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Original Research Article

Influence of Teacher Professional Development in Facilitating Competency Based Education in Grade Six Home Science in Public Primary Schools in Bungoma County, Kenya

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Abstract: Despite the efforts by the stakeholders to implement Competency-Based Education (CBE) in Kenya, there have been persistent gaps between policy expectations of CBE and actual classroom implementation, particularly in practical subjects. The purpose of this study was to examine the Influence of Teacher Professional Development in Facilitating Competency Based Education in Grade Six Home Science in Public Primary Schools in Bungoma County. The study was anchored on Progressive Education Theory by John Dewey, which emphasizes experiential, learner-centered, and activity-based learning. A mixed-methods research design was employed, integrating both quantitative and qualitative approaches. The target population comprised of head teachers, Grade Six Home Science teachers, and Curriculum Support Officers (CSOs). A sample of 240 head teachers, 240 teachers, and 14 CSOs was selected using simple random sampling. Data were collected using structured questionnaires for head teachers and teachers, and interview schedules for CSOs. Validity of instruments was established through expert review, while reliability was confirmed using Cronbach's Alpha coefficients above 0.80. Quantitative data were analyzed using descriptive and inferential statistics, while qualitative data were analyzed thematically through coding and interpretation. Ethical considerations included obtaining research permits, ensuring informed consent, maintaining confidentiality, and voluntary participation. Findings revealed that teacher professional development significantly influence CBE implementation ($r = .552$, $p < .01$). The study concluded that teacher professional development is critical for effective delivery of competency-based Home Science education. It recommends strengthened continuous professional development, improved instructional resources, and sustained mentoring to enhance teacher capacity for effective CBE implementation in primary schools.

Keywords: Teacher Professional Development, Competency Based Education, Grade Six Home Science.

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1.0 INTRODUCTION

Teacher Professional Development (TPD) plays a critical role in the successful implementation of the Competency-Based Education (CBE), particularly in practical learning areas such as Home Science in Grade Six. Globally, curriculum reforms have increasingly emphasized teacher capacity building as a prerequisite for effective classroom implementation. Teacher professional development refers to structured and continuous training programs designed to improve teachers' pedagogical skills, content mastery, assessment competence, and ability to apply learner-centered approaches in teaching (Mwang'ombe, 2021). In competency-based education systems, teachers are expected to shift from knowledge transmission to facilitation of skills, values, and competencies, making continuous professional development essential for effective curriculum delivery. In developed countries such as the United States, United Kingdom, and Finland, teacher professional development is institutionalized, continuous, and closely aligned with curriculum reforms. These systems emphasize collaborative learning communities, mentoring, and reflective practice to ensure teachers effectively implement learner-centered curricula. Studies show that sustained professional development significantly improves instructional quality and learner outcomes, especially in practical subjects that

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require hands-on learning and assessment of competencies (OECD, 2023; Darling-Hammond *et al*., 2020). In such contexts, teachers are not only trained during pre-service education but are continuously supported through in-service training, coaching, and digital learning platforms to enhance curriculum implementation fidelity.

In middle-income countries, teacher professional development is increasingly recognized as a critical factor in curriculum reform success, though implementation challenges persist due to limited resources and inconsistent training systems. Countries such as India, South Africa, and Malaysia have adopted competency-based education reforms that require teachers to engage in periodic upskilling to align with new pedagogical demands. However, studies indicate that inadequate funding, uneven access to training opportunities and large teacher workloads often limit the effectiveness of professional development initiatives (UNESCO, 2022; Singh & Malik, 2021). In Africa, teacher professional development remains a major determinant of CBE success, with many education systems struggling to provide consistent, high-quality in-service training, particularly in rural and under-resourced areas. Research across sub-Saharan Africa shows that insufficient training leads to teacher uncertainty in applying learner-centred strategies and authentic assessment methods required in competency-based learning environments (Akyeampong, 2020).

In Kenya, the introduction of the Competency-Based Education in 2017 necessitated large-scale teacher professional development to equip teachers with new pedagogical and assessment skills. The Kenya Institute of Curriculum Development (KICD) and the Teachers Service Commission (TSC) have organized in-service training sessions aimed at preparing teachers for CBE implementation across all levels of basic education. However, evidence suggests that many teachers still face challenges in effectively implementing CBE due to inadequate training duration, limited follow-up support, and insufficient resources (Koros & Achieng, 2023; Macheso, Wafula & Kati, 2024). In Bungoma County, which is part of Western Kenya, studies focusing on Grade Six teachers indicate that while training programs have improved awareness of CBE requirements, gaps remain in teachers' confidence and competence in delivering Home Science practical lessons and competency-based assessments (Macheso *et al*., 2024; Simiyu, 2025). Consequently, teacher professional development continues to be a key determinant of effective CBE implementation in Home Science within public primary schools in Bungoma County, Kenya.

1.1 Statement of the Problem

Despite the introduction of the Competency-Based Education (CBE) in Kenya, its effective implementation in Grade Six Home Science remains a significant challenge, particularly in public primary schools in Bungoma County. The intended shift from content-based teaching to learner-centered, skills-oriented instruction has not been fully realized due to gaps in teacher professional development, and limited pedagogical competence required for practical subjects. Many teachers continue to have trouble in applying competency-based assessment strategies, facilitating experiential learning, and integrating practical activities effectively in Home Science lessons. Furthermore, inconsistencies in the quality and frequency of teacher training programs, coupled with insufficient instructional resources, have hindered the translation of CBE policy into meaningful classroom practice. As a result, there is a disconnect between curriculum expectations and actual teaching practices, which may negatively affect learners' acquisition of essential competencies. This study therefore sought to examine the influence of teacher professional development in facilitating effective implementation of CBE in Grade Six Home Science in public primary schools in Bungoma County, Kenya.

1.2 Research Objective

To examine the influence of teacher professional development on the facilitation of Competency-Based Education in Grade Six Home Science in public primary schools in Bungoma County, Kenya.

1.3 Research Hypothesis

H_{01} There is no significant relationship between Teacher Professional Development and Effective Facilitation of CBE in Grade Six Home Science.

2.0 LITERATURE REVIEW

Teacher professional development (TPD) is increasingly recognized as a critical determinant of successful curriculum implementation, particularly under competency-based education reforms that require teachers to shift from content delivery to facilitation of skills and competencies (Darling-Hammond *et al*., 2020). In CBE contexts, TPD focuses on strengthening pedagogical content knowledge, assessment literacy, and learner-centered instructional strategies that support practical subjects such as Home Science (OECD, 2023). Globally, education systems emphasize continuous professional development to ensure teachers are adequately prepared to implement reforms that prioritize real-world application of knowledge and skills (UNESCO, 2022). Studies indicate that where TPD is well structured and sustained, teachers demonstrate higher confidence and effectiveness in competency-based instructional delivery (Mwang'ombe, 2021). Consequently, teacher professional development is widely viewed as the bridge between curriculum policy intentions and classroom-level implementation outcomes (Darling-Hammond *et al*., 2020).

Teacher professional development refers to structured, ongoing learning experiences designed to

improve teachers' instructional skills, subject mastery, and assessment competence throughout their careers (OECD, 2023). It includes workshops, in-service training, peer learning, mentoring, and reflective practice aimed at improving teaching effectiveness in dynamic curriculum environments (UNESCO, 2022). In competency-based education systems, TPD is particularly focused on equipping teachers with skills to design learner-centred activities, conduct formative assessments, and support individualized learning pathways (Darling-Hammond *et al*., 2020). Effective TPD is therefore not a one-off event but a continuous process aligned with curriculum reforms and classroom realities (Mwang'ombe, 2021). This makes it essential in CBE implementation, especially in practical learning areas such as Home Science where experiential learning is central (OECD, 2023).

Globally, evidence shows that sustained and well-resourced teacher professional development improves curriculum implementation outcomes in competency-based systems (OECD, 2023). For instance, countries with structured professional learning systems report higher teacher professional development in implementing learner-centred and skills-based curricula (Darling-Hammond *et al*., 2020). Research further indicates that continuous training improves teachers' ability to integrate assessment for learning strategies, which is essential in competency-based education (UNESCO, 2022). However, global studies also highlight disparities in access to quality TPD, especially in low-resource settings, which affects implementation consistency (Mwang'ombe, 2021). Overall, global evidence confirms that TPD significantly determines the success of competency-based curriculum reforms (OECD, 2023).

In developed countries, teacher professional development is institutionalized through structured systems that include coaching, collaboration, and continuous upskilling aligned with curriculum reforms (OECD, 2023). Studies in such contexts show that teachers engaged in sustained professional learning communities demonstrate improved instructional quality and learner outcomes in practical subjects (Darling-Hammond *et al*., 2020). For example, education systems in Europe and North America emphasize reflective teaching practices and evidence-based instructional improvement through continuous professional learning (UNESCO, 2022). These systems ensure that teachers are supported not only during curriculum rollout but also throughout implementation cycles (OECD, 2023). Consequently, developed countries exhibit stronger alignment between teacher development programs and curriculum expectations (Darling-Hammond *et al*., 2020).

In middle-income countries, teacher professional development is expanding but remains inconsistent due to resource and systemic constraints (UNESCO, 2022). Studies in countries such as South Africa and India indicate that while reforms emphasize competency-based education, limited training duration and inadequate follow-up reduce effectiveness (OECD, 2023). Research shows that teachers often struggle to translate training content into classroom practice, particularly in practical subjects requiring hands-on learning (Mwang'ombe, 2021). Additionally, large class sizes and workload pressures further limit teachers' participation in continuous professional learning (Darling-Hammond *et al*., 2020). These challenges result in uneven implementation of competency-based curricula despite ongoing reform efforts (UNESCO, 2022).

In developing countries, irregular training, limited resources, and insufficient institutional support (UNESCO, 2022) often, characterize teacher professional development. Studies indicate that although teachers are exposed to competency-based Education training, many lack adequate follow-up support to reinforce classroom application (OECD, 2023). In sub-Saharan Africa, evidence shows that weak TPD systems contribute to low teacher confidence in implementing learner-centred and competency-based instructional approaches (Mwang'ombe, 2021). Furthermore, rural schools experience greater disparities in access to training opportunities compared to urban schools, affecting implementation quality (Darling-Hammond *et al*., 2020). This results in inconsistent adoption of competency-based teaching practices across developing education systems (UNESCO, 2022).

In Africa, teacher professional development remains a key challenge in the successful implementation of competency-based Education due to limited institutional capacity and funding constraints (UNESCO, 2022). Studies across several African countries show that teachers often receive short-term training that is insufficient to fully develop competency-based instructional skills (OECD, 2023). In Kenya, research indicates that teachers face difficulties in implementing practical-based subjects due to gaps in continuous professional development and resource support (Macheso *et al*., 2024). Similarly, studies in Western Kenya highlight that teacher efficacy in competency-based assessment is influenced by the quality and frequency of training received (Macheso *et al*., 2024). This suggests that strengthening TPD systems is essential for improving CBE implementation outcomes in African contexts (UNESCO, 2022).

In Kenya, the Competency-Based Education introduced in 2017 has significantly increased the demand for teacher professional development to support its implementation (KICD, 2022). The Teachers Service Commission and Kenya Institute of Curriculum Development have conducted in-service training programs aimed at equipping teachers with CBC pedagogical and assessment skills (Koros & Achieng,

2023). However, studies show that many teachers still feel inadequately prepared due to limited training duration and insufficient practical orientation (Macheso *et al*., 2024). In Bungoma County, research indicates that Grade Six teachers experience challenges in implementing Home Science practical lessons despite exposure to CBE training (Simiyu, 2025). This highlights persistent gaps between training provision and classroom application in Kenyan primary schools (Koros & Achieng, 2023).

Teacher professional development is identified as a significant factor influencing the implementation of CBE in Grade Six Home Science (Simiyu, 2025). Studies show that although teachers have participated in CBE training, many still lack confidence in delivering competency-based practical lessons and assessments (Macheso *et al*., 2024). Evidence from Western Kenya indicates that teacher efficacy improves when professional development is continuous, practical, and classroom-focused rather than theoretical (Macheso *et al*., 2024). However, limited follow-up mentoring and inadequate instructional resources hinder effective application of skills acquired during training (Simiyu, 2025). Therefore, strengthening localized and sustained TPD programs remains critical for improving CBE implementation in Bungoma County primary schools (Koros & Achieng, 2023).

2.1 Theoretical Framework

This study was anchored on the Progressive Education Theory advanced by John Dewey (1938) and later refined and extended by contemporary scholars such as Bruner (1960) and Kolb (1984), who emphasized experiential and constructivist learning as central to meaningful education. The theory postulates that learning should be learner-centered, activity-based, and grounded in real-life experiences, where learners construct knowledge through interaction with their environment rather than passive reception of information. Dewey (1938) argued that education should prepare learners for democratic participation and problem solving in society, while later interpretations emphasize learning by doing, reflection, and continuous experience-based knowledge construction.

The theory is suitable for guiding this study because the Competency-Based Education (CBE), particularly in Grade Six Home Science, is fundamentally grounded in experiential and skills-based learning. Home Science as a subject requires learners to actively engage in practical tasks such as food preparation, hygiene practices, and resource management, which align directly with the "learning by doing" principle of Progressive Education Theory. Teacher Professional Development (TPD) becomes essential under this framework because teachers must shift from traditional lecture-based instruction to facilitation of hands-on, learner-centered activities that develop competencies. Therefore, the theory provides a strong conceptual foundation for examining how teacher training influences the effective implementation of CBE in real classroom settings.

Scholars have widely supported Progressive Education Theory in relation to modern curriculum reforms. Dewey (1938) emphasized that education must be rooted in experience, arguing that learners retain knowledge better when they actively engage in meaningful tasks. Bruner (1960) further supported the idea that learners construct knowledge through discovery learning, where teachers act as facilitators rather than knowledge transmitters. Kolb (1984) expanded the theory through experiential learning, highlighting that learning is a cyclical process involving experience, reflection, conceptualization, and experimentation. More recent scholars argue that competency-based education systems globally are a practical application of progressive and constructivist principles, as they emphasize skills acquisition, critical thinking, and real-world problem solving (Schiro, 2013; UNESCO, 2022). Collectively, these perspectives confirm that Progressive Education Theory is highly relevant in explaining the role of teacher professional development in facilitating effective CBE implementation in Home Science.

3.0 METHODOLOGY

This study was anchored on the pragmatism research paradigm. A mixed-methods research design was employed to integrate both quantitative and qualitative approaches in examining teacher professional development in facilitating Competency-Based Education in Grade Six Home Science. The target population comprised 801 head teachers, 801 Grade Six Home Science teachers, and 47 Curriculum Support Officers (CSOs) in public primary schools. A sample of 240 head teachers, 240 Home Science teachers, and 14 CSOs was selected using simple random sampling to ensure equal representation and reduce sampling bias. Data were collected using structured questionnaires for head teachers and teachers, and interview schedules for CSOs. Validity of the research instruments was established through expert review from curriculum and research specialists, while reliability was confirmed using Cronbach's Alpha coefficients of above 0.80, indicating acceptable internal consistency. Quantitative data were analyzed using descriptive statistics such as frequencies, means, and standard deviations, as well as inferential statistics, while qualitative data were analyzed thematically through coding, categorization, and interpretation. Ethical considerations were observed by obtaining research authorization, ensuring informed consent, maintaining confidentiality, and guaranteeing voluntary participation of all respondents throughout the study.

4.0 RESULTS AND DISCUSSIONS

4.1 Teacher Professional Development and CBE

The purpose of this study was to examine the influence of teacher professional development in

facilitating CBE in Grade Six Home Science in public primary schools in Bungoma County. Respondents were requested to indicate their level of agreement or disagreement on a five-point Likert scale regarding various aspects of professional development that support effective CBE facilitation. The constructs assessed included the adequacy of in-service training on CBE methodologies, frequency and relevance of workshops and seminars attended, opportunities for continuous capacity building, exposure to practical demonstrations on learner-centered pedagogies, and the extent to which professional development equipped teachers to conduct competency-based assessment. The findings were as summarized in table 1.

Table 1: Teacher Professional Development and CBE (N = 448)

Statement	SD		D		U		A		SA	
	f	%	F	%	f	%	f	%	f	%
In my school teachers have attended in-service training on CBE.	60	13.4%	120	26.8%	7	1.6%	210	46.9%	51	11.4%
CBE training has improved teachers' facilitation skills in Home Science.	45	10.0%	135	30.1%	6	1.3%	205	45.8%	57	12.7%
In my school teachers regularly participate in workshops and seminars on CBE.	80	17.9%	140	31.3%	5	1.1%	173	38.6%	50	11.2%
Professional development opportunities are relevant to teaching needs.	30	6.7%	110	24.6%	8	1.8%	220	49.1%	80	17.9%
Continuous professional development influences success in implementing CBE.	25	5.6%	105	23.4%	4	0.9%	220	49.1%	94	21.0%

The findings in Table 1 showed that majority of the respondents 210 (46.9%) of respondents agreed that teachers in their schools have attended in-service training on CBE, while 51 (11.4%) strongly agreed, 120 (26.8%) disagreed, 60 (13.4%) strongly disagreed, and 7 (1.6%) were undecided. This implies that a substantial majority (58.3%) of teachers have participated in in-service training, demonstrating institutional efforts to equip educators with CBE-related skills. This finding aligns with studies by Roberts *et al*., (2021), which noted that in-service training is essential for enhancing teacher competence in new curriculum frameworks internationally. Additionally, the findings revealed that majority 205 (45.8%) of respondents agreed that CBE training has improved teachers' facilitation skills in Home Science, while 57 (12.7%) strongly agreed, 135 (30.1%) disagreed, 45 (10.0%) strongly disagreed, and 6 (1.3%) were undecided. This implies that a substantial majority (58.5%) of teachers recognize that targeted CBE training enhances their facilitation skills, supporting the effectiveness of professional development programs. This is consistent with studies by Garcia *et al*., (2022), which found that specialized curriculum training strengthens teacher pedagogy and competency-based classroom practices.

Further, 173 (38.6%) of respondents agreed that teachers regularly participate in workshops and seminars on CBE, while 50 (11.2%) strongly agreed, 140 (31.3%) disagreed, 80 (17.9%) strongly disagreed, and 5 (1.1%) were undecided. This implies that a substantial majority (49.8%) of teachers engage in ongoing workshops, indicating that professional development opportunities are accessible but participation is somewhat variable. Similarly, international studies by Thompson *et al*., (2023) noted that regular engagement in seminars and workshops is critical for sustaining teacher competence in competency-based education systems. Furthermore, the data revealed that majority 220 (49.1%) of respondents agreed that professional development opportunities are relevant to teaching needs, while 80 (17.9%) strongly agreed, 110 (24.6%) disagreed, 30 (6.7%) strongly disagreed, and 8 (1.8%) were undecided. This indicates that a substantial majority (66.9%) of teachers perceive professional development as aligned with their instructional requirements, enabling them to better facilitate CBC. Similarly, research by Anderson and Smith (2023) highlighted that relevance and applicability of training programs are crucial for effective curriculum adoption internationally.

Moreover, majority of the respondents 220 (49.1%), agreed that continuous professional development influences success in implementing CBE, 94 (21.0%) strongly agreed, 105 (23.4%) disagreed, 25 (5.6%) strongly disagreed, while 4 (0.9%) were undecided. This implies that a substantial majority (70.1%) of teachers acknowledge that continuous professional development positively affects the successful implementation of CBE, highlighting the importance of ongoing capacity building. This finding is consistent with studies by Johnson *et al*., (2022), which emphasized that sustained professional development enhances teacher effectiveness and learner outcomes in competency-based education globally. In order to effectively implement the Competency-Based Education (CBE), teachers require ongoing professional development that equips them with the knowledge, skills, and pedagogical strategies necessary to facilitate learner-centered, competency-focused instruction. The findings from this study indicate that most Home Science teachers in Bungoma County have participated in in-service training, workshops, and seminars, and recognize the value of these programs in enhancing their facilitation skills. Such training enables teachers to apply practical, real-life examples, manage diverse classroom

needs, and conduct competency-based assessments effectively, which are all central to the goals of CBE.

However, professional development alone is not sufficient to guarantee optimal implementation. The study reveals that while a substantial majority of teachers have attended training, a notable proportion still feel underprepared or inconsistently supported, particularly in areas such as adapting new methods and integrating collaborative strategies. This highlights gaps between training received and practical classroom application, suggesting that training programs must be continuous, context-specific, and accompanied by mentoring to ensure that teachers can translate theory into practice effectively. Therefore, strengthening teacher professional development is critical not only for immediate classroom outcomes but also for the long-term success of the curriculum. Continuous capacity-building initiatives should be combined with collaborative forums, peer coaching, and monitoring by school administrators to reinforce best practices and sustain improvements. The findings indicate that when teachers perceive professional development as relevant and supportive, they are more confident, adaptable, and capable of facilitating competency-based learning.

Despite the progress made in rolling out CBE training across Kenya, challenges remain. Many schools face resource limitations, large class sizes, and uneven access to professional development opportunities, which constrain teachers' ability to fully implement CBE. Addressing these systemic barriers is crucial to ensure that teacher professional growth translates into tangible improvements in learner outcomes. In Bungoma County, these challenges are evident in the variability of teacher readiness and the differential adoption of CBE strategies across schools. The future of Kenya's education lies in the sustained investment in teacher professional development, continuous support, and systemic reforms that prioritize both teacher and learner needs. Eventually, as teachers become more skilled, confident, and collaborative in applying CBE principles, learners will benefit from richer, more engaging learning experiences that develop critical thinking, practical skills, and lifelong competencies. The findings of this study underscore the importance of viewing professional development not as a one-off event but as an ongoing, integrated component of effective curriculum implementation.

4.2 Correlation Coefficient between Teacher Professional Development and Effective Facilitation of CBE

Correlation analysis was conducted to determine the relationship between teacher professional development (independent variable) and effective facilitation of Competency-Based Education (CBE) in Grade Six Home Science (dependent variable). The findings were used to test the hypothesis, which stated that: $H_0 1$: There is no significant relationship between teacher professional development and effective facilitation of CBE in Grade Six Home Science. Pearson Product-Moment Correlation coefficient (r) was computed, and the results are presented in Table 2.

Table 2: Correlation between Teacher Professional Development and Effective Facilitation of CBE

Variable	Effective Facilitation of CBE
Teacher Professional Development	.552**

The findings revealed a moderate positive and statistically significant relationship between teacher professional development and effective facilitation of CBE in Grade Six Home Science ($r = .552$, $p < .01$). This implies that improvements in teacher professional development are associated with enhanced effectiveness in facilitating CBE. The positive correlation indicates that teachers who frequently engage in professional development activities such as in-service training, workshops, and seminars are more likely to implement learner-centered strategies effectively, conduct competency-based assessments, and deliver practical Home Science lessons successfully. The significance of the relationship suggests that teacher professional development is a key determinant of effective curriculum implementation. Therefore, the null hypothesis ($H_0 1$), which stated that there is no significant relationship between teacher professional development and effective facilitation of CBE in Grade Six Home Science, was rejected. These findings imply that strengthening continuous professional development programs, mentorship, and structured capacity-building initiatives is essential for improving the effectiveness of CBE implementation in public primary schools.

4.3 Heads of Institutions Qualitative Perspective

When heads of institutions were asked about the role of professional development in facilitating CBE in Grade Six Home Science, a participant (HT) in one of the schools reported that professional development plays a key role in updating teachers on current pedagogical skills, equipping them with modern teaching knowledge, enhancing content delivery, and improving teacher confidence.

> *"Professional development updates teachers on current pedagogical skills, equips them with modern knowledge in teaching, enhances content delivery, and improves teacher confidence in delivering Home Science content."*

HT 8 in School F highlighted the challenges that Grade Six teachers face in facilitating CBE in Home Science. He cited shortages of skilled Home Science teachers, lack of modern teaching and learning materials,

unclear assessment methods, and negative attitudes from stakeholders such as parents and the community.

> *"Grade Six teachers face several challenges, including shortage of skilled Home Science teachers, lack of modern teaching and learning materials, unclear assessment methods, and negative attitudes from stakeholders like parents and the community."*

When asked for their opinion on how facilitation of CBE in Home Science could be improved, most heads of institutions emphasized the need for enhanced teacher training in Home Science at teacher training colleges, increased parental awareness of CBE, and employment of teachers based on their areas of specialization.

> *"The Ministry of Education should enhance Home Science training in teacher training colleges, create awareness among parents on CBE, and employ and staff teachers based on areas of specialization."*

Additionally, the heads of institutions recommended that all schools be fully equipped with Home Science rooms and equipment, that the Ministry continue retooling Home Science teachers to keep them updated on pedagogical skills, and that digital devices in primary schools be improved.

> *"All schools should be well equipped with Home Science rooms and equipment. The Ministry of Education should continue retooling Home Science teachers to keep them updated on pedagogical skills and improve digital devices in primary schools."*

The sentiments from head teachers highlight the critical role of professional development in enabling teachers to effectively facilitate CBE in Grade Six Home Science. Professional development programs were noted to update teachers on current pedagogical skills, equip them with modern teaching knowledge, enhance content delivery, and boost teacher confidence. This indicates that ongoing training is essential for teachers to remain effective facilitators in a curriculum that emphasizes practical, competency-based learning. Furthermore, the heads of institutions identified multiple challenges that impede effective CBE facilitation. These included a shortage of skilled Home Science teachers, inadequate teaching and learning materials, unclear assessment methods, and negative attitudes from stakeholders such as parents and the community. Such challenges suggest that both human and material resources are insufficient to meet the demands of CBE, limiting the potential for learner-centered and practical instruction.

The responses also reveal a strong emphasis on improving teacher preparation and specialization. Head teachers advocated for enhanced Home Science training in teacher training colleges, employment of teachers according to their areas of specialization, and continuous retooling to update pedagogical skills. This underscores the importance of aligning teacher competencies with curriculum requirements to ensure effective facilitation and mastery of Home Science competencies by learners. In addition, the need for adequate infrastructure and equipment was highlighted as a key factor in supporting CBE. Providing well-equipped Home Science rooms, modern teaching aids, and digital devices in primary schools was seen as necessary to create an enabling environment for practical learning. These provisions are crucial to translate theoretical training into effective classroom practice and ensure that learners gain the intended competencies.

The responses further emphasized the role of stakeholder engagement in supporting CBE implementation. Heads of institutions suggested creating awareness among parents and the community regarding the value and requirements of CBE. This points to the interconnected nature of curriculum implementation, where teacher readiness, school resources, and community involvement collectively influence the quality of competency-based education. Related studies point out that the successful implementation of competency-based curricula in practical subjects depends heavily on teacher preparedness, resource availability, and continuous professional development. Alhassan and Owusu (2022) in Ghana found that teachers' lack of training in practical facilitation and limited access to instructional materials significantly hindered the effectiveness of competency-based approaches in vocational subjects. Their study emphasized that structured workshops and in-service training programs are essential for equipping teachers with the necessary skills to deliver hands-on learning experiences.

Similarly, Phiri and Banda (2021) in Zambia highlighted that inadequate infrastructure and poorly resourced classrooms compromised teachers' ability to implement learner-centered pedagogies. They reported that schools with well-equipped facilities and access to modern teaching aids showed higher levels of teacher confidence and student engagement in practical subjects, supporting the notion that resources directly influence the quality of competency-based learning. In addition, Tadesse and Mekonnen (2020) in Ethiopia observed that continuous professional development significantly improved teachers' pedagogical skills, confidence, and use of modern instructional strategies. Their findings indicated that teachers who participated in targeted training programs were better able to integrate ICT, facilitate collaborative learning, and assess learners' competencies effectively, which aligns closely with the challenges and recommendations highlighted by the heads of institutions in the current study.

4.4 Teachers Qualitative Perspective

When asked about the skills and competencies that should be prioritized in CBE teacher training,

Teacher 4 in one of the schools emphasized that trainers should focus on observation, communication, problem-solving, differentiated learning, collaboration, technical and digital skills, ICT integration, and competencies in assessment and interpretation.

> *"In CBE training, the trainers should target skills like observation, communication, problem-solving, differentiated learning, collaboration, technical and digital skills to integrate ICT in teaching, competencies assessment, and interpretation skills."*

Another teacher highlighted that competencies should be explicitly included in training, particularly digital literacy, self-efficacy, communication, and collaboration.

> *"Competencies to be targeted in training include digital literacy, self-efficacy, communication, and collaboration."*

The teacher responses indicate a clear consensus that professional development for CBE should focus on equipping teachers with both pedagogical and technical competencies. Emphasis was placed on observation, communication, problem-solving, differentiated instruction, collaboration, and digital literacy, which are essential for implementing learner-centered and competency-based approaches. This aligns with findings by Tadesse and Mekonnen (2020), who reported that continuous professional development in Ethiopia enhanced teachers' pedagogical skills, confidence, and ability to integrate ICT into competency-based curricula. Furthermore, the inclusion of self-efficacy and collaboration as targeted competencies suggests that teacher training should address both individual capabilities and team-based approaches. Studies by Alhassan and Owusu (2022) in Ghana indicated that teachers with higher self-efficacy and collaborative skills were more effective in facilitating practical-oriented subjects, as they could guide learners through problem-solving tasks and group activities successfully. This supports the idea that CBE requires a combination of technical skills, pedagogical expertise, and interpersonal competencies.

The responses also highlighted the importance of assessment-related skills, including the ability to interpret competencies and integrate them into lesson delivery. This reinforces the notion that teacher readiness for CBE is not solely about content knowledge but also about effectively evaluating learner progress and adjusting instructional strategies accordingly. Phiri and Banda (2021) found similar outcomes in Zambia, noting that teachers trained in competency assessment and interpretation were better equipped to implement learner-centered pedagogies and track skill acquisition in practical subjects. Further, these responses underscore the necessity of structured and targeted professional development programs that address both digital and practical competencies. In equipping teachers with these skills, schools can ensure that facilitators are capable of implementing CBE effectively, fostering critical thinking, creativity, and problem solving among learners. This reflects a broader regional trend emphasizing that comprehensive teacher training is central to the successful adoption of competency-based curricula in practical subjects such as Home Science.

In School E, a Grade Six Home Science teacher emphasized the role of professional development in equipping teachers with current skills and knowledge in competency-based education (CBE). The teacher highlighted that professional development enhances curriculum implementation, ensures teachers remain professionally updated and relevant, fosters creativity and innovation in lesson preparation, and improves pedagogical skills.

> *"The role of professional development is to equip teachers with the current skills and knowledge in CBE. It enhances curriculum implementation, makes teachers remain professionally updated and relevant, enables creativity and innovation in CBE lesson preparation, and improves pedagogical skills."*

Teacher 4 in School F explained the roles of teachers in CBE, noting that teachers should guide learners, provide a supportive and conducive learning environment, supply lesson materials, serve as role models, and promote active learner participation. The teacher further emphasized the importance of assessing competency development in learners.

> *"The role of teachers in CBE is to guide learners, provide a supportive and conducive learning environment, give materials for lessons, act as role models, promote active participation in learners, and assess competency development in learners."*

In another school, a Grade Six Home Science teacher suggested ways to improve CBE implementation. The teacher recommended continuous retooling for teachers, provision of physical facilities and instructional materials by the government, frequent teacher training, and the development and distribution of localized teaching materials. Additionally, the teacher emphasized involving all stakeholders in learning activities to enhance curriculum effectiveness.

> *"CBE can be improved by organizing continuous retooling for teachers, the government providing physical facilities for Home Science and equipping them, frequent training for teachers, Ministry of Education developing and distributing localized instructional materials, and involving all stakeholders in learning activities."*

The responses indicate that professional development plays a central role in enhancing teachers' ability to implement CBE effectively. Teachers

highlighted that continuous training equips them with updated skills and knowledge, fosters creativity, and improves pedagogical practices. Similarly, Tadesse and Mekonnen (2020) found that continuous professional development in Ethiopia improved teachers' instructional competence and confidence in delivering competency-based curricula, which aligns with the teachers' views in this study. Additionally, teachers emphasized the multifaceted role of teachers in CBE, including guiding learners, providing supportive and conducive learning environments, supplying materials, acting as role models, and assessing learner competencies. This suggests that teacher effectiveness in CBE extends beyond content delivery to encompass mentorship, facilitation, and active learner engagement. Alhassan and Owusu (2022) also reported that teacher readiness and active involvement are key factors influencing the successful implementation of competency-based approaches in practical subjects.

However, challenges persist in terms of infrastructure and instructional materials. Teachers pointed out that schools need physical facilities and adequately equipped Home Science rooms to facilitate hands-on, competency-based learning. Concurrently, Phiri and Banda (2021) in Zambia observed that limited resources and poorly resourced classrooms hindered teachers' ability to apply learner-centered and practical teaching methods, confirming the concerns raised by the participants in this study. Furthermore, teachers suggested that continuous retooling and stakeholder involvement are essential for effective CBE implementation. Engaging parents, communities, and the Ministry of Education in learning activities ensures that teachers are supported and learners benefit from an enriched learning environment. Similarly, studies in Ghana and Mozambique have highlighted that stakeholder engagement and resource provision significantly enhance the quality and sustainability of competency-based education programs (Boadu & Antwi, 2020; Chilundo & Mwale, 2022).

5.0 CONCLUSIONS

The study concludes that teacher professional development plays a significant role in facilitating the implementation of Competency-Based Education (CBE) in Grade Six Home Science in public primary schools in Bungoma County. The findings indicate that most teachers have participated in in-service training, workshops, and seminars, which have contributed positively to their instructional practices, particularly in enhancing facilitation skills and understanding of CBE methodologies. A majority of respondents also acknowledged that professional development opportunities are relevant to their teaching needs and that continuous capacity building improves their effectiveness in delivering competency-based instruction. This suggests that structured teacher training programs are a key driver in supporting the transition from traditional teaching approaches to learner-centered and skills-oriented pedagogy required in CBE.

However, the study also concludes that despite the presence of professional development initiatives, gaps still exist between training and effective classroom implementation. A notable proportion of teachers reported limited preparedness and inconsistent support in applying CBE strategies, particularly in practical subjects such as Home Science. Challenges such as inadequate follow-up support, limited mentoring, and contextual constraints including large class sizes and resource limitations were found to hinder optimal implementation. Therefore, the study concludes that for CBE to be fully effective, teacher professional development must be continuous, practical, and well supported through sustained mentorship and institutional backing, especially at the school and county levels.

6.0 Policy Recommendations

Based on the findings, this study made the following recommendations:

i. There is a need for the Ministry of Education, through the Teachers Service Commission (TSC) and the Kenya Institute of Curriculum Development (KICD), to strengthen and expand continuous professional development programs to ensure that all Grade Six Home Science teachers are adequately trained and regularly updated on Competency-Based Education (CBE) methodologies.

ii. There is a need for school administrators to provide structured school-based professional development opportunities such as peer coaching, lesson study, and collaborative planning sessions to enhance practical application of CBE strategies in Home Science instruction.

iii. There is a need for education stakeholders to ensure that teacher professional development is more practical, hands-on, and context-specific by incorporating classroom demonstrations, mentoring, and follow-up support to bridge the gap between training and implementation.

iv. There is a need for county and national education authorities to address systemic challenges such as inadequate training resources, large class sizes, and limited instructional materials in order to create an enabling environment that supports effective implementation of CBE in public primary schools.

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