

Institutional Factors Influencing Practical Skills Acquisition among Trainees in Vocational Training Centers in Narok County, Kenya

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Abstract

Technical and Vocational Education and Training (TVET) is a critical pillar for youth empowerment and economic development in Kenya. However, the effectiveness of these institutions in has been hindered by a perceived gap in the practical proficiency of graduates. This study examined how institutional infrastructure and instructors' adequacy and competence influence the acquisition of practical skills among trainees in Vocational Training Centers (VTCs) in Narok County. Guided by Kolb's Experiential Learning Theory and Fitts and Posner's Skill Acquisition Theory, the study adopted a descriptive research design. The target population was 1,045 second-year trainees, 54 Heads of Departments (HODs), and 9 center managers across nine public VTCs. A sample of 312 trainees (30% of the trainee population), all 54 HODs, trainers and all 9 center managers was selected. Data were collected using structured questionnaires. Descriptive statistics summarized demographic characteristics and perceptions of infrastructure and trainers, while Pearson correlation analysis examined relationships between institutional factors and practical skills acquisition. The findings revealed that institutional factors significantly influence skill outcomes. Specifically, 92.72% of trainees reported that workshops and classrooms were inadequate, while 68.21% cited a lack of modern tools and equipment, which limited hands-on learning opportunities. Furthermore, instructor competence emerged as a major constraint, with 55.38% of trainers holding only artisan-level qualifications and 70.10% of trainees reporting irregular lesson attendance. A Pearson correlation analysis confirmed significant positive relationships among institutional factors, with workshops/classrooms adequacy ($r = 0.63, p < 0.01$), tools/equipment adequacy ($r = 0.59, p < 0.01$), trainer qualifications ($r = 0.57, p < 0.01$), and trainer adequacy ($r = 0.61, p < 0.01$) all enhancing practical skills acquisition among trainees in Narok County VTCs. The study concludes that institutional challenges in both physical and human

resources limit the effectiveness of vocational training in Narok County. It recommends that the Narok County Government prioritize the modernization of workshops, upskill trainers to diploma levels, and implement gender-inclusive policies to enhance the quality and equity of vocational training.

Keywords: Vocational training, practical skills acquisition, institutional infrastructure, instructor competence, Narok County, TVET

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Introduction

Technical and Vocational Education and Training (TVET) serves as a global catalyst for economic growth, aimed at equipping the youth with hands-on expertise to bridge the skills gap and mitigate unemployment (Mutembei, 2024; Yusvana, 2024). Globally, effective TVET systems support inclusive development by narrowing the divide between classroom knowledge and the competencies required in dynamic labour markets, encouraging lifelong learning, and increasing adaptability in the face of technological change and economic restructuring (Yusvana, 2024; UNESCO, 2024). These functions position TVET not only as an educational pathway but also as a strategic tool for enhancing national competitiveness, promoting social equity, and achieving broader development goal.

In developing nations, Vocational Training Centers (VTCs) are pivotal in providing these competencies, enabling trainees to solve real-world challenges (Kanilizu, 2024; UNESCO, 2024). However, the International Labour Organization (ILO, 2013) emphasizes that the potential of human capital is only fully realized when capacity-building initiatives are supported by institutional frameworks that align training with evolving labor market needs.

In Kenya, the strategic importance of TVET is reflected in the Kenya Vision 2030, which identifies technical skills as a core enabler for transforming the nation into a middle-income economy (Kerre, 2017). To regulate this sector, the TVET Act of 2013 established the Technical and Vocational Education and Training Authority (TVETA) to ensure programs meet quality standards (Motuka, 2024).

Furthermore, the adoption of the Competency-Based Education and Training (CBET) framework has shifted the focus toward measurable, industry-relevant outcomes (Ministry of Education, 2018). Despite these policy advancements, the capacity of VTCs to deliver practical skills is heavily influenced by institutional determinants such as the quality of physical infrastructure and the adequacy of instructional personnel (Maingi, 2019; Bett, Kanyeki & Kerre, 2025).

Quality infrastructure is a primary determinant of successful skill acquisition and trainee enrollment (Opiyo, 2025). Research indicates that modern workshops and teaching spaces create an environment conducive to experiential learning (UNESCO-UNEVOC, 2020). However, inadequate facilities and outdated equipment negatively impact the internal efficiency of TVET institutions (Edward, 2024; Nyangweso, 2022; Bogonko, 2018; Nyongesa & Makokha, 2022). When trainees lack access to tools that reflect current industrial standards, their learning is often relegated to theoretical observation rather than the learning by doing essential for technical proficiency (Otieno, Otieno, & Ochieng, 2022). Consequently, institutions that prioritize infrastructure upgrades generally see improved performance and higher retention rates (Mutungi, 2023).

Parallel to physical resources, instructor competence is vital for the effectiveness of vocational programs. Trainers with deep technical expertise and relevant industry experience ensure that trainees gain market-relevant skills. Pedagogical innovation and close ties with industry practices further enhance institutional credibility and student engagement (UNESCO-UNEVOC, 2020). However, a shortage of qualified trainers or a lack of continuous professional development can lead to a theory-

dominated delivery style, leaving learners ill-prepared for the technical demands of the workplace (Maingi, 2019; Bett, Kanyeki & Kerre, 2025).

Empirical studies in Kenya indicate that infrastructure quality and trainer competence influence not only training outcomes but also enrollment, retention, and institutional credibility (Nyangweso, 2022; Ngulu, 2023; Mutembei, 2024). Well-resourced institutions attract trainees and support experiential learning, while poorly equipped centers struggle with low completion rates and weak skill outcomes. These patterns suggest that institutional conditions directly affect the effectiveness of vocational training delivery.

In Narok County, VTCs operate within this national policy environment yet continue to face resource and staffing constraints. Reports point to limited workshops, outdated equipment, and instructor shortages, raising concerns about trainees' ability to acquire market-relevant practical skills (Mirieri, 2024). However, evidence linking institutional infrastructure and instructor adequacy to practical skills acquisition in the county remains limited. This study addresses this gap by examining how these institutional factors shape practical competence among trainees in Vocational Training Centers in Narok County, Kenya.

Theoretical Framework

This study was guided by three key theories: Experiential Learning Theory by Kolb (1984) and Skill Acquisition Theory by Fitts.

The Experiential Learning Theory

The Experiential Learning Theory (ELT) was formally developed by David A. Kolb in 1984. Building upon the foundational works of prominent scholars such as John Dewey, Kurt Lewin, and Jean Piaget, Kolb introduced a holistic

perspective on how individuals learn by processing experiences. The theory posits that learning is not merely a cognitive internal process but a continuous cycle where knowledge is created through the transformation of experience. Kolb (1984) suggests that for learning to be truly effective, a learner must progress through a four-stage cycle: concrete experience (feeling), reflective observation (watching), abstract conceptualization (thinking), and active experimentation (doing). This model emphasizes that technical mastery requires a balance between grasping an experience and transforming that experience into a practical skill.

The theory posits that the concrete experience stages the hands-on interaction with tools and machinery is the necessary starting point for vocational training. If a VTC lacks functional workshops or modern equipment, the trainee's cycle is interrupted at the very first stage. Without the ability to do (Active Experimentation), the learner is unable to test the theoretical concepts provided by instructors, leading to a breakdown in the development of practical competence.

Furthermore, the theory helps explain why inadequate facilities and low instructor engagement result in half-baked graduates; without the physical and instructional means to complete the experiential cycle, trainees cannot achieve the technical transformation required for workforce readiness (Kolb, 1984; McLeod, 2023).

The Skill Acquisition Theory

The Skill Acquisition Theory was developed by Paul Fitts and Michael Posner in 1967. This theory provides a psychological framework for understanding how individuals transition from being novices to becoming experts in a particular task. Fitts and Posner (1967)

posit that skill learning is not a sudden event but a progressive process consisting of three distinct stages: the Cognitive Stage, the Associative Stage, and the Autonomous Stage. In the cognitive stage, the learner focuses on understanding the requirements of the task; in the associative stage, they begin to refine their movements and reduce errors through practice; and in the autonomous stage, the skill becomes second nature, requiring minimal conscious effort to perform.

During the Cognitive Stage, trainees rely heavily on instructors to provide clear demonstrations and theoretical foundations. If an instructor lacks pedagogical competence, the trainee may develop a flawed understanding of the trade from the outset. As the trainee moves into the Associative Stage, the role of the instructor shifts to providing real-time feedback and corrective supervision. In Narok County, the reported irregular lesson attendance and inadequate trainer-trainee ratios directly impede this stage, as trainees lack the expert guidance necessary to iron out technical errors, thereby preventing them from reaching the Autonomous Stage of mastery. Consequently, the study utilizes Fitts and Posner's framework to argue that the skills gap in Narok County is a result of trainees being stuck in the early stages of learning due to a lack of both the physical means to practice and the human expertise to guide that practice toward autonomy (Fitts & Posner, 1967; Speelman, 2005).

Methodology

The study adopted a descriptive research design. This design supported systematic description of existing conditions without manipulation of variables. It allowed the researcher to capture trainees' experiences and institutional

characteristics related to infrastructure and instructor competence.

The target population comprised trainees, Heads of Departments (HODs) and center managers from all nine public VTCs in Narok County. At the time of the study, the centers had 1,905 trainees enrolled, including 1,002 males and 903 females. The study focused on second-year trainees because of their extended exposure to institutional facilities and instructors, which enabled informed responses. Center managers were interviewed to provide information on policy implementation and institutional management.

A sample size of 30 percent is acceptable for descriptive research according to Kothari and Khan (2006). The study therefore selected 312 second-year trainees from a population of 1,045 using simple random sampling, with proportional representation from each Vocational Training Center. Census sampling covered all nine VTCs in Narok County, while all 54 Heads of Departments, 121 trainers and all 9 center managers participated through purposive selection.

The data was collected using two primary instruments: questionnaires. Questionnaires targeted second-year trainees and HODs and included structured items.

University supervisors examined the instruments for clarity, relevance, and alignment with study objectives. Reliability assessment relied on a test–retest method. The researcher conducted a pilot study in two public VTCs in neighboring Nakuru County and administered the questionnaires twice to the same respondents at a two-week interval. Pearson’s product–moment correlation coefficient measured consistency of responses. The pilot produced a reliability coefficient of 0.824, which exceeded the acceptable threshold

of 0.7, indicating stable measurement (Wu et al., 2023).

The study applied both qualitative and quantitative techniques to support comprehensive interpretation. Quantitative data from questionnaires were coded and analyzed using the Statistical Package for Social Sciences Version 24. The analysis produced descriptive statistics, including frequencies and percentages, presented in tables.

Results and Discussion

Demographic Characteristics of Respondents

Table 1 presents data on demographic information for trainees and instructors in public Vocational Training Centers in Narok County.

The findings show persistent gender disparities among trainees in Narok County Vocational Training Centers. Both the survey data and three-year enrollment records indicate higher male participation, with males accounting for about 61–62% of trainees. This pattern reflects entrenched socio-cultural norms that prioritize technical training for boys over girls. Similar trends appear in earlier studies, which link gender gaps in technical education to societal expectations and beliefs about gender roles (Chebet, 2024). In Narok County, cultural practices that favor early marriage for girls further reduce female participation in vocational training. Age distribution results indicate that most trainees fall within the 15–20-year bracket. Enrollment at this stage supports early acquisition of employable skills and smoother transitions into work or self-employment.

Instructor demographics also show a clear gender imbalance. Male instructors form nearly two-thirds of the teaching workforce in VTCs. This

imbalance may discourage female trainee participation and reinforces perceptions that technical fields suit men. Studies associate such disparities with biased recruitment practices and limited

progression opportunities for women in technical roles (Maingi, 2019; Bett, Kanyeki & Kerre, 2025).

Table 1: Demographic Characteristics of Trainees and Instructors in Narok County VTCs

Category	Variable	Frequency	Percentage (%)
Trainees (Survey, n = 302)	Male	188	62.25
	Female	114	37.75
	Total	302	100
Trainees (Enrollment, Past 3 Years, n = 4,820)	Male	2,951	61.22
	Female	1,869	38.78
	Total	4,820	100
Trainees Age Bracket	15–20 years	234	77.28
	21–25 years	60	19.80
	Above 25 years	9	2.92
	Total	302	100
Instructors (n = 121)	Male	78	64.46
	Female	43	35.54
	Total	121	100

Source: Field Data (2025)

Influence of Infrastructure on Practical Skills Acquisition

The study examines how the adequacy of physical infrastructure influences practical skills acquisition in Vocational Training Centers in Narok

County. The analysis focuses on workshops, classrooms, and the availability of modern training tools and equipment, drawing responses from trainees, Heads of Departments (HODs), and center managers.

Table 2: Adequacy of Infrastructure in Narok County VTCs

Infrastructure Component	Respondents	Adequate (%)	n	Inadequate n (%)	Total
Workshops and Classrooms	Trainees	22 (7.28)		280 (92.72)	302
	HODs	9 (16.67)		45 (83.33)	54
	Center Managers	2 (22.22)		7 (77.78)	9
Training Tools and Equipment	Trainees	96 (31.79)		206 (68.21)	302
	Center Managers	3 (33.33)		6 (66.67)	9

Source: Field Data (2025)

The findings in Table 2 show widespread inadequacy of workshops and classrooms across Vocational Training Centers in Narok County. Most trainees

(92.72%), HODs (83.33%), and center managers (77.78%) reported that existing workshops and classrooms do not meet training needs. Workshops form the core

of vocational training because they support hands-on practice and application of technical concepts. Limited workshop space and poor facilities restrict practice time and reduce opportunities for skills refinement.

Inadequate classroom space also constrains access to vocational training. Centers with limited classrooms impose admission limits, which reduces enrollment and excludes potential trainees. This situation affects equity in access to skills training, especially for learners from disadvantaged backgrounds.

Shortages of modern training tools and equipment further limit practical skills acquisition. More than two-thirds of trainees (68.21%) and center managers (66.67%) reported inadequate tools and equipment. Without sufficient and

functional equipment, trainees struggle to participate fully in practical sessions. This limits active learning and reduces confidence in skill performance. These findings align with Nyangweso (2022), Bogonko (2018), Nyongesa and Makokha (2022) who reported that inadequate infrastructure in TVETs in Kenya restricts effective practical training.

Influence of Trainers on Practical Skills Acquisition

The study also examined how trainer qualifications and adequacy influence practical skills acquisition in Vocational Training Centers in Narok County. The analysis draws on responses from Heads of Departments and trainees to assess the capacity of trainers to deliver effective practice-based instruction.

Table 3: Trainer Characteristics and Adequacy in Narok County VTCs

Aspect	Category	Frequency	Percentage (%)	Total
Trainer Qualifications	Diploma	23	19.00	
	Certificate	31	25.62	
	Artisan	67	55.38	
	Total	121	100	121
Lesson Attendance (Trainees' Views)	Regular	87	29.90	
	Irregular	204	70.10	
	Total	291	100	291
Trainer Adequacy (HODs' Views)	Adequate	22	40.74	
	Inadequate	32	59.26	
	Total	54	100	54

Source: Field Data (2025)

The findings show that most trainers in Narok County Vocational Training Centers hold artisan or certificate-level qualifications. Over half of the trainers (55.38%) fall within the artisan category, while only 19 percent hold diploma-level qualifications. Department heads reported that they are the most highly qualified staff within their departments. This distribution suggests limited advanced technical and pedagogical capacity among trainers,

which can weaken the quality of practical instruction.

Trainer adequacy also emerged as a concern. A large proportion of trainees (70.10%) reported irregular lesson attendance, indicating frequent trainer absences or missed classes. Irregular instruction disrupts skill development, as practical training requires consistent supervision and repeated practice. Such inconsistencies reduce trainees' exposure

to hands-on learning and weaken competence development.

Heads of Departments reinforced this concern, with 59.26 percent reporting inadequate trainer–trainee ratios. Shortages of trainers increase workload, limit individual attention, and reduce opportunities for guided practice. Similar findings appear in earlier studies, which reports insufficient numbers of qualified trainers affects effective practical skills

acquisition and weaken overall training outcomes (Maingi, 2019; Bett, Kanyeki & Kerre, 2025; Mutungi, 2023)

Correlation Analysis

To determine the relationship between institutional factors and practical skills acquisition among trainees, a Pearson correlation analysis was conducted and results presented in Table 4.

Table 4: Correlation between Institutional Factors and Practical Skills Acquisition

Variable	Workshops/Classrooms Adequacy	Tools/Equipment Adequacy	Trainer Qualifications	Trainer Adequacy
Workshops/Classrooms Adequacy	1			
Tools/Equipment Adequacy	0.62**	1		
Trainer Qualifications	0.63**	0.58**	1	
Trainer Adequacy	0.61**	0.59**	0.57**	1

Note: $p < 0.01$ (2-tailed), all correlations are significant.

Source: *Field Data (2025)*

The correlation matrix shows that all institutional factors are positively and significantly correlated with each other. Workshops and classroom adequacy is strongly correlated with trainer qualifications ($r = 0.63$, $p < 0.01$) and trainer adequacy ($r = 0.61$, $p < 0.01$), indicating that well-equipped facilities tend to be associated with better-qualified and more adequate trainers. Tools and equipment adequacy also shows significant positive correlations with other factors, particularly workshops ($r = 0.62$, $p < 0.01$) and trainer adequacy ($r = 0.59$, $p < 0.01$). The findings suggest that institutional factors in VTCs are interdependent. Physical infrastructure and tools influence the quality and adequacy of trainers, while competent instructors enhance the effective utilization of available facilities. Empirical evidence confirms that institutional investments in infrastructure and trainer

capacity not only improve practical skills acquisition but also boost enrollment, retention, and institutional credibility (Nyangweso, 2022; Ngulu, 2023; Mutembei, 2024).

Conclusion

The acquisition of practical skills in Vocational Training Centers in Narok County is significantly hindered by systemic institutional deficiencies. A critical shortage of modern infrastructure exists, with over 90% of trainees identifying workshops and classrooms as inadequate. This physical deficit is compounded by a severe lack of contemporary tools and equipment, which forces a shift from hands-on experiential learning to theoretical observation. Such an environment fails to meet the requirements of the Competency-Based Education and Training (CBET) framework, ultimately

producing graduates who lack the technical confidence and proficiency required by the modern labor market.

Furthermore, the study establishes that human capital constraints specifically trainer inadequacy and low qualification levels severely limit the quality of instruction. The prevalence of artisan-level trainers and the high rates of irregular lesson attendance suggest that trainees are not receiving the expert mentorship or consistent supervision necessary for skill mastery. The strong positive correlation confirms that all institutional factors are positively related, indicating that improvements in infrastructure, equipment, and trainer quality are likely to enhance practical skills acquisition.

Recommendations

1. The County Government of Narok, in collaboration with the Ministry of Education, should prioritize the expansion and modernization of VTC workshops and classrooms. Investment should move beyond basic brick-and-mortar structures to include smart workshops equipped with industry-standard tools and machinery. This would ensure that the learning environment mirrors the actual workplace, allowing trainees to move through Kolb's experiential learning cycle effectively.
2. There is an urgent need to upskill the current teaching workforce. The TVETA should implement mandatory pedagogical and technical refresher courses for artisan-level trainers to elevate them to diploma standards. Additionally, the county should establish industry-linkage programs where trainers undergo periodic industrial attachments to

stay updated with emerging technological trends.

3. To address the high teacher-to-student ratios and irregular lesson attendance, the Narok County Public Service Board should recruit additional qualified instructors. Focus should be placed on achieving a better trainer-trainee ratio to allow for individualized practical supervision. Furthermore, a rigorous monitoring and evaluation system should be implemented to track lesson attendance and ensure instructional consistency.
4. To combat the persistent gender disparities in both enrollment and staffing, VTCs should implement targeted recruitment of female instructors in STEM and technical trades to serve as role models. Community sensitization programs are also recommended to challenge socio-cultural norms and encouraging girls to enroll in technical courses, supplemented by bursaries or scholarships specifically for female trainees in male-dominated trades.
5. There is need to evaluate the transition and labor market performance of VTC graduates in the country.

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