



Original Article

Influence of Trainer Competences in the Implementation of Agricultural Education for Job Creation in Technical and Vocational Education and Training Institutions in Western Kenya

Oluoch Basil Owuor^{1*}, Ouma Peter Ooko, PhD¹ & Lolelea Jacob Natade, PhD¹

¹ University of Eldoret, P. O. Box 1125-30100, Eldoret, Kenya

* Author for Correspondence ORCID ID; <https://orcid.org/0009-0009-0603-97782>; Email: basiloluoch22@gmail.com

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Keywords:

Technical and Vocational Education and Training Institutions, Trainers, Agriculture Education, Job Creation.

The study aimed to examine the influence of the trainer's competence in the implementation of agriculture education for job creation in accredited technical and vocational education and training institutions in Western Kenya. The implementation of agricultural programs in accredited TVET institutions in Western Kenya is critically hindered by inadequate trainer competencies, limiting effective curriculum delivery and compromising students' practical skills and employability. A descriptive research design with mixed methods of data collection and Experiential Learning Theory by Kolb (1984) were employed for the study. The study was conducted in Western Kenya counties of Bungoma, Busia, Kakamega, Kisumu, Siaya and Vihiga. A total target population of 985 encompassing 43 principals, 142 trainers and 800 trainees, from which a sample of 131 consisting of 9 principals, 42 trainers and 80 trainees were used for the study. Questionnaire, interview schedule and observation schedule were used to collect data. Content, construct and face validity enhanced instruments validity through supervisors and colleagues. The pilot study was administered on 2 principals, 4 trainers and 4 trainees to ascertain the validity and reliability of the instruments. Descriptive data was analysed using frequencies, percentages, mean and standard deviation. One-Way ANOVA was employed to test the relationship between trainers' competencies in the implementation of agriculture education and job creation, accredited technical and vocational education and training institutions in Western Kenya. Qualitative data was transcribed, coded, themed and interpreted in relation to the research variable to triangulate the quantitative data. The study revealed that although trainers in accredited TVET institutions possess strong pedagogical preparation and academic qualifications, gaps in continuous professional development and structural barriers limit the effectiveness of agricultural education in fully realising its potential for job creation. The ANOVA results revealed a significant difference, $F(6, 203) = 2.84, p = 0.011$, which is less than the 0.05 level of significance, in the mean implementation scores of agriculture education for job creation across levels of trainer competence, with more competent trainers achieving higher implementation outcomes, thereby leading to the rejection of the null hypothesis. Trainer competences critically

shape the success of agricultural programs in Western Kenya's TVET institutions, directly influencing curriculum delivery, student skills, and employability. The findings of this study can enable the identification of areas of weakness that need improvement in the process of agriculture education implementation. Ultimately, this study also aimed at enhancing sustainable development through the better alignment of education and training with societal needs, such as job creation.

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INTRODUCTION

Research shows that trainer competence is fundamental to effective agricultural education implementation. UNESCO (2021) emphasises that trainers must possess pedagogical, technical, and assessment skills to ensure education aligns with labour market demands, while UNESCO-UNEVOC (2019) highlights that competency-based preparedness enables learners to acquire both technical and entrepreneurial skills. Evidence from Asia, particularly China, demonstrates that trainers with industry-linked skills help learners establish agribusinesses and integrate into value chains. These findings indicate that combining subject expertise with entrepreneurial pedagogy is essential for promoting employability and sustainable job creation. Research indicates that trainer competence is vital for effective agricultural education and training and employment-centred education. UNESCO (2021) highlights the need to equip trainers with innovation and green skills, while

UNESCO-UNEVOC (2019) identifies training the trainer as a key reform. The ILO (2020) and World Bank (2024) note that labour market outcomes depend on trainers' ability to deliver content, foster entrepreneurship and implement competence-based assessment. Zizhen et al. (2025) further show that trainers link trainees to industry, reinforcing the role

In South Africa, professional qualifications for TVET trainers strengthen pedagogical and occupational skills, enhancing institutional credibility and graduate employability (Department of Higher Education and Training, 2024; Olajumoke, 2022). In Tanzania, trainers often lack industry exposure and adequate resources, limiting their effectiveness (Rashid, Omonywa, & Mollel, 2023). These findings underscore that developing trainer competence is essential for translating TVET policy reforms into meaningful employment outcomes. Evidence from Uganda, through the Teaching Agriculture Practically project, shows that trainer competence directly shapes learners'

practical skills and entrepreneurial capacity (United Nations–Decent Jobs for Youth, n.d.). These findings indicate that investment in trainer capacities is essential for ensuring that TVET reforms translate into sustainable agricultural job creation.

Regional evidence highlights that trainer competence is vital for effective agricultural education in TVET institutions. Studies from Ghana, Nigeria, and Uganda (AUDA-NEPAD, 2021; Olajumoke, 2020, 2022; United Nations–Decent Jobs for Youth, n.d.) show that professionally trained and competent trainers enhance learners' practical, entrepreneurial, and employability skills. Overall, strengthening trainer capacity across Africa is essential for translating TVET reforms into sustainable agricultural job creation.

In Kenya, trainer competence is crucial for agricultural education implementation in TVET, given the sector's role as the largest employer. The AUDA-NEPAD ATVET (2015) program strengthened trainers' skills in competency-based training, enabling learners to engage in value chains and entrepreneurship. Competence in digital agriculture and agribusiness pedagogy ensures alignment with modern market demands (Kenya News Agency, 2025). The World Bank (2024) highlights that employment outcomes depend on trainers' ability to transfer skills and foster innovation, making capacity building a critical priority. In Western Kenya, accredited TVET institutions, including Bukura Agricultural Training Centre, depend on trainer competence to deliver practical, farm-based instruction that fosters agribusiness creation. Trainers who connect learners to value chain actors enhance self-employment prospects (AUDA-NEPAD, 2015), while continuous professional development strengthens agriculture pedagogy (Kenya News Agency, 2025). The World Bank (2024) notes that employment challenges require trainers with practical knowledge, assessment skills and industry

partnerships. Local evidence confirms that trainer competence is essential for translating agricultural education into employment outcomes in the region.

Statement of the Problem

Agriculture remains a major employer in Kenya, yet many young people face unemployment and underemployment, particularly in rural areas where agricultural jobs are concentrated (World Bank, 2024). Recent national reforms have prioritised competence-based training in the technical and vocational sector, and a national standard for competence-based education, training, and assessment has been gazetted to assure quality (TVET Authority, 2023). At the same time, international and national policy frameworks underscore that the competence of trainers is decisive for employability and entrepreneurship outcomes in vocational programs, including agriculture (UNESCO, 2022; World Bank, 2024). Despite these priorities, there is limited empirical evidence on how the competence of trainers shapes the implementation of agricultural education for job creation within accredited institutions in Western Kenya, where agriculture is central to local livelihoods.

Government initiatives have begun to retool trainers through the Kenya School of TVET and sector programs, and official reports indicate substantial numbers of trainers have been targeted for capacity building to deliver competence-based curricula (Ministry of Education, 2023; State Department for TVET, 2024). However, the degree to which these retooling efforts translate into tangible improvements in practice-based instruction, assessment quality, and industry engagement in accredited providers in Western Kenya is not yet well documented (TVET Authority, 2023; UNESCO, 2022). This evidence gap is consequential given continuing pressure in youth labour markets across Sub-Saharan Africa and Kenya, which heightens the need for agricultural education to lead to real jobs and viable self-employment (International Labor Organization,

2024; World Bank, 2024). Accordingly, the problem this study addresses is the insufficient understanding of the influence of the trainer's competence on the implementation of agricultural education for job creation in accredited technical and vocational institutions in Western Kenya, despite the existence of standards and ongoing retooling initiatives (TVET Authority, 2023; Ministry of Education, 2023; World Bank, 2024).

Objective of the Study

The main objective of the study was to examine the influence of the trainer's competence in the implementation of agricultural education for job creation in technical and vocational education and training institutions in Western Kenya. Other minor objectives were:

- To examine the demographic traits of trainers involved in agricultural education implementation for job creation in TVETs in Western Kenya
- To establish the level of competence of trainers involved in agricultural education implementation for job creation in TVETs in Western Kenya
- To determine the pedagogical strategies used by trainers for training agricultural education for job creation in TVETs in Western Kenya
- To test the attitude of the trainees of agriculture in TVETs towards their training.

Research Hypothesis

H₀₁: There is no significant difference in the mean implementation score of agricultural education for job creation across levels of trainer competence in technical and vocational education and training institutions in Western Kenya.

REVIEWED LITERATURE

The study by Medhi (2018) established that integrating entrepreneurship skills into agricultural

education enhanced students' self-reliance and innovation in agribusiness. The researcher observed that lecturers who embraced entrepreneurship-oriented pedagogy promoted learner engagement and practical skills acquisition, equipping graduates with relevant workplace competencies. According to Medhi (2018), such an approach motivated graduates to venture into agricultural enterprises rather than depend solely on formal employment, thereby fostering self-employment and enterprise growth. The study further revealed a strong link between entrepreneurial training and students' problem-solving abilities in agriculture, showing its role in addressing real-world challenges. These findings underscore the value of embedding entrepreneurship into agricultural education as a strategy for job creation and reducing graduate unemployment.

Similarly, research by Sephokgole, Manto, and Makgato (2022) demonstrated that trainee-centred, practical approaches in agricultural education enhance employability, although challenges such as poor infrastructure, limited technology exposure and varying lecturer competence persist. However, both studies did not explore how trainer competences influence the effective implementation of agricultural education in accredited Kenyan TVET institutions, which presents a significant research gap that this study seeks to address.

Asare-Marfo (2018) found that only 28.7 per cent of faculty attended at least one CBET workshop, with 11.6 per cent participating in competency-specific sessions. Workshop attendance increased the adoption of CBET approaches, yet limited teaching aids and a lack of structured incentives hindered broader uptake. Effective supervision promoted implementation, while high teaching loads and off-campus commitments reduced it. The study highlights the role of training and institutional support but does not examine how trainer competences interact with contextual factors, revealing a key relationship gap. Mutua, Mulwa,

and Kimiti (2019) found that trainers with higher qualifications significantly improved employable skills among visually impaired learners, showing a positive link between trainer qualifications and learner outcomes. Many trainers, however, lacked adequate credentials to implement CBET effectively. Although enhancing qualifications benefits workforce readiness, the study doesn't examine how trainer competences interact with institutional or contextual factors, highlighting a key relationship gap in inclusive vocational education.

Kibet (2025) found that Nyeri National Polytechnic developed numerous competency-based programs and provided in-service training, enabling trainers to produce learning guides, training plans, and session plans aligned to the curriculum. Despite these gains, uneven application persisted due to limited time, resources and heavy workloads. The study does not examine how trainer competences interact with institutional and contextual factors, highlighting a key gap in understanding effective program implementation.

METHODOLOGY

The study employed a descriptive research design, with a mixed-method of data collection guided by Kolb's theory in six counties of Western Kenya. Quantitative data were collected from trainers and trainees using questionnaires, while qualitative data were gathered from principals via interviews and observations. From a target population of 985, a stratified and simple random sample of 131 participants were selected, following Mugenda and Mugenda's (2013) assertion of using between 10% to 30% as the sample size. Data collection instruments were validated for content, construct and face validity, and reliability was confirmed using test-retest and Pearson's correlation ($r = 0.8$) and refined through a pilot study. Descriptive statistics (frequencies, percentages, mean, and standard deviation) and regression analysis examined the relationship between trainer competence and agricultural education

implementation. Ethical procedures were strictly observed throughout. The study employed structured and rigorous procedures to ensure data quality and generalisability.

RESULTS AND DISCUSSION

Questionnaire Return Rate

A total of 42 trainer questionnaires were issued, of which 32 were returned, representing a 76% return rate, while 80 trainee questionnaires were issued and 62 returned, giving a 78% return rate. High response rates enhance the reliability and validity of findings and reduce bias in educational research (Dzakadzie & Quansah, 2023; Taherdoost & Madanchian, 2024). The substantial return rates indicate that the instruments were suitable for generalisation. Overall, the findings on trainer competence were considered reliable and representative of the target population.

Respondents Gender

Research indicates that respondents' gender plays a crucial role in trainer competence, influencing teaching practices, role modelling and the diversity of perspectives integrated into agricultural education. The study found that the majority of respondents were male: principals 71.4% (N=5), trainers 62.5% (N=20), and trainees 62.9% (N=39), compared to female principals 28.6% (N=2), trainers 37.5% (N=12), and trainees 37.0% (N=23). Most principals reported that their institutions exhibited a gender imbalance favouring males, highlighting a research gap on factors influencing gender equity and the need for inclusive policy reforms in education. These findings highlight persistent gender disparities in employment and admission opportunities within TVET institutions in Western Kenya. The results suggest that, despite policy intentions, government efforts to achieve gender balance in job creation and access to training have not yet been fully realised.

Respondents Age

The study found that all principals were over 41 years old, all trainers were over 31 and 52 out of 62 trainees (83.8%) were over 20, suggesting maturity, experience and motivation for professional growth. Principals concurred that the majority of trainers were sufficiently mature to effectively engage in the implementation of agricultural education training and job creation initiatives, underscoring the role of maturity as a critical factor in the success of such programs. These findings highlight that age diversity among trainers and trainees supports a balance of traditional expertise and innovation, enhancing skill acquisition and employability outcomes in Western Kenya. Research indicates that age distribution influences competencies, mentoring approaches, and the effectiveness of agriculture education in TVET institutions (Ngiire, 2018; Tadesse, 2020).

Respondents Experience

In this study, 42.8% of principals (N=3) and 46.8% of trainers (N=15) had extensive experience, which supported effective agricultural education implementation. The majority of principals observed that trainers possessed sufficient experience to effectively execute agricultural education for job creation, highlighting the significance of trainer expertise as a determinant of

program outcomes and a critical area for further scholarly inquiry. Experience was found to improve leadership, curriculum delivery and graduate employability, highlighting its critical role in job creation (Wambugu, 2021; Mugambi, Karani & Waiganjo, 2024). Trainer experience significantly enhances competence by improving technical expertise, curriculum delivery, mentorship and professional modelling, equipping learners with practical skills for industry needs (Oketch, 2019; Makgato & Khoza, 2020).

THE INFLUENCE OF TRAINER COMPETENCE IN AGRICULTURE EDUCATION FOR JOB CREATION IN TVETS

The study examined the influence of trainer competence on implementing agriculture education for job creation in accredited TVET institutions in Western Kenya. A five-point Likert scale (1 = strongly disagree to 5 = strongly agree) was employed to quantify attitudes and perceptions, enhancing reliability, reducing ambiguity and ensuring comparability. As Khemchai (2025) notes, the scale is broadly preferred for its clarity, simplicity and respondent familiarity, as shown in Table 1.

Table 1: Trainer Competence in Agricultural Education for Job Creation in TVETS

Statement	SD	D	N	A	SA
Trainers have received pedagogical training in AET	6 (18.8%)	4 (12.5%)	2 (6.3%)	13 (40.6%)	7 (21.9%)
Trainers have attended workshops and seminars on CBET implementation for the last 3 years	8 (25.0%)	9 (28.1%)	3 (9.4%)	7 (21.9%)	5 (15.6%)
Trainers have higher qualification levels for what they teach	5 (15.6%)	6 (18.8%)	1 (3.1%)	13 (40.6%)	7 (21.9%)
Trainers have been trained in competency-based assessment methods and in creating tools for assessment and mentoring in AET.	5 (15.6%)	10 (31.2%)	3 (9.4%)	10 (31.2%)	4 (12.5%)
Trainers have attended an industrial attachment in the last two years	7 (21.9%)	10 (31.2%)	4 (12.5%)	6 (18.8%)	5 (15.6%)

Statement	SD	D	N	A	SA
Trainers have been trained on the development of training programs on agricultural courses	3 (9.4%)	8 (25.0%)	5 (15.6%)	11 (34.3%)	5 (15.6%)
Trainers are able to develop, or have already developed, key professional documents needed for training, such as session plans and learning guides.	4 (12.5%)	5 (15.6%)	3 (9.4%)	13 (40.6%)	7 (21.9%)

The findings reveal that 40.6% (N=13) of trainers confirmed receiving pedagogical training in agricultural education for job creation in accredited TVETs. Principals further noted that nearly all their trainers are adequately trained to prepare learners for employment opportunities. These results align with Simiyu, Injendi and Mukonyi (2023), who found that many TVET trainers in Western Kenya had undergone pedagogical, management, and leadership preparation, demonstrating their readiness to implement agricultural education for job creation. From the researchers' perspective, this indicates that trainer preparedness is a critical factor in strengthening TVETs' role in enhancing job creation through agricultural education.

The findings show that 28.1% (N=9) of trainers disagreed and 25% (N=8) strongly disagreed that they had attended workshops and seminars on CBET implementation in the past three years. In contrast, most principals reported that such programs have been organised to support trainers' continuous professional development for job creation in TVETs. From the researcher's perspective, this discrepancy reflects Njenga's (2023) observation that vocational trainers often depend on informal learning due to limited structured professional development, thereby questioning institutional claims of consistent training opportunities.

The findings indicate that 40.6% (N=13) of trainers agreed and 21.9% (N=7) strongly agreed that they hold higher qualifications than required for the subjects they teach. Principals also affirmed that most trainers possess advanced qualifications, which explains their suitability to serve in TVET

institutions. From the researcher's perspective, this aligns with Cheboi, Rono, and Too (2022) in Kenya and the ILO (2022) in Bangladesh, both of which confirm that TVET trainers are well-qualified and equipped through formal training to implement competency-based education effectively. The findings reveal a split among trainers, with 31.2% (N=10) disagreeing and an equal 31.2% (N=10) agreeing that they have been trained in competency-based assessment methods, tool creation and mentoring in agricultural education for job creation in TVETs. Principals, however, offered a contrary view, highlighting inconsistency between trainer and institutional perspectives. From the researcher's standpoint, this aligns with Kibet, Gachigi, Ndung'u, and Munuku (2025), who found that trainers at Nyeri National Polytechnic increasingly apply authentic assessment approaches such as simulations, workplace exposure, rubrics, and digital platforms over traditional written methods.

The findings indicate that 31.2% (N=10) of trainers disagreed and 21.9% (N=7) strongly disagreed that they had attended industrial attachment in the past two years, a view consistent with principals' responses. From the researcher's perspective, this highlights a professional development gap, as evidenced by Ramadhani (2025) in Tanzania, who found that industrial attachment significantly enhances trainers' technical expertise, teaching methods and industry alignment. This suggests that structured industrial attachment remains a critical yet underutilised strategy for strengthening trainer capacity for agricultural education implementation.

The findings show that 34.3% (N=11) of trainers agreed and 21.9% (N=7) strongly agreed that they

have received training in developing agricultural training programs for job creation in TVETs, a view also supported by principals. The researcher found this to be consistent with Kibirige, Perry, and Walach (2025) in Uganda, who found that trainers' professional development in curriculum design strengthened their competence in aligning training with industry needs.

The findings reveal that 40.6% (N=13) of trainers agreed and 21.9% (N=7) strongly agreed that they are able to develop, or have already developed, essential professional documents such as session plans and learning guides, a view also supported by

principals. This finding is consistent with Kibet (2025), who showed that professional development equips trainers to prepare relevant professional documents, though challenges such as limited time, scarce resources and heavy workloads hinder consistent application. Nonetheless, both trainers and trainees acknowledged that where such documents exist, training and assessment processes are more effective.

Descriptive Analysis

The study's descriptive analysis highlighted trainers' competence in implementing agricultural education for job creation, as shown in Table 2.

Table 2: Trainers' Competence in Implementing Agricultural Education for Job Creation.

Statement	Mean	Std Dev
Trainers have received pedagogical training in AET	334	145
Trainers have attended workshops and seminars on CBET (last 3 yrs)	275	146
Trainers have higher qualification levels for what they teach	334	143
Trainers trained in competency-based assessment and mentoring	294	134
Trainers have attended an industrial attachment (for the last 2 years)	275	141
Trainers trained on developing agricultural training programs	322	126
Trainers can develop professional documents (session plans, guides)	344	134

The findings show that trainers in agricultural education possess strong foundations in pedagogy, qualifications and the preparation of key professional documents, which are essential for effective CBET implementation. From the researcher's perspective, these strengths provide structure for teaching and assessment but are undermined by limited participation in workshops, seminars and industrial attachments. The study also reveals moderate preparedness in competency-based assessment and mentoring, highlighting gaps in continuous professional development (CPD). Such gaps limit trainers' capacity to align training with evolving industry needs and workplace standards. Guided by Kolb's theory (1984), Experiential Learning Theory, the researcher observes that expanding CPD and industrial attachments would enable trainers to better integrate experiential learning into agricultural education, though institutional and structural barriers remain unaddressed.

Empirical studies confirm that industrial attachments and CPD are transformative in enhancing trainers' technical, pedagogical and soft skills, as shown by Ramadhani (2025), Mwaura et al. (2023), and Uwizeyimana et al. (2023). From the researcher's perspective, these findings highlight the critical role of CPD and attachments in aligning training with workplace standards and improving learner outcomes. However, the current study reveals gaps, as trainers, while competent in pedagogy and curriculum design, lack consistent institutional support for sustained professional growth. This weakness limits their capacity to strengthen competency-based assessment, mentoring and industry collaboration. Thus, prioritising structured CPD, expanding opportunities for industrial attachments and deepening industry linkages are essential to bridge these gaps and ensure graduates are adaptable and work-ready.

The study also tested for the ANOVA hypothesis that “ H_{01} : There is no significant difference in the mean implementation score of agriculture education for job creation across levels of trainer

competence in accredited technical and vocational education and training institutions in Western Kenya.” This is indicated in Table 3.

Table 3: One-Way ANOVA on Trainers’ Competence in Agricultural Education

Source of variations	df	F	P-value
Between groups	6	2.843	0.011
Within groups	203		
Total	209		

The ANOVA results ($F(6, 203) = 2.84, p = 0.011$) show a statistically significant difference in mean ratings across professional development indicators. From the researcher’s perspective, this indicates that trainers rated competencies like preparing professional documents higher than areas such as workshops and industrial attachments. The findings further demonstrate that trainers with higher competence levels recorded significantly higher implementation scores in agricultural education for job creation. Consequently, the null hypothesis was rejected in favour of the alternative hypothesis, confirming significant variation across competence levels. However, the study highlights a gap in continuous professional development, as weaker areas like industrial attachment and workshops still limit balanced competence growth among trainers.

SUMMARY, CONCLUSION AND RECOMMENDATION

Summary of the Study

The study concluded that trainer competence strongly influenced the successful implementation of agricultural education for job creation in accredited TVET institutions in Western Kenya. After the study examined the trainers, competencies of trainers, such as relevant qualifications, pedagogical training, technical knowledge, training on CBET and skills in developing various professional documents, were found to be necessary, as they recorded significantly higher

implementation scores, emphasising their pivotal role in aligning training with labour market needs. Although the trainers were found to possess strong pedagogical training and high academic qualifications, which positions them well to deliver agricultural education for job creation, there were also significant gaps in their technical knowledge. CBET training through continuous workshops was provided to improve their professional document development skills. Limited participation in industrial attachments and training in competency-based assessment also weakened the consistency and quality of practical skill transfer, which is vital for preparing learners for labour market demands.

Demographic traits such as age and experience shaped trainers’ adaptability and mentorship approaches, while observations confirmed competencies through innovative practices and curriculum design, albeit constrained by limited industrial attachments and continuous professional development opportunities.

The study also found that trainers applied traditional trainer-centred pedagogical approaches as opposed to trainee-centred strategies, hence limiting skill acquisition for job creation. Importantly, trainees expressed positive attitudes toward their institutions, recognising the value of their training for employment, though they also pointed out challenges related to institutional capacity and industry alignment.

Conclusion

Therefore, while trainer competence provides a strong foundation for equipping learners with self-reliance and employability skills, without systematic and well-supported professional development of these trainers, the full potential of agricultural education to drive job creation in Western Kenya may not be fully realised.

Recommendation

TVET institutions in Western Kenya should:

- Institutionalise **structured and continuous professional development programs** for trainers, including pedagogical training, competency-based assessment workshops, and regular industrial attachments to strengthen their technical expertise, teaching effectiveness and alignment with current labour market needs

Suggestion for further research: Future studies should examine how trainer competence affects graduate employability and job creation in agriculture over time.

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