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RESEARCH ARTICLE

The Competence of Trainers in the In-Service Training Institutions and the implementation of the Competence Based Education in Meru County, Kenya

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Author's Contributions

All authors contributed equally to this research.

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ABSTRACT

Effective teacher professional development is essential for implementing curriculum reforms. This study examined the role of trainer competence on the effectiveness of in-service training for Grades 1–6 teachers in Meru County, Kenya. The study was guided by the proposed Arifin and Roziah's Vocational Teacher Competencies Model of 2017. A convergent mixed-methods design using the parallel-databases variant was adopted. The quantitative strand employed a cross-sectional survey, while the qualitative strand used a phenomenological design. The target population comprised 310 public primary schools, 89 private schools, 3,070 public-school teachers, and 380 private-school teachers. The sample consisted of 307 public-school teachers, 38 private-school teachers, 31 public-school head teachers, and nine private-school head teachers. Schools were selected through stratified proportional random sampling, teachers through simple random sampling, and head teachers through automatic inclusion. Data were collected using structured questionnaires and head-teacher interviews. Qualitative credibility and dependability were enhanced through triangulation, systematic thematic coding, consistent procedures, and participant quotations. Quantitative data were analyzed using descriptive and inferential statistics, including correlation and regression analyses, while qualitative data underwent thematic content analysis. The two datasets were integrated during interpretation. Findings showed that trainers were generally competent, particularly in subject mastery, although weaknesses remained in practical demonstration and responsiveness. The study concludes that trainer competence significantly influenced the effectiveness of CBE in-service training. Most trainers possessed reasonable subject knowledge and communication skills, but competence in practical demonstration, answering questions, modelling assessment, and adapting content to classroom realities was uneven. It was recommended that, teacher education institutions should embed CBE principles, learner-centred pedagogy, competency-based assessment, ICT integration, and practical teaching in initial teacher preparation. Newly qualified teachers should enter the profession with a foundation that reduces dependence on remedial induction.

Keywords: Competence, Trainers; In-Service Training Institutions; Implementation; Competence Based Education

INTRODUCTION

Background of the Study

Trainer competence in in-service programs is the practical and pedagogical ability of facilitators to effectively model, teach, and assess the learner-centered methods required for Competence-Based Education (CBE). When trainers lack these core skills, teachers struggle to implement interactive curricula in their classrooms. The shift from content and examinations-dominated curricula to competency-based education and curricula has gained momentum globally. For example, CBC in Estonia entails a comprehensive reform of the educational system aimed at developing students' core competencies necessary for personal and societal success in the 21st century (Ministry of Education and Research, 2019). There has been increased international recognition of Estonia's education system, with CBC cited as a model for fostering 21st-century skills (OECD, 2020). The CBC in Estonia emphasizes the acquisition of skills such as critical thinking, digital literacy, collaboration, problem-solving, and lifelong learning, integrating these into all subject areas (OECD, 2020).

Simola, Kaapa and Rinne (2017) explored the role of teacher agency in the implementation of educational reforms within Finland. Through qualitative case studies, their research examined how teachers navigate and adapt to systemic changes, particularly those related to competency-based curricula. They found that teachers' professional autonomy and active engagement are crucial for successful reform implementation. Teachers expressed a strong sense of ownership over their work, which facilitated the integration of competency-based principles into classroom practice. However, they also identified challenges, including the need for ongoing professional development and institutional support, to sustain effective change.

The implementation challenges of Nigeria's CBC are multifaceted. A primary obstacle is the inadequate capacity of teachers, many of whom are trained under traditional curricula that emphasize rote memorization rather than skills development (Ojo & Olaniyan, 2020). This gap in pedagogical skills hampers the effective delivery of competency-based instruction. Further, infrastructural deficits such as insufficient laboratories, technical workshops, and instructional materials greatly hinder the practical components of the curriculum, especially in rural and underserved areas (Aina & Akinbami, 2017). The assessment system faces

significant difficulties; there is a lack of clear, standardized, and reliable tools to evaluate competency levels, which undermines the credibility of reported achievements and affects stakeholder confidence (Eze & Eze, 2019). Additionally, the vast diversity of Nigeria's educational contexts and resource endowments complicates efforts to implement a uniform curriculum nationwide, leading to regional disparities in quality and outcomes (FME, 2014). Resistance from educators accustomed to traditional teaching methods and scepticism from some industry stakeholders about the practicality of competency assessments further complicate widespread adoption (Aina & Akinbami, 2017).

In Rwanda, CBC marks a significant pedagogical shift aimed at transforming the education system from a traditional, content-focused model to a learner-centred approach that emphasizes the development of practical skills, attitudes, and values necessary for personal and national growth. This reform aligns with Rwanda's development strategies and policies, which underscore the importance of cultivating a skilled, innovative, and adaptable workforce capable of contributing to sustainable development (Niyonsaba & Mugisha, 2020; Rwiza & Sebatware, 2021). The curriculum emphasizes not only knowledge acquisition but also the application of skills in real-world contexts, fostering critical thinking, problem-solving, and lifelong learning skills.

Despite the promising aspects of the CBC roll out in Kenya, its implementation has faced several challenges. Insufficient teacher training and capacity gaps remain a significant hurdle, as many educators lack the pedagogical skills necessary for learner-centred instruction and competency assessment (Mugo & Njeru, 2020). Additionally, infrastructural deficits, such as inadequate classroom space, learning materials, and technological resources, hinder effective delivery, especially in rural and marginalized areas (Mutisya & Kipkebut, 2021). The curriculum's broad scope and emphasis on skills development have also raised concerns about increased workload for teachers and learners, with some stakeholders arguing that the curriculum needs further contextualization and simplification to suit diverse learning environments (KICD, 2019). Furthermore, resistance from stakeholders accustomed to the exam-oriented 8-4-4 system has slowed acceptance and full integration of the CBC, necessitating ongoing sensitization and stakeholder engagement efforts (Omondi et al., 2020).

Inservice teacher training (INSET) is a critical component of ongoing teacher professional development that aims to update teachers' pedagogical skills, integrate new curricula, and adapt to technological changes in education delivery. The Kenya National Examination Council (KNEC, 2021) reports that while national exam pass rates have improved, some rural areas within Meru County still experience lower performance, partly due to shortages of qualified teachers and inadequate teaching resources. Learning outcomes, however, remain mixed, with disparities evident between urban and rural schools. The county government has prioritized investing in teacher professional development, ICT integration, and school infrastructure to enhance learning quality. Despite these strides, dropout rates among marginalized groups, especially girls and learners with special needs, persist, prompting targeted interventions such as bursary programs and community awareness campaigns (Meru County Education Sector Report, 2022). The County has actively invested in teacher recruitment and training particularly at pre-school level, with the aim of increasing the number of qualified educators and reducing pupil-teacher ratios, which currently average around 45:1 in primary schools (Meru County Education Sector Report, 2020). It is against this background that this study examined the competence of trainers in the in-service training institutions and the implementation of the competence-based education in Meru County, Kenya.

Statement of the Problem

The successful implementation of Competence-Based Education (CBE) in Kenya's in-service training institutions is heavily dependent on the pedagogical and technical competence of the trainers. Unlike traditional knowledge-based curricula, CBE demands that trainers shift from being primary sources of information to facilitators of learning, continuous assessors, and designers of practical, industry-aligned experiences. Despite the Ministry of Education's robust rollout of CBE to bridge the skill gap and enhance employability, there is a persistent mismatch between institutional training outcomes and industry expectations in Meru County. Preliminary observations and literature suggest that many in-service training institutions continue to rely on conventional, teacher-centered methodologies. This stagnation is largely attributed to a gap in trainer competence, as many instructors themselves were trained under the old

curriculum and have not received adequate, sustained capacity building on CBE modalities, institutional resource management, and formative assessment techniques. While heavy investments have been made in infrastructural development and curriculum design, the human resource element specifically the readiness, pedagogical skills, and digital literacy of the trainers remains a critical bottleneck. If trainers lack the necessary competencies to deliver, assess, and manage a competence-based framework, the transition to CBE will remain theoretical, resulting in graduates who possess certificates but lack the practical skills required by the job market. This dynamic creates a waste of public and private resources, while hindering Meru County's socio-economic development. Consequently, there is an urgent need to empirically investigate the relationship between trainer competence and the actual implementation of CBE. This study seeks to address this gap by assessing the specific technical, pedagogical, and continuous assessment competencies of trainers in in-service institutions within Meru County, and how these factors influence the overall success of the CBE framework.

Study Objective

The objective of this study was to assess the competence of trainers in the in-service training institutions and the implementation of the competence-based education in Meru County, Kenya

The Conceptual Framework

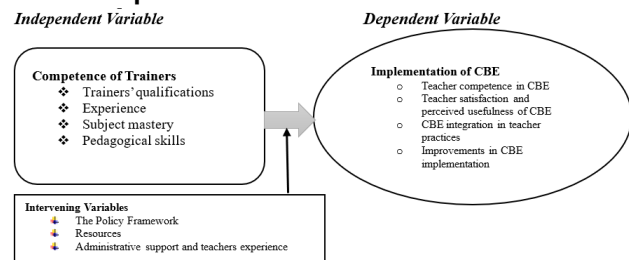


Figure 1: The Conceptual Framework

Source: Own Conceptualization, 2025

Literature Review

In this section, theoretical and empirical review guiding this study are presented. Theoretical review presents the sociological underpinning on how trainer methodology competence influences the effectiveness of in-service training for CBE implementation in schools. The empirical review presents the knowledge base and gaps on the existing literature.

1. Theoretical review

This study was guided by the Vocational Teacher Competencies Model to evaluate how effectively trainers translate CBET from policy into practice as proposed by Muhammad Aiman Arifin & Roziah Mohd Rasdi (2017). Under this model, technical and vocational teaching capabilities are measured across several domains:- Cognitive and content knowledge, pedagogical/instructional skills, assessment competencies and teaching self-efficacy. Trainer competencies and teaching self-efficacy have a significant positive influence on the implementation of Competency-Based Education and Training (CBET) in public Technical and Vocational Education and Training (TVET) institutions within Meru County, Kenya. This research analysed this relationship through the lens of the Vocational Teacher Competencies Model highlights that while trainer competency directly dictates training effectiveness, severe implementation barriers persist regarding preparation, motivation, and institutional infrastructure.

2. Empirical Review

Influence of Trainer Competence on the Effectiveness of In-Service Training

Trainer competence encompasses subject-matter knowledge, pedagogical expertise, curriculum knowledge, practical experience, and the ability to facilitate adult learning. These competencies influence trainers' capacity to explain CBE concepts, demonstrate learner-centred practices, address participants' questions, and provide relevant feedback (Kipkoech & Kyalo, 2021). Studies examining this relationship are reviewed from global, regional, and Kenyan perspectives. At the global level, Korpinen and Hallinen (2020) conducted a longitudinal study in Finland to investigate the relationship between trainers' professional backgrounds and teachers' implementation of a national curriculum emphasizing creativity, collaboration, digital literacy, and other competencies. Teachers were followed for two academic years using classroom observations and follow-up interviews. The study established that trainers with experience in curriculum development and adult learning were more successful in helping teachers integrate competency-based approaches into classroom practice. The longitudinal design was useful because it examined change over time rather than relying only on immediate post-training reactions. Nevertheless, Finland has a well-resourced and

established professional-development system, limiting the transferability of the findings to resource-constrained Kenyan settings. The present study addresses this contextual gap by examining trainer competence within the institutional and resource conditions experienced by teachers in Meru County.

At the regional level, Opoku-Asare et al. (2021) used a sequential explanatory mixed-methods design in Ghana to examine how trainers' pedagogical and subject-matter expertise influenced teachers' adoption of learner-centred practices. Quantitative data were collected from teachers through surveys, while qualitative information was obtained through interviews with trainers. Teachers trained by competent facilitators demonstrated stronger engagement with competency-based methods, whereas inadequate trainer expertise was associated with lower motivation and less effective classroom practice. The authors also found that the cascade model sometimes diluted training content, particularly where follow-up support was absent. Although the mixed-methods design provided broader evidence than a mono-method study, the study was conducted in Ghana and emphasized trainers' and teachers' general experiences rather than differences across diverse school settings. It therefore does not fully explain how trainer competence interacts with local conditions in Kenyan urban, peri-urban, and rural schools. The present study applies mixed methods in Meru County to assess both the perceived competence of trainers and how contextual conditions influence the application of acquired knowledge.

Within Kenya, Kipkoech and Kyalo (2021) employed a descriptive survey to investigate the relationship between trainer competence and teachers' preparedness to implement CBC in public primary schools. They found that trainers' subject knowledge and pedagogical skills were positively associated with teachers' confidence and preparedness. However, the cross-sectional survey relied mainly on self-reported responses and could establish association rather than explain how trainer competence produced changes in classroom practice. Moreover, concentrating on public primary schools limited comparison with teachers working under different institutional arrangements. The present study addresses these limitations by integrating quantitative patterns with qualitative accounts of teachers' training and curriculum-implementation experiences.

Wambugu and Muriithi (2022) similarly used a correlational design and teacher questionnaires to determine how trainers' academic and professional qualifications affected teachers' adoption of CBC practices in Kenya. Trainers with advanced qualifications and relevant professional backgrounds were associated with improved teacher understanding and application of CBC. However, formal qualifications were treated as the principal indicator of competence, although qualifications may not necessarily demonstrate the capacity to facilitate adult learning, contextualize content, or model CBE practices. The reliance on questionnaires also provided limited insight into why particular trainer characteristics mattered to teachers. The present study adopts a broader understanding of competence that includes qualifications, subject expertise, pedagogical skills, practical experience, communication, and adult-learning facilitation.

Nzoka et al. (2023) employed a mixed-methods approach, combining teacher surveys and focus-group discussions, to evaluate how continuing professional development and trainer competence affected teachers' practical use of CBC strategies. The study found that competent trainers who used interactive and contextually adapted approaches promoted stronger engagement with CBC methodologies. Although its use of mixed methods was valuable, the study did not sufficiently differentiate the effects of trainer competence from those of content, duration, methodology, resources, and follow-up support. The present study examines trainer competence as one component of a broader in-service training system and considers its relationship with training methodology, content relevance, and contextual conditions.

These studies demonstrate that trainer competence influences teachers' confidence, understanding, and application of CBE. Nevertheless, the evidence is limited by cross sectional designs, reliance on self-reported data, narrow definitions of competence, and inadequate attention to contextual variations. Informed by Transformative Learning Theory and supplemented by Adult Learning Theory, the present study considers whether trainers merely transmit information or facilitate experience-based dialogue and critical reflection capable of changing teachers' assumptions and practices. It therefore examines trainer competence from teachers' perspectives using quantitative and qualitative evidence within the specific context of Meru County.

METHODOLOGY

Research Design

A convergent mixed-methods design was used. Quantitative and qualitative data were collected during the same phase, analysed separately, and subsequently integrated to identify convergence, complementarity, divergence, and expansion.

Participants

The quantitative strand involved 345 Grades 1–6 teachers. The qualitative strand included teachers' open-ended questionnaire responses and interviews with 40 head teachers drawn from public and private schools in urban, peri-urban, and rural settings.

Data Collection

Teacher questionnaires measured trainer competence, training methodology, and perceived training effectiveness. Semi-structured interviews obtained head teachers' perspectives on trainer preparation, cascade training, professional support, and the transfer of training into classroom practice.

Data Analysis

Quantitative data were analyzed using frequencies, percentages, means, and Pearson's correlation. Qualitative data were analyzed thematically. Deductive themes reflected the research objectives, while emergent themes captured unexpected issues arising from participants' accounts.

FINDING AND DISCUSSION

In this section, the results of this research are presented.

Response Rate

1. Quantitative strand

A total of 345 questionnaires were distributed to sampled Grades 1 to 6 teachers, comprising 307 public-school teachers and 38 private-school teachers. All 345 questionnaires were completed and returned. Screening established that all returned questionnaires were sufficiently complete and valid for analysis. The response rate exceeded the 70% benchmark generally considered very good in social science research (Babbie, 2007). Complete questionnaire return reduced the likelihood of nonresponse bias and ensured that all sampled teachers' responses were represented in the quantitative dataset (Creswell & Creswell, 2023). The high response rate may be attributed to effective

administration and follow-up, institutional cooperation, and participants' interest in the topic. The response rate alone does not guarantee validity or generalisability, which also depend on sampling procedures, instrument quality, response accuracy, and appropriate data analysis. The results are presented in Table 1 instrument return rate.

Table 1. *Instrument Return Rate*

Category	Instrument Distributed	Instrument Returned	Percent
Teachers	345	345	100%
Head teachers	40	40	100%

Source: *Field Data, 2026*

2. Qualitative strand

The qualitative strand included semi structured interviews with 40 head teachers, 31 from public schools and nine from private schools. All 40 targeted head teachers participated, producing a qualitative participation rate of 100%. Teachers' responses to open-ended questionnaire items also contributed to the qualitative evidence. The head teachers represented urban, peri-urban, and rural schools across Imenti North, Imenti South, Tigania West, and Igembe Central sub-counties. Their involvement in instructional leadership, teacher professional development, and supervision of CBE implementation enabled them to provide informed accounts of training effectiveness, classroom transfer, and school-level constraints. The head teachers' complete participation captured the perspectives of all sampled head teachers and reduced the likelihood of nonresponse bias.

Thematic Findings

The objective of this study aimed to assess whether trainers competence affected teachers' understanding, adoption, and implementation of CBE in their classrooms.

The study asked teachers to assess the extent to which trainers' competence influenced the effectiveness of CBE implementation related to in service teacher trainings in CBC. Responses were analysed using mean and percentages of teachers who rated each indicator as good or excellent.

Quantitative Findings

Teachers assessed trainers' subject mastery, pedagogical skills, ability to answer questions, practical

demonstration ability, and communication clarity. The results are presented in Table 2

Table 2. *Teachers' Assessment of Trainer Competence (N=345)*

Competence Indicator	Mean (1-5)	Rated Good/Excellent
Subject mastery	3.92	68.40%
Pedagogical skills	3.78	62.30%
Ability to answer questions	3.58	54.80%
Practical demonstration ability	3.62	56.50%
Communication clarity	3.85	66.10%

Source: *Field Data, 2026*

Subject mastery received the highest rating, with 236 teachers (68.4%) rating trainers as good or excellent. Communication clarity followed at 66.1%, while pedagogical skills were rated positively by 62.3% of the teachers. Practical demonstration ability was rated positively by 56.5%, while the ability to answer questions received the lowest positive rating at 54.8%. The findings demonstrate that trainers were generally considered competent, particularly in subject mastery and communication clarity. However, comparatively lower ratings for practical demonstration and responsiveness indicated that some trainers experienced difficulty translating CBE concepts into practical classroom examples and addressing teachers' questions. Moreover, only 41.7% of teachers rated trainers as highly competent across all indicators, showing that fewer than half considered trainers consistently competent in every area.

Teachers were also asked whether the training was delivered by knowledgeable and experienced facilitators. Approximately 67.2% agreed or strongly agreed, 18.8% were neutral, and 14.0% disagreed or strongly disagreed. The findings therefore indicated moderately high but uneven levels of trainer competence. The study tested the following null hypothesis for this research question, H_{01} : There is no statistical relationship between the competence of trainers on the effectiveness of in-service training on the implementation of the CBE. Pearson's correlation analysis was used to determine the direction and strength of the relationship between the composite scores for trainer competence and training effectiveness. The analysis established a statistically

significant positive relationship: $r=.58, p<.001$. The coefficient of $\sqrt{(r=.58)}$ indicated a moderately strong positive relationship.

Trainer competence and perceived training effectiveness therefore shared approximately 33.6% of their variance. This finding indicates that higher trainer competence ratings were associated with higher training effectiveness. Teachers who rated trainers as more competent also recorded approximately 32% higher implementation confidence scores than those who rated trainers as less competent. This difference supported the correlation finding, although it should be interpreted cautiously because other factors, including training duration, school resources, and teachers' previous experience were not controlled.

Because $\sqrt{(p<.001)}$, the null hypothesis was rejected. The study concluded that trainer competence had a statistically significant positive relationship with the effectiveness of in-service training for CBE implementation.

Qualitative Findings

The qualitative data were obtained from teachers' open-ended questionnaire responses and head teachers' interviews. Thematic analysis generated both deductive and emergent themes. Deductive themes were established in advance from research question one and the trainer competence indicators in the conceptual framework. Emergent themes were unexpected issues arising directly from participants' accounts and were analyzed separately because they provided additional insights beyond the predetermined research focus.

1. Deductive Themes

Theme 1: Knowledgeable and Qualified Trainers

Teachers consistently emphasized the importance of using trainers with adequate CBE knowledge, relevant qualifications, and classroom experience. Twenty-seven teachers specifically recommended improving trainer selection and preparation. Teacher NTO33 stated, "Trainers should be well equipped with knowledge" (NTO33, Open ended questionnaire, May 2026). Similarly, Teacher KITH279 recommended, "Use qualified and knowledgeable trainers" (KITH279, Open-ended questionnaire, May 2026). Teacher KAN244 added, "Trainers should be well trained before training teachers" (KAN244, Open-ended questionnaire, May 2026). Participants particularly valued trainers who understood classroom conditions and could respond to practical challenges. Teacher LIM09 recommended, "Use people who are conversant with classroom

challenges" (LIM09, Open-ended questionnaire, May 2026). Teacher GAN109 similarly requested "experienced facilitators who can answer questions" (GAN109, Open-ended questionnaire, May 2026). These accounts indicated that teachers considered subject knowledge, classroom experience, and adequate preparation essential components of trainer competence. Although many trainers demonstrated adequate knowledge, participants repeated calls for qualified facilitators suggested inconsistencies in trainer selection and preparation.

Theme 2: Practical Demonstration and Responsiveness

Teachers reported that trainers needed to demonstrate CBE practices and respond adequately to questions. They considered theory-based presentations insufficient for preparing them to implement CBE in their classrooms. Teacher KAN245 recommended "more practical demonstrations during training" (KAN245, Open-ended questionnaire, May 2026). Teacher KAG119 similarly requested "practical demonstrations for each topic" (KAG119, Open-ended questionnaire, May 2026). Teacher DEB204 added, "Include practical examples that teachers can apply" (DEB204, Open-ended questionnaire, May 2026). Teacher GAN109 recommended "experienced facilitators who can answer questions and provide practical examples and activities that can be used in class" (GAN109, Open-ended questionnaire, May 2026). The participants valued demonstrations, practical examples, hands-on activities, clarification, and feedback. Their responses indicated that weaknesses in demonstration and responsiveness could leave teachers uncertain about how to translate CBE principles into classroom practice.

Theme 3: Communication and Pedagogical Competence

Teachers also viewed clear communication and pedagogical competence as essential trainer qualities. Participants expected trainers not only to understand CBE content but also to explain it clearly, adapt it to teachers' needs, and relate it to classroom realities. Teacher KAA44 stated, "Facilitators should be competent in what they train" (KAA44, Open-ended questionnaire, May 2026). Teacher KIA71 recommended facilitators who were "well versed with CBC content" (KIA71, Open-ended questionnaire, May 2026). Teacher KITH279 emphasised that training should be "more practical than theoretical" (KITH279,

Open-ended questionnaire, May 2026). The findings showed that curriculum knowledge alone was insufficient. Trainers also required adult-learning, communication, facilitation, and pedagogical skills to support teachers with different experiences and classroom needs.

2. Emergent Theme

An unexpected theme, weaknesses in the cascade training model, arising from head teachers' interviews concerned weaknesses in the cascade training model. This theme was not directly specified in research question one but provided an important explanation of why trainer competence and training quality varied. One head teacher explained: "Trainers are not well equipped; internet problems cause them to miss some content and leave it uncovered" (NGO, Interview, May 2026). Another head teacher stated: "Gaps arise when training of trainers is inadequate; when they deliver the training, they introduce gaps that were not in the original content" (NTO, Interview, May 2026). Participants reported that teachers selected to attend central training did not always retrain their colleagues effectively after returning to school. Inadequate preparation, limited internet access, incomplete materials, and irregular follow-up could result in content being omitted, diluted, or interpreted inconsistently as it moved through different cascade levels. This emergent theme demonstrated that trainer competence was influenced not only by trainers' individual knowledge and skills but also by the structure through which training was delivered. It represented a distinctive contribution of the qualitative findings by identifying the cascade model as a possible source of variation in training quality.

Discussion

The quantitative findings established that trainers were generally competent, particularly in subject mastery and communication clarity. However, lower ratings for practical demonstration and ability to answer questions revealed weaknesses in applying CBE concepts and responding to teachers' concerns. The significant positive correlation between trainer competence and training effectiveness, $(r=.58, p<.001)$, confirmed that higher trainer competence was associated with greater perceived training effectiveness. The qualitative findings supported and expanded the quantitative results. Teachers valued knowledgeable, qualified, experienced, and pedagogically competent trainers.

They particularly required trainers who could demonstrate CBE practices, answer questions, and relate training content to classroom challenges. The emergent finding concerning cascade training further showed that training quality could deteriorate when trainers were inadequately prepared or when content passed through several levels without sufficient resources and follow-up.

These findings are consistent with studies showing that trainers require strong subject knowledge and pedagogical competence to facilitate effective professional learning (Desimone & Garet, 2015; Opfer & Pedder, 2011; Villegas-Reimers, 2013). Effective professional development should involve active learning, modelling, collaboration, feedback, and opportunities for teachers to practise new approaches (Darling-Hammond et al., 2017; Garet et al., 2001). Practical demonstrations and responsive facilitation are particularly important for translating curriculum principles into classroom practices (Avalos, 2011; Borko, 2004; Kennedy, 2016).

The findings also support evidence that professional-development effectiveness depends on context-sensitive facilitation and continued trainer preparation (Akiba & Liang, 2016; Timperley, 2011). Inadequately prepared trainers may weaken teachers' engagement, confidence, and willingness to participate in subsequent professional-development programmes (Avalos, 2011; Steinert et al., 2016). Continuous capacity building is therefore necessary to strengthen trainers' subject expertise and instructional leadership (UNESCO, 2017).

The findings are consistent with Transformative Learning Theory, which proposes that professional learning should enable adults to question existing assumptions, engage in critical reflection and dialogue, and apply transformed perspectives in practice (Mezirow, 1991, 2000). Trainers who provide practical demonstrations, encourage discussion, and respond to contextual concerns are more likely to support teachers' transition from teacher centred approaches to learner centred CBE practices.

Overall, trainer competence involved more than curriculum knowledge or subject mastery. It included classroom experience, communication ability, adult-learning skills, practical demonstration, responsiveness, and the capacity to address contextual challenges. The study therefore recommends standardized trainer preparation, practical certification, access to official training materials, quality assurance,

mentorship, coaching, and follow-up support. Strengthening these areas could minimize content distortion in cascade training and improve the transfer of CBE professional learning into classroom practice.

CONCLUSION

The study concludes that trainer competence significantly influenced the effectiveness of CBE in-service training. Most trainers possessed reasonable subject knowledge and communication skills, but competence in practical demonstration, answering questions, modelling assessment, and adapting content to classroom realities was uneven. Subject mastery alone was therefore insufficient. The statistically significant relationship between trainer competence and effectiveness confirms that the quality of facilitators matters substantially. Teachers were more likely to report improved confidence and implementation capacity when trainers combined curriculum knowledge with pedagogical skill, practical experience, responsiveness, and clear communication. The study further concludes that weaknesses in trainer competence were partly rooted in the organisation of the cascade model. Without standardised preparation, trainer certification, common materials, monitoring, and follow-up, training quality varied between facilitators and locations. Trainer competence should consequently be treated as a quality-assurance responsibility of the professional-development system rather than solely as an individual characteristic.

1.7 Recommendations

Teacher education institutions should embed CBE principles, learner-centred pedagogy, competency-based assessment, ICT integration, and practical teaching in initial teacher preparation. Newly qualified teachers should enter the profession with a foundation that reduces dependence on remedial induction. Training providers should model the methods they expect teachers to use. Sessions should include demonstrations, microteaching, project development, practical assessment, digital activities, peer feedback, and collaborative planning. Lecture should be used selectively rather than as the dominant method. Content should be differentiated. Teachers with strong digital competence may require advanced pedagogical integration, while those with limited experience may need foundational technical support. Subject-specific modules should be developed for science, arts, music, home science, physical education, languages, and

other learning areas. Training providers should conduct needs assessments before programmes and follow-up evaluations afterwards. Teachers' questions, classroom challenges, resource conditions, and previous training experiences should inform programme design. Follow-up should determine whether the training has produced changes in practice and identify areas requiring additional support. Facilitators should receive standardised guides, current curriculum documents, practical materials, and opportunities to rehearse before training teachers. Quality assurance should examine both content accuracy and facilitation practice.

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