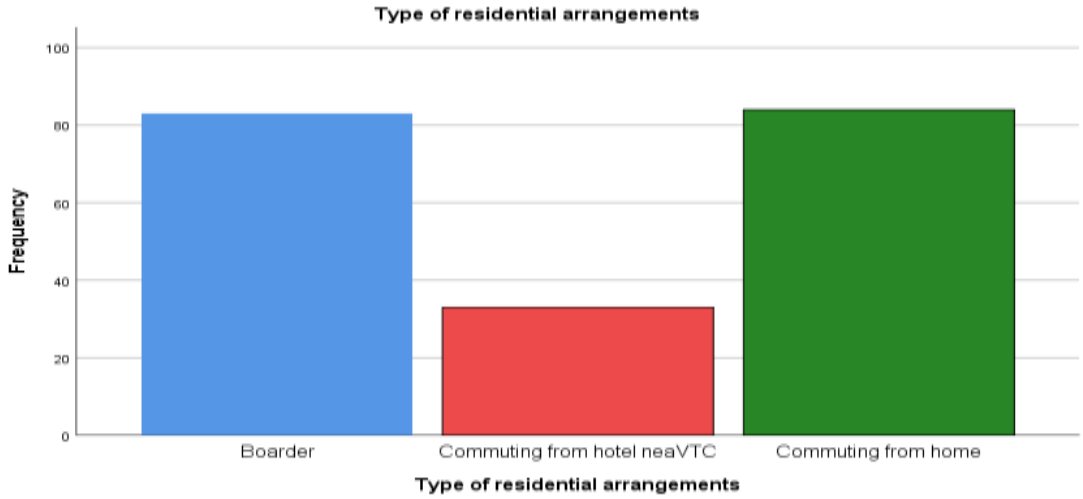


Fig. 2: Boarding Facilities Available in The VTCs

According to Figure 2, students' residential arrangements are evenly distributed, with 42 percent of trainees living in hostels and another 42 percent commuting from home. An additional 16 percent commute from nearby hotels, indicating that non-boarders outnumber boarders. However, it became evident that only VTCs in urban areas have boarding facilities, while more rural VTCs do not. The lack of boarding facilities in VTCs is a significant concern, often resulting in dropout and irregular attendance, as many trainees cannot afford accommodation costs. One manager highlighted this issue, stating:

> *So we see whether we can have a dormitory, we are able to accommodate more students. That means we are able to increase the enrolment* (Manager 2).

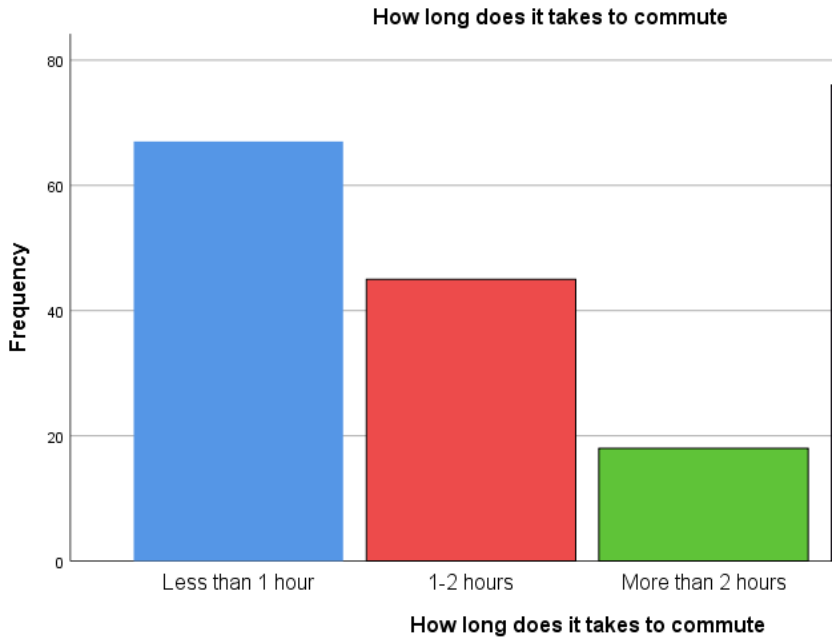


Fig. 3: Time of Commuting to the VTC

Regarding access to VTCs, data indicate that 33 percent of respondents travel less than one hour to reach the VTC, suggesting they live nearby. Conversely, 22 percent travel between one and two hours, and 9 percent commute more than two hours, implying that trainees live quite far from the facilities. Supporting this, interviewees remarked:

> *Also, you see most of the students come from far. There is a team that comes from (Name of Place) which is almost five kilometres away. Most of them have to come by foot* (Manager 2).

This extensive travel, compounded by the lack of feeding programmes, often leads trainees to leave early or miss afternoon sessions. Trainees' generally needy backgrounds make it difficult for many to live near the VTC.

Efficiency and Effectiveness of Systems, Structures and Processes

The efficiency and effectiveness of Vocational Training Centres (VTCs) are fundamentally shaped by the systems, structures, and processes that underpin their operations. These elements determine how well VTCs can deliver quality training programmes, manage resources, and respond to the evolving needs of industry and trainees. The third objective sought to examine these systems, structures, and processes to evaluate their efficiency and effectiveness and how they affect programme delivery.

According to managers, raising and paying the required fees is a major obstacle affecting trainees' completion rates. Only 25 percent regarded this issue as medium, with none perceiving it as low. This data underscores that the inability to meet financial obligations notably hampers trainees' progress and completion. Dropout rates are particularly high among trainees, with outstanding fees being the main reason.

Table 2: Reasons for Drop-Out - Outstanding Fees

	Percent
Very high	75.0
Medium	25.0
Total	100.0

Many VTCs centres struggle with the dilemma of whether to expel students with unpaid fees, knowing that doing so often results in trainees not returning.

The interviews revealed that a major contributing factor is the additional cost of examinations, which many trainees cannot afford. This financial barrier prevents some students from completing their courses, lowering overall completion rates and adversely affecting skill development and employability prospects. The collection of fees also poses challenges. As Manager 1 pointed out,

> *The expectation of the government is that the student has to pay. But you see there are those students who are not able to pay.* (Manager 1).

This situation not only causes shortages of essential materials but also contributes to high dropout rates, as expelled trainees often do not return. Furthermore, the lack of materials and resources exacerbates the dropout problem, creating a cycle that hampers both training quality and trainee retention.

Regarding bursary awards, which can be a potential intervention measure, the study found that 91 percent of the 200 trainees did not receive a bursary from the County Government, as shown in Figure 4. This indicates that most students do not benefit from county bursaries. According to managers' interviews, this low allocation is mainly because bursaries are awarded only once a year, with applications submitted in December. Students who start their courses later in the year often miss out.

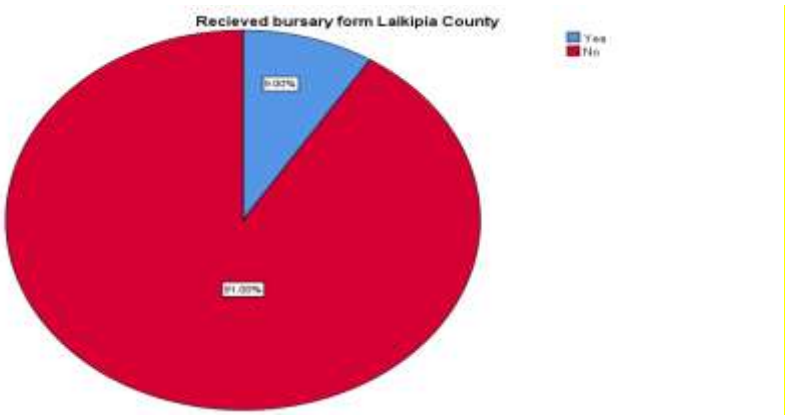


Fig. 4: Trainees Who Received Bursaries from Laikipia County

Managers also noted that not all applicants receive bursaries, and those who do not are often demoralized. A common reason for not receiving bursaries is incomplete or late application forms. One manager emphasized the importance of helping students complete the forms correctly and on time. Another issue is that bursaries are available only to students from Laikipia County, excluding those from other counties. Additionally, the bursary amount of around 10,000 shillings is often insufficient to cover a year's expenses, making it difficult for students to sustain themselves. Some managers highlighted the lack of access to national government aid, which could provide additional support. County officials expressed that they are unaware of why many students do not apply.

Trainees seem to face challenges in submitting their forms on time and completing them adequately, highlighting the need for additional support. Furthermore, the bursaries are perceived as insufficient, especially in rural areas where there are no boarding facilities or feeding programmes.

> *Again, you see the surrounding how it is. This is a marginalized area, and the livelihood is not very good. So, if they don't get the bursaries, you can't expect a lot of school fees. If you don't receive financial support, and the support provided is limited, you won't be able to meet the learning materials required to deliver that course* (Manager 3).

The County Government's funding model for the VTCs appears to pose a significant challenge, as it takes considerable time for funds to become available after they are collected into a collective account. There was a unanimous request to revise the funding model:

> *When we come to the collection of fees, we send it to the collection account, but to get it back takes too long.* (Manager 2).

> *We should have an account where it will be possible for the principal or the board members to withdraw whatever is there to solve problems immediately.* (Board Member 3).

The current funding model has led to several problems, including electricity disconnections and accumulating unpaid bills. Additionally, strategic planning becomes difficult:

> *We cannot conduct effective strategic planning without a solid forecast of resources* (Board Member 5).

Relying on school fees for funding presents additional challenges for institutions with low enrolment. Even with fewer students, teachers must still be paid, and operational costs remain constant. Table 3 shows the distribution of trainers by the nature of their engagement, indicating that only 29 percent are paid by the County Government. The VTCs pay the rest.

Table 3: Nature of Employment of Trainers

Employment Type	Frequency	Percent
Casual	2	7.1%
Permanent	8	28.6%
Contract	3	10.7%
BoG (Board of Governors)	12	42.9%
Others	3	10.7%
Total	**28**	**100.0%**

The BoG employment model creates significant challenges, particularly around qualification standards and timely remuneration, because salaries are paid from fee collections that are first deposited into a collection account before funds are disbursed. Furthermore, casual employment arrangements are perceived as akin to volunteering, raising concerns about casual staff commitment and stability. A manager expressed,

> *Most of the time, even casuals seem to be volunteering their services* (Manager 2).

There was also a concern regarding payment of teachers:

> *So you'll find that even the teachers and the workers go for a period without salaries, which demoralizes them. You see?* (Board Member 5)

Running the VTCs through BoGs, with members with diverse specializations, is promising, and all interviewed chairpersons demonstrated a high level of activity and concern for the institutions. However, inappropriate funding has impeded the Boards from conducting business as intended.

The Board of Governors views its role as vital not only in managerial and decision-making capacities but also in fundraising efforts, establishing links with industries, and negotiating with suppliers to accept delayed payments. As one board member expressed, '*Sometimes we have to go deep into our pockets'* (BoM 3*)* to help sustain the institution financially. Additionally, they serve as motivators for students, as highlighted by another member:

> *You just talk to these students. Every now and then you come here. You give them morale* (BoG 2).

In their quest for financial support, the Boards actively seek funding opportunities. However, they face significant challenges:

> *We survive in a very hard way because it's dedicating ourselves to ensuring that students must eat and learn. So, we look for partners, and we commit ourselves as board members.*

> *Yes, we talk to someone and say, 'Okay, please, if it is food, give us several kilograms of wheat flour, and we shall pay you back* (BoG 3).

The poor funding model of the VTCs also affects the quality of infrastructure and equipment. The County government develops the infrastructure directly, and the same applies to equipment. Concerns remain about construction quality; several buildings are unfinished or lack essential equipment. As one Board member pointed out:

> *The Kenyan government constructed these things, and they just stayed that way because nobody followed up. They just construct, you make a building, but you don't follow up* (BoG 2).

In addition, Managers 2, 4, and 5 reported delayed procurement requests. The procurement process begins at the start of the year; however, delays in fund disbursement significantly hinder the procurement timeline, ultimately delaying the availability of essential materials. Although the procurement team requests equipment specifications, the items received often differ from those requested, creating discrepancies and potential challenges in meeting operational needs.

Conclusions and Recommendations

The study concludes that courses at Laikipia County's VTCs are largely misaligned with local labour market needs and industry standards. Outdated equipment and curricula that do not reflect current industry practices limit trainees' readiness for employment, while inadequate and inconsistent industrial attachment opportunities, particularly in the rural centres, further constrain practical exposure. Stronger industry linkages are therefore needed to improve course relevance and graduate employability.

Further, the gaps in curriculum coherence, trainer preparedness, training resources, and infrastructure constrain the quality and consistency of skills training in Laikipia County's VTCs. The coexistence of multiple curricula, inadequate pedagogical preparation among a substantial proportion of trainers, inadequate workshop and ICT facilities, insufficient training materials, and poor infrastructure collectively undermine practical skills development and the effective delivery of VET.

Finally, the study concludes that systemic, institutional, and operational constraints limit the efficiency and effectiveness of VET delivery in Laikipia County's VTCs. Delayed funding, limited institutional autonomy, unstable staffing, and weak governance affect service delivery, while inadequate boarding facilities, long travel distances, and limited bursary support restrict access, particularly for marginalised learners. Addressing these challenges through sustainable financing, effective governance, stable staffing, appropriate infrastructure, and equitable access is essential for strengthening VET delivery. These findings are consistent with international evidence that effective vocational training depends on adequate resources, skilled trainers, appropriate infrastructure, relevant curricula, and sound management. The challenges identified in Laikipia therefore reflect broader systemic and institutional constraints experienced in many developing contexts.

The study recommends establishing regular curriculum review mechanisms that include industry stakeholders to ensure that VTC programmes remain responsive to current labour market needs. The study also recommends stronger partnerships with local businesses and industries to facilitate dual training, internships, and practical learning opportunities. In addition, funding

should be increased to enable VTCs to acquire modern equipment and tools relevant to their technical areas and to improve workshop, classroom, and ICT facilities to support effective digital and practical learning.

The study further recommends continuous professional development for trainers, with an emphasis on pedagogical skills, industry developments, and mentorship, alongside recruiting qualified trainers with appropriate pedagogical competencies. The government should secure sustainable, increased funding to support the quality and relevance of vocational training, while expanding bursary and financial aid schemes to improve access for students from disadvantaged backgrounds. Finally, policy and stakeholder engagement should be strengthened through frameworks that promote industry linkages, quality assurance, innovation, and sustained collaboration among VTCs, government, and industry.

References

Ajayi, P. O. (2021). Total quality management (TQM): A means of better work output in Nigerian manufacturing industries. *British Journal of Marketing Studies, 9*(4).

Government of Kenya. (2005). *Sessional Paper No. 1 of 2005 on a policy framework for education, training and research: Meeting the challenges of education, training and research in Kenya in the 21st century*. Government Printer.

Johnson, S., & Green, P. (2022). Industry engagement in curriculum design: Lessons from Australia. *Journal of Vocational Education Research*, *28*(2), 88–102.

Jwan, S. T. (2022). Competency-based education and training (CBET) in Kenya: Policies, opportunities and challenges. *Alternation, Special Edition 39*, 281–300. https://doi.org/10.29086/2519-5476/2022/sp39a13

Kamau, J. (2023). Aligning vocational training curricula with industry needs in Kenya: An empirical study. *African Education Review*, *20*(1), 34–48.

Karanja, M. (2023). Addressing curriculum and resource disparities in rural Kenyan VTCs. *East African Journal of Education and Development*, *14*(3), 120–134.

Klimczuk, A., & Tomczyk, Ł. (2020). Perspectives and theories of social innovation for ageing population. *Frontiers in Sociology, 5*, 6.

Krebs, V., & Jansen, A. (2023). Adapting vocational education systems to industry changes: The German dual system. *European Journal of Vocational Education*, *29*(2), 110–125.

Marope, P. T. M., Chakroun, B., & Holmes, K. P. (2015). *Unleashing the potential: Transforming technical and vocational education and training.* UNESCO Publishing.

Mwangi, E., & Kamau, J. (2023). Traditional vs. modern training methods in Kenyan VTCs: An Evaluation. *Kenyan Journal of Vocational Education*, 16(2), 92-108.

Ngerechi, J. B. (2003, August 4–6). *Technical and vocational education and training in Kenya*. Paper presented at the Conference on the Reform of Technical and Vocational Education and Training (TVET), Gaborone, Botswana.

Nylund, M., & Virolainen, M. (2019). Balancing 'flexibility' and 'employability': The changing role of general studies in the Finnish and Swedish VET curricula of the 1990s and 2010s. *European Educational Research Journal, 18*(3), 279–297.

Onditi, M. A. (2015). *Institutional factors influencing participation of trainees in public technical, vocational education and training institutes in Kinango Sub-County, Kwale County, Kenya* [Project paper, University of Nairobi].

Technical and Vocational Education and Training Authority. (2023). *TVET standard—Competency-based education, training and assessment (CBETA)—Requirements and guidelines* (TVETS 01:2023, 2nd ed.). TVET Authority.

TVET Authority. (2022). Report on curriculum reforms in technical and vocational education. *Technical and Vocational Education and Training Authority*.

TVET Act. (2013). *Technical and Vocational Education and Training Act,* No. 29 of 2013. Nairobi: Government Printer.

Wambui, S., & Njenga, A. (2023). The impact of curriculum misalignment on employability in Kenyan vocational training centres. *African Journal of Education Policy*, 15(4), 55–68.

Ziderman, A. (2016). Funding and human resource challenges in vocational education. *International Journal of Educational Development*, 50, 123–130.