



Critical Success factors to the Implementation of Competency Based Curriculum in Junior Schools in Kiminini Sub-County, Kenya

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Abstract

The change from the 8-4-4 education system to the Competency-Based Curriculum (CBC) system has been a significant educational reform in Kenya. Despite the importance of these reforms to national development, implementation of the CBC education system in Junior secondary schools, mainly in the rural parts Kenya has been poor. This study sought to examine critical success factors to implementation of CBC in Junior Schools (JS) in Kiminini Sub-County, Kenya. The specific objectives of the study were to examine the effect of teachers' related factors, infrastructural facilities, and stakeholder engagement on implementation of CBC in JS in Kiminini Sub-County. This study adopted a pragmatism research approach and an explanatory research design. The target population of this study was head teachers and 2 JS in Kiminini Sub-County. The study used census approach and hence the whole population was included in the study. The study used primary data, which was collected by semi-structured questionnaires. The questionnaires generated qualitative and quantitative data. Thematic analysis was used to analyze qualitative data and the results were presented in narrative form. Descriptive as well as inferential statistics were employed in analyzing quantitative data with the assistance of SPSS version 25 statistical software. Descriptive statistics comprised of frequency distribution, percentages, standard deviation and mean. Inferential data analysis was carried out using Pearson correlation coefficient, multivariate linear regression. The study found that teachers' related factors, infrastructural factors and stakeholder engagement have a positive and significant effect on implementation of CBC in JS. The study recommends that the government of Kenya through the Teachers Service Commission should employ more teachers to ensure JS have adequate and trained teachers for all subjects. The government of Kenya should ensure continued construction of classrooms, laboratories, sanitation facilities and ensure that all the JS have adequate playgrounds and recreational areas.

Key Words: *Competency-Based Curriculum, Junior Secondary Schools, School Infrastructure, Stakeholder Engagement, Teacher Related Factors*

1.0 Introduction

Education is the main driver of social development, national cohesion, social mobility and sustained economic growth. One of the objectives of education systems around the world is to promote industrial, social, technological, and economic skills needed for national development (Olive & Gathungu, 2017). The world is rapidly evolving due to advances in technology and automation. The traditional education system, which was designed for an industrial-era workforce, often struggles to prepare students for the demands of the 21st-century job market (Kimario & Otieno, 2022). There has been a need to integrate digital literacy, critical thinking, and problem-solving skills into the curriculum (Kabombwe & Mulenga, 2019). Today's education system should focus more on fostering creativity, critical thinking, and innovation. These skills are essential for solving complex problems, driving economic and societal progress.

The last two decades have been characterized by frequent reforms in education systems around the world. These reforms encompass a wide range of changes aimed at improving the quality, effectiveness, and relevance of education. Specific reforms vary depending on the context and the challenges faced by a particular education system. One of the main reforms in education systems is curriculum redesign, which involves updating and revising the curriculum to make it more relevant to the needs of students and the demands of the modern world. This includes incorporating new subjects or topics, such as digital literacy, environmental education, or critical thinking skills (Kabombwe & Mulenga, 2019). The implementation of new education systems has been facing challenges around the world.

In Malaysia, Muraraneza and Mtshali (2018) indicate that implementation of CBC in pre-service nursing education was influenced by factors such as stakeholder engagement, monitoring and evaluation, funding and infrastructural facilities and equipment. In South Africa, the implementation of the new curriculum was slow, which was attributed to factors such as lack of resources, heavy workloads, inadequate training, poor communication, inadequate facilities, inadequate financing by the government, inadequate professional development, and support. In Nigeria, Babajide and Smith (2022) indicate that important factors in implementation of a new curriculum in primary schools include funding, communication, stakeholders' engagement, teachers' motivation, recruitment of new teachers as well as monitoring and evaluation.

Kenya's transition from the 8-4-4 education system to CBC has been a significant educational reform aimed at addressing some of the limitations of the former system and aligning education with the needs of the 21st century. The 8-4-4 system had been in place since 1985, but was criticized for its emphasis on exams, rote memorization, and lack of practical skills development. The CBC was officially launched in Kenya in 2017 as part of an effort to modernize the education system to mirror how people learn, work, and collaborate in the real world. The transition has had challenges, including inadequate resources, teacher preparedness, and infrastructural

improvements. There have been concerns about the effectiveness of the continuous assessment approach and the need for standardized assessments. Parents have expressed concerns about the cost implications of implementing CBC.

Isaboke, Wambiri and Mweru (2021) observed that implementation of CBC teaching-learning approaches in public pre-primary schools in different parts of Kenya was facing challenges due to inadequate learning facilities, inadequate training among teachers, low student-teachers' ratio, inadequate learning material and lack of cooperation from parents. Diana (2020) observed that factors affecting the implementation of CBC include infrastructure, process/delivery as well as human resource challenges. Similarly, Muchira and Oh (2023) indicate that funding for implementation, teacher training and aligning goals at the school as well as pedagogical approaches and assessment techniques have a significant effect on CBC model implementation.

1.1 Statement of the problem

The change from the 8-4-4 education system to CBC system has been a significant educational reform in Kenya. CBC places a strong emphasis on holistic learning, focusing on the development of not only academic knowledge but also essential life skills, competencies, and values (Mandillah, 2019). This approach aims to produce well-rounded individuals who are better prepared for life beyond school. In the current era of rapid technological advancement and global challenges, such as climate change and socio-economic disparities, CBC seeks to prepare students to be adaptable, resilient, and capable of addressing complex issues (Wambugu et al., 2020). However, despite the importance of these reforms to national development in Kenya, the implementation of CBC system in Junior schools in Kenya has been poor (Akala, 2021).

The performance of the new curriculum has been decried as rushed without adequate teacher preparation and infrastructural facilities (Diana, 2020). According to Isaboke, Wambiri and Mweru (2021), while the new curriculum provides great opportunities for national development, it is characterized by shortage of funding, lack of technology, low teacher-to-student ratios, and political pressures. In addition, learning resources such as textbooks have been criticized for their lack of clarity and not being sufficient for learners' use (Wambugu et al., 2020). However, different counties in Kenya have different number of schools with varying infrastructural facilities including number of classrooms, sanitation facilities, playgrounds, and libraries. As such, findings from one county cannot be generalized to other counties in Kenya. As such, it is important to examine critical success factors to the implementation of CBC in JS in Kiminini Sub-County.

Several studies have been conducted on factors affecting curriculum implementation in Kenya. For instance, Diana (2020) examined challenges experienced by educators in the implementation of CBC programme among primary schools in Laikipia East Sub County; Wambugu, Stutchbury and Dickie (2020) studied the challenges and opportunities in the implementation of school-based teacher professional development among schools in Nairobi County; and Isaboke, Wambiri and

Mweru (2021) conducted a study on the challenges facing implementation of CBC in Nairobi County. However, Wambugu et al. (2020) and Isaboke et al. (2021) studies were conducted in Nairobi County, which is in an urban setting and hence different from Kiminini Sub-County, which is in a rural setting. In addition, Diana (2020) study was conducted in Laikipia East Sub-County but was qualitative in nature and hence no primary data was used. This study seeks to examine critical success factors to the implementation of CBC in JS in Kiminini Sub-County.

1.2 Objectives of the study

The general objective of this study was to examine critical success factors to the implementation of CBC in JS in Kiminini Sub-County, Kenya. The objectives of the study include:

- i. To examine the effect of teachers' related factors on implementation of competency-based curriculum in junior schools in Kiminini Sub-County.
- ii. To establish the effect of infrastructural factors on implementation of competency-based curriculum in junior schools in Kiminini Sub-County.
- iii. To determine the effect of stakeholder engagement on implementation of competency-based curriculum in junior schools in Kiminini Sub-County.

2.0 Literature Review

The literature review section presents the studies' theoretical underpinnings and empirical literature related to critical success factors to the implementation of CBC in JS.

2.1 Theoretical underpinnings

The study is anchored on stakeholder theory, Kurt Lewin's Change Management Model and Resource-Based View (RBV) theory.

2.1.1 Stakeholder Theory

Stakeholder theory was formulated by Freeman (1984). It indicates that companies regularly control relationships of their different stakeholders clearly. Over the years, the theory of stakeholder has been considered as the most effective method for comprehending various organizations within a specific setting. According to Uribe, Ortiz-Marcos and Uruburu (2018), the theory contends that the stakeholders who engage in a company for their personal gain do so without regard to whether one advantage will outweigh another. According to Chepkemoi and Juma (2019), organizations should put stakeholders' interests first to increase company wealth and the benefits that accrue to all stakeholders collectively. According to stakeholder theory, an organization's success depends on how well it manages the interests of its stakeholders.

The successful implementation of CBC in Kiminini Sub-County, indeed relies heavily on the active involvement and support of various stakeholders including teachers, the government, parents, students, and local communities. The government plays a critical role in shaping education policy (Langrafe & Boaventura, 2020). In addition, parents should be informed of the benefits of CBC and encouraged to support their children's learning experiences by monitoring progress, attending parent-teacher meetings, and providing a conducive learning environment at home (Chepkemioi & Juma, 2019). Communities can contribute to the successful implementation by mobilizing resources, such as volunteer support, funding for school infrastructure improvement, or the provision of local knowledge and skills.

2.1.2 Kurt Lewin's Change Management Model

Kurt Lewin's Change Management Model is a widely recognized framework for understanding and managing organizational change. It was developed in the 1940s and remains relevant and influential in change management (Hussain & Lei, 2018). The model consists of three key stages: unfreezing, changing, and refreezing which help organizations plan and implement successful changes while minimizing resistance from employees. Lewin's Change Management Model may be a valuable framework for guiding the successful implementation of CBC in Kenya. Unfreezing involves creation of awareness and understanding, building a sense of urgency and involvement of key stakeholders (Cummings, Bridgman & Brown, 2016). The process of CBC should start by creating awareness among stakeholders (teachers, parents, students, local communities) about the need for CBC. Highlight the limitations of the existing curriculum and the benefits of the new competency-based approach. Provide data and evidence to support the change. This should be followed by making changes which include training, communication, piloting of the program and implementation of CBC. Refreezing involves embedding a culture, feedback and continuous improvement, evaluation as well as recognition and rewards (Hussain & Lei, 2018). Incorporating Lewin's Change Management Model into the CBC implementation process in Kiminini Sub-County can help navigate the complexities of change, mitigate resistance, and create a shared vision and commitment among stakeholders.

2.1.3 Resource-Based View (RBV) Theory

The Resource-Based View (RBV) theory was developed by Birger Wernerfelt in the 1980s (Wernerfelt, 1984). It is a concept in strategic management and organizational theory that focuses on the internal resources and capabilities of a firm as key determinants of its competitive advantage and performance. The central idea of RBV is that not all firms are the same, but the ability to compete successfully depends on the unique set of resources and capabilities they possess. Resources in this context refer to all the assets, knowledge, skills, and capabilities that a firm control (Vasudevan, 2021). Organizations with valuable, rare, inimitable, and non-substitutable (VRIN) resources are more likely to achieve sustainable competitive advantage. The implementation of CBC in JS in Kiminini Sub-County depends on resources such as human resources, educational materials, and infrastructure. In the context of implementing CBC, having

well-trained teachers who possess the necessary skills and knowledge to teach under this curriculum is crucial (Greve, 2020). Schools should invest in teacher training and development programs to build this capability. Access to up-to-date and relevant educational materials, such as textbooks, digital resources, and teaching aids, is a critical resource. Schools must ensure that these materials are aligned with the competency-based curriculum (Vasudevan, 2021). Adequate school infrastructure, including classrooms, libraries, and technology resources, is essential for delivering the curriculum effectively.

2.2 Empirical Literature

The factors considered in this study include teachers' related factors, infrastructural factors including teaching and learning materials as well as stakeholder engagement.

2.2.1 Teacher related factors

The successful implementation of a new curriculum is influenced by a variety of factors related to teachers. Teachers play a pivotal role in shaping the learning experiences of students and adapting to changes in curriculum. Teacher-related factors that influence implementation of a new curriculum include teacher training and professional development, teacher competencies, adequacy of teachers as well as teacher motivation and engagement. In a study conducted in South Africa, Mandukwini (2016) examined challenges towards implementation of curriculum in high schools in Mount Fletcher District. Using a qualitative research approach, the findings indicated that the main challenges included inadequacy in training, the number of teachers as well as professional development and support. The adequacy of qualified and competent teachers is a critical factor in the successful implementation of a new curriculum in ensuring that the curriculum objectives are met. As observed by Babajide and Smith (2022), teachers' challenges in the introduction and implementation of new curriculum in Nigerian primary school system included teachers' demotivation. Teachers who are motivated and engaged in their profession are more likely to invest the effort required for successful curriculum implementation. Factors like job satisfaction and recognition can affect motivation.

2.2.2 Infrastructural factors

Infrastructure factors play a crucial role in the successful implementation of a new curriculum in educational institutions. In a qualitative approach, Mandukwini (2016) studied the challenges facing implementation of curriculum in South Africa and found that some of the challenges included lack of resources and inadequate facilities, inadequate financing by the government. Adequate infrastructure ensures that students and teachers have access to the resources and materials needed to implement the curriculum effectively. This includes textbooks, technology, laboratory equipment, and reference materials. In the Nigerian primary school system, Babajide and Smith (2022) studied teachers' challenges in the introduction and implementation of systemic

change. The study adopted a qualitative study design and a constructivist research paradigm. The results indicated that non-involvement of stakeholders in the change planning process was one of the main challenges facing implementation of systemic change. In Nairobi County, Isaboke, Wambiri and Mweru (2021) conducted a study on the challenges facing implementation of the CBC using a concern-based adoption model. The study was qualitative. The findings indicated that the implementation of CBC was facing challenges such as inadequate learning facilities.

2.2.3 Stakeholder engagement

Stakeholder engagement is a critical factor in the successful implementation of a new curriculum. Stakeholders in education include teachers, students, parents, school administrators, policymakers, community members, and others who have a vested interest in the educational process. Effective stakeholder engagement is an ongoing process that requires commitment and communication. When stakeholders are actively engaged in the implementation of a new curriculum, it increases the likelihood of successful adoption and positive educational outcomes. In a different study, Isaboke, Wambiri and Mweru (2021) found that the implementation of the CBC was characterized by lack of cooperation from parents. Parents may not fully understand the concept and benefits of CBC. If they are unfamiliar with the changes in teaching and assessment methods, they may be hesitant to embrace them. According to Gasva, Mutanana and Goronga (2019), limited consultation before introduction of the New Curriculum with stakeholders was the main challenge facing the implementation of the new curriculum in selected rural primary schools in Zimbabwe. When stakeholders are not adequately consulted or informed about the rationale and objectives of the new curriculum, there may be a lack of understanding or clarity about its purpose and potential benefits.

3.0 Materials and Methods

The study adopted an explanatory research design. An explanatory research design is used to investigate relationships as well as causal links between various variables. The goal of explanatory design is to examine a specific scenario and explain the patterns of connection between variables (Sileyew, 2019). This design was used to show the effect of teachers' related factors, infrastructural factors, and stakeholder engagement on implementation of new curriculum within Kiminini Sub County is a sub-county in Trans Nzoia County, Kenya. There are 19 public primary schools distributed across Kiminini Sub County. The target population of this study was head teachers and 2 JS teachers in Kiminini Sub County. The study used a census approach and hence included all the 19 head teachers and 38 JS teachers in Kiminini Sub County. Creswell and Creswell (2022) state that census sampling design eradicates sampling error and is also appealing for small populations and gives data on all persons within the population. It is a complete count of the whole population, wherein every unit of the population is included in the collection of data. One of the advantages of census is the results drawn by conducting a census are accurate and reliable.

The study used primary data, which was collected by use of semi-structured questionnaires. Structured questions were in the form of a Likert scale as well as nominal scale.

The researcher provided a comprehensive explanation about the research's objectives, its essence, and its contents. Informed consent involves understanding and voluntary agreement to take part in a research project (Krishna, 2020). Participation in the study was entirely voluntary, and no form of coercion was employed to compel individuals to take part. Participants retained the right to withdraw their participation at any point during the study. In ensuring anonymity, the participant was requested not to indicate their personal contacts and names when filling the questionnaires that were used in this study.

The questionnaires generated qualitative and quantitative data. Thematic analysis was used to analyze qualitative data and the results were presented in narrative form. Moreover, descriptive as well as inferential statistics were employed in analyzing quantitative data with the assistance of SPSS version 25 statistical software. Descriptive statistics comprised of frequency distribution, percentages, standard deviation and mean. Inferential data analysis was carried out using Pearson correlation coefficient and multivariate linear regression. Since the independent variables in this study are three, the multivariate regression model was as follows.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

Whereby; Y = Implementation of CBC in JS; B_0 = Constant; β_1 - β_3 =Coefficients of determination; X_1 = Teachers related factors; X_2 = Infrastructural factors; X_3 = Stakeholder engagement; and ε = Error term

4.0 Results and Discussion

The study targeted 19 head teachers and 38 JS teachers in Kiminini Sub County. Out of 57 questionnaires that were distributed, 48 were successfully filled in the Google forms, which gives a response rate of 84.21%. According to Creswell and Creswell (2017), a response rate of 75% is adequate for analysis, for making conclusions and making inferences on a population. Devi (2019) indicates that a response rate of 60% and above is acceptable for analysis. This implies that the response rate (84.21%) was adequate for analysis, drawing conclusions and reporting.

4.1 Demographic information

The general information about the head teachers and Junior Secondary School teachers comprised of their gender, years of experience in education and highest level of education. From the findings, as shown in Table 1, most of the respondents (58.3%) were female. Majority of the respondents (58.3%) had work experience of between 5 and 10 years, 25% had less than 5 years of experience and 16.7% had a work experience of more than 20 years. Further, most of the respondents (83.3%) had undergraduate degrees while 16.7% indicated that they had postgraduate degrees.

Table 1: Demographic Information

Demographic Information	Frequency	Percent
Gender		
Male	20	41.7
Female	28	58.3
Total	48	100.0
Years of Experience in Education		
Less than 5 years	12	25.0
5-10	28	58.3
Above 20 years	8	16.7
Total	48	100
Highest level of education		
Postgraduate	8	16.7
Undergraduate	40	83.3
Total	48	100.0

4.2 Implementation of competency-based curriculum

The respondents were requested to indicate their level of agreement with various statements on the implementation of CBC. From the findings, the respondents were neutral on the statement indicating that the assessment methods used in the CBC effectively measure students' competencies and skills ($M=3.33$, $SD=1.117$). Similarly, the respondents were neutral on the statement indicating that curriculum content and learning activities of the CBC align well with the educational needs and aspirations of students ($M=3.33$, $SD=1.260$). The respondents also indicated that CBC has moderately prepared students for real-world challenges and future educational opportunities ($M=3.00$, $SD=1.238$). In addition, the respondents were neutral on the statement indicating that students in JS actively participate in co-curricular and extracurricular activities ($M=2.92$, $SD=1.569$). Also, the respondents were neutral on the statement indicating that the introduction of the CBC has positively impacted the overall quality of education in JS ($M=2.75$, $SD=1.313$).

Table 2: Measures of implementation of competency-based curriculum

Statements	N	Mean	Std. Deviation
Students in JS actively participate in co-curricular and extracurricular activities	48	2.92	1.569
The CBC has effectively prepared students for real-world challenges and future educational opportunities.	48	3.00	1.238
The assessment methods used in the CBC effectively measure students' competencies and skills.	48	3.33	1.117
Curriculum content and learning activities of the CBC align well with the educational needs and aspirations of students	48	3.33	1.260
The introduction of the CBC has positively impacted the overall quality of education in JS	48	2.75	1.313

4.3 Teachers related factors

The respondents were requested to indicate their level of agreement with various statements on teachers' related factors in the implementation of CBC. From the findings, the respondents were neutral in the statement indicating that teachers in the junior secondary schools exhibit a high level of competency, including subject knowledge, pedagogical skills, and classroom management ($M=3.00$, $SD=0.938$). In addition, the respondents were neutral on the statement indicating that training and professional development opportunities provided to teachers in relation to CBC are adequate ($M=2.75$, $SD=0.838$). According to Isaboke, Wambiri and Mweru (2021), inadequate training among teachers on the new curriculum has a negative effect on implementation of CBC.

However, the respondents disagreed with the statement indicating their junior secondary school have adequate qualified and competent teachers for all the subjects ($M=1.25$, $SD=0.438$). These findings agree with Mandukwini (2016) observation that inadequate number of teachers is a challenge in implementation of curriculum in schools. With a mean of 1.08 ($SD=0.279$), the respondents disagreed with the statement indicating that teachers in their JS are highly motivated. Motivated teachers and engaged in their profession are more likely to invest the effort required for successful curriculum implementation. Further, the respondents disagreed with the statement indicating that teachers in JS are recognized and rewarded for their contributions ($M=1.17$, $SD=0.377$).

Table 3: Teachers' related factors in the implementation of competency-based curriculum

Statements	N	Mean	Std. Deviation
The training and professional development opportunities provided to teachers in relation to CBC are adequate	48	2.75	.838
Teachers in JS school exhibit a high level of competency, including subject knowledge, pedagogical skills, and classroom management.	48	3.00	.938
Our JS has adequate qualified and competent teachers for all the subjects	48	1.25	.438
Teachers in our JS are highly motivated	48	1.08	.279
Teachers in our JS are recognized and rewarded for their contributions	48	1.17	.377

The respondents were asked to indicate how teachers' related factors affect the implementation of CBC in their JS. From the findings, teachers and head teachers indicated that teachers handle learning areas they were not trained in. Most of them have been teaching in senior school so they struggle a lot with CBC content. Respondents also indicated that inferiority complex was high thus no teamwork with other teachers in primary school who feel threatened thus negatively affect CBC implementation. There was lack of motivation leading to low commitment. Another respondent indicated that teachers are demotivated to teach and strain a lot as they teach many subjects thus

many lessons due to inadequate manpower. Majority of the teachers are subjected to learning areas they have not specialized in since they are trained for 8-4-4.

4.4 Infrastructural factors

The respondents were asked to indicate their level of agreement with various statements on infrastructural related factors in implementation of CBC. As shown in Table 4, the respondents were neutral on the statement indicating that their JS students have access to computers, the internet, and educational software ($M=3.08$, $SD=1.048$). The respondents disagreed with the statement indicating that their JS had adequate classrooms in the JS ($M=2.42$, $SD=0.767$). These findings are in concurrence with Mandukwini (2016) observation that challenges facing implementation of curriculum in South Africa include lack of resources and inadequate facilities. They disagreed with the statement indicating that their JS had offices for school administrators and support staff ($M=1.25$, $SD=0.838$). Respondents disagreed with the statement indicating that their JS had adequate sanitation and hygiene facilities as well as adequate playgrounds and recreational areas ($M=1.25$, $SD=0.438$).

The respondents were further requested to indicate their level of agreement with various statements on teaching and learning materials in the implementation of CBC in their JS. As shown in Table 6, the respondents were agreed in the statement indicating that adequate teaching-learning materials are essential for enhancing the learning experiences of students ($M=4.25$, $SD=1.756$). They, however, disagreed with the statement indicating that their JS had adequate teaching material for use by teachers ($M=2.42$, $SD=1.200$). They also disagreed with the statement indicating their JS has adequate learning material for use by students ($M=2.33$, $SD=1.389$). In addition, the respondents disagreed with the statement indicating that the availability of teaching and learning materials is sufficient to support effective curriculum implementation ($M=2.08$, $SD=1.397$). Further, the respondents disagreed with the statement indicating that students in their JS have easy and equitable access to a wide range of teaching and learning materials ($M=1.83$, $SD=0.907$).

Table 4: infrastructural related factors in implementation of competency-based curriculum

Statements	N	Mean	Std. Deviation
Our school has adequate classrooms in the JS	48	2.42	.767
In our JS students have access to computers, the internet, and educational software	48	3.08	1.048
Our school has offices for school administrators and support staff	48	1.25	.838
Our JS has adequate sanitation and hygiene facilities	48	1.25	.438
The junior high school has adequate playgrounds and recreational areas	48	1.25	.438
The availability of teaching and learning materials is sufficient to support effective curriculum implementation	48	2.08	1.397
Students in our school have easy and equitable access to a wide range of teaching and learning materials	48	1.83	.907
Adequate teaching-learning materials are essential for enhancing the learning experiences of students	48	4.25	1.756
Our JS has adequate teaching material for use by teachers	48	2.42	1.200

The respondents were requested to indicate how else infrastructural factors affect the implementation of CBC in your JS. From the findings, the respondents indicated that essential facilities such as laboratories and standard classrooms befitting a secondary school are lacking. JS does not have laboratories and craft rooms for practical lessons hence making learning theoretical thus demeaning the main purpose for CBC implementation. In addition, the classrooms are inadequate leading to congestion in the classrooms, which negatively affects effective implementation of the CBC. The respondents also indicated that teachers have no offices and lockers for their privacy and bookkeeping. The respondents further indicated that lack of some teaching and learning materials negatively impacts on overall achievement of set learning outcomes.

4.5 Stakeholder engagement

The respondents were requested to indicate their level of agreement with various statements on stakeholder engagement in the implementation of CBC. From the findings, the respondents agreed that lack of cooperation from parents poses a significant challenge to the effective implementation of CBC in our school ($M=4.83$, $SD=0.377$). The respondents also agreed that involvement of parents/guardians is crucial for the successful implementation of the CBC ($M=4.33$, $SD=0.953$). The respondents agreed that their JSS ensure the involvement of curriculum developers in the rollout of the CBC ($M=2.25$, $SD=1.495$). In addition, the respondents agreed that their Junior Secondary Schools generate buy-in and a sense of ownership among teachers and students ($M=2.17$, $SD=0.996$). Further, the respondents agreed that Parent-Teacher Associations (PTAs) are actively engaged and supportive in initiatives related to the implementation of the CBC ($M=1.42$, $SD=0.647$). As observed by Babajide and Smith (2022), non-involvement of stakeholders in the change planning process was one of the main challenges facing implementation of systemic change.

Table 5: Sstakeholders engagement in the implementation of competency based curriculum

Statements	N	Mean	Std. Deviation
Involvement of parents/guardians is crucial for the successful implementation of the CBC	48	4.33	.953
Lack of cooperation from parents poses a significant challenge to the effective implementation of CBC in our school	48	4.83	.377
Our school ensures the involvement of curriculum developers in the rollout of the CBC	48	2.25	1.495
Parent-Teacher Associations (PTAs) are actively engaged and supportive in initiatives related to the implementation of the CBC.	48	1.42	.647
Our school generates buy-in and a sense of ownership among teachers and students	48	2.17	.996

The respondents were further asked to indicate how else stakeholder management affects the implementation of CBC in your JS. The teachers played a key role in supporting the head of their institutions in JS. However, other stakeholders were not involved in the implementation of CBC. For instance, the respondents indicated that parents were not adequately prepared before rolling out of CBC and they fail to understand their role and input. The respondents also indicated that since the year began there were no funds and hence no developments. Poor cooperation among stakeholders negatively affected implementation of CBC in JS.

4.6 Inferential statistics

Inferential statistics involves using data from a sample to make inferences or draw conclusions about a population. Inferential statistics that were used in this study include Pearson Correlation Coefficient and regression analysis.

4.6.1 Correlation analysis

Correlation analysis was used to show the association between the independent variables (teachers' related factors, infrastructural factors, and stakeholder engagement) and the dependent variable (implementation of CBC in JS). As shown in Table 7, the results show that teachers' related factors have a significant effect on implementation of CBC in junior secondary schools in Kiminini Sub-County ($r=378$, $p\text{-value}=0.008$). The findings agree with Diana (2020) argument that human resource factors such as teacher-learner ratio, teachers experience as well as teachers' competencies and training had a significant effect on the implementation of CBC Programme in primary Schools. In addition, the results show that infrastructural factors had a significant effect on the implementation of CBC in JS in Kiminini Sub-County ($r=790$, $p\text{-value}=0.000$). These findings are in line with Mandukwini (2016) observation that resources and inadequate facilities, inadequate financing by the government had a significant effect on implementation of curriculum in South Africa. Also, the results show that stakeholder engagement had a significant effect on the implementation of CBC in JS in Kiminini Sub-County, ($r=636$, $p\text{-value}=0.000$). These findings agree with Ocan *et al.* (2021) observation that effective stakeholder engagement is crucial to ensuring that the curriculum meets the needs and expectations of all parties involved and to successfully navigating the complex landscape of education reform. The findings agree with Isaboke *et al.* (2021) findings that lack of cooperation from parents affects implementation of the CBC.

Table 6: Correlation coefficients

			Implementation of CBC	Teachers related factors	Infrastructural factors	Stakeholder engagement
Implementation of CBC	Pearson Correlation		1			
	Sig. (2-tailed)					
	N		48			
Teachers related factors	Pearson Correlation		.378**	1		
	Sig. (2-tailed)		.008			
	N		48	48		
Infrastructural factors	Pearson Correlation		.790**	.455**	1	
	Sig. (2-tailed)		.000	.001		
	N		48	48	48	
Stakeholder engagement	Pearson Correlation		.636**	-.056	.636**	1
	Sig. (2-tailed)		.000	.707	.000	
	N		48	48	48	48

** . Correlation is significant at the 0.01 level (2-tailed).

4.6.2 Regression analysis

Regression analysis was used to show the weight of the relationship between the independent variables (teachers’ related factors, infrastructural factors, and stakeholder engagement) and the dependent variable (implementation of CBC in JS). The R-squared value for the association between these three predictor variables and the dependent variable (implementation of CBC in JS) was 0.290. This means that the three independent variables explain 29.0 percent of the change in implementation of CBC in JS.

Table 7: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.539 ^a	.290	.224	.79062

a. Predictors: (Constant), Teachers related factors, Stakeholder engagement, Infrastructural factors

The statistical significance and the fitness of the model was also investigated. The p-value (p-value=0.000) was less than the significance threshold (0.05) as indicated in Table 7. This indicates that the model is a good fit for the data. This implies that the model was good in predicting the effect of teachers’ related factors, infrastructural factors, and stakeholder engagement on implementation of CBC in JS.

Table 8: Analysis of variance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	26.988	3	8.996	57.549	.005 ^b
	Residual	6.878	44	0.156		
	Total	33.866	47			

a. Dependent Variable: Implementation of CBC

b. Predictors: (Constant), Teachers related factors, Stakeholder engagement, Infrastructural factors

Regression equation was.

$$Y = 0.248 + 0.450X_1 + 0.295X_2 + 0.456X_3 + \epsilon$$

The results show that teachers’ related factors have a positive and significant effect on implementation of CBC in JS. The findings also concur with Babajide and Smith (2022) observation that as teacher-learner ratio and teachers experience affect the implementation of CBC Programme in primary Schools. In addition, infrastructural factors had a positive and significant effect on implementation of CBC in JS ($\beta_2=0.295$, p-value=0.004). The findings are in line with Isaboke et al. (2021) findings that infrastructure was one of the main challenges facing implementation of the CBC. Further, the results show that stakeholder engagement has a positive and significant effect on implementation of CBC in JS ($\beta_3=0.456$, p-value=0.000). According to Isaboke et al. (2021) observation that implementation of the CBC was characterized by lack of stakeholder engagement.

Table 9: Regression coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	0.248	0.104		2.385	0.024
	Teachers related factors	0.295	0.106	0.275	2.783	0.004
	Infrastructural factors	0.456	0.105	0.459	4.343	0.000
	Stakeholder engagement	0.450	0.109	0.377	4.128	0.000

a. Dependent Variable: Implementation of CBC

5.0 Conclusions and recommendations

5.1 Conclusions

The study concludes that teachers’ related factors have a positive and significant effect on implementation of CBC in JS. This implies that an improvement in teachers’ related factors like

teacher-students ration, teachers experience and training of teachers on CBC would lead to an improvement in implementation of CBC in JS. However, the study found that most of the JS had inadequate number of teachers and most of teachers were not teaching subjects that they were trained on. The study also found that teachers were highly demotivated as there were few training and professional development opportunities.

The study also concludes that infrastructural factors have a positive and significant effect on implementation of CBC in JS. This implies that an improvement in infrastructural factors such as classrooms, laboratories as well as teaching and learning materials would lead to an improvement in implementation of CBC in JS. However, the study found that most of the JS had no offices for school administrators and support staff, inadequate sanitation and hygiene facilities, playgrounds, and recreational areas as well as teaching and learning materials.

The study further concludes that stakeholder engagement has a significant effect on implementation of CBC in JS. This implies that an improvement in the engagement of stakeholders like teachers, parents, government officials and curriculum developers would lead to improvement in implementation of CBC in JS. However, the study found that there was poor stakeholder involvement during the implementation of CBC. For instance, teachers, Parent Associations (PAs) and stakeholders were inadequately involved in the implementation of CBC.

5.2 Recommendations

The study recommends that the government of Kenya through the TSC should employ more teachers to ensure that JS have adequate teachers for all subjects. In addition, the government should roll out a training program for JS teachers on CBC. The Ministry of Education (MoE) should also ensure that teachers are motivated by providing the necessary teaching materials.

Infrastructure was found to be a key challenge in the implementation of CBC in JS. Therefore, the government should ensure continued construction or facilities such as classrooms, laboratories, and sanitation facilities. They should also ensure that all the JS have adequate playgrounds and recreational areas.

The study recommends that the Ministry of Education and the management of JS should ensure that all stakeholders including curriculum developers, teachers and parents are involved in implementation of CBC. In addition, parents should be trained on the importance of CBC as well as their role in the implementation.

The study found that the three factors' studies including teachers' related factors, infrastructural factors and stakeholder engagement explain 29.0% of the implementation of competency based curriculum in junior schools. As such, further studies should be conducted in other factors affecting the implementation of competency-based curriculum in junior schools.

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Conflict of interest

The author declared that she had no competing interests to disclose, and this manuscript has not been submitted for publication elsewhere.

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