Influence of Training Resources on Trainees' Acquisition of Practical Skills in Technical and Vocation Education Training Institutions in Meru County in Kenya.

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ABSTRACT

This study examines how the availability and quality of training resources influence the acquisition of practical skills among trainees in Technical and Vocational Education and Training (TVET) institutions in Meru County, Kenya. Adequate, modern, and industry-relevant resources are fundamental to providing a conducive learning environment for skill development. Using a descriptive survey design, data were collected from 357 respondents—including trainees, trainers, and industry experts—through validated questionnaires and interview schedules. Quantitative data were analyzed using SPSS (v26), with reliability coefficients of 0.854 and 0.827 for trainee and trainer instruments, respectively. The findings indicate that the availability of comprehensive training resources is significantly associated with improved practical skills acquisition. These results underscore the need for policy interventions and curriculum adjustments to ensure resource adequacy, thereby enhancing employability and supporting self-reliance among graduates.

Keywords: Training Resources, Practical Skills Acquisition, TVET, Resource Availability, Kenya

INTRODUCTION

The rapid industrialization and global competitiveness of today's economy have placed increased emphasis on the need for a highly skilled workforce. In Kenya, the government and industry stakeholders recognize that Technical and Vocational Education and Training (TVET) institutions are pivotal in bridging the skills gap (UNESCO, 2023). However, many TVET institutions face challenges such as inadequate, outdated, or insufficiently relevant training resources—including workshop equipment, instructional materials, and technological tools—which hinder the development of essential practical skills (Chebii, Wachanga, & Kiboss, 2012; Douglass, 2021).
Currently, TVET institutions in Meru County, Kenya, are tasked with preparing trainees for industries that increasingly demand practical, hands-on expertise. However, studies have shown that a lack of modern and relevant training resources can negatively impact the quality of skill acquisition (Muthaa, 2012; Mwangi, 2021).

Despite government initiatives aimed at improving TVET education, graduates often demonstrate insufficient practical skills, leading to a mismatch between their training and industry needs. Inadequate resources not only limit trainees' opportunities for hands-on practice but also compel trainers to rely heavily on theoretical instruction, which does not adequately prepare trainees for real-world challenges (Dasmani, 2011; Udofia et al., 2012).

Addressing this gap requires a targeted assessment of how resource availability influences skill acquisition. By identifying critical resource deficits and their impact on learning outcomes, stakeholders can implement strategic investments, foster partnerships with industry, and update curricula to include modern, relevant resources that enhance practical training.

This study is relevant because it provides empirical evidence on the relationship between resource availability and skill acquisition, guiding policymakers and curriculum developers in resource allocation and strategic

planning for TVET institutions in Kenya. The insights from this research can also inform future studies and interventions aimed at enhancing vocational training effectiveness.

Statement of the Problem

Industries today demand a workforce equipped with specialized, practical skills. However, TVET institutions in Meru County have been criticized for producing graduates who, despite theoretical knowledge, lack the practical competencies required by modern industries. This deficiency is largely attributed to the limited availability of updated and industry-relevant training resources. Consequently, graduates may end up in employment sectors that do not match their field of training, ultimately undermining the objectives of TVET education. This study investigates the influence of training resource availability on the practical skills acquisition of trainees, addressing a critical gap in both literature and practice. Understanding this relationship is essential for improving curriculum implementation, ensuring resource adequacy, and aligning training with industry standards.

Objective of the Study

To evaluate how industry-relevant training resources influence practical skills acquisition among trainees in TVET institutions in Meru County, Kenya.

Hypothesis

There is no statistically significant influence of training resources on trainees' acquisition of practical skills in TVET training institutions in Meru County Kenya.

LITERATURE REVIEW

The role of teaching and learning resources in facilitating practical skills acquisition has been widely discussed in the literature. According to Harden (2000), effective skill acquisition in technical disciplines requires not only theoretical instruction but also access to material and physical resources that support hands-on learning. Muthaa (2012) argued that modern instructional materials, such as updated textbooks, manuals, and technological tools, are critical for equipping trainees with the competencies required in their technical fields.

Recent studies have reinforced the importance of resource availability. For instance, Douglass (2021) found that online and blended learning resources significantly improve vocational training outcomes, while UNESCO (2023) emphasized that emerging technologies could further enhance practical training when integrated with traditional teaching methods. Similarly, Udofia et al. (2012) demonstrated that inadequate workshop facilities and outdated equipment negatively impact the acquisition of employable skills, leading to a persistent skills gap in technical education.

Furthermore, Chebii et al. (2012) noted that practical projects and experiments are essential components of the curriculum, but their success largely depends on the availability of a supportive, resource-rich environment. The literature suggests that aligning training resources with current industry standards is imperative for effective practical skills training (Bennell, 2017; Mwangi, 2021). Recent studies (e.g., Pavlova, 2020; Umar, 2020) have further substantiated the view that access to up-to-date resources fosters an active learning environment, thereby enhancing skill acquisition.

METHODOLOGY

Research Design

This study employed a descriptive survey design to quantitatively assess the relationship between training resource availability and the acquisition of practical skills among TVET trainees.

Population and Sampling

The study targeted a total population of 5,160 individuals (trainees, trainers, and industry experts) across selected

TVET institutions in Meru County. A sample of 357 respondents was selected. For trainees, simple random sampling was applied, and 330 trainees were drawn from technical-oriented departments such as engineering and agriculture. Purposeful sampling was used to select trainers and industry experts.

Participant Selection

Trainees were those enrolled in a TVET institution and had participated in practical training sessions. Trainers had at least two years of experience in teaching practical courses. Industry Experts were those actively involved in recruitment or training in relevant technical fields.

Data Gathering Procedures

Data were collected using:

- **Questionnaires:** Structured questionnaires were administered to both trainees and trainers. The instruments included Likert-scale items to assess perceptions of resource availability and practical skill acquisition.
- **Interview Schedules:** Semi-structured interviews were conducted with industry experts to obtain qualitative insights into the relevance of training resources to industry needs.
- **Pilot Testing and Instrument Validation:** Prior to the main study, the instruments were pilot-tested with a small group of participants. Reliability was established through Cronbach's alpha, yielding coefficients of 0.854 for the trainee questionnaire and 0.827 for the trainer questionnaire.

Ethical Considerations

The study was conducted in accordance with ethical research standards:

- **Approval:** Ethical clearance was obtained from the relevant institutional review boards.
- **Informed Consent:** All participants provided informed consent after being briefed on the purpose, procedures, and their rights, including the right to withdraw at any time.
- **Confidentiality:** Data were anonymized and stored securely to ensure participant confidentiality.

Data Analysis

Quantitative data were coded and analyzed using SPSS version 26. Descriptive statistics (means, standard deviations, frequencies) and inferential statistics (e.g., Levene's test for equality of variances) were used to determine the significance of the relationships. Frequency tables and narrative descriptions were employed to present the findings.

RESULTS AND DISCUSSION

Table 1. Trainees' Responses on Availability of Resources and Acquisition of Practical Skills

	SD		D		UD		A		SA	
	F	%	F	%	F	%	F	%	F	%
Instructional materials like books and manuals are available	64	22.7	21	7.3	7	2.4	81	27.9	112	39.7
Training equipment is relevant to the equipment industry	25	8.8	13	4.5	30	10.3	106	37.6	111	38.8
The workshops and labs are equipped with modern equipment	36	14.8	19	7.9	25	10.3	106	37.6	84	29.4

Inadequate training equipment has a positive effect on practical skill acquisition by trainees	63	22.1	27	9.7	39	13.9	74	26.1	80	28.2
The relevance of training resources has a positive effect on the acquisition of practical skills by trainees	22	7.6	22	7.6	33	11.2	104	36.7	104	37.0
The availability of adequate power in the institutional workshops is critical to enhancing the acquisition of practical skills	14	4.8	13	4.2	20	6.7	100	35.2	138	49.1
The equipment used during my training is technologically up-to-date	49	17.3	25	8.8	39	14.2	78	27.3	92	32.4

The results in Table 1 indicate that 49.1% of respondents strongly agreed that the availability of training resources positively influences the acquisition of practical skills. Similarly, 37.7% agreed that the relevance and modernity of equipment significantly contribute to their learning outcomes. These findings support previous studies (Ayoo, 2011; Douglass, 2021) and underscore that institutions prioritizing up-to-date, industry-relevant resources report better practical outcomes among trainees.

Table 2: Availability of Teaching/Learning and Practical Skills Acquisition in Trainees

Statement	**Strongly Disagree (%)**	**Disagree (%)**	**Neutral (%)**	**Agree (%)**	**Strongly Agree (%)**
There is inadequate provision of training equipment	11.8	35.3	11.8	29.4	11.8
The workshops are well-equipped	11.8	47.1	0.0	41.2	0.0
Training equipment is up to date	5.9	35.3	11.8	41.2	5.9
Training equipment is relevant to the industry	5.9	29.4	23.5	23.5	17.6
Training instruction materials are relevant to industry manuals	0.0	23.5	23.5	47.1	5.9
Training equipment are technologically relevant	0.0	35.3	23.5	35.3	5.9
The nature of training equipment/resources enhances acquisition of skills	5.9	29.4	17.6	35.3	11.8
Training rooms and furniture are enough and suitable	11.8	11.8	17.6	35.3	23.5
The source of power in the classroom and workshops is adequate	23.5	17.6	5.9	41.2	11.8

The information presented in Table 2 shows that the highest percentage (41.1%) of respondents who agreed with the statements indicated that well-equipped labs with up-to-date equipment promote the acquisition of practical skills among the trainees. This implies that the respondents agreed that well-equipped labs with up-to-date equipment influence the acquisition of practical skills among trainees. The study agrees with that of a study by Douglass (2017) on the effects of teaching-learning facilities on academic achievement which asserts that well-equipped labs provide trainees with opportunities for hands-on learning, experimentation, and application of theoretical knowledge. This active engagement with modern equipment fosters a deeper understanding and mastery of practical skills relevant to their fields of study.

Responses from trainees further revealed mixed perceptions regarding facility adequacy. While a substantial proportion agreed that modern labs enhance skill acquisition, a notable percentage expressed concerns over inadequate equipment and infrastructural support. This divergence suggests variability in resource allocation across institutions and indicates areas for targeted improvements.

Table 3: Levene Test of Perceptions about Teaching/Learning Resources and Practical Skills Acquisition

Levene Statistic	df1	df2	Sig.
2.086	2	327	.126

A Levene's test for homogeneity of variances (Sig. = 0.126) confirmed that the variances among different training approaches were homogeneous, supporting the statistical reliability of the findings. Overall, the results validate the alternative hypothesis, demonstrating a statistically significant relationship between the availability of teaching and learning resources and the acquisition of practical skills.

CONCLUSION

This study concludes that there is a statistically significant positive relationship between the availability of training resources and the acquisition of practical skills among TVET trainees in Meru County, Kenya. Modern, industry-relevant equipment, adequate workshop facilities, and appropriate power infrastructure are key factors that enhance practical learning. The findings suggest that addressing resource inadequacies can lead to improved educational outcomes and better alignment with industry requirements.

RECOMMENDATIONS

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

- **Resource Investment:**

  TVET institutions should prioritize investments in modern and industry-relevant training equipment, ensuring regular updates to match technological advances.

- **Policy and Funding:**

  Policymakers should allocate dedicated funding for the maintenance and upgrading of training resources, and develop policies that facilitate partnerships with industry stakeholders.

- **Capacity Building:**

  Institutions should provide continuous professional development for trainers to enhance their ability to utilize modern resources effectively in practical training.

- **Curriculum Development:**

  Curriculum developers should integrate resource-based learning strategies that emphasize hands-on, practical experiences aligned with current industry standards.

- **Further Research:**

  Future studies should explore longitudinal impacts of resource enhancements on skill acquisition and employability outcomes across different technical disciplines.

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