The Influence of Training Approaches in In-Service Teacher Training on the Implementation of the Competence-Based Curriculum in Public Primary Schools in Kilifi County, Kenya

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ABSTRACT: In-service teacher training plays a pivotal role in the successful implementation of the Competence-Based Curriculum (CBC) in public primary schools. As Kenya transitions to CBC, it is crucial to examine how different training approaches affect teachers' ability to deliver and assess the new curriculum effectively. This study investigates the impact of various training methodologies on CBC implementation in Kilifi County, focusing on the prevalence and effectiveness of traditional versus innovative teaching strategies. The findings reveal a dominance of traditional teaching methods, such as group projects, discussions, and lectures, with 93.2% of respondents frequently using group projects and 89.8% employing discussions/presentations regularly. In contrast, innovative methods like gamified learning, problem-solving, and brainstorming are significantly underutilized, with 46.9%, 53.4%, and 69.7% of respondents, respectively, never using these techniques. Chi-square analysis indicates that interactive training approaches, including practical discussions and guided practice, have a substantial positive effect on instructional delivery, assessment, and professional growth, evidenced by p-values of 0.000, 0.009, and 0.003. Theoretical training with immediate feedback is significantly effective in instructional delivery and assessment (p = 0.000) but less impactful on professional development (p = 0.186). Engaging activities and mentorship are crucial for enhancing instructional delivery and assessment (p = 0.000 and p = 0.002), while adapting teaching styles and using technology show inconsistent effects. The study concludes that while traditional methods are prevalent, integrating interactive and innovative training approaches is essential for effective CBC implementation. Recommendations include prioritizing practical, hands-on training that aligns with CBC principles, promoting underutilized innovative methods, strengthening mentorship for inexperienced teachers, and emphasizing continuous professional development through seminars and workshops to improve CBC execution.

KEYWORDS: Competence-Based Curriculum (CBC), In-service Teacher Training, Innovative Teaching Strategies, Instructional Delivery and Assessment, Professional Development.

1.1 INTRODUCTION

Teacher professional development is a global priority and a decisive factor required for providing a well-educated, professional, and skilled teaching force in implementing a curriculum. Effective teachers have a major impact on curriculum implementation (Mulangi,, 2024; Akala, 2021). However, teachers in low- and middle-income countries often lack the skills to teach students effectively due to outdated, rote, passive, and over-theoretical teacher education programmes (Muchira et al., 2023).

The Ministry of Education, through the Kenya Institute of Curriculum (KICD), has put measures for the implementation of the competency-based curriculum since its launch (Leicht & Byun 2021). The change in curriculum pedagogy necessitated training the teachers on the paradigm shift in pedagogy and content that meets the needs of the competence-based curriculum. The successful implementation of educational reforms such as the Competence-Based Curriculum (CBC) in Kenya hinges on the professional development of teachers (Cheruiyot, 2024). In-service teacher training is vital in ensuring teachers acquire the skills and knowledge required for effective curriculum delivery (Simo, 2022). The CBC, which was introduced to shift the focus from content-based to skills-based learning, demands that teachers adopt new pedagogical approaches that foster critical thinking, creativity, and problem-solving among learners (Chepkurui et al., 2023; Masika, 2020). As such, the methods used in in-service teacher training are integral to the effective implementation of the CBC in public primary schools across Kenya, particularly in Kilifi County.

According to Nteziyaremye et al. (2024), in-service training serves as a bridge between policy reform and classroom practice.

Training delivery methods must be adaptive and designed to address teachers' pedagogical and technological needs. In Kilifi County, as in other parts of Kenya, the traditional methods of in-service teacher training are being re-examined in favor of more dynamic and multimodal approaches. These include integrating information and communication technology (ICT), micro-learning, and practical, hands-on methods that align with the objectives of the CBC. This paper aims to explore the influence of these training approaches on the effective implementation of the CBC in Kilifi County.

1.2 PROBLEM STATEMENT

Implementing the Competence-Based Curriculum (CBC) in public primary schools in Kilifi County, Kenya, faces significant challenges, primarily due to the inadequacy of in-service teacher training approaches. Despite efforts to equip teachers with the necessary skills for CBC implementation, traditional training methods such as lectures and print-based materials have proven ineffective in fostering the practical, skills-based teaching required by the CBC. Additionally, the limited integration of information and communication technology (ICT) and the absence of hands-on, experiential learning in training sessions have hindered teachers' ability to apply CBC principles effectively in the classroom. As a result, there is a need to investigate how innovative, multimodal training approaches, including ICT integration and micro-learning, can better support teachers in successfully implementing the CBC in Kilifi County.

1.3 OBJECTIVES

To examine the influence of multimodal and ICT-based training approaches on the effective implementation of the Competence-Based Curriculum (CBC) in public primary schools in Kilifi County.
To assess the relationship between hands-on, practical in-service teacher training methods and teachers' ability to implement CBC principles in the classroom.

1.4 HYPOTHESES

H01: There is no significant relationship between the use of multimodal and ICT-based training approaches and the effective implementation of the Competence-Based Curriculum in public primary schools in Kilifi County.
H02: Hands-on, practical, in-service teacher training methods do not significantly influence teachers' ability to implement CBC principles in public primary schools in Kilifi County.

1.5 LITERATURE REVIEW

The implementation of the Competency-Based Curriculum requires teachers to shift from conventional teaching methods to more learner-centered approaches that emphasize competencies over content. As such, teachers must be trained through in-service programs to equip them with the necessary skills to adopt these changes effectively. According to Nzarirwehi and Atuhumuze (2019), in-service training plays an essential role in teacher education and the implementation of CBC. Their study highlights that contemporary approaches such as workshops, conferences, and practical training sessions significantly enhance teachers' ability to implement new curricula effectively.

One of the key aspects of in-service training is the delivery method. Traditional lecture-based and print-based modes are increasingly being replaced by multimodal approaches that leverage technology for more engaging and effective learning experiences (Allela, 2020). These multimodal methods break down content into smaller, manageable chunks, allowing teachers to absorb and apply new knowledge incrementally. Pistoro et al. (2018) argue that integrating ICT into in-service training not only improves teachers' technological skills but also enhances their ability to implement the CBC, which heavily incorporates the use of technology in the classroom.

In their study on the effectiveness of training delivery methods, Fukkink et al. (2019) revealed that hands-on, practical training significantly improved the implementation of CBC in classrooms. The study emphasized the importance of aligning training content with real-world classroom challenges, thereby equipping teachers with the skills to apply CBC principles practically. Furthermore, Brauer (2021) suggests that adjusting in-service training delivery methods to include ICT enhances curriculum implementation by making training more accessible, efficient, and aligned with the demands of modern classrooms.

The use of micro-learning, which involves delivering training content in small, focused segments, has been identified as a particularly effective method for in-service teacher training. According to Allela (2020), micro-learning and other time-efficient

approaches are suitable for in-service teacher training, especially in settings like Kilifi County, where teachers often have limited time for professional development. These methods ensure that training is not only practical but also easily digestible and immediately applicable in the classroom.

International experiences provide valuable insights into how training approaches impact curriculum implementation. In Singapore, the shift from a knowledge-based to a skills-focused curriculum was supported by professional development programs that emphasized practical training, peer collaboration, and mentorship (Suldo et al., 2015). Similarly, in the United States, the implementation of the Next Generation Science Standards (NGSS), which shares similar objectives with CBC, relied on training methods that prioritized hands-on experiences and collaborative planning (Banilower et al., 2018). These examples demonstrate that effective training approaches are critical to successfully implementing competence-based curricula globally.

1.6 THEORETICAL FRAMEWORK

This study draws on two key theories: Curriculum Implementation Theory (Gross, 1971) and John Dewey's Theory of Learning (1989). Gross's theory outlines that successful curriculum implementation requires clarity of content, the competence of the implementers, and continuous professional support. In the context of in-service teacher training for CBC, this theory highlights the need for training approaches that ensure teachers are not only knowledgeable about CBC principles but also competent in applying them in the classroom. Training must be clear, practical, and supported by ongoing professional development.

Dewey's theory emphasizes experiential learning, advocating for training that involves doing rather than passive instruction. In-service teacher training programs must therefore focus on active learning methods, where teachers engage in real-world problem-solving, collaborative tasks, and reflective practice. This aligns with the CBC's emphasis on experiential learning and competency development, ensuring that teachers can translate these principles into effective classroom practices.

2.1 MATERIALS AND METHODS

This study employs a descriptive research design to examine the influence of training approaches in in-service teacher training on the implementation of CBC in Kilifi County's public primary schools. The target population includes teachers, headteachers, and education officers involved in the CBC implementation in Kilifi County, with a sample size derived from 213 public primary schools across the county. Sampling techniques included stratified sampling to select schools and simple random sampling to select participants, ensuring representation from all seven sub-counties in Kilifi (Malindi, Magarini, Kilifi North, Kilifi South, Kaloleni, Rabai, and Ganze). Data was collected using questionnaires for teachers and headteachers, and interview guides for education officers and curriculum support officers. Data analysis was conducted using both qualitative and quantitative methods. Descriptive statistics were used to present data on training approaches and CBC implementation, while bivariate analysis was employed to assess the strength of the relationship between training approaches and successful curriculum implementation.

3.0 RESULTS AND DISCUSSION

3.1 Training Approaches for CBC Training

The study also sought to learn from the teachers the methods of training used during the CBC training. The study findings are presented in table 1below.

Table 1: Training approaches used in CBC training

	Very often	Often	Rarely	Not sure	Never
Group projects	37.1	56.1	6.8	0	0
Discussion and presentations	46.6	43.2	6.8	3.4	0
Gamified learning	22.8	0	27.2	3.1	46.9
Problem-solving	23.1	0	23.5	0	53.4
Roleplay	20.4	69.4	10.2	0	0
Debate	50	50	0	0	0
Brainstorming	20.4	3.16	6.8	0	69.7
Demonstration	23.8	69.7	3.4	0	3.1
Music	3.1	0	10.2	56.1	30.6
Lecture	23.8	62.9	10.2	0	3.1

The findings in Table 1 reveal that traditional teaching methods such as group projects, discussions, and lectures are widely used in the classroom, with the majority of participants reporting their frequent application. Group projects are used very often or often by 93.2% of respondents, and discussions/presentations by 89.8%. Roleplay and debates are also commonly employed, with 69.4% using roleplay often and debates being equally split between very often and often. On the other hand, more modern and interactive approaches like gamified learning, problem-solving, and brainstorming are underutilized, with 46.9% reporting never using gamified learning, 53.4% never using problem-solving, and 69.7% never using brainstorming. Additionally, the use of music as a teaching tool is minimal, with 56.1% unsure of its application and 30.6% reporting it is never used. Overall, while traditional methods dominate, there is limited integration of innovative and interactive teaching strategies.

3.2 The Influence of Trainers' In-Service Training Qualifications on the Implementation of the Competence-Based Curriculum

The study sought to establish the level of association between training approaches and the implementation of the Competency-Based Curriculum. Chi-square statistical tests were conducted, and the findings are presented in Table 2 below.

Table 2: The influence of training approaches in in-service teacher training on the implementation of the competence-based curriculum in public primary schools in Kilifi County, Kenya

	Teachers' preparation and planning			Instructional delivery			Assessment, supervision and feedback			Professional engagement, growth and development		
	x^2	DF	P	x^2	DF	P	x^2	DF	P	x^2	DF	P
The training was interactive with practical discussions and guided practice of various CBC techniques	0.246	3	0.970	20.154	3	0.00	11.520	3	0.009	13.629	3	0.003
The training was theoretical with immediate provision of feedback	0.502	3	0.918	26.729	3	0.000	18.433	3	0.000	4.814	3	0.186
Activities are engaging and practical during CBC training	0.543	3	0.909	38.759	3	0.000	12.524	3	0.006	1.922	3	0.589
Mentorship and coaching are done for inexperienced teachers in schools	0.516	3	0.915	19.183	3	0.000	14.584	3	0.002	7.324	3	0.062

Seminars, conferences and workshops were widely used for training	0.064	2	0.968	5.729	2	0.057	8.096	2	0.017	3.761	2	0.152
A wide range of training approaches are used in such as collaborative learning, modelling inquiry-guided instruction, experiential learning, problem based learning	0.885	4	0.927	7.262	4	0.123	13.663	4	0.008	14.083	4	0.007
I have been trained on selection of effective teaching/learning approaches to guide learners thinking and learning	0.269	2	0.874	3.788	2	0.150	2.856	2	0.240	11.481	2	0.003
I can adapt my teaching style to different learners	0.885	3	0.829	6.360	3	0.095	13.608	3	0.003	7.008	3	0.072
I can use a wide range of technology in teaching	0.315b	2	0.854	1.918	2	0.383	14.832	2	0.001	0.189	2	0.910

The chi-square analysis reveals that the interactivity of CBC training, including practical discussions and guided practice, significantly impacts instructional delivery, assessment, and professional growth, with p-values of 0.000, 0.009, and 0.003, respectively. Similarly, theoretical training with immediate feedback shows a significant effect on instructional delivery ($p = 0.000$) and assessment ($p = 0.000$), but less so for professional development ($p = 0.186$). Engaging and practical activities during training have a significant influence on instructional delivery ($p = 0.000$) and assessment ($p = 0.006$), though their effect on professional growth is not statistically significant ($p = 0.589$). Mentorship and coaching for inexperienced teachers significantly affect instructional delivery ($p = 0.000$) and assessment ($p = 0.002$). Lastly, collaborative and experiential learning approaches significantly influence assessment ($p = 0.008$) and professional development ($p = 0.007$). However, adapting teaching styles and using technology in teaching show less consistent significant effects across the categories. Overall, interactive and practical training approaches substantially impact teachers' instructional methods, assessment practices, and professional growth.

4.0 CONCLUSION AND RECOMMENDATIONS
4.1 Conclusion
The analysis shows that traditional teaching methods like group projects, discussions, and lectures are commonly used, while innovative and interactive methods such as gamified learning, problem-solving, and brainstorming are underutilized in implementing the Competence-Based Curriculum (CBC). Additionally, the influence of in-service teacher training approaches on instructional delivery, assessment, and professional development is significant when the training is interactive and practical. In

contrast, theoretical training shows less consistent impact. Engaging activities, mentorship, and collaborative learning positively affect instructional delivery and assessment, highlighting the importance of active learning in teacher training for effective CBC implementation.

4.2 Recommendations

i. Teacher training programs should prioritize hands-on, practical activities that align with CBC principles. Incorporating collaborative learning, inquiry-guided instruction, and experiential learning into teacher training will better equip educators to implement CBC effectively.

ii. Schools should encourage innovative methods, such as gamified learning, problem-solving, and brainstorming, which are underutilized. These methods can enhance learner engagement and foster the competencies emphasized in CBC.

iii. Mentorship and coaching, particularly for inexperienced teachers, should be strengthened to ensure ongoing professional development and support in adapting to CBC instructional methods.

iv. Ongoing professional development should be emphasized through seminars, workshops, and collaborative peer learning, ensuring teachers remain updated on the best practices for CBC implementation.

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