

Contribution of Workshops and Laboratories to the Employment of TVET Graduates in Uasin Gishu County, Kenya

Simon Wafula Nyongesa^{1*}

¹University of Eldoret, Kenya

Corresponding Author: Simon Wafula Nyongesa^{1*}

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Abstract: Technical and Vocational Education and Training (TVET) institutions are expected to equip trainees with practical competencies required in industries through adequate workshop and laboratories. However, concerns have emerged regarding the adequacy of training facilities in many TVET institutions in Kenya and their influence on graduates' employability. This study investigated the contribution of workshops and laboratories to TVET graduates employment in Uasin Gishu County, Kenya. The study adopted a mixed-method research approach and descriptive survey research design guided by the Human Capital Theory. The target population comprised TVET graduates and industry professionals. Stratified and simple random sampling techniques were used to attain the study sample. Questionnaires, interview schedules, and document analysis were used to collect data. Quantitative data was examined by means of descriptive and inferential statistics with the aid of Statistical Package for Social Sciences (SPSS), while qualitative data were analyzed thematically. The findings established that workshops and laboratories significantly influences the employment of TVET graduates. The study found that inadequate workshop equipment, outdated technologies, insufficient practical sessions, and poorly equipped laboratories negatively affected acquisition of practical competencies and employability skills. The study concluded that adequate and modern workshop and laboratory facilities enhance practical training, competency acquisition, and employment opportunities among TVET graduates. The study recommended increased government funding for workshop and laboratory facilities, modernization of equipment, and strengthening practical-oriented training in TVET institutions.

Keywords: TVET, Workshop Facilities, Laboratory Facilities, Practical Skills, Employability, Employment, Uasin Gishu County, Kenya.

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I. INTRODUCTION

TVET plays a significant role in preparing skilled human resource required for industrialization, economic development, and technological advancement. TVET institutions are expected to equip trainees with practical competencies, technical knowledge, and employability skills required in industries. Effective practical training in TVET institutions depends largely on workshops and laboratories.

Workshops and laboratories provide trainees with opportunities to apply theoretical knowledge in practical situations, operate industrial equipment, and develop technical competencies required in the labour market. Adequate facilities enhance practical-oriented learning and improve graduates' readiness for employment.

Globally, governments and stakeholders have continued to invest heavily in workshop and laboratory facilities to improve the quality of technical training. Modern industries require graduates who possess hands-on experience and competence in operating modern technologies and equipment. Consequently, TVET institutions are expected to establish well-equipped workshops and laboratories that simulate real workplace environments.

Despite the importance of workshop and laboratory facilities, many developing countries continue to experience shortages of modern equipment and training facilities in TVET institutions. As a result, trainees complete training without adequate practical exposure and competencies required in industries.

Studies conducted in different countries indicate that inadequate workshops and laboratories negatively affect gaining of employability competencies among graduates. Okumu and Bbaale (2018) established that the skills gap among TVET graduates was caused by outdated technologies, inadequate practical lessons, and poorly equipped workshops. Similarly, Mordi (2020) noted that trainees require sufficient practical exposure and opportunities to operate industrial equipment during training.

In Kenya, TVET institutions are expected to provide practical-oriented training through adequately equipped workshops and laboratories. The government has promoted Competency-Based Education and Training (CBET) to strengthen gaining of practical competencies and industrial skills.

However, concerns have emerged regarding inadequate workshop facilities, outdated technologies, insufficient practical equipment, and limited funding in many TVET institutions in Kenya. These challenges have negatively affected the quality of training and employment rate of graduates.

The industries require competent personnel capable of operating modern industrial equipment and adapting to technological changes. However, unemployment among TVET graduates remains high, raising concerns regarding the adequacy of workshop and laboratory facilities in technical institutions. This study therefore sought to investigate the contribution of workshops and laboratories to the employment of TVET graduates in Uasin Gishu County, Kenya.

➤ *Statement of the Problem*

Employment is an essential aspect in socio-economic growth because it contributes to income generation, poverty reduction, industrial growth, and improved standards of living. TVET institutions were established to equip trainees with practical competencies and technical skills required in industries. However, despite increased enrollment in TVET institutions in Kenya, unemployment among TVET graduates remains high.

Many employers have consistently complained that TVET graduates lack adequate practical competencies and technical skills required in industries. Graduates are often unable to operate modern industrial equipment effectively due to insufficient practical exposure during training.

One of the major factors contributing to this challenge is inadequate availability of workshop and laboratory facilities in TVET institutions. Many institutions lack modern equipment, sufficient workshop space, updated technologies, and adequate training materials. Consequently, trainees complete training without acquiring adequate hands-on experience.

Previous studies in Kenya focused mainly on curriculum relevance and practical skills acquisition, leaving limited information regarding the influence of workshops and

laboratories. Therefore, this study sought to establish the contribution of workshop and laboratories to the employment of TVET graduates in Uasin Gishu County, Kenya.

➤ *Purpose of the Study*

The purpose of the study was to investigate the contribution of workshop and laboratories to the employment of TVET graduates in Uasin Gishu County, Kenya.

➤ *Objective of the Study*

To find out the contribution of workshop and laboratories to the employment of TVET graduates in Uasin Gishu County, Kenya.

➤ *Research Question*

Does workshop and laboratories contribute to the employment of TVET graduates in Uasin Gishu County, Kenya?

II. LITERATURE REVIEW

➤ *Workshop and Laboratory Laboratories Contribution to Employment*

Workshop and laboratories are essential components of effective technical training because they enable trainees to acquire practical competencies and industrial skills. Adequate facilities expose trainees to practical situations similar to workplace environments and improve their technical competence.

Okumu and Bbaale (2018) established that inadequate practical training and outdated technologies contributed significantly to the skills gap among TVET graduates. The study noted that many institutions relied on obsolete equipment that failed to match current industrial technologies.

Mordi (2020) observed that trainees who received adequate practical exposure through well-equipped workshops acquired employability skills more effectively than those trained in poorly equipped institutions. The study emphasized the need for industries and governments to support technical institutions through provision of modern workshop equipment.

Olowoyo et al. (2020) found that practical-oriented learning positively contributes to acquisition of competencies required in the hospitality and tourism industry. The study established that many graduates lacked adequate practical exposure because institutions were inadequately equipped.

Gasmelseed (2021) emphasized that workshop and laboratory facilities are important in bridging the gap between training and employment. The study noted that practical competencies acquired through workshops improve trainees' confidence, productivity, and adaptability in industries.

Vinayan et al. (2020) observed that modern industries increasingly require highly skilled workers capable of operating advanced technologies and adapting to changing industrial environments. Therefore, TVET institutions need

adequately equipped workshops and laboratories to prepare trainees for the demands of modern industries.

In Kenya, the government has continued to support TVET institutions through funding for infrastructure and equipment. Agencies such as the Technical and Vocational Education and Training Authority (TVETA) and Curriculum Development Assessment and Certification Council (CDACC) have emphasized practical-oriented training and competency-based education.

However, many TVET institutions continue to experience inadequate workshop equipment, insufficient laboratory facilities, overcrowding, outdated technologies, and inadequate practical sessions. These challenges negatively affect acquisition of employability skills among graduates.

Studies further indicate that practical lessons are often limited due to inadequate training materials and shortage of modern equipment. Consequently, trainees rely heavily on theoretical instruction and graduate without sufficient practical competencies.

➤ *The Human Capital Theory*

The theoretical underpinning of this study was the Human Capital Theory. Consequently, this study aimed to determine how the availability of workshop and laboratory facilities in TVET institutions affects the employment outcomes of graduates in Uasin Gishu County, Kenya.

Human Capital Theory emphasizes that availability of adequate workshop and laboratory facilities improves acquisition of practical competencies and employability skills. When trainees receive practical-oriented training using modern equipment, they become more productive and employable.

III. RESEARCH METHODOLOGY

The study adopted a mixed-method research approach and descriptive survey research design. The design enabled the researcher to collect, analyze, and interpret information regarding the influence of workshop and laboratories on employment of TVET graduates.

This study was conducted in Uasin Gishu County, Kenya. The target population comprised TVET graduates, industry experts, and TVET institutions within the county. The stratified sampling and simple random sampling techniques were used to obtain the study sample.

Data collection instruments included questionnaires, interview schedules, and document analysis. Questionnaires

were administered to TVET graduates and industry experts to collect quantitative data. Interviews were conducted to gather qualitative information regarding workshop facilities and practical competencies.

Instrument validity was assessed through expert review, whereas reliability was ascertained through a pilot study. Quantitative data were analyzed using both descriptive statistics (frequencies, percentages, and means) and inferential statistics (regression analysis) with the aid of SPSS. Qualitative data were subjected to thematic analysis.

IV. STUDY FINDINGS AND DISCUSSION

➤ *Availability of Workshops and Laboratories*

The study findings established that many TVET institutions lacked adequate workshop and laboratory facilities required for effective practical training. Most respondents indicated that institutions experienced shortages of modern equipment, tools, machines, and training materials.

The study further established that many workshops and laboratories were overcrowded and poorly maintained. Some institutions relied on outdated equipment that did not reflect current industrial technologies and workplace practices.

TVET graduates were asked to indicate whether the availability of workshop facilities in TVET institutions influences their employment prospects, and their responses are presented in Table 1. Regarding the role of facilities in enhancing the acquisition of practical skills, 47.0% of the respondents strongly agreed, 15.5% agreed, 28.6% were neutral, 8.3% strongly disagreed, and 0.6% disagreed. These findings suggest that a majority of graduates perceived workshop facilities as important in developing practical competencies.

On whether graduates need to operate tools and equipment effectively to enhance their employability, 40.0% of the respondents strongly agreed, 29.2% agreed, 20.2% were undecided, while 8.3% disagreed and strongly disagreed. This indicates that most graduates considered proficiency in the use of tools and equipment as a key requirement for employment.

Concerning the similarity between facilities available in TVET institutions and those used in industry, 38.1% of the respondents strongly agreed, 12.5% agreed, 19.6% were undecided, 29.2% disagreed, and 0.6% strongly disagreed. While a slight majority perceived institutional facilities as comparable to those in industry, a considerable proportion expressed contrary views, suggesting the existence of gaps between training facilities and industry standards.

Table 1 Responses on the Workshops and Laboratories

Item	SA	A	N	D	SD
Workshop and laboratories enhance acquisition practical skills	79(47%)	26(15.5%)	48(28.6%)	1(0.6%)	14(8.3%)
Competency on operation of workshop and laboratories is required in employment	57(40.0)	49(29.2%)	34(20.2%)	14(8.3%)	14(8.3%)

Workshop and laboratories are similar to those in the industries	64(38.1%)	21(12.5%)	33(19.6%)	49(29.2%)	1(0.6%)
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Key: SA – Strongly Agree, A – Agree, N – Neutral, D – Disagree, SD - Strongly Disagree

Source: Author (2022)

Industry experts noted that many graduates lacked practical competencies in operating modern machines, troubleshooting industrial equipment, and applying technical knowledge in workplace situations. Employers associated these challenges with inadequate practical exposure during training. When industry experts were asked whether the unemployment of TVET graduates was attributable to inadequate training, 63.4% strongly agreed and 19.7% agreed, indicating that the majority perceived insufficient training as a key contributor to graduate unemployment. However, 9.9% disagreed, 5.6% strongly disagreed, while 1.4% remained undecided. Regarding the employment of graduates capable of operating machines, 66.2% of the respondents strongly agreed and 16.9% agreed that industries

prefer such graduates. Conversely, 7.0% disagreed, 8.5% strongly disagreed, and 1.4% were neutral. On the similarity between facilities available in industries and those found in TVET institutions, 70.4% strongly agreed and 12.7% agreed, whereas 8.5% disagreed, 7.0% strongly disagreed, and 1.4% were neutral. Finally, when asked whether graduate unemployment results from incompetence in operating equipment, tools, and machines, 64.8% strongly agreed and 18.3% agreed. In contrast, 5.6% disagreed, 9.9% strongly disagreed, and 1.4% remained neutral. These findings suggest that industry experts largely associate graduate unemployment with inadequate practical skills and limited competence in operating workplace equipment and machinery, as presented in Table 2.

Table 2 Industry Experts' Responses on the Availability of Workshop and Laboratory Facilities

Item	SA	A	N	D	SD
Unemployment due to inadequate training	45(63.4%)	14(19.7%)	1(1.4%)	7(9.9%)	4(5.6%)
Industries employ graduates able to work with machines	47(66.2%)	12(16.9%)	1(1.4%)	5(7%)	6(8.5%)
The facilities available in TVET institutions are comparable to those used in industry.	50(70.4%)	9(12.7%)	1(1.4%)	6(8.5%)	5(7%)
Unemployment of graduates is because of practical unskillfulness	46(64.8%)	13(18.3%)	1(1.4%)	4(5.6%)	7(9.9%)

Source: Author (2026)

Qualitative findings revealed that practical lessons were insufficient due to limited workshop space, inadequate equipment, and shortage of training materials. Graduates reported that some practical activities were only demonstrated theoretically without hands-on participation.

The study also established that inadequate workshop and laboratory facilities negatively affected trainees' confidence, competence, and readiness for employment.

➤ Influence on Employment of TVET Graduates

Regression analysis established significant positive association between availability of workshop and laboratories and employment of TVET graduates. Graduates who trained in well-equipped institutions demonstrated higher

employability compared to those trained in poorly equipped institutions.

The regression analysis results on the relationship between the availability of workshop and laboratory facilities in TVET institutions and the employment of TVET graduates are presented in Table 3. The study established a significant positive relationship ($r > 0$; $p < 0.05$) between the operation of tools, equipment, availability of facilities, and employment of TVET graduates. However, the results revealed a positive but statistically insignificant relationship between the availability of facilities in TVET institutions and graduate employment ($r > 0$, $p > 0.05$). This implies that although an increase in facilities was associated with a corresponding increase in employment levels, the relationship was not strong enough to be considered statistically significant.

Table 3 Regression Analysis on the Availability of Workshop and Laboratory Facilities in TVET Institutions and Employment of TVET Graduates

	B	Sig.	Partial correlations (r)
Facilities in TVET institutions enhance acquisitions of practical skills	0.019	0.071	0.26
Graduates should operate tools and equipment effectively for them to be employed	0.058	0.029**	0.83
Facilities in TVET institutions are similar to those in the industry	0.04	0.026**	0.87

** Denotes Significance at $p < 0.05$

Source: Author (2022)

Industries preferred graduates who possessed hands-on experience, technical competence, confidence, and ability to operate industrial equipment effectively. Adequate workshop and laboratory facilities enabled trainees to acquire these competencies.

The findings agree with Human Capital Theory, which argues that investment in practical training facilities improves individual productivity and employability. The findings are also consistent with previous studies which established that practical-oriented training positively contributes to acquisition of employability skills.

V. CONCLUSION

The study concluded that accessibility of workshop and laboratories significantly influence employment of TVET graduates. Adequate and modern workshop facilities enable trainees to acquire practical competencies, technical knowledge, and employability skills required in industries.

However, the study established that many TVET institutions experience shortages of modern equipment, outdated technologies, insufficient training materials, overcrowding, and inadequate practical sessions. These challenges negatively affect acquisition of practical competencies and employment outcomes among graduates.

The study further concluded that strengthening workshop and laboratory facilities would improve practical-oriented learning, competency acquisition, and employability of TVET graduates.

RECOMMENDATIONS

➤ *The Study Made the Following Recommendations:*

- The government should provide adequate funding to TVET institutions for establishment and modernization of workshop and laboratory facilities.
- TVET institutions should acquire modern industrial equipment and technologies that reflect current workplace practices.
- Institutions should strengthen practical-oriented learning by increasing practical sessions and hands-on training opportunities.
- Industries should collaborate with TVET institutions through provision of equipment, industrial support, and technological expertise.
- TVET trainers should receive continuous professional development and industrial exposure to remain updated on emerging technologies.
- TVET institutions should establish effective maintenance programs for workshop and laboratory facilities.
- The government and stakeholders should support education and training approach that focuses on the acquisition and demonstration of specific competencies (knowledge, skills, and attitudes) required for effective performance in the workplace.

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