

# Teacher preparedness for competency-based curriculum in Kenyan schools: training and perceptions prior to implementation

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## ABSTRACT

Pre-implementation training and teachers' perceptions are critical factors influencing successful implementation of a new curriculum. This paper reports on some of the findings from a study that assessed the preparedness of primary school educators to implement the newly introduced competency-based curriculum (CBC) in Kenya. The study participants were primary school teachers and school heads drawn from 37 public elementary schools in Embu, Kenya. Using a mixed-methods approach, both qualitative and quantitative data were gathered through surveys, interviews, and observations. Qualitative data were analyzed using thematic analysis, whereas quantitative data were examined using descriptive and inferential statistics. The study revealed that 95% of teachers had been trained to implement CBC, and 65% of the teachers held negative perceptions toward the new curriculum. The study also established a weak but significant correlation (Spearman's  $\rho=0.268$ ,  $p<0.05$ ) between pre-implementation training and teachers' perceptions on the CBC implementation. The findings suggest that continuous, structured in-service training is critical for CBC success, particularly in building competencies and improving teachers' perceptions.

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## 1. INTRODUCTION

In the 21st century, skills-based education, also referred to as competency-based education, has gained significant attention and emerged as a prominent approach worldwide [1]. Many countries are transitioning from knowledge-based to competency-based curriculum (CBC), which emphasizes innovation, creativity, and problem-solving [2]–[5]. Competency refers to the capacity to effectively apply skills, knowledge, values, and attitudes in various real-world situations, including educational, professional, personal, and work-related settings [2], [6], [7].

To achieve educational goals of any society, the curriculum must be both functional and aligned with societal needs [8]. As these needs continually evolve, curriculum revisions and reforms are inevitable [7]. Furthermore, globalization has prompted many countries to transition to CBC and ensure learners possess the necessary competencies for a fulfilling life [9]–[11]. As an educational framework, CBC is positioned as a transformative force, reshaping teaching and learning through its emphasis on competency mastery and real-world application [12]. This approach bridges the gap between academic learning and the workplace, promoting a more profound understanding of the competencies learners need for both professional and personal success [13].

To achieve Kenya's Vision 2030, a committee established to realign the education sector recommended the introduction of CBC in the Kenyan education system to enhance the quality of education. The recommendation was informed by the shortcomings of content-based education, which was theoretical in nature and examination-oriented, emphasizing memorization of content without significant opportunities for applying knowledge and recognizing students' interests and talents [14]–[18]. For teachers to meet the demands of newly introduced curriculum, they need to be prepared in all aspects of the curriculum [19]–[21]. However, CBC in Kenya was rolled out without prior adequate preparation and consultation with teachers. This made teachers hesitant to implement CBC as they feared it would negatively affect their learners' future [22]. Similarly, the implementation of CBC in Tanzania was constrained by the limited adoption of appropriate pedagogical approaches and assessment practices, largely attributable to insufficient teacher training and preparedness [23].

Despite the rollout of CBC in Kenya, few studies have examined teachers' preparedness prior to implementation, particularly the link between training and perceptions. Based on the curriculum implementation theory by Gross *et al.* [24], effective implementation of any curriculum relies on managing support facilities, the competence of the implementers, the preparedness of the teachers, and the clarity of the innovations to be used. Accordingly, this study sought to investigate the nature of the pre-implementation training offered to teachers in preparation for CBC and to explore their perceptions regarding its implementation. Momanyi and Rop [8] assert that it is crucial to investigate the implementation of CBC at the primary school level as it serves as the foundation upon which subsequent learning is built.

CBC is a multifaceted concept [25]. With the education sector constantly evolving, teachers need to be professional, proactive, and equipped to navigate an increasingly uncertain and intricate environment. The drive to deliver quality education requires capacity building and teacher coaching across all curriculum areas through in-service training [16], [26]. The in-service training aims to enhance teachers' skills by expanding their knowledge and helping them develop a broader range of more effective teaching strategies [27].

When educators are required to change the core of their work, they should receive continuous retooling to help them navigate the challenges and issues that may arise, especially in the early stages of implementing a new curriculum [28]. To provide personalized support and maximize each student's learning potential, a shift from predominantly teacher-centered methods to 21st-century student-centered pedagogies is essential [18], [29]. This transition necessitates the development of teacher competencies, including teamwork, communication, planning, and information and communication technology (ICT) skills. Evidence from the United States and other countries that have successfully implemented the CBC shows that they invested in training teachers on how to effectively deliver the curriculum [2], [11].

Studies have shown that when a new curriculum is hurriedly implemented, teachers may feel confused and inadequate to implement it [27]–[29]. Indeed, it is unrealistic to expect teachers to fully grasp all aspects of a new curriculum within a brief timeframe [27]. Additionally, it is very essential to ensure that the pre-implementation training is of high quality and that teachers are provided continuous professional development during the delivery of the new program so that they can learn, unlearn, and relearn [30], [31]. The rollout of the CBC in Kenya encountered challenges comparable to those highlighted earlier. Indeed, many teachers have not been able to entirely shift to CBC due to inadequate training and limited continuous professional development [8], [32], [33].

Over the past 20 years, there have been calls for curriculum reforms and for teachers to place greater emphasis on the conceptual understanding of the subjects they teach. These changes are necessary to enhance teaching and learning, thereby improving the quality of education. However, in some cases, countries hurriedly implement curriculum changes thereby leaving teachers feeling uncertain and lacking confidence. This confusion can lead to slow or ineffective program implementation, which negatively impacts learning outcomes [34]. The demands of a new curriculum require teachers to significantly shift their attitudes and classroom practices. This can be achieved through targeted professional development programs, which help boost teachers' confidence and foster a positive outlook on the reforms [35]. Teachers' beliefs and perspectives on teaching and learning play a vital role in the successful delivery of any curriculum [36], [37].

In his research on teachers' perceptions and curriculum innovation, Herron [38] found that teachers are often excluded from curriculum development, with their role limited to providing feedback during early testing stages. This, according to Herron [38], leads to differing opinions on the value of curricular changes, leading to negative attitude and, ultimately, resistance to change among teachers. Fullan [31] agrees with Herron [38], stating that educators play a critical role in implementing program changes, and their views significantly influence the success of these innovations. Teachers who are involved in curriculum development and who feel they have a say in curriculum decisions are more likely to adopt it, compared to teachers who are not involved, as they may have limited theoretical grasp of the curriculum [39]–[42].

Many teachers report limited training, inadequate support, and uncertainty on how to shift from content to competency-based teaching. Without urgent interventions, these gaps threaten the success of CBC.

This article therefore proposes strengthening teacher training, continuous professional development, and school-level support to better equip teachers with the skills and confidence needed to deliver learner-centered education.

## 2. THEORETICAL FRAMEWORK

This study draws on the theory of curriculum implementation by Gross *et al.* [24] which provides for the implementation of organizational innovations. Gross *et al.* [24] assert that successful curriculum implementation hinges on several key factors, namely: implementers must possess the necessary skills and competencies, have a clear grasp of the curriculum's scope and content, access sufficient resources, and maintain a positive perception toward its execution. This study focused specifically on two factors of Gross *et al.* [24] theory: the training of teachers and their perceptions, as both are critical for CBC implementation. Change in attitude and gaining acceptance among those responsible for implementation are essential pre-requisites before the curriculum is introduced. The success of a new curriculum is primarily determined by the instructors' ability to learn, experiment, and adapt ideas to their specific contexts [43], [44]. Figure 1 shows the conceptual framework where the success of CBC implementation depends on teachers' perceptions which can be enhanced by adequate training of teachers.

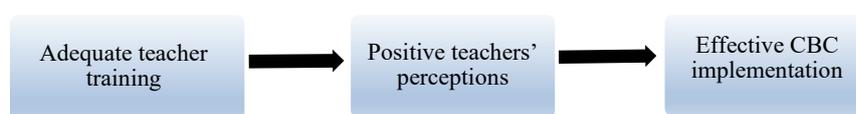


Figure 1. Conceptual framework

## 3. METHOD

The study was carried out in Embu West Sub-County, selected randomly from the five sub-counties in Embu County (Embu West, Embu East, Embu North, Mbeere South, and Mbeere North). Embu County was chosen because the National Assessment System for Monitoring Learner Achievement (NASMLA) reported a sharp decline in grade three numeracy performance just two years after the rollout of CBC, with the average score dropping from 583.3 in 2016 to 473.9 in 2019 [45]. This worrying trend highlighted the urgent need to examine teachers' readiness to implement the CBC as a potential factor influencing learner outcomes.

This study adopted a sequential explanatory mixed-methods design, beginning with quantitative data collection and followed by qualitative inquiry to provide deeper explanations. Data from teachers were collected through surveys and classroom observations. To complement these findings, in-depth interviews were conducted with school heads. The use of these complementary methods ensured a more comprehensive understanding of teacher preparedness for CBC implementation [46], [47].

The study engaged 263 teachers, aligning with Israel [48] that recommended sample size of 200–500, with an additional 30% to account for potential non-responses, ensuring sufficient power for statistical analysis. Stratified random sampling was used to proportionally select both urban and rural schools, minimizing bias and ensuring that the findings reflected diverse teacher experiences. While purposive sampling was applied to select 10 school heads for interviews, from the outlier cases identified from the quantitative analysis of the data collected.

A pilot study was conducted in a purposively selected public primary school in Embu County that was excluded from the main study. Three curriculum implementation experts were involved in establishing content validity. The reliability of the questionnaire items was analyzed using Cronbach's alpha procedure. The evaluation of methodology for high-quality research heavily emphasizes the crucial significance of validity and reliability. The reliability coefficient of the questionnaire was 0.997, indicating high reliability as it exceeded the 0.7 threshold [49].

Data were cleaned and coded before being analyzed. Various statistical procedures were carried out, including descriptive statistics such as frequencies and percentages, and inferential statistics like Spearman's correlation coefficient to examine the relationship between pre-implementation training and teachers' perceptions of CBC implementation, and independent sample t-test to examine gender difference in teachers' perceptions. Although Likert-scale data are ordinal, parametric methods were used because aggregated items approximate interval-level data, a practice supported in educational research [50]–[52]. Given our sample

size of 213 respondents, the use of Spearman's correlation and independent sample t-tests was statistically appropriate and provided more robust inferences. Qualitative data were derived from open-ended questionnaire responses and audio recordings from interviews, which were then used to derive codes, categories, and themes. These themes were cross-checked with the quantitative data, providing additional support for the results. Respondents' excerpts were included as narrated, with some qualitative quotes reported verbatim.

An approval to conduct the research was issued by the University of Embu, after which a research permit with license No. NACOSTI/23/23399 was obtained from the Kenyan government following a thorough review of the research's adherence to ethical requirements. To gain access to schools, permission from the office of the County Director of Education in the Ministry of Education, State Department of Early Learning and Basic Education was granted with an authorization letter. Additionally, to access the selected schools, the school heads gave authorization for interaction with the teachers. Prior to data collection, teachers' consent to participate was sought and obtained.

#### 4. RESULTS AND DISCUSSION

All response rates exceeded 60%, aligning with Mugenda and Mugenda [49] guideline that a response rate of 60% is suitable for analysis. Out of the 263 questionnaires distributed, 213 were completed and returned. Additionally, 6 out of the 10 planned interviews with school heads were successfully conducted, along with 13 lesson observations at grade three. Table 1 shows some of the demographic for the teachers.

Among the teachers, 75% were female and 25% were male. In terms of age, 38% were 40 years and below, while 62% were over 41 years old. Most teachers (71%) had certificates and diplomas in education, with 26% having degrees and 3% holding master's degrees. The teaching experience was distributed as: 27% had 1-9 years, 25% had 10-19 years, 35% had 20-29 years, while 13% had over 29 years. Three male and three female school heads were interviewed. Four were aged 50-59 years, and two were 40-49 years, with all having served in their current positions for 2-4 years.

Table 1. Demographic data for the teachers (N=213)

Attributes	Category	Frequency (F)	Percentage (%)
Age (years)	Below 30	28	13
	30-40	53	25
	41-50	55	26
	Above 50	77	36
	Total		213
Qualification	Certificate	58	27
	Diploma	94	44
	Degree	55	26
	Masters	6	3
	Total		213
Experience (years)	0-9	58	27
	10-19	53	25
	20-29	75	35
	Above 29	27	13
	Total		213

##### 4.1. Pre-implementation training on CBC

As shown in Table 2, 73% of teachers attended at least two training sessions, while 5% received none. This indicated an improvement compared to Ondimu [32] findings where only 36% of the teachers had attended at least one training session. This finding aligns with Kenya National Examinations Council (KNEC) [45], that 36% of teachers had not engaged in retooling training, although most do so to enhance their skills and knowledge [53]. On the expectation of further training on CBC, majority (68%) of teachers were expecting additional training, while 32% were not. This suggests that many teachers require additional training to enhance their skills in implementing CBC. The study investigated whether teachers were trained in the following areas: lesson preparation, teaching and learning activities, classroom management, assessment and evaluation, and professional documentation. The results indicated that 80% of the teachers had been trained on all the training areas, as shown in Table 3.

Table 2. Training sessions attended by teachers (N=213)

Number of training sessions	Frequency (F)	Percentage (%)
0	11	5
1	45	22
2	62	30
3	49	24
4	38	18
5	2	1

Table 3. Training areas (N=213)

Areas covered during the training on CBC	Frequency (F)	Percentage (%)
Lesson preparation	194	91
Teaching and learning activities	195	92
Classroom management	170	80
Assessment and evaluation	189	89
Professional documents	189	89

In addition to the training area shown in Table 3, the training also addressed the integration of ICT, improvising teaching materials, teaching methodologies, core competencies, and core values according to the school heads. Although over 88% of teachers reported that professional documents were covered in their training, most teachers struggled to create lesson plans and schemes of work that met CBC requirements. Furthermore, none of the teachers referred to these professional documents during their lessons, despite having prepared them. This suggests that teachers were not sufficiently trained in critical areas of curriculum implementation, aligning with the findings of Momanyi and Rop [8], Ondimu [32], and Waweru [33] on CBC implementation in Kenya. The teachers' responses regarding the areas in which they would like additional training are presented in Table 4. Although over 80% of teachers had undergone training in all the areas as discussed earlier, a significant number still expressed a desire for further training in these same areas in addition to ICT.

Interviews with school heads revealed that many wished their teachers received additional training on assessment and evaluation, ICT integration, teaching methodologies, lesson planning, and professional documentation. This suggests that even after attending several training sessions covering various topics, school heads still felt the need for more training for their teachers to deliver the CBC as expected effectively. The necessity for additional training in teaching methodologies is supported by observations made during lessons in the thirteen schools. The use of learner-centered methodologies, which are highly advocated in the CBC, was mostly limited to the question-and-answer method and group discussions. None of the observed lessons incorporated active, inquiry-based, problem-based, project-based, discovery-oriented, or socio-scientific learning approaches. Even though the two learner-centered methods-question and answer and group discussions-dominated most lessons, they were not effectively utilized, as many questions and discussion topics only required learners to recall information rather than stimulating their thinking, creativity, or imagination. To enhance effective curriculum implementation, the government needs to invest in teacher training and continuous professional development [8], [54], [55]. From the qualitative data, two key themes emerged: the adequacy of training and the scope of training.

Table 4. Teachers' responses regarding additional training (N=213)

Areas teachers wanted additional training	Frequency (F)	Percentage (%)
Lesson preparation	9	4
Teaching and learning activities	39	18
Classroom management	4	2
Assessment and evaluation	68	32
Professional documents	12	6
ICT integration in teaching	15	7

#### 4.1.1. Adequacy of training

Some school heads revealed that their teachers had attended at least three training sessions. However, some expressed dissatisfaction, noting that a few teachers had only received training once. Two head teachers remarked during the interview:

*“Our teachers have attended many trainings. I may not be able to count them.”* (Informant 3, 2023)

*“The government has tried because many of my teachers have attended at least three trainings, but some have only attended once.”* (Informant 1, 2023)

This aligns with the quantitative data on the number of training sessions teachers attended, where the majority (73%) had participated in at least two sessions, as shown in Table 2.

The study also revealed that while many teachers had attended multiple pre-implementation training sessions, there was a sense that the training was insufficient and that additional sessions were necessary. During the interviews, several school heads expressed anticipation for further training to support CBC implementation. One head teacher remarked:

*“I am not contented with the training that has been offered to our teachers. More training is required.”* (Informant 2, 2023)

This reinforces the quantitative data findings regarding teachers’ expectations of additional CBC training. Majority (68%) of teachers expected additional training on CBC implementation. There was also concerns about the quality of the training, as one head teacher noted. Two school heads stated:

*“Maybe, they will be called once again for the training so they can be guided more on assessment.”* (Informant 1, 2023)

*“They do not have good facilitators. Teachers are not motivated in those trainings. You are gathered in a classroom with poor facilities and the trainers just there reading the manuals to you.”* (Informant 5, 2023)

This indicates that despite attending multiple CBC training sessions, both teachers and school heads perceived the training as inadequate and called for additional sessions. The training provided was insufficient for teachers to understand and implement the CBC as fully expected.

#### **4.1.2. Scope of training**

The second theme emerging from the qualitative data was the scope of training, which refers to the topics covered during the sessions and the areas teachers felt needed more training. Interviews with school heads revealed that educators had received training on several critical aspects of curriculum implementation, as one head highlighted:

*“Our teachers have been trained on core competencies, the curriculum design, schemes of work (about strands, sub-strands, learning outcomes), how to incorporate core competencies and core values in a lesson.”* (Informant 4, 2023)

This aligns with the findings on the topics covered during the training, as shown in Table 4, and was further confirmed by another head teacher who stated:

*“In those trainings, assessment was covered, preparing of professional documents was also covered, teaching methodology was also covered. Yeah, those areas were covered.”* (Informant 3, 2023)

Despite having covered several key areas of curriculum implementation, teachers needed more training on the same areas and others that had not been covered. As noted by school heads:

*“There is a need for more training. All the areas of curriculum implementation should be covered in future trainings.”* (Informant 3, 2023)

*“Of course, I am anticipating another training where they will cover ICT integration in teaching and learning.”* (Informant 4, 2023)

This supports the findings on the areas teachers wished to be trained on as shown in Table 4. This indicates that the training coverage was broad but shallow, and for teachers to be able to implement CBC as required, they need to be trained and retrained on all areas of curriculum implementation.

#### **4.2. Teachers’ perceptions on CBC**

The 11% of teachers expressed satisfaction with the implementation of CBC, citing reasons such as the curriculum being highly educational and engaging, child-friendly, and making learning enjoyable. However, the majority (89%) who held opposing views pointed out issues like the program being unclear and

confusing, a lack of necessary resources, inadequate teacher training, high teacher-to-student ratios, and the perception that CBC is both costly and time-consuming. Teachers were also given a list of items (learning to learn, self-efficacy, hard work, and digital literacy) and asked to identify which one was not a core competency in CBC. The majority of teachers (55%) correctly identified that “hard work” is not one of the core competencies in CBC. However, a significant portion (39%) failed to recognize this, indicating a limited understanding of CBC’s core competencies. This confirms the school heads’ expression of a desire for their teachers to receive further training on core competencies. This indicates that many teachers had not yet received adequate training in CBC’s core competencies, contributing to negative perceptions of the new curriculum. Teachers responded to the provided Likert scale as shown in Table 5.

Table 5. Teachers’ perceptions of CBC (N=213)

Statement	SD (%)	D (%)	U (%)	A (%)	SA (%)	Mean score
CBC is better than content-based	26	21	18	26	9	2.7
CBC will help learners develop competencies	15	9	15	50	11	3.3
I am happy with the implementation of CBC	27	28	23	18	5	2.4
CBC was hurriedly rolled out	7	5	7	24	57	4.2
The core competencies are not related to mathematics	13	38	22	16	11	2.7
CBC is time consuming	12	9	8	36	36	3.7
It is tiresome to prepare a CBC lesson plans	11	6	10	30	43	3.8

SD=strongly disagree, D=disagree, U=undecided, A=agree, SA=strongly agree

The study used the following scale to interpret perceptions: a mean score of 1.0-2.4 indicated a negative perception, 2.5-3.4 was considered neutral, and 3.5-5.0 reflected a positive perception for favorable statements, with the reverse applied to unfavorable statements. None of the mean scores indicated a positive perception, suggesting that teachers had an overall negative view of CBC delivery. The study also sought to determine if there was a significant difference in teachers’ perceptions based on gender. The output of the analysis was as shown in Table 6, indicating a significant gender difference in perceptions on CBC being hurriedly rolled out ( $t=2.267$ ,  $p<0.05$ ), with female teachers having a notably more negative view compared to male instructors. However, no significant gender differences were found in relation to the other statements.

Table 6. Independent samples t-test for gender differences in perceptions (N=211)

Variables	Males (n=53)		Std. Error difference	Female (n=158)		t	Sig (2-tailed)
	Mean	SD		Mean	SD		
CBC is better than 8-4-4	2.60	1.42	0.212	2.75	1.31	-0.703	0.483
CBC will help learners develop competence	3.06	1.41	0.196	3.43	1.17	-1.910	0.571
I am happy with the implementation of CBC	2.30	1.28	0.189	2.51	1.16	-1.115	0.266
CBC was hurriedly rolled out	3.89	1.46	0.187	4.31	1.06	-2.267	0.024
The core competencies are not related to mathematics	2.74	1.29	0.190	2.72	1.17	0.085	0.933
CBC is time consuming	3.75	1.47	0.216	3.74	1.30	0.030	0.976
It is tiresome to prepare a CBC lesson plans	3.70	1.49	0.209	3.96	1.25	-1.231	0.220

The gender differences in perceptions about the rollout of the CBC may raise important questions. Were male teachers better trained than their female counterparts, or did the trainers resonate more with male teachers? This suggests a need for further investigation into these dynamics. Additionally, the study explored a potential link between teachers’ views on the CBC rollout and their pre-implementation training.

#### 4.3. Relationship between training and perception

The study sought to determine the relationship between pre-implementation training and teachers’ perceptions. As shown in Table 7, there was a weak but significant correlation between the training provided before implementation and the teachers’ perceptions. As discussed earlier, only 5% of teachers did not attend any training, and only 32% felt unprepared to implement the CBC. This indicates that the training had a limited positive impact on teachers’ views regarding CBC implementation. Providing quality and adequate training would enhance teachers’ perceptions.

Table 7. Correlation between pre-implementation training and teachers' perceptions (N=205)

Statistical method	Indicator	Pre-implementation training
Spearman's rho	Correlation coefficient	0.268
	Sig. (2- tailed)	0.000
Teachers' perceptions	N	205

Correlation is significant at the 0.05 level (2-tailed)

#### 4.4. Summary of the findings

Teachers in this study felt inadequately prepared for CBC due to limited training and follow-up support, echoing concerns reported in Kenya regarding pedagogy and assessment [56]–[58]. Regional studies in Tanzania, Uganda, and Zimbabwe also identified inadequate training as a key barrier to competency-based reforms [59]–[61]. However, while Namubiru *et al.* [60] observed relatively positive teacher attitudes in Uganda, this study revealed greater skepticism among Kenyan teachers, particularly regarding workload and clarity of CBC objectives. Unlike earlier studies, this research incorporated classroom observations, offering new insights into day-to-day implementation challenges. It further highlighted gender differences in preparedness and a significant, though weak, correlation between training, and perceptions-dimensions rarely addressed in prior work. Overall, these findings confirm regional consistencies while underscoring Kenya's unique challenges, pointing to the need for more targeted teacher training and sustained support [62].

## 5. CONCLUSION

These findings highlight significant gaps that should be addressed through quality training and active teacher involvement in the ongoing review and development of CBC content. This will boost ownership of the curriculum and enhance teachers' perceptions. The Ministry of Education and the Teachers Service Commission should institute structured in-service training each term, with a focus on lesson planning, ICT integration, and assessment strategies.

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This journal uses the Contributor Roles Taxonomy (CRediT) to recognize individual author contributions, reduce authorship disputes, and facilitate collaboration.

Name of Author	C	M	So	Va	Fo	I	R	D	O	E	Vi	Su	P	Fu
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C : Conceptualization

M : Methodology

So : Software

Va : Validation

Fo : Formal analysis

I : Investigation

R : Resources

D : Data Curation

O : Writing - Original Draft

E : Writing - Review & Editing

Vi : Visualization

Su : Supervision

P : Project administration

Fu : Funding acquisition

## CONFLICT OF INTEREST STATEMENT

Authors stated no conflict of interest.

## INFORMED CONSENT

Informed consent was obtained from all participants involved in this study.

## ETHICAL APPROVAL

Approval to conduct the research was issued by the Board of Postgraduate Studies at the University of Embu after which a research permit with a license No. NACOSTI/23/23399 was obtained from the National Commission for Science, Technology, and Innovation (NACOSTI) in Kenya.

## DATA AVAILABILITY

The data supporting the findings of this study can be obtained from the corresponding author, [NMM], upon justified request.

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