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RELATIONSHIP BETWEEN TEACHERS TRAINING AND IMPLEMENTATION OF CBE IN PUBLIC AND PRIVATE SCHOOLS, GRADE THREE IN KAJIADO COUNTY, KENYA

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Abstract:
The Competency-Based Education (CBE) aims to develop well-rounded learners, with teachers as facilitators of active learning. However, its implementation faces challenges, including inadequate teacher training for transitioning from traditional methods, limitations in designing CBE lessons, and challenges in using appropriate assessment strategies. Limited professional development and insufficient teaching resources further hinder teachers' ability to adapt to the new curriculum's demands. The study examined the relationship between teacher training and implementation of CBE in public and private schools' grade three in Kajiado County. It was grounded on the curriculum implementation theory. A correlational research design was adopted. The target population was all public and private primary schools in Kajiado Central Sub-county, namely, 64 head teachers and 117 Grade 3 teachers in the Sub-county. The study employed purposive, stratified, and simple random sampling techniques to determine the sample. Kajiado County and Kajiado Central Sub-County were purposively selected, after which 5 out of 17 zones (30%) were randomly chosen using a lottery method to ensure fairness and avoid bias. Schools were then selected through stratified random sampling, categorized as public or private, followed by random selection of 30% of the schools. Headteachers were purposively included based on the selected schools, while Grade 3 teachers were randomly sampled to give each an equal chance of participation. The final sample size comprised 19 schools and headteachers out of 64, and 42 Grade 3 teachers out of 140. A questionnaire for Grade 3 teachers, an interview schedule for head

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teachers, and an observational checklist for data collection were used to collect data. Piloting was conducted in public schools in Kajiado Central Sub-County to assess the instruments' validity and reliability. Qualitative data from headteachers and observation guides were thematically analyzed using verbatim responses. Quantitative data from teachers were summarized with descriptive statistics, including percentages and frequencies, then displayed in tables and graphs. Inferential statistics, including multiple linear regression and Pearson's correlation, assessed significance levels and tested hypotheses at 0.05. Findings were presented in graphs, tables, and narratives. Results revealed a significant and positive effect of teacher training ($\beta = 0.835$, $p = 0.002$) on implementation of CBE. The study concludes that the effectiveness of subject content coverage, technology integration, and clear learning outcomes relies on quality teacher training. The Ministry of Education should enhance curriculum planning by improving teacher training on content, CBE competencies, and technology use. The Kenya Institute of Curriculum Development should update materials and train teachers to support inquiry-based assessments, while the Teachers Service Commission should expand continuous professional development for inclusive teaching.

Keywords: grade three, implementation of CBE, Kajiado County, public and private schools, teacher training

1. Introduction

1.1 Background

The Competency-Based Education (CBE) focuses on developing learners' practical skills, knowledge, and attitudes through learner-centered methods, continuous assessment, and real-world application (Smith & Jones, 2021). Teacher training is critical to the implementation of CBE through new pedagogical strategies, assessment techniques, and curriculum design aligned with competencies (Madondo, 2020). Well-trained teachers are better equipped to facilitate active learning, adapt to diverse learner needs, and accurately evaluate competencies (Nordin & Sundberg, 2020). Conversely, inadequate teacher training can inhibit proper implementation, leading to confusion, ineffective instruction, and failure to realize the intended outcomes of the curriculum.

In a study of CBE in Kenya's primary schools, Sifuna and Obonyo (2019) found that most teachers received little or no training in its delivery or application. Teachers tended to teach what they already knew. Furthermore, with little or no training, implementing CBE was challenging. Consequently, instructors needed to be self-motivated, trained in appropriate pedagogies, and equipped with classroom management techniques (Okoth, 2018). Ngeno *et al.* (2021) also found that teachers' attitude positively influenced CBE implementation. In the same vein, Olum and Mwoma (2025) reported that effective CBE implementation relied on lesson planning, resource use, and outcome-based assessments, with classroom conditions affecting learner engagement.

Indeed, the implementation of CBE has generated significant interest among scholars. The curriculum aims to produce well-rounded learners, with teachers having a pivotal role in ensuring active and participative learning (Mugarura *et al.*, 2022). Despite the potential benefits of CBE in Kenya, its implementation has faced many challenges and criticisms since its introduction. There are concerns about the inadequacy of teacher training, as many educators were not sufficiently prepared to transition from traditional teaching methods to competency-based approaches (Koskei & Chepchumba, 2020). This gap in training has made it difficult for teachers to effectively design competency-based lessons, use appropriate assessment strategies, and integrate learner-centered pedagogies. Additionally, limited access to continuous professional development programs has further constrained teachers' ability to adapt to the demands of the new curriculum. This is exacerbated by insufficient teaching and learning resources, which are essential for facilitating practical and experiential learning (Ngeno *et al.*, 2021). Consequently, the effectiveness and sustainability of CBE implementation are in doubt. This study, therefore, examined the relationship between teacher training and implementation of CBE in public and private schools' Grade Three in Kajiado County.

2. Statement of the Problem

Effective teacher training in the form of pre-service and in-service programmes is key to the successful implementation of the Competency-Based Curriculum (CBC) in Kenya (KICD, 2019). Nevertheless, research conducted in Kajiado County shows that there are still gaps in teacher training that make the successful implementation of the curriculum difficult. Training in Kajiado North Sub-County has been reported to be short and insufficient in preparing teachers with practical classroom skills (Afwande, 2025; Okello, 2024). On the same note, in Kajiado East Sub-County, the lack of sustained professional growth is a contributing factor to the lack of consistent use of CBC methodologies (Sitiol *et al.,* 2024). The implementation capacity of teachers is weakened by irregular and inadequate training opportunities, like workshops and seminars in the Loitokitok Sub-County (Njaru *et al.,* 2024; Kenya News Agency, 2022). On the whole, these sub-county inequalities reflect unequal and insufficient training of teachers, which has a negative impact on the quality and consistency of practices of CBC in Kajiado County. This paper thus discusses how teacher training affects the application of Competency-Based Education in Kajiado County, Kenya.

2.1 Study Objective

To examine the relationship between teacher training and implementation of CBE in public and private schools' Grade Three in Kajiado County.

2.2 Study Hypothesis

$H0_1$: There is no statistically significant relationship between teacher training and implementation of CBE in public and private schools' Grade Three in Kajiado County.

3. Theoretical Framework

The study is grounded on the curriculum implementation theory, proposed by Gross (1970), who recommended four elements for curriculum implementation to be successful: clarity of innovations to the implementers, the capability of implementers, availability of resources, and provision of management support. The implementer, that is, the teacher, must be clear and comprehend the new changes in the new curriculum or the Competency Based Education (CBE), in terms of knowledge, content, skills, competencies, values, pedagogical approaches, and attitude. This is possible if teachers are exposed to in-service training, which enhances their professional growth (Gross, 1970). It also helps to improve teachers' motivation and retention (Brown, 2020). Thus, through training, teachers implement the new curriculum once they know the changes that are required to be executed innovatively.

Teacher training and retooling through CBE workshops and leadership seminars enhance teachers' competence. Effective training enables teachers to adopt preferred pedagogical approaches, such as teacher-directed methods and learner-centered strategies (Woods & Copur-Gencturk, 2024). This enhances active learning, student empowerment, collaboration, critical thinking, and independence.

Attaining the desired competencies requires relevant learning and teaching materials for specific tasks. Siller and Ahmad (2024) affirm that blended use of concrete and virtual manipulatives or resources significantly enhances students' mathematical achievement. Therefore, the availability of teaching and learning resources will assist teachers in directing the students well through concrete learning. Indeed, if teachers understand the CBE knowledge and content, they will be motivated to teach and provide a rich environment that will be well-established with age-appropriate concrete materials.

Additionally, management support is important for the educational institution because it helps to nurture a positive organizational image, as this reflects the school's values and acts as a form of institutional identity in the eyes of the entire school community and the society at large (Klinck *et al.*, 2023). Thus, in a school, management support is critical because it provides the teaching fraternity with learning resources, finances, assessment of professional documents like schemes, lesson plans, planning of their class time, and the way they deliver content in their classrooms, among others. If the implementation is well executed by the teachers, the expected outcomes will be realized or attained by the pupils.

Training teachers enhances their competence in implementing the competency-based education (CBE) curriculum by improving content knowledge and pedagogical approaches. Availability of resources boosts motivation for effective teaching. Management support fosters classroom management skills, leading to successful

curriculum implementation. Expected outcomes include improved CBE learning results, better knowledge and skills acquisition, enhanced communication, increased parental involvement, and stronger teacher-parent relationships.

4. Literature Review

Teacher education, whether in the preliminary or in-service mode, determines the quality of work done in classrooms. Concerning in-service training, Mugarura *et al.* (2022) state that in-service training is an education designed to impart new skills or knowledge to already practicing teachers. Mugarura *et al.* (2022) further state that training and development opportunities for teachers are ongoing efforts to raise their standards of instruction. In-service training is essential for teachers' professional growth (Smith, 2019) and, when effective, enhances teacher retention and motivation.

A study by Ntuli *et al.* (2018) investigated globalized teacher education, obstacles, and approaches to 21st-century subject preparation and methodology. According to the study, some frequent 21st-century skills issues are overlooked, while others have not yet been adequately incorporated into teacher education programs. The study presents a contextual gap as it was conducted in Cameroon. The present study thus investigated whether the implementation of CBE by grade 3 teachers is correlated with the training of instructors locally.

Mwang'ombe (2021) notes that teacher training should be tailored to prepare both the prospective candidates aspiring to train to be teachers and the already qualified practicing teachers to fulfil the expectations of the present 21st century. The study further reveals that the Kenyan teacher education system suffers a shortage of trainers or educators, some of whom are unqualified. At the same time, some are demotivated to work. Ethical issues are also high among novice teachers, stemming from little emphasis on professional ethics during teacher training, and teachers' employers do not counsel them on expected professional conduct. Thus, many lose their jobs due to unbecoming behaviour, which may affect the implementation of CBE. The study suggested that the government should professionalize teaching.

Furthermore, Isaboke *et al.* (2021) researched teacher preparation and CBC implementation in public pre-primary schools in Nairobi City County, Kenya. The results showed that although 34.1% of the teachers had CBC training, the bulk of the teachers, 65.9%, had not. Instructors were not sufficiently trained to implement CBE. Thus, in the present study, efforts were made to investigate whether teacher training and the implementation of CBE in Grade 3 were associated with teachers' training. The study failed to statistically relate teacher preparation and CBE implementation, resulting in a limitation in data analysis and findings. Mwita (2022) conducted research on the implementation of CBC in Grades 1–3 in public primary schools in Migori County, as part of an in-service training program for teachers. The study found that most teachers participated in training sessions (56.77%) and 59% agreed they were knowledgeable about the training.

On the other hand, Luvanga *et al.* (2020) investigated the level of teacher readiness to implement equitable learning opportunities for students with hearing disorders. The study concentrated on the educational backgrounds, professional backgrounds, experience in the classroom, and whether or not the instructors had received pre-service or on-the-job specialized teaching instruction. The results showed that while teachers possessed the academic credentials required to instruct students in elementary schools, they were not sufficiently trained in special education to instruct students with hearing impairments. The majority of the educators had not participated in any specialized educational pre-service or on-the-job training.

In Kajiado County, empirical research provides context-specific evidence on the effect of teacher training on the implementation of CBE. For instance, results in Kajiado North Sub-County reveal that despite teachers participating in CBE training programs, the training is usually brief, theoretical, and lacks in-depth competencies to build hands-on classroom skills (Okello, 2024; Afwande, 2025). Related research also found that teacher training has a significant impact on CBE implementation, as well-trained teachers are more prone to using learner-centered approaches than teachers with less exposure (Okello, 2024).

In Sub-County Kajiado East, it is observed that poor continuous professional development is a contributory factor towards inconsistent use of CBE methodologies, especially when it comes to lesson delivery and competency-based assessment (Sitiol *et al.*, 2024). The teachers in this sub-county also complain of a lack of follow-up support after the first training, hence the sustainability of skills learned. Research on Loitokitok Sub-County found that the lack of regular and adequate training workshops has undermined the ability of teachers to adequately implement CBE (Njaru *et al.*, 2024; Kenya News Agency, 2022). Lack of systematic follow-up training and mentorship has been pointed out as a significant obstacle to good classroom practice. The Gap is synthesized.

The situation in Kajiado County is no exception, as the evidence across the county has been characterized by uneven, ineffective, and generally theoretical teacher training in the sub-counties, restricting the successful implementation of CBE. Although the government has made efforts in in-service training, there are still gaps in the practical orientation, continuity, and applicability of training programs. Such a discrepancy indicates that additional research on the relationship between teacher training and implementation of CBE in Kajiado County is warranted.

5. Research Methodology

5.1 Research Design

The study used a correlational research design that helped identify patterns, relationships, and associations between variables and determine the strength and direction of the relationship between variables without manipulating them.

5.2 Research Approach

The research employed a mixed-methods approach, combining quantitative and qualitative methods. A quantitative method was employed to gather numerical data on measures of teacher training and the level of Competency-Based Education (CBE) implementation by administering structured questionnaires, which allowed for statistical analysis of all relationships between variables (Creswell & Creswell, 2018). This was complemented by the qualitative approach, which was able to offer in-depth information on the experiences, perceptions, and challenges faced by teachers in the implementation of CBE by interviewing head teachers (Kothari, 2004). The two methods complemented each other and made the results more valid and comprehensive, thus enabling a more comprehensive view of the impact that teacher training has on CBE implementation (Creswell & Creswell, 2018).

5.3 Location of the Study

Kajiado County comprises mostly pastoralist Maasai communities, where mobility patterns, semi-arid environment, and multi-lingual classrooms mostly result in children's absenteeism from school and lack of parental involvement in the learning process of children (Ouda *et al.*, 2015; Ogutu *et al.*, 2018). Teachers lack skills and learner-centered pedagogy, which is in contrast with the CBE policy. Similarly, these contextual issues complicate maintaining the learner involvement and parental engagement needed to support learner-centered curricula (Darling-Hammond *et al.*, 2020); thus, teachers are unable to implement CBE smoothly. These realities make the county a suitable setting when it comes to studying the impact of the sufficiency of teacher training, both in pre-service and in-service, in facilitating the successful application of Competency-Based Education.

5.4 Target Population

The target population was all the public and private primary schools in Kajiado Central Sub-county, namely, 64 head teachers and 140 Grade 3 teachers in the Sub-county.

5.5 Sampling Technique and Sample Size

The study employed purposive, stratified, and simple random sampling techniques to determine the sample. Kajiado County and Kajiado Central Sub-County were purposively selected, after which 5 out of 17 zones (30%) were randomly chosen using a lottery method to ensure fairness and avoid bias. Within these zones, schools were selected through stratified random sampling by categorizing them into public and private institutions, followed by random selection of 30% of the schools. Headteachers were purposively included based on the selected schools, while Grade 3 teachers were randomly sampled to give each an equal chance of participation. The final sample size comprised 19 schools and headteachers out of 64, and 42 Grade 3 teachers out of 140. This sample size falls within the recommended 10%–30% range for educational descriptive

studies, for adequate representation of the target population. This is summarised in Table 1.

Table 1: Sample Size

Zones of Kajiado Sub-county	Schools and Headteachers				Grade 3 Teachers			
	Target population		30% sample		Target population		30% sample	
	Pub	Priv.	Pub	Priv.	Pub	Priv.	Pub	Priv.
Ildamat	06	01	01	00	07	00	02	00
Kaputei Central	12	02	04	01	27	05	08	03
Loodokilani	10	04	03	01	23	06	07	02
Dalalekutuk South	07	02	02	01	20	06	06	01
Matapato North	16	04	05	01	40	06	12	02
Sub-total	**51**	**13**	**15**	**04**	**117**	**23**	**35**	**07**

Source: Field Data (2025).

5.6 Research Instruments

The study used a questionnaire for Grade 3 teachers, an interview schedule for head teachers, and an observational checklist for data collection. A questionnaire was used to collect data from Grade 3 teachers. It allowed for the collection of data from a large sample and facilitated the gathering of structured information regarding participants' knowledge, attitudes, experiences, and opinions. The questionnaire was divided into 3 parts. Section 1 contained five questions on teachers' demographic information. Section 2 focused on teacher training and Section 3 on CBE implementation. An interview schedule was used with headteachers to collect qualitative information. Interviewing headteachers allowed for the triangulation of data sources, thereby enhancing the credibility of the information. An observation schedule was used to gather data from Grade 3 teachers in public and private primary schools in Kajiado County, Kenya, by observing their behaviour, events, and activities that influenced the implementation of CBE.

5.7 Pilot Study

Piloting was conducted in public schools in Kajiado Central Sub-County. Validity assessments included construct, content, and criterion validity. Reliability was assessed using the split-half technique, with Cronbach's Alpha coefficients calculated, aiming for a coefficient of at least 0.7.

5.8 Data Collection Techniques

Grade 3 teachers completed self-administered questionnaires for independent responses, with researcher clarifications to reduce interviewer bias. Headteachers participated in face-to-face interviews. An observation guide recorded teachers' classroom behaviors, events, and activities.

5.9 Data Analysis

Qualitative data from headteachers and observation guides were thematically analyzed using verbatim responses. Quantitative data from teachers were summarized with descriptive statistics, including percentages and frequencies, then displayed in tables and graphs. Inferential statistics, including multiple linear regression and Pearson's correlation, assessed significance levels and tested hypotheses at 0.05. Findings were presented in graphs, tables, and narratives.

5.10 Ethical Considerations

Logical considerations involve using reasoning, consistency, and evidence to ensure arguments or decisions are coherent and valid. Ethical considerations involve evaluating actions against moral principles like fairness, respect, and responsibility to ensure they uphold integrity. Permission was also obtained from the Kajiado County Director of Education. Authorization to gather information from the selected schools was secured from headteachers through an official letter, and consent forms were obtained from the participants. To protect the participants' confidentiality, they were identified using codes instead of names. Data acquired from the respondents were kept with utmost privacy and were only used for academic research purposes. Participants were given details about what the research entails before signing the informed consent form and administration of the instruments.

6. Results and Discussion

6.1 Demographic Characteristics

The research sought to establish the gender of the respondents. Gender was considered because it is an important demographic characteristic that may influence teachers' attitudes, perceptions, and teaching practices. Differences in gender could determine classroom interaction styles, confidence in applying new pedagogical approaches, and willingness to adopt curriculum changes. Results showed that 11(26%) were male and 31(74%) were female.

The study established the age of the respondents. Age is important because it reflects teachers' professional maturity, level of experience, and adaptability to educational reforms. Results revealed that 18(43%) of the respondents were between 21-30 years, 12(29%) were 31-40 years, 6(14%) were 41-50 years and 6(14%) were 51-58 years. The majority of the participants were aged between 21 and 30 years. Most respondents aged 21–30 indicate that a considerable number of teachers implementing the Competency-Based Education (CBE) are young and adaptable to innovative pedagogical approaches. This age group embraces technology and learner-centered methods, aligning with CBE principles. Du-Plessis (2020) indicates that younger teachers positively influence CBE implementation in Grade 3 classrooms.

The study sought to establish the academic qualifications of the respondents. Academic qualification is important because it determines the level of professional

knowledge, pedagogical skills, and subject mastery that teachers bring into the classroom. Thus, 27(64%) of the respondents had Certificate, 12(29%) had diploma, 2(5%) had Bachelor's Degree and 1(2%) had Master's Degree. The majority of the respondents had a Certificate academic qualification. Most respondents with Certificate qualifications indicate that many teachers implementing the CBE may lack advanced pedagogical training. Mbaabu (2019) found a positive link between higher teacher qualifications and successful curriculum implementation.

The study examined the number of years respondents had worked. This was important because teaching experience influences teachers' confidence, classroom management skills, and ability to adapt to curriculum reforms. The study revealed that 1 (2%) of the respondents had been working in less than 1 year, 8(19%) have worked for 1-5 years, 21(50%) have worked for 6-10 years, 4(10%) have worked for 11-15 years, 3(7%) have worked for 16-20 years and 5(12%) have been working for a period 21 years and above. Most respondents' 6–10 years of teaching experience indicates that these teachers have moderate professional exposure that combines practical skills with subject matter. They are beyond novice status but still flexible, positioning them well to implement curriculum reforms (Mola & Kelkay, 2020).

The study sought to determine the number of times the respondents trained. The number of times the respondents trained is important because it reflects the adequacy and relevance of the pedagogical skills and curriculum knowledge they acquired during their training. Out of 42 respondents, 22(52%) had been trained for 1-2 years, 7(17%) had been trained for 3-4 times, 6(14%) had been trained for 5-6 times, 2(5%) had been trained for 7-8 times and 5(12%) had been trained for 9-10 times. Most of the participants had been trained 1-2 times. The finding that many respondents had only 1–2 times of teacher training suggests that they possess basic skills but lack in-depth knowledge in pedagogical strategies, curriculum design, and assessment methods essential for effective CBE implementation. UNESCO (2017) emphasizes the importance of comprehensive training, thus the need for continuous professional development to enhance CBE implementation.

The study established the respondents' opportunities for professional development. All respondents had opportunities for professional development. This indicates that access to such opportunities is not merely available but universal within this sample. This may reflect a strong institutional commitment to continuous learning or a policy environment that prioritizes teacher growth. The study determined the extent of respondents' preparedness. Thus, 25(60%) of the respondents were highly prepared, and 17(40%) were prepared to deliver content in a CBE classroom. The majority of the participants were highly prepared. This is summarised in Table 2.

Table 2: Demographic Characteristics

Variable	Category	Frequency (f)	Percentage (%)
Gender	Male	11	26
	Female	31	74
Age (Years)	21–30	18	43
	31–40	12	29
	41–50	6	14
	51–58	6	14
Academic Qualification	Certificate	27	64
	Diploma	12	29
	Bachelor's Degree	2	5
	Master's Degree	1	2
Work Experience (Years)	<1 year	1	2
	1–5 years	8	19
	6–10 years	21	50
	11–15 years	4	10
	16–20 years	3	7
	21 years and above	5	12
Number of Trainings	1–2 times	22	52
	3–4 times	7	17
	5–6 times	6	14
	7–8 times	2	5
	9–10 times	5	12
Professional Development Opportunities	Yes	42	100
Extent of Preparedness	Highly Prepared (HP)	25	60
	Prepared (P)	17	40

Source: Field Data (2025).

6.2 Descriptive Analysis

Respondents were asked questions, and responses are presented on a Likert scale. Results indicate that 45% of teachers agreed and 52% strongly agreed that their subject content was well understood (Mean = 3.48), indicating sufficient training in subject matter. This aligns with Mugarura *et al.*'s assertion on the value of continuous training in building instructional capacity. Similarly, 55% agreed, and 43% strongly agreed, that they used digital tools (Mean = 3.40), echoing Ntuli *et al.* (2018)'s concern that 21st-century skills like digital integration are often ignored in teacher training. In this case, the finding contradicts Ntuli *et al.*, suggesting that Kenyan Grade 3 teachers are increasingly integrating digital tools, possibly due to targeted CBC training modules.

Further, 38% agreed, and 52% strongly agreed that they could identify learning areas and expected outcomes (Mean = 3.36). This supports the view of Mwita (2022), who found that teachers in Grades 1–3 received CBC-related in-service training and became knowledgeable in key thematic areas. Additionally, the fact that 60% of teachers strongly agreed and 33% agreed that they integrated CBC competencies into strands and lessons (Mean = 3.52) reinforces the effectiveness of training efforts described by Mwang'ombe (2021) and KECEPTIA (2024), especially under the current in-service models.

Regarding instructional planning, 57% of respondents strongly agreed that they paid attention to inquiry questions, learning activities, and assessments (Mean = 3.43). This supports the notion by Garcia (2021) that training fosters holistic planning and evaluation skills among teachers. Similarly, 43% strongly agreed, and 40% agreed that teaching resources aligned with CBC competencies and were effectively utilized (Mean = 3.19), implying practical application of training and partially aligning with Luvanga *et al.* (2020), who found that teachers lacked adequate specialized training for learners with special needs. This reflects a mixed outcome—while general CBE skills seem well implemented, gaps may still exist in specialized pedagogy.

Moreover, the ability to assess competencies and skills was affirmed by 52% of teachers (Mean = 3.26), consistent with Smith (2019)'s view that effective training enhances instructional evaluation. However, only 48% agreed on the utility and preparation of teaching materials (Mean = 3.43), suggesting some contradiction with expectations from in-service training (Mugarura *et al.*, 2022). This could indicate that while conceptual understanding exists, practical resource development may need reinforcement.

On identifying learning gaps and tailoring instruction accordingly, 90% of the teachers either agreed or strongly agreed (Mean = 3.43), demonstrating alignment with the CBE's learner-centered philosophy and confirming the effectiveness of CBE-related training, as Mwita (2022) suggested. Similarly, 90% also agreed or strongly agreed that they applied theoretical knowledge in real-life contexts (Mean = 3.45), consistent with Mwang'ombe (2021)'s emphasis on preparing teachers for 21st-century demands.

However, the area of parental engagement revealed a weak point, with only 19% agreeing and 55% strongly agreeing (Mean = 3.17), but with a relatively high standard deviation (1.08), indicating variability. This partially contradicts CBE principles, which stress community and parental involvement, as emphasized by KECEPTIA (2024) and further compounded by the historical lack of user-friendly pre-service training noted during the Malindi seminar.

Isaboke *et al.* (2021) and Luvanga *et al.* (2020) both highlight existing challenges, including insufficient CBC training among a majority of instructors and a lack of specialized skills, respectively. This is summarised in Table 3.

Table 3: Descriptives for Teacher Training and CBE Implementation

Statements	N	Mean	Std. Dev.	SD	D	A	SA
I understand the subject's content.	42	3.48	0.63	2	0	45	52
I use technology and digital devices	42	3.40	0.54	0	2	55	43
I identify learning areas and expected learning outcomes	42	3.36	0.85	7	2	38	52
I integrate CBE competencies into strands, sub-strands, and lesson development	42	3.52	0.63	0	7	33	60
I pay attention to key inquiry questions, learning activities, and outcomes.	42	3.43	0.77	2	10	3.	57
The school uses appropriate resources to develop skills and competencies	42	3.19	0.89	7	10	40	43

How to assess competencies and skills	42	3.26	0.94	7	12	29	52
Materials making and how to utilize them in the classroom	42	3.43	0.63	2	50	48	0
I identify learning gaps and use them to inform teaching and learning	42	3.43	0.67	0	10	38	52
I implement theoretical knowledge in real life	42	3.45	0.74	2	7	33	57
There is parental engagement and empowerment.	42	3.17	1.08	12	14	19	55
Aggregate Mean		**3.37**					

Source: Field Data (2025).

6.3 Inferential Analysis

Correlation analysis was conducted to determine the strength and direction of the relationship between the two variables. Pearson correlation was used to assess the relationship between teacher training and implementation of CBE. The results indicate a moderately significant correlation (r = 0.460), which indicates that teacher training was correlated with implementation of CBE. The p-value (p = 0.000) is statistically significant, meaning the correlation was significant. This finding aligns with Mugarura *et al.* (2022), who note that in-service training is critical in equipping practicing teachers with the necessary competencies and knowledge to meet evolving curriculum demands. Additionally, Smith (2019) emphasizes the importance of continuous professional development in enhancing both teacher motivation and instructional quality. Further, Isaboke *et al.* (2021) investigated teacher preparedness for CBE in Nairobi City County and found that limited CBE training was a major barrier to effective implementation. Table 4 illustrates the correlation analysis between teacher training and implementation of CBE.

Table 4: Teacher Training and CBE Implementation Correlation Analysis

		Implementation of CBE	**teacher training**
Implementation of CBE	Pearson Correlation	1	.460**
	Sig. (2-tailed)		0.002
	N	42	42
Teacher training	Pearson Correlation	.460**	1
	Sig. (2-tailed)	0.002	
	N	42	42
**. Correlation is significant at the 0.01 level (2-tailed).			

Source: Field data (2025).

Regression analysis for teacher training and implementation of CBE was further done. Table 5 presents the model summary for teacher training and implementation of CBE. Results indicate a moderate relationship between teacher training and implementation of CBE, with an R value of 0.460. According to the model, teacher training accounts for 21.1% of the variation in implementation of CBE, denoted by an R-square of 0.212.

Table 5: Model Summary for Teacher Training and CBE Implementation

R	R Square	Adjusted R-Square	Std. Error of the Estimate
.460[a]	0.212	0.192	0.28739
a. Predictors: (Constant), teacher training			

Source: Field Data (2025).

ANOVA for teacher training and implementation of CBE was further computed to assess whether there is a statistically significant difference between group means and to determine if the independent variable explains a significant portion of the variance in the dependent variable, and the results in Table 6 indicate a significance level of 0.002. The calculated F-value, 10.729, is greater than the critical F-value, 4.085, indicating that the regression model was statistically significant. Hence, there existed a significant relationship between teacher training and implementation of CBE.

Table 6: ANOVA for Teacher Training and CBE Implementation

	Sum of Squares	df	Mean Square	F	Sig.
Regression	0.886	1	0.886	10.729	.002[b]
Residual	3.304	40	0.083		
Total	**4.190**	**41**			
a. Dependent Variable: implementation of CBE					
b. Predictors: (Constant), teacher training					

Source: Field Data (2025).

Additionally, regression coefficients for teacher training and implementation of CBE were computed, and Table 7 illustrates the regression equation as:

$$Y = 0.694 + 0.835 X_1 + \varepsilon$$

Hence, there was a significant and positive effect of teacher training on implementation of CBE ($\beta = 0.835$, $p = 0.000$). Hence, implementation of CBE would vary by 0.835 units for every unit change in teacher training.

Table 7: Regression Coefficients for Teacher Training and CBE Implementation

	Unstandardized Coefficients	Std. Error	Standardized Coefficients	t	Sig.
(Constant)	0.694	0.848		0.818	0.418
Teacher Training	0.835	0.255	0.460	3.276	0.002
a. Dependent Variable: implementation of CBE					

Source: Field Data (2025).

The finding revealed that the CBE training was perceived as relevant and effective (M = 3.25), leading to the rejection of the null hypothesis and the acceptance of the alternative hypothesis. This finding is supported by Mugarura *et al.* (2022), who emphasize that both in-service and professional development programs are critical for equipping teachers

with the necessary skills to align teaching practices with current curriculum demands. Their study notes that effective training programs enable teachers to adopt new instructional methods and understand curriculum goals, which directly enhances implementation fidelity.

Similarly, Mwita (2022), in a study conducted in Migori County, Kenya, found that teachers who had undergone CBE-related training demonstrated higher levels of knowledge and confidence in applying CBE strategies. Mwita (2022) reported that trained teachers were better at integrating learning outcomes, competencies, and assessment techniques as outlined in the CBE framework. The current investigation's finding of a strong positive effect ($\beta = 0.835$) provides statistical support for Mwita (2022)'s qualitative study and reinforces the argument that training improves CBE delivery.

The study conducted interviews with headteachers in the respective schools. Indeed, headteachers reported that they were conversant with CBE and had undergone training on the curriculum. This indicated a strong level of awareness and personal involvement in the curriculum reforms. Most of them acknowledged attending workshops organized by the Ministry of Education or other education stakeholders. One headteacher shared,

> *"Yes, I have taken a few short courses and workshops organized by the Ministry of Education on CBE. These trainings focused on the structure of the CBE. The key competencies to be developed in learners, and the new approaches to assessment. The sessions were very informative and helped me understand how to support my teachers in lesson planning and classroom delivery. They also clarified the roles of school leadership in guiding CBE implementation and ensuring compliance."*

Another remarked,

> *"I enrolled in an online CBE orientation course and have attended several seminars on CBE. The online course gave me a strong foundation in the goals and structure of the new curriculum. The seminars provided practical insights on how to support teachers in applying CBE principles in their classrooms. These learning opportunities have helped me guide my staff more effectively during the implementation process."*

These responses indicate that the school leadership was committed to aligning itself with the new curriculum requirements and was taking proactive steps to stay informed.

When asked about the implementation of CBE in their respective schools, most headteachers expressed that progress was ongoing, though with some challenges. The consensus was that CBE was being implemented steadily, but the process was slowed down by factors such as a lack of resources and infrastructure.

One respondent noted,

"The implementation has been gradual, but we are making steady progress despite constraints like inadequate teaching materials. At first, both teachers and learners struggled to adjust to the new methods and expectations. However, with continuous support and training, teachers have begun to embrace the learner-centered approach. We have also tried to improvise where materials are lacking, using locally available resources to meet learning objectives. The support from parents and the community has also improved over time, which has helped smooth the process. Although challenges remain, we are committed to fully implementing CBE in our school."

Another added,

"In my school, teachers are trying their best to align with CBE requirements, but we still need more support and resources. Many teachers have embraced the new curriculum and are making efforts to use learner-centered teaching methods. However, the shortage of teaching and learning materials makes it difficult to fully deliver the intended competencies. Additional training and more instructional resources would greatly enhance their ability to implement CBE effectively. Despite these challenges, the teachers remain committed to improving their skills and meeting the demands of the curriculum. "

On teacher preparedness, the majority of headteachers reported that most Grade 3 teachers in their schools were CBE compliant, having received the necessary training. However, a few still had teachers awaiting training.

A headteacher stated:

"We have four Grade 3 teachers, and three of them are CBE compliant, with one awaiting training. The three trained teachers have shown great improvement in lesson delivery and assessment. The one awaiting training is scheduled to attend the next workshop organized by the education office. We are confident that once trained, all our Grade 3 teachers will fully implement CBE."

Another added:

"Out of six Grade 3 teachers, five are trained and considered CBE compliant. The trained teachers have embraced the new teaching methods and are applying competency-based approaches in their classrooms. The one teacher who is not yet trained is scheduled to attend an upcoming in-service training session. The school is making efforts to ensure all teachers are fully prepared to deliver the CBE curriculum effectively. Overall, this has improved the consistency and quality of education in Grade 3 classes."

This highlights that while significant progress has been made, there is a need to ensure 100% compliance among teachers to fully support CBE implementation.

Teacher-related challenges were cited as a major factor hindering the smooth implementation of the curriculum. Issues such as resistance to change, unfamiliarity with CBE assessment methods, and workload concerns were repeatedly mentioned.

One headteacher said:

"Some teachers are still resistant to change and prefer the old curriculum methods. They find it difficult to shift from traditional teaching styles to the learner-centered approach required by CBE. This slows down the full adoption of the new curriculum. Continuous support and training are needed to help these teachers adjust and embrace the changes."

Another said:

"Teachers' workload and unfamiliarity with some CBE components are slowing down full adoption. Many teachers are overwhelmed by the additional planning and assessment requirements that CBE demands. Some are still adjusting to new teaching methods and finding it challenging to balance these with their existing responsibilities. The complexity of continuous assessment and individualized learning also adds to their workload…not all teachers have fully embraced the curriculum."

Headteachers agreed that in-service training plays a crucial role in equipping teachers with the skills needed to effectively deliver CBE content. The training not only updates teachers on curriculum content but also enhances their instructional methods.

A headteacher stated:

"The in-service training has made a big difference in how our teachers handle lessons. They now focus more on developing competencies rather than cramming content. Before the training, many teachers were used to teaching for exams and memorization. However, the sessions emphasized the importance of skills development and practical understanding. Teachers have since adopted more interactive methods that encourage critical thinking and problem-solving among learners. This shift has also improved student engagement and participation in class activities. Overall, the training has helped transform teaching practices to align better with the goals of CBE."

Yet another headteacher emphasized:

"Without the in-service training, implementing CBE would be very difficult because most teachers were unfamiliar with its structure and requirements. Many had challenges in understanding the shift from content-based teaching to competency-based approaches. The training was important in building their knowledge and skills to effectively deliver the new curriculum."

These indicate the importance of continuous professional development in enhancing teachers' capacity and improving the quality of CBE delivery in schools. Most headteachers acknowledged that trained teachers showed improved lesson planning, classroom engagement, and formative assessment practices compared to those who had not attended any training.

Observations indicated that teachers demonstrated good time management and leadership skills. They were able to effectively bring out competencies and learning outcomes in learners, and consistently used written notes, lesson plans, and a variety of learning resources in their instructional delivery.

These findings align with those of Mugarura *et al.* (2022), who emphasized that in-service training equips practicing teachers with new knowledge and skills necessary for successful curriculum delivery. The responses from headteachers affirm that such training helped them better support lesson planning, classroom delivery, and guide teachers in aligning instruction with CBE goals.

Mwang'ombe (2021) similarly noted that teacher education must prepare both prospective and practicing teachers to meet the demands of the 21st century. The head teachers highlighted gaps that still exist, but indicated that those who had been trained were more confident, responsive, and effective in implementing CBE.

7. Conclusion and Recommendation

7.1 Conclusion

The study concludes that the effectiveness of subject content coverage, technology integration, and clear learning outcomes relies on quality teacher training, which is essential for CBE implementation. Training that incorporates competencies into curriculum design prepares teachers to guide learners effectively. Focus on inquiry-based learning, activity design, and formative assessment supports learner-centered approaches. Additionally, training enhances teachers' ability to utilize instructional resources and create hands-on experiences. Continuous professional development improves responses to diverse learning styles and real-world connections.

7.2 Recommendations

The Ministry of Education should enhance curriculum planning and monitoring by focusing teacher training on content coverage, learning area identification, and CBE competencies integration. Well-trained teachers effectively promote competency acquisition. The Government of Kenya should invest in digital infrastructure and teacher training for pedagogical technology use. KICD should update instructional materials and train teachers in their use, as those trained in CBE principles excel in inquiry-based activities and assessments. The Teachers Service Commission should expand CPD programs that emphasize differentiated instruction and inclusive teaching; trained teachers show greater confidence in addressing diverse learning needs. School

Management Boards should facilitate in-service training on resource usage, enabling effective application of CBE methodologies in classrooms.

Conflict of Interest Statement
The authors declare no conflicts of interest.

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