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Influence of Trainers' Experience and Educational Qualifications on the Quality of Training in TVET Institutions in Taita Taveta County, Kenya

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Abstract

Technical and Vocational Education and Training (TVET) is central to Kenya's efforts to build a skilled workforce, reduce youth unemployment, and support industrial and economic development. The quality of training in TVET institutions depends largely on trainers, whose educational qualifications and practical experience shape curriculum delivery, skills transfer, and learner outcomes. However, concerns persist that some trainers may lack adequate industry experience or appropriate academic and professional qualifications, potentially compromising the relevance and quality of training. This study examined the influence of trainers' experience and educational qualifications on the quality of training in TVET institutions in Taita Taveta County, Kenya. It was anchored on Human Capital Theory (HCT), complemented by the Teacher Competence perspective. The study adopted a pragmatic research paradigm and a descriptive research design. The target population comprised of 200 trainees, trainers, deputy principals and principals from five TVET institutions. Data was collected using structured questionnaires and analysed using descriptive statistics, Pearson's correlation and multiple linear regression in SPSS version 29. The findings revealed a strong positive correlation between trainers' experience and training quality ($r = .717$, $p < .01$) and between educational qualifications and training quality ($r = .746$, $p < .01$). Multiple regression analysis established that both trainers' experience ($B = 0.358$, $\beta = .363$, $p < .001$) and educational qualifications ($B = 0.429$, $\beta = .476$, $p < .001$) were statistically significant positive predictors of training quality. The two variables jointly explained 61.5% of the variance in training quality (($R^2 = .615$); adjusted ($R^2 = .611$). Educational qualifications had a stronger standardized association with training quality than experience. Trainer age was not a statistically significant predictor in the earlier three-predictor model ($\beta = .052$, $p = .394$). The study concludes that trainers' experience and educational qualifications are complementary characteristics

associated with training quality. It recommends aligning trainers' qualifications with their teaching assignments, strengthening continuing professional development, expanding relevant industrial exposure and mentorship, and evaluating trainers based on demonstrated instructional and practical competencies.

Keywords: Educational qualifications, Human Capital Theory, quality of training, trainer experience, teacher competence, TVET institutions, Kenya

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Introduction

Technical and Vocational Education and Training (TVET) is increasingly recognised as a strategic mechanism for developing the occupational, technical and entrepreneurial skills required for productive employment, technological transformation and inclusive economic development. Its importance has grown as labour markets respond to digitalisation, technological change, environmental transitions and evolving occupational requirements. The UNESCO Strategy for TVET 2022–2029 emphasises the relevance, quality and responsiveness of training systems and the need to strengthen trainers' capacity to meet changing labour-market demands (UNESCO, 2022). However, expanding access to TVET does not necessarily guarantee the acquisition of relevant skills. Training quality depends partly on how curricula, occupational standards, practical activities and assessment requirements are translated into effective learning experiences. Trainers therefore play a central role in connecting formal curriculum requirements with the technical and occupational competencies trainees are expected to develop.

The quality of TVET encompasses the effectiveness and relevance of teaching, integration of theoretical knowledge with practical skills, competency assessment, learner support and responsiveness to industry requirements. Wedekind et al. (2024) observe that defining a quality TVET lecturer remains a challenge, despite the importance of trainers in improving training outcomes. Trainers operate at the intersection of education and the world of work and consequently require appropriate educational qualifications, pedagogical capabilities and occupational expertise. These requirements distinguish TVET from

education systems that primarily emphasise academic knowledge because vocational training must prepare learners to perform tasks in authentic workplace settings. Trainers' experience and educational qualifications are therefore important characteristics to examine when investigating differences in the quality of training delivered across TVET institutions.

Trainers' experience may influence training quality through the practical knowledge, instructional judgement and professional skills accumulated over time. Experienced trainers may be better equipped to explain complex concepts, demonstrate occupational procedures, manage practical sessions, respond to trainees' learning difficulties and connect classroom instruction with workplace situations. Nevertheless, the value of experience may depend on its relevance to the subjects taught, opportunities for professional development and exposure to changing occupational practices.

Evidence from Lao PDR indicates that limited industry experience among TVET teachers can constrain cooperation between training institutions and enterprises, whereas stronger industry engagement provides opportunities to update occupational knowledge and improve instructional relevance (Khammounty, Maurer & Khamsang, 2024). This suggests that experience should be examined in relation to the extent to which it supports effective teaching and the development of practical competencies, rather than assumed to improve training quality automatically.

Educational qualifications are equally important because they provide the formal foundation for subject knowledge, pedagogical preparation and professional practice. Trainers with relevant qualifications may possess a stronger grounding in the concepts and principles underlying their teaching assignments and may be better prepared to organise learning activities and assess trainees' competencies. However, qualifications alone may not guarantee effective vocational instruction if trainers lack practical expertise or the ability to translate theoretical knowledge into workplace-oriented learning. Wedekind et al. (2024) emphasise the combination of educational and occupational capabilities required of effective TVET trainers. Accordingly, examining educational qualifications alongside experience provides a more comprehensive basis for understanding how trainers' professional backgrounds relate to training quality.

These characteristics are particularly relevant to competency-based education and training (CBET), which emphasises the demonstration of measurable occupational competencies rather than the acquisition of theoretical knowledge alone. Effective CBET requires trainers to integrate technical knowledge, practical skills, appropriate teaching methods and competency-based assessment. Evidence from Kenya indicates that trainer competence is significantly associated with CBET implementation, demonstrating the importance of trainers' capabilities in translating competency-based approaches into instructional practice (Muthomi et al., 2023). Similarly, research in Western Kenya has associated trainers' pedagogical competence with students' academic performance, highlighting the relevance of instructional capability to learning outcomes (Miyawa et al., 2023). These studies demonstrate the importance of

trainer competence, while also creating a basis for examining the specific contributions of experience and educational qualifications to the quality of training.

The relationship between trainer qualification and training quality must also be considered within the changing occupational environment. Initial qualifications and accumulated experience may become less adequate when trainers have limited opportunities to update their knowledge of emerging technologies, industry practices and assessment approaches. In Kenya, Njenga (2024) found that continuing professional development among TVET teachers focused more frequently on subject-content knowledge than pedagogical knowledge. The study also identified limitations associated with professional development activities that lacked active learning, collaboration and sufficient duration. These observations indicate that qualifications and experience operate within a broader professional context in which continuous learning is important. Nevertheless, the specific relationship between trainers' experience, their educational qualifications and training quality requires focused empirical examination rather than being inferred solely from research on professional development or general trainer competence.

The issue is particularly important in African TVET systems, where governments are expanding vocational education to address youth unemployment, skills shortages and industrial development. These ambitions depend not only on institutional expansion but also on the availability of trainers with suitable professional backgrounds. In Kenya, Chepkoech et al. (2021) identified deficiencies in TVET trainer staffing and specialisation, together with limited participation in continuous professional development. More recent evidence has similarly highlighted deficiencies in industrial training and professional development among vocational instructors, raising concerns about the effective delivery of competency-based training (Kipkoech et al., 2024). Although these studies identify broader challenges affecting trainer capacity, further examination of the relationship between specific trainer characteristics and training quality is necessary to clarify the contribution of experience and educational qualifications within institutional settings.

In Kenya, regulatory reforms and the expansion of TVET provision have increased the importance of ensuring that training institutions maintain appropriate standards of training delivery. The Technical and Vocational Education and Training Authority (TVETA) establishes standards relating to trainer qualifications, competency-based training, assessment and industrial attachment, reflecting the importance of trainer capacity in quality assurance (TVETA, 2023). However, institutional quality assessments indicate that training quality encompasses several interrelated dimensions. The TVETA quality audit for the 2023/2024 financial year assessed institutions using indicators such as human resources, training delivery, physical resources, programme evaluation and trainee support. Human resources and innovation, research and cooperation were among the comparatively weaker areas identified, illustrating that institutional facilities alone do not guarantee effective training delivery (TVETA, 2025). The 2024 Annual Returns

Report also highlights the importance of staffing and trainer qualifications within the expanding national TVET system (TVETA, 2025a). While these reports provide important institutional-level information, they do not, by themselves, establish the extent to which trainers' experience and educational qualifications are associated with training quality. This distinction creates a need for research that examines these characteristics at the trainer and training-delivery levels.

In Taita Taveta County, vocational training contributes to local skills development and employment preparation. The county's 2023–2027 development plan reported 31 operational Vocational Training Centres (VTCs) and approximately 200 trainers, reflecting investment in expanding access to vocational skills development (County Government of Taita Taveta, 2023). The county has also continued to strengthen its VTC system through registration, infrastructure improvement, monitoring and curriculum expansion. In addition, TVETA used Taita Taveta County to disseminate the 2024/2025 national quality audit findings, with managers from all 31 VTCs participating in consultations on institutional performance and quality improvement. The audit considered human resources and training delivery alongside other dimensions of institutional quality, reinforcing the relevance of examining trainer capacity in the county (TVETA, 2026). Within this setting, the quality of training is important for preparing trainees for occupational opportunities in sectors such as agriculture, mining, construction, tourism and enterprise development.

Despite increasing attention to TVET quality in Kenya, the existing research provides a fragmented understanding of the relationship between trainers' experience, educational qualifications and training quality. Studies have examined trainer staffing and professional development, pedagogical competence, CBET implementation and institutional quality assurance, but these areas do not necessarily establish the distinct and joint contributions of experience and educational qualifications to training quality (Chepkoech et al., 2021; Miyawa et al., 2023; Muthomi et al., 2023; Njenga, 2024). Furthermore, much of the available Kenyan evidence has been generated outside Taita Taveta County, limiting the extent to which its findings can be applied directly to the county's TVET institutions. These limitations point to an empirical and geographical gap concerning how trainers' experience and educational qualifications are associated with the quality of training in the local context.

The present study therefore examined the influence of trainers' experience and educational qualifications on the quality of training in TVET institutions in Taita Taveta County, Kenya. The study was guided by the following null hypotheses:

H_{o1}: Trainers' experience has no statistically significant relationship with the quality of training in TVET institutions in Taita Taveta County, Kenya.

H_{o2}: Trainers' educational qualifications have no statistically significant relationship with the quality of training in TVET institutions in Taita Taveta County, Kenya.

H_{o3}: Trainers' experience and educational qualifications do not jointly make a statistically significant contribution to

explaining the quality of training in TVET institutions in Taita Taveta County, Kenya.

Theoretical Framework

The study was anchored on Human Capital Theory (HCT), complemented by the Teacher Competence perspective. Human Capital Theory explains why trainers' accumulated qualifications, knowledge, skills and experience constitute valuable productive resources, whereas the Teacher Competence perspective explains how these resources are translated into effective teaching and learning. This distinction is particularly important in TVET because qualifications alone cannot ensure quality training; trainers must also be capable of applying technical and pedagogical knowledge in practical instructional settings. Kenya's TVET regulatory framework explicitly reflects this combination by requiring trainers to possess relevant qualifications, pedagogical preparation, occupational competence and evidence of continuing professional development.

Human Capital Theory

Human Capital Theory was developed primarily through the work of Theodore W. Schultz in the late 1950s and early 1960s and was subsequently formalised and extended by Gary S. Becker (1964). Schultz (1961) argued that education, training, knowledge and skills constitute forms of capital because they increase people's productive capacities, while Becker (1964) developed a more systematic economic explanation of how investment in education and on-the-job training generates returns through increased productivity and performance. The theory posits that individuals and organisations can improve productivity and performance by investing in education, training, experience and other forms of human capability. In this study, trainers' qualifications, technical competence, teaching experience, industry experience and professional development represent forms of human capital that can enhance their capacity to deliver effective training. Qualifications provide foundational professional and technical knowledge, technical competence enables trainers to demonstrate occupational skills, teaching experience develops instructional judgement, industry experience strengthens the connection between training and workplace practice, while professional development enables trainers to update their technical and pedagogical capabilities.

This proposition is particularly relevant to TVET because Kenyan TVETA standards explicitly require trainers to possess appropriate qualifications and competencies for planning training, delivering CBET, conducting competency assessment and maintaining internal quality assurance. Empirical evidence from Kenya also indicates that trainer qualifications, specialisation and continuing professional development remain important concerns in TVET institutions, with inadequacies potentially limiting the capacity of institutions to develop appropriate occupational skills (Chepkoech et al., 2021). However, Human Capital Theory has been criticised for treating education and skills primarily as investments that generate measurable productivity returns while giving insufficient attention to institutional structures, organisational culture, working conditions, pedagogical processes and differences in how individuals apply their acquired

capabilities. Education and qualifications do not automatically produce effective performance because the value of human capital depends partly on the environment in which it is utilised. This limitation is relevant to the present study because possessing qualifications or experience does not necessarily guarantee high-quality training. Nevertheless, the theory provides an appropriate foundation for this study because it explains why variation in trainers' accumulated knowledge, skills, qualifications and experience can generate variation in their productive capacity and, consequently, the quality of training delivered in TVET institutions in Taita Taveta County.

Teacher Competence Perspective

The Teacher Competence perspective is grounded in the development of teacher-knowledge research, particularly Shulman's (1986, 1987) work on pedagogical content knowledge (PCK), which challenged the separation of subject knowledge from pedagogical knowledge and argued that effective teaching requires teachers to transform subject matter into forms that learners can understand. The perspective posits that effective teaching depends on an integrated set of knowledge, skills and professional capabilities that enable teachers to understand subject matter, select appropriate teaching strategies, represent knowledge effectively, assess learners and adapt instruction to learners' needs.

In TVET, this perspective is especially relevant because trainers require both occupational expertise and pedagogical competence—the dual professionalism of being practitioners in a trade area while also possessing the capacity to facilitate learning. Kenya's TVET policy framework similarly recognises this dual professionalism, emphasising both trade and pedagogical competencies and the need for continuous professional development as technologies and labour-market requirements change. The perspective therefore provides a direct explanation of how the characteristics examined in this study may be translated into training quality: qualifications contribute subject and professional knowledge; technical competence supports accurate practical demonstrations; teaching experience contributes instructional judgement and classroom practice; industry experience provides current occupational knowledge; and professional development enables trainers to maintain and improve their pedagogical and technical competencies.

Evidence from Kenya supports this linkage, with Njenga (2022) finding that TVET teachers recognised teaching skills as important professional competencies while also identifying substantial continuing professional development needs, particularly because mastery of subject content does not necessarily translate into effective teaching skills. Similarly, research on Kenyan TVET institutions has linked trainers' pedagogical competencies with students' academic performance, reinforcing the importance of trainer competence in educational outcomes.

The perspective can, however, be criticised for placing considerable emphasis on individual teacher capabilities while potentially underestimating structural factors such as inadequate equipment, large classes, institutional leadership, resources and curriculum constraints that can also determine training quality. In the present

study, this limitation is addressed by treating trainer competence as an important contributor rather than the sole determinant of training quality. The Teacher Competence perspective is therefore relevant because it explains the mechanism through which trainers' qualifications, technical competence, experience and professional development are converted into actual instructional practices and, ultimately, quality training in TVET institutions.

Methodology

The study adopted a pragmatic research paradigm and employed descriptive research design to collect information from trainees, trainers, deputy principals and principals. The study was conducted in five TVET institutions in Taita Taveta County, Kenya. The institutions were Coast Institute of Technology, Mwatate Technical and Vocational College, Taveta Technical and Vocational College, Tsavo Institute of Technology and Wumingu Technical and Vocational College. These institutions provided the setting for examining trainers' experience, educational qualifications and the quality of training.

The study targeted a population of 420 respondents comprising trainees, trainers, deputy principals responsible for administration, and principals in the selected TVET institutions. Using the Krejcie and Morgan (1970) sample size determination table, a sample of 200 respondents was selected for the study. These categories were included to obtain perspectives from individuals directly involved in training and institutional management.

Stratified sampling was used to organise respondents into trainees, trainers, deputy principals and principals. Simple random sampling was applied to select trainees and trainers, while all five principals and five deputy principals were included through a census approach. This approach ensured representation of the different respondent categories within the selected institutions.

Table 1: Sample Distribution by Institution

Institution	Trainees	Trainers	Deputy principals	Principals	Total
Coast Institute of Technology	60	5	1	1	67
Mwatate Technical and Vocational College	20	5	1	1	27
Taveta Technical and Vocational College	20	5	1	1	27
Tsavo Institute of Technology	30	10	1	1	42

Structured questionnaires were used to collect data on trainers' experience, educational qualifications and training quality. The questionnaires included structured items and open-ended questions to capture respondents' assessments and explanations.

Content validity was assessed through reviews by two university supervisors and two experienced TVET practitioners. The questionnaire was pretested among 20 respondents at Weru Technical and Vocational College in Kilifi County. These respondents were excluded from the main study.

Reliability was assessed using Cronbach's alpha to establish the internal consistency of the study scales. The reported coefficients are presented in Table 2.

Table 2: Reliability of the Study Instruments

Scale	Number of items	Cronbach's alpha
Trainers' experience	6	.863
Trainers' educational qualifications	5	.856
Trainers' age	4	.797
Teaching strategies	5	.839

The coefficients indicate acceptable internal consistency for the respective scales. However, the source does not report a separate reliability coefficient for the training-quality scale; this should be clarified if the scale was measured independently.

Quantitative data were analysed using Statistical Package for the Social Sciences (SPSS), version 29. Descriptive statistics, including frequencies, percentages, means and standard deviations, were used to summarise responses. Pearson's correlation analysis was used to examine relationships among the study variables, while multiple linear regression was employed to assess the influence of trainers' experience and educational qualifications on training quality.

The regression model was specified as follows:

$$Y=\beta 0+\beta_1 X_1+\beta_2 X_2+\varepsilon$$

Where:

Y = quality of training

β0 = regression constant

$\beta^1$and β_2 = regression coefficients

X_1 = trainers' experience

X_2 = trainers' educational qualifications

ε = error term

Statistical significance was assessed at the .05 level.

Results

Respondents' demographic characteristics

Table 3 presents the demographic characteristics of the respondents whose perceptions informed the assessment of trainers' characteristics and training quality.

Table 3: Demographic Characteristics of Respondents **(N = 200)**

Characteristic	Category	Frequency	Percentage (%)
Gender	Male	135	67.5
	Female	65	32.5
	Total	200	100.0
Age	20–24 years	60	30.0
	25–30 years	43	21.5
	31–34 years	36	18.0
	35–39 years	30	15.0
	40–44 years	31	15.5
	Total	200	100.0

Male respondents constituted 67.5% of the sample, compared with 32.5% females. Respondents aged 20–24 years formed the largest age group (30.0%), while those aged 35–39 years represented the smallest proportion (15.0%). These findings describe the respondents and should not be interpreted as the actual age or gender distribution of TVET trainers.

Influence of trainer experience on quality of training

Trainer experience was assessed using six items relating to perceived training quality, project leadership, project supervision, inquiry-based learning, problem-solving, and openness to new ideas. The findings are presented in Table 5.

Table 5: Descriptive statistics for trainer experience

Trainer experience indicator	Mean	SD
Trainers' experience influences quality of TVET	4.57	0.674
Trainers have the ability to lead projects	4.35	0.683
Trainers can supervise project accomplishment	4.37	0.750
Trainers develop inquiring minds in knowledge seeking	4.34	0.790
Trainers are good at problem-solving and decision-making	4.25	0.929
Trainers are open to new ideas and promote autonomous learning	4.37	0.788

The results indicate favourable perceptions of trainer experience, with mean scores ranging from 4.25 to 4.57 on a five-point scale. The highest-rated indicator was the perceived influence of trainers' experience on TVET quality (M = 4.57, SD = 0.674). Problem-solving and decision-making recorded the lowest mean (M = 4.25, SD = 0.929). Overall, respondents perceived experience as an important characteristic of effective trainers, particularly in supporting practical activities and independent learning.

Influence of trainers' educational qualifications on quality of training

The study assessed educational qualifications in relation to training effectiveness, delivery skills, and responsiveness to learners' questions. The findings are presented in Table 6.

Table 6: Descriptive statistics for trainers' educational qualifications

Indicator	Mean	SD
General agreement item on trainer education	4.34	0.705
Trainers' education level influences quality of training	4.40	0.782
Trainers with diploma qualifications teach effectively	4.26	0.971
Trainers have excellent delivery skills	4.33	0.764
Trainers respond to queries in a timely manner	4.32	0.843

Respondents generally perceived trainers' educational qualifications positively, with mean scores ranging from 4.26 to 4.40. The statement that trainers' education level influences training quality recorded the

highest mean (M = 4.40, SD = 0.782). The effectiveness of diploma-qualified trainers received the lowest mean (M = 4.26, SD = 0.971), with the largest standard deviation, indicating greater variation in respondents' views about this aspect.

These findings suggest that educational qualifications were perceived as relevant to training quality.

Perceptions of the influence of trainer age on quality of training

The study also examined respondents' perceptions of the relationship between trainer age and classroom delivery, including preferences for younger or older trainers during practical sessions. The findings are presented in Table 7.

Table 7: Descriptive statistics for perceptions of trainer age

Indicator	Mean	SD
Trainers' age affects content delivery in the classroom	3.93	1.161
Preference for younger trainers in practical sessions	3.93	1.039
Preference for older trainers in practical sessions	4.08	0.989
Older and younger trainers are equal in content delivery	4.16	1.020

The mean scores ranged from 3.93 to 4.16. The highest-rated statement was that older and younger trainers were equal in content delivery (M = 4.16, SD = 1.020). Preference for older trainers in practical sessions (M = 4.08) was slightly higher than preference for younger trainers (M = 3.93). The standard deviations, ranging from 0.989 to 1.161, indicate variation in respondents' perceptions.

Relationship between trainer characteristics and training quality

Pearson correlation analysis (Table 8) was used to examine the relationships between trainer experience, trainer education, and training quality.

Table 8: Correlation matrix of trainer characteristics and training quality

Variable	Trainer experience	Trainer education	Training quality
Trainer experience	1.000		
Trainer education	0.744**	1.000	
Training quality	0.717**	0.746**	1.000

$p < 0.01$, two-tailed.

Trainer experience had a strong positive correlation with training quality ($r = 0.717$, $p < 0.01$). Trainer education also had a strong positive correlation with training quality ($r = 0.746$, $p < 0.01$). The correlation between trainer experience and trainer education was similarly strong ($r = 0.744$, $p < 0.01$).

The results indicate that higher ratings of trainer experience and educational qualifications were associated with higher ratings of training quality. Trainer education had the slightly stronger bivariate relationship with training quality. Nevertheless, correlation does not establish causation, and the relationship between experience

and education suggests that the two characteristics may overlap in their association with training quality.

Influence of Trainer Experience and Educational Qualifications on Training Quality

Multiple linear regression was conducted to examine the individual and joint predictive contributions of trainer experience and educational qualifications to training quality in Technical and Vocational Education and Training (TVET) institutions.

The model yielded R=0.784, indicating a strong association between the predicted and observed training quality scores. The R^2 value of 0.615 indicates that trainer experience and educational qualifications jointly accounted for 61.5% of the observed variance in training quality. The adjusted R^2 was 0.611, suggesting that the model retained substantial explanatory power after adjustment for the number of predictor.

Table 9. Model Summary

Model statistic	Value
Multiple correlation coefficient (R)	0.784
Coefficient of determination (R^2)	0.615
Adjusted R^2	0.611
Standard error of the estimate	0.367
Observations (N)	200

Note. *Predictors: trainer experience and trainer educational qualifications. Outcome: training quality.*

The overall regression model was statistically significant, F (2,197)=158.852, p<.001, indicating that trainer experience and educational qualifications jointly predicted training quality. The results provide evidence that the two trainer characteristics, considered together, are associated with differences in training quality.

Table 10: Analysis of Variance for the Multiple Regression Model

Source of variation	Sum of squares	df	Mean square	F	p
Regression	317.704	2	158.852	158.852	< .001
Residual	197.000	197	1.000		
Total	514.704	199			

The coefficient estimates indicate that trainer experience and educational qualifications were both positive and statistically significant predictors of training quality. Trainer experience had an unstandardized coefficient of B=0.358, SE=0.065, β=0.363, t=5.503, p<.001). Holding educational qualifications constant, a one-unit increase in the experience measure was associated with a 0.358-unit increase in the predicted training quality score.

Educational qualifications also had a positive and statistically significant coefficient (B=0.429, SE=0.059, β=0.476,

t=7.222, p<.001). Holding trainer experience constant, a one-unit increase in the educational qualifications measure was associated with a 0.429-unit increase in the predicted training quality score.

Table 11. Multiple Regression Coefficients for Predicting Training Quality

Predictor	B	SE	Standardized β	t	p
Constant	0.925	0.197	—	4.693	< .001
Trainer experience	0.358	0.065	0.363	5.503	< .001
Educational qualifications	0.429	0.059	0.476	7.222	< .001

The standardized coefficient for educational qualifications (β=0.476) was greater than that for trainer experience (β=0.363). This indicates that educational qualifications had the stronger relative association with training quality in the fitted model, assuming both standardized coefficients were estimated from the same sample and model.

Regression equation

The estimated regression equation was:

$Y=0.925+0.358X_1+0.429X_2$

Where:

Y = predicted training quality score

X_1 = trainer experience

X_2 = trainer educational qualifications

Discussion

Influence of trainer experience on training quality

The findings indicate that trainer experience was positively associated with training quality in the sampled Technical and Vocational Education and Training (TVET) institutions in Kenya. Respondents rated the contribution of experience to training quality highly (M = 4.57, SD = 0.674), alongside project supervision (M = 4.37, SD = 0.750), promotion of autonomous learning (M = 4.37, SD = 0.788) and development of inquiry skills (M = 4.34, SD = 0.790). These results suggest that respondents associated experience with practical supervision, independent learning and applied competencies, although the ratings reflect perceptions rather than objective measures of teaching performance or years of service.

Inferential analysis further supported this relationship. Trainer experience correlated positively with training quality (r = .717, p < .01) and remained a significant predictor after controlling for educational qualifications (B = 0.358, SE = 0.065, β = .363, t = 5.503, p < .001). This indicates that experience contributed unique predictive information beyond educational qualifications. However, the cross-sectional design does not establish a causal relationship.

These findings are consistent with Chepkoech et al. (2021), who studied trainer capacity in 15 public TVET institutions in Western Kenya, involving 400 trainers and interviews with principals. They identified inadequate staffing, mismatches between trainers' specializations and institutional needs, and limited professional development. Their findings suggest that experience may be less effective when trainers' skills are outdated or unrelated to their teaching assignments.

Similarly, Njenga (2022), using survey responses from 170 TVET

teachers and interviews with 16 participants across six Kenyan institutions, found generally high self-perceptions of competence but considerable continuing professional development needs. Newer teachers reported lower perceived competence, highlighting differences in professional development needs across career stages.

Evidence from Tanzania reinforces the importance of relevant workplace exposure. Ramadhani and Muya (2026), in a study of 63 TVET teaching staff, found that industrial attachment contributed to technical, soft and pedagogical skills. Such exposure can help trainers connect classroom instruction with workplace requirements, although industrial attachment should not be equated with general teaching experience.

Problem-solving and decision-making received the lowest mean among the experience indicators (M = 4.25, SD = 0.929), with greater variation in respondents' assessments. This suggests that perceptions of trainers' ability to address practical problems differed across respondents. Kimboka's (2025) study of four technical training institutions in Tanzania similarly found that limited pedagogical preparation and professional development constrained competency-based education and training, particularly in assessment design and learner-centred instruction.

Influence of trainers' educational qualifications on training quality

Educational qualifications were positively and significantly associated with training quality and emerged as the stronger predictor in the regression model. Respondents rated the influence of education on training quality at M = 4.40 (SD = 0.782), trainers' delivery skills at M = 4.33 (SD = 0.764), and responsiveness to learners' questions at M = 4.32 (SD = 0.843). These findings indicate that respondents viewed formal educational preparation as important for instructional delivery, communication and learner support.

The inferential results confirmed this relationship. Educational qualifications correlated positively with training quality ($r = .746$, $p < .01$) and remained significant after controlling for experience ($B = 0.429$, $SE = 0.059$, $\beta = .476$, $t = 7.222$, $p < .001$). The standardized coefficient for education exceeded that for experience ($\beta = .363$), indicating a stronger relative association within the fitted model. This does not imply that qualifications alone guarantee effective teaching, since their value also depends on pedagogical application and relevance to occupational practice.

Langat et al. (2021), examining trainer competencies in Kenyan public TVET institutions, similarly found positive and significant relationships between training effectiveness and trainers' academic qualifications, continuing professional development and pedagogical skills. Their findings support the present results while demonstrating that formal education operates alongside teaching competence and professional learning.

Njenga (2022) also found that TVET teachers emphasized subject-content mastery but sometimes assumed that content knowledge automatically translated into effective teaching. The study highlighted the importance of subject-specific pedagogical skills. This distinction is relevant because trainers must not only understand technical concepts but also demonstrate procedures, assess

competencies and respond to learners' varying needs.

Evidence from Nigeria provides further context. A study of nine technical colleges in southeastern Nigeria identified instructional planning, workshop management, student management, and facilities and equipment management as areas requiring improvement among technical teachers (Chinonso Okolie et al., 2019). These findings suggest that vocational instruction requires practical teaching and workshop-management capabilities in addition to formal qualifications.

Similarly, Mwakyobwe and Shawa (2023), examining pedagogical and assessment practices in Tanzanian teacher colleges, highlighted the importance of applying competency-based teaching and assessment methods. Although teacher colleges differ from TVET institutions, their findings reinforce the distinction between possessing educational knowledge and applying it effectively in instruction.

Perceptions of the influence of trainer age on training quality

Respondents generally viewed younger and older trainers favourably. The statement that younger and older trainers were equally effective in content delivery recorded the highest mean (M = 4.16, SD = 1.020). Preference for older trainers in practical sessions recorded M = 4.08 (SD = 0.989), compared with M = 3.93 (SD = 1.039) for younger trainers. Although older trainers received a slightly higher rating for practical sessions, the results did not indicate an overwhelming preference for either age group.

The regression model indicated that trainer age was not a statistically significant independent predictor of training quality ($\beta = .052$, $p = .394$). Thus, age did not explain a statistically significant amount of unique variation after accounting for experience and educational qualifications in that model. Age alone should therefore not be interpreted as an indicator of professional competence.

Njenga (2022) found that newer TVET teachers reported lower perceptions of competence and highlighted the importance of mentorship. In a related study, Njenga (2023) examined formal and informal learning among vocational teachers in Kenya, demonstrating the relevance of continuing professional development to vocational teacher competence. These findings indicate that professional competence may be developed at different career stages and should not be inferred from age alone.

Influence of Trainer Experience and Educational Qualifications on Training Quality

The correlation analysis showed that both trainer experience ($r = .717$, $p < .01$) and educational qualifications ($r = .746$, $p < .01$) were strongly and positively associated with training quality. The multiple regression model explained 61.5% of the observed variance in training quality ($R^2 = .615$; adjusted $R^2 = .611$), with a reported overall statistic of $F = 158.852$, $p < .001$. These results indicate that the two predictors jointly provided substantial explanatory information about perceived training quality in the sampled institutions.

Educational qualifications had a larger standardized coefficient ($\beta = .476$) than experience ($\beta = .363$), indicating a stronger relative association with training quality in the fitted model. This

is consistent with Langat et al. (2021), who identified academic qualifications, professional development and pedagogical skills as factors associated with training effectiveness in Kenyan public TVET institutions. It also accords with Njenga (2022), whose findings emphasized subject-specific pedagogical skills alongside content knowledge.

However, experience and educational qualifications were themselves strongly correlated ($r = .744$, $p < .01$). Their regression coefficients should therefore be interpreted as conditional associations within the same model, rather than universal rankings of their importance. Variance inflation factors and tolerance statistics would help establish whether multicollinearity materially affected the estimates.

Evidence from Uganda provides additional context. Sabastian et al. (2025), in a mixed-methods study of continuing professional development among TVET master trainers, reported a positive correlation between professional development practices and trainer competencies ($r = .459$). Their regression analysis indicated that professional development explained 21.1% of the variance in professional competencies. Although professional development differs from formal qualifications and accumulated experience, the findings reinforce the importance of maintaining and updating trainer competence.

Similarly, Muthomi et al. (2023), examining trainer competencies and competency-based education and training implementation in public technical institutions in Meru County, Kenya, reported a significant positive relationship ($\beta = .401$, $p < .05$). This supports the broader relevance of trainer competence to vocational curriculum implementation, although curriculum implementation is not identical to training quality.

Conclusion

The study examined the influence of trainer experience and educational qualifications on training quality in TVET institutions in Kenya. The findings established that both characteristics were positively and significantly associated with training quality. Trainer experience correlated with training quality at ($r = .717$), while educational qualifications recorded a correlation of ($r = .746$), with both relationships statistically significant at ($p < .01$).

The regression results further demonstrated that trainer experience and educational qualifications independently predicted training quality within the fitted model. Together, the two variables explained 61.5% of the observed variance in training quality. Educational qualifications had a stronger relative association with training quality than experience, although the strong correlation between the two predictors indicates that they are related dimensions of trainer competence.

The descriptive findings also showed that respondents valued trainers' practical supervision, promotion of autonomous learning, instructional delivery and responsiveness to learners. However, problem-solving and decision-making received comparatively lower ratings among the experience indicators, while perceptions of diploma-qualified trainers varied considerably. Trainer age was not a statistically significant predictor in the earlier three-predictor regression model, suggesting that age alone is less informative than demonstrated

competence, experience and educational preparation.

Recommendations

Based on the findings, the following recommendations are proposed:

1. TVET institutions should facilitate relevant industrial attachments, workplace exposure, employer partnerships and practical projects to help trainers maintain current occupational knowledge and strengthen their ability to supervise practical learning.
2. Recruitment and deployment of trainers should consider the relevance of academic and professional qualifications to the courses taught, alongside pedagogical competence and occupational expertise.
3. Institutions should provide regular training in competency-based instruction, practical assessment, problem-solving, instructional delivery and learner-centred teaching. Particular attention should be given to areas where respondents expressed comparatively lower or more varied ratings.
4. Experienced trainers and those with specialized technical expertise should participate in structured mentorship and collaborative learning arrangements. Such arrangements may support knowledge exchange, particularly among trainers at different career stages.
5. Institutional assessments should emphasize instructional effectiveness, practical demonstrations, learner support, project supervision and the development of occupational competencies rather than relying primarily on age or academic credentials.

Theoretical Contribution

The study contributes to Human Capital Theory by providing empirical evidence that educational qualifications and professional experience are positively associated with training quality in Kenyan TVET institutions. The findings support the theory's proposition that education, knowledge and accumulated experience constitute human capital that may contribute to productive capacity.

The results also extend the application of Human Capital Theory to vocational education by indicating that formal education and professional experience are complementary rather than interchangeable resources. Educational qualifications had the stronger standardized association with training quality, while experience retained a significant independent association when educational qualifications were controlled. This suggests that both the acquisition of knowledge through formal education and its application through professional experience are relevant to effective vocational instruction.

However, the findings also qualify a straightforward human-capital interpretation. Possessing qualifications or accumulating experience does not automatically establish that training quality will improve. The value of these characteristics depends on their relevance to teaching assignments and their translation into effective instructional practices. Furthermore, the

strong correlation between experience and educational qualifications indicates that their contributions should be interpreted within their shared relationship.

Areas for Future Research

1. Future studies could examine whether changes in trainers' qualifications, industrial exposure or professional development are followed by measurable changes in training quality. This would provide stronger evidence regarding causal relationships than cross-sectional research.
2. The regression model explained 61.5% of the observed variance in training quality, leaving 38.5% unexplained by the two included predictors. Future studies should investigate other potentially relevant factors, including pedagogical competence, access to training equipment, institutional leadership, class size, curriculum relevance and industry collaboration. The unexplained variance should not, however, be interpreted as evidence that any particular omitted factor is significant.
3. Further research should compare training outcomes among trainers with different academic and professional qualifications while accounting for occupational specialization, teaching experience and pedagogical preparation. This would clarify whether qualification level itself is associated with differences in objectively measured training effectiveness.

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