

Resource Adequacy and the Implementation of Mathematics and Language Activities under Competency-Based Education in Public Junior Schools in Narok County, Kenya

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Abstract

The successful implementation of Kenya's Competency-Based Education (CBE) requires adequate instructional and infrastructural resources to support learner-centered teaching and competency development. However, concerns remain regarding the adequacy and effectiveness of resources in public junior schools. This study examined the influence of educational resources on the implementation of Mathematics and Language activities in junior schools in Narok County, Kenya. Specifically, it assessed available resources, teachers' perceptions of their effectiveness, the relationship between resource types and Mathematics teaching, and the predictive effect of resources on curriculum implementation. The study adopted a cross-sectional analytical design utilizing mixed methods. Data were collected from teachers, head teachers, learners, and Quality Assurance and Standards Officers using questionnaires, interviews, focus group discussions, and observation schedules. Quantitative data were analyzed using descriptive statistics, Pearson correlation, and regression analysis, while qualitative data were analyzed thematically. The findings revealed that computer laboratories (31.07%), digital infrastructure (28.16%), classroom space (23.30%), and furniture (17.48%) were perceived as the most essential resources for CBC implementation. Teachers generally rated the effectiveness of available resources as average (34.95%), positive (30.10%), and very positive (26.21%), suggesting a gap between resource expectations and classroom realities. Pearson correlation analysis revealed a moderate positive and statistically significant relationship between resource type and the effectiveness of Mathematics teaching ($r = .381$, $p < .001$). However, no significant relationship was found between resource type and overall educational effectiveness ($r = .062$, $p = .532$), nor between the perceived effect of resources on Mathematics teaching and overall effectiveness ($r = -.010$, $p = .917$). Regression analysis further showed that resources explained only 0.5% of the variation in the teaching of Mathematics and Languages ($R^2 = .005$), indicating that other factors play a more substantial role in curriculum implementation. The study concludes that while resources are necessary for effective CBE implementation, they are not sufficient determinants of teaching effectiveness. A holistic approach that integrates adequate resources, teacher preparedness, pedagogical competence, instructional leadership, and learner engagement is required to enhance the implementation of Mathematics and Language activities in junior schools.

Keywords: Competency-Based Education, Educational Resources, Mathematics Education, Language Education, Curriculum Implementation, Junior Schools, Kenya.

DOI: 10.7176/JEP/17-7-08

Publication date: July 30th 2026

1.0 INTRODUCTION AND CONTEXT OF THE STUDY

1.1 Contextual Background: Two

Education systems across the world are undergoing significant reforms aimed at preparing learners for the demands of the twenty-first century. Traditional content-based curricula, which emphasize memorization and examination performance, are increasingly being replaced by competency-based approaches that focus on the acquisition and application of knowledge, skills, values, and attitudes necessary for lifelong learning, employability, and active citizenship (UNESCO, 2023). Competency-Based Education (CBE) promotes learner-centered pedagogy, critical thinking, collaboration, communication, creativity, and problem-solving competencies that enable learners to thrive in dynamic social and economic environments (OECD, 2022; Orodho, 2022).

In response to these global trends, Kenya introduced the Competency-Based Curriculum (CBC) in 2017 as a transformative reform intended to replace the long-standing 8-4-4 system of education. The CBC seeks to nurture every learner's potential by emphasizing experiential learning, inquiry-based instruction, collaboration, and the development of core competencies across all learning areas (Kenya Institute of Curriculum Development [KICD], 2017). The implementation of CBC represents a paradigm shift from teacher-centered instruction

toward learner-centered pedagogical approaches that require active learner participation and authentic assessment practices.

At the Junior School level (Grades 7–9), the CBC introduces more specialized and interactive learning experiences that demand significant changes in classroom practices. Mathematics and language education are particularly central to the achievement of CBC goals because they provide foundational competencies for learning across the curriculum. Mathematics develops logical reasoning, problem-solving, and analytical thinking, while language education enhances communication, literacy, collaboration, and critical reflection. Effective implementation of these learning areas requires environments that support group work, discussion, discovery learning, peer interaction, and differentiated instruction (Republic of Kenya, 2023).

The physical learning environment constitutes a critical component of effective curriculum implementation. Educational researchers have consistently demonstrated that the quality of school infrastructure influences teaching effectiveness, learner engagement, academic achievement, and overall educational outcomes (Barrett et al., 2015; Earthman, 2022). Adequate classrooms provide safe, comfortable, flexible, and stimulating spaces that facilitate interaction between teachers and learners. Features such as sufficient space, proper lighting, ventilation, appropriate furniture, learning corners, and flexible seating arrangements enable teachers to adopt learner-centered instructional approaches consistent with competency-based education.

Conversely, inadequate classroom infrastructure can significantly constrain effective teaching and learning. Overcrowded classrooms limit learner participation, reduce opportunities for collaborative learning, hinder classroom management, and compromise the implementation of practical and interactive instructional strategies (Alam et al., 2023). Studies conducted in several developing countries have found that poor classroom conditions negatively affect learner concentration, motivation, attendance, and academic performance (World Bank, 2022). Consequently, infrastructural adequacy has emerged as a critical determinant of successful educational reform implementation.

The challenge of inadequate educational infrastructure remains prevalent across many African countries. In Tanzania, Makunja (2015) reported that shortages of classrooms and instructional facilities undermined the implementation of competency-based curricula by limiting opportunities for learner engagement and practical activities. Similarly, studies in South Africa have revealed that overcrowded classrooms and inadequate facilities negatively affect instructional quality and learner outcomes, particularly in mathematics and language subjects (Mabaso, 2024). These findings suggest that curriculum reforms cannot achieve their intended outcomes without corresponding investments in learning infrastructure.

In Kenya, the rapid expansion of Junior Schools under CBC has placed considerable pressure on existing educational infrastructure. Reports from the Ministry of Education, Teachers Service Commission (TSC), and Kenya National Union of Teachers (KNUT) indicate substantial shortages of classrooms, learning spaces, and instructional resources in many public schools (KNUT, 2019; Ministry of Education, 2024). The challenge is particularly acute in marginalized and rural counties such as Narok, where increasing learner enrolment has outpaced infrastructural development. Consequently, many schools continue to operate in overcrowded classrooms that are ill-suited for the learner-centered pedagogical approaches envisioned under CBE (Orodho, 2022).

Narok County presents a particularly important context for examining these issues. The county has experienced rapid growth in Junior School enrolment following the transition to CBC. However, many schools continue to face infrastructural challenges arising from inadequate classroom space, insufficient furniture, poor maintenance, and limited instructional facilities. Such conditions may compromise the implementation of mathematics and language activities that require interaction, group work, discussion, and practical engagement. Despite increasing policy attention toward CBC implementation, limited empirical evidence exists regarding how classroom adequacy influences subject-specific instructional practices in Junior Schools.

Existing studies in Kenya have largely focused on teacher preparedness, availability of learning materials, curriculum implementation challenges, and parental perceptions of CBC (Waweru, 2018; Orodho et al., 2023). Comparatively little attention has been devoted to examining the role of classroom infrastructure in supporting the implementation of mathematics and language activities at the Junior School level. This study therefore addresses an important knowledge gap by investigating the influence of classroom adequacy on the implementation of mathematics and language activities under Competency-Based Education in public Junior Schools in Narok County, Kenya.

1.2 Problem Statement

The successful implementation of Competency-Based Education requires learning environments that facilitate learner-centered, collaborative, and interactive pedagogical approaches. However, evidence from Kenya suggests that many public Junior Schools continue to experience severe infrastructural deficiencies, including overcrowded classrooms, inadequate learning spaces, limited furniture, and poorly maintained facilities. These challenges are particularly evident in rural and marginalized regions such as Narok County, where increasing enrolment has exerted substantial pressure on existing educational infrastructure.

Although numerous studies have examined teacher preparedness, instructional resources, and policy implementation challenges associated with CBE limited empirical research has investigated the extent to which classroom adequacy influences the implementation of mathematics and language activities at the Junior School level. Consequently, little evidence exists to guide policymakers, school administrators, and educational planners regarding infrastructural investments necessary for effective curriculum implementation. This study sought to fill this knowledge gap by examining the relationship between classroom adequacy and the implementation of mathematics and language activities under Competency-Based Education in public Junior Schools in Narok County, Kenya.

1.3 Purpose of the Study

The purpose of this study was to examine the influence of classroom adequacy on the implementation of mathematics and language activities under Competency-Based Education in public Junior Schools in Narok County, Kenya.

1.4 Objectives of the Study

1. To determine the relationship between classroom adequacy and the implementation of mathematics activities in public Junior Schools.
2. To determine the relationship between classroom adequacy and the implementation of language activities in public Junior Schools.
3. To assess the effect of classroom infrastructural adequacy on the implementation of mathematics and language activities under Competency-Based Education.

1.5 Research Hypotheses

The study tested the following null hypotheses at $\alpha = .01$ significance level:

H01: There is no statistically significant relationship between classroom adequacy and the implementation of mathematics activities in public Junior Schools.

H02: There is no statistically significant relationship between classroom adequacy and the implementation of language activities in public Junior Schools.

H03: Classroom infrastructural adequacy has no statistically significant effect on the implementation of mathematics and language activities in public Junior Schools.

1.6 Theoretical Framework

This study was guided by two complementary theoretical perspectives: Gross's Curriculum Implementation Theory (Gross, 1971) and Bronfenbrenner's Ecological Systems Theory (Bronfenbrenner, 1979).

Gross's Curriculum Implementation

Theory posits that successful implementation of educational innovations depends on four key factors: clarity of innovation goals, commitment and competence of implementers, administrative support, and availability of resources. The theory emphasizes that educational reforms often fail when implementers lack adequate resources to operationalize intended changes. In the context of this study, classroom adequacy represents a critical resource required for effective implementation of mathematics and language activities under CBC.

Bronfenbrenner's Ecological Systems

Theory complements Gross's perspective by emphasizing the influence of environmental factors on human development and learning. The theory conceptualizes classrooms as part of the learner's immediate microsystem, where interactions between learners, teachers, and physical environments shape educational outcomes. Adequate

classroom infrastructure creates enabling conditions for meaningful learning experiences, whereas inadequate environments constrain engagement, participation, and competency development.

Together, these theories provide a robust framework for understanding how classroom adequacy influences curriculum implementation and learner engagement within the competency-based education system.

2.0 RESEARCH DESIGN AND METHODOLOGY

2.1 Research Design

This study adopted a cross-sectional analytical research design employing a mixed-methods approach that integrated both quantitative and qualitative techniques. The design was considered appropriate because it enabled the collection of data from a large population at a single point in time while facilitating a comprehensive understanding of the relationship between classroom adequacy and the implementation of mathematics and language activities under Competency-Based Education (CBE). The integration of quantitative and qualitative data enhanced the validity of findings through methodological triangulation (Creswell & Plano Clark, 2018; Orodho, Khatete, & Mugiraneza, 2016).

2.2 Study Area and Population

The study was conducted in Narok County, Kenya, one of the counties that has experienced rapid expansion in Junior School enrolment following the implementation of the Competency-Based Curriculum (CBC). The target population comprised head teachers, Junior School teachers, learners, and Sub-County Quality Assurance and Standards Officers (QASOs) involved in the implementation and supervision of CBE.

Based on projections derived from available national Junior School transition and staffing statistics, Narok County was estimated to have approximately 78,000 Junior School learners and 2,400 teachers distributed across 664 public Junior Schools. Since the study primarily focused on teachers as the key curriculum implementers, the accessible population consisted of the 2,400 Junior School participants.

The sample size was determined using the Yamane (1967) formula, as cited in Orodho (2017), which yielded a sample of 342 teachers. To facilitate both quantitative and qualitative inquiry, 30% of the sampled teachers ($n = 103$) were selected to participate in the questionnaire survey, while the remaining 239 teachers participated in 24 Focus Group Discussion (FGD) sessions. Head teachers and Quality Assurance officers were purposively selected to provide complementary qualitative insights regarding classroom adequacy and curriculum implementation.

2.3 Data Collection Procedures and Instruments

Data were collected using a combination of structured questionnaires, interview guides, focus group discussion schedules, and observation checklists to capture both quantitative and qualitative information. The use of multiple instruments enhanced data triangulation and improved the credibility and comprehensiveness of the findings (Orodho, Nzabairwa, Odundo, Waweru, & Ndayambaje, 2016a).

Quantitative data were obtained primarily through structured questionnaires employing a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5). The questionnaire generated data on the adequacy of classroom resources and infrastructure, including classroom space, furniture, learning corners, flexibility of classroom arrangements, and their influence on the implementation of mathematics and language activities.

Qualitative data were collected through interviews with head teachers and Quality Assurance officers, as well as focus group discussions involving teachers. Observation schedules were used to assess the actual state of classroom facilities and learning environments in selected schools. These qualitative approaches provided deeper insights into the contextual realities influencing curriculum implementation.

2.4 Data Analysis

Quantitative data were coded, cleaned, and analyzed using appropriate statistical procedures. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize respondents' perceptions of classroom adequacy. Inferential statistics comprising Pearson Product-Moment Correlation Coefficients and Multiple Regression Analysis were employed to test the study hypotheses and

determine the nature and magnitude of the relationships between classroom adequacy and the implementation of mathematics and language activities.

Qualitative data obtained from interviews, focus group discussions, and observations were transcribed, organized, and analyzed thematically. Emerging themes were identified, categorized, and interpreted to complement and explain the quantitative findings. The integration of quantitative and qualitative results provided a richer understanding of how classroom adequacy influences the implementation of Competency-Based Education in public Junior Schools (Creswell & Plano Clark, 2018; Orodho, Khatete, & Mugiraneza, 2016b).

3.0. FINDINGS AND DISCUSSION

3.1. Availability and Adequacy of Resources for CBC Implementation

The first objective was to determine the availability of resources and implementation of competency-based education in Junior secondary schools in Narok County in Kenya (Figure 1).

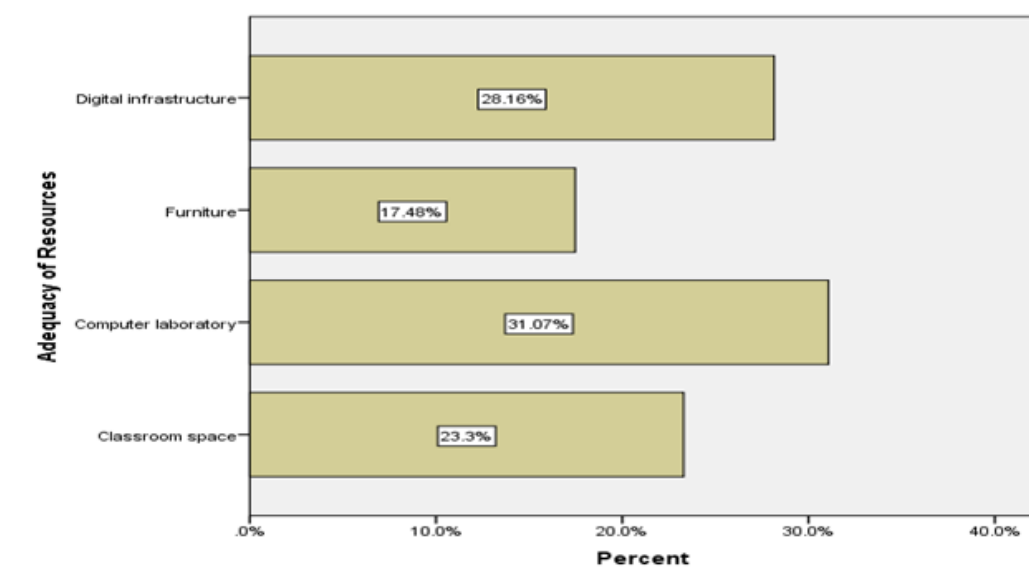


Figure 1: Adequacy of resources in Junior secondary schools in Narok County

The study established that successful implementation of the Competency-Based Curriculum (CBC) in Junior Schools depends largely on the availability of essential teaching and learning resources. Teachers identified the most critical resources as computer laboratories (31.07%), digital infrastructure (28.16%), classroom space (23.30%), and furniture (17.48%). These findings reflect the resource requirements envisaged under CBE, which emphasizes learner-centered, technology-supported, and activity-based teaching approaches, particularly in Mathematics and Languages.

The prominence accorded to computer laboratories and digital infrastructure suggests that teachers recognize the importance of technology integration in facilitating competency acquisition, digital literacy, collaborative learning, and problem-solving skills. Adequate classroom space and furniture were also considered necessary for flexible learning arrangements and group-based instructional activities advocated under CBE.

These findings converge with the observations of UNESCO, which emphasizes that adequate infrastructure and instructional resources are prerequisites for successful curriculum reforms. Similarly, studies conducted in Kenya by the Kenya Institute of Curriculum Development have consistently identified inadequate infrastructure and learning resources as major barriers to CBE implementation.

However, the findings diverge from some earlier studies that viewed physical infrastructure alone as sufficient for effective curriculum implementation. The current study suggests that digital resources are increasingly

becoming more critical than traditional physical facilities in supporting CBC delivery, especially in Mathematics and Language instruction.

3.2 Teachers' Assessment of Resource Effectiveness

The second objective was to determine teachers' assessment of resource effectiveness in implementing math and language curriculum in Junior schools. Although teachers identified the resources necessary for CBE implementation, their assessment of the actual effect of available resources revealed mixed perceptions. The majority rated the effect of resources as average (34.95%), followed by positive (30.10%) and very positive (26.21%).

These findings indicate a disconnect between the expected role of resources and their actual utilization in schools. While resources exist to some extent, they may be inadequate, inaccessible, underutilized, or poorly integrated into classroom practice. The predominance of "average" ratings suggests that many schools have not yet attained the resource threshold necessary for optimal CBC implementation.

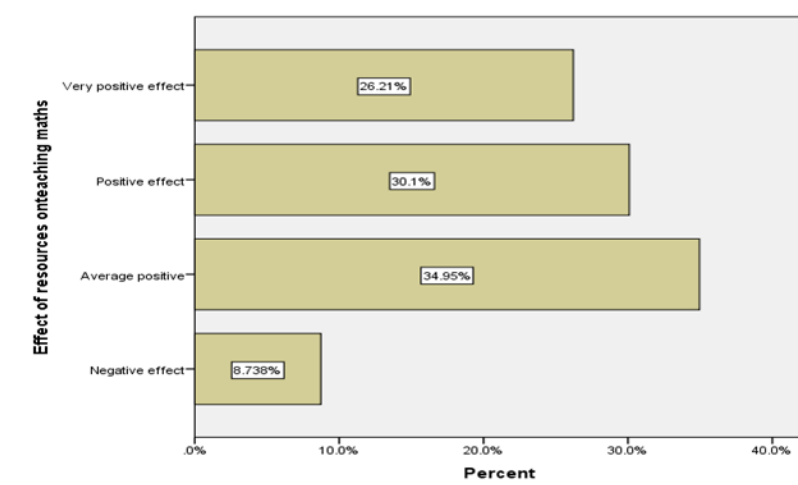


Figure 2: Effect of resources on teaching mathematics and language

The findings support the Resource-Based Theory of Education, which posits that the mere availability of resources does not automatically translate into improved educational outcomes unless they are effectively utilized (Table 1). The findings also agree with studies by the World Bank that demonstrate that resource availability alone is insufficient without complementary factors such as teacher capacity, school leadership, and pedagogical support.

Table 1 : Correlations between resources and teaching maths and language in Junior School
Correlations

		Type of resource	Effect of resources on teaching maths	Overall effect
Type of resource	Pearson Correlation	1	.381**	.062
	Sig. (2-tailed)		.000	.532
	N	103	103	103
Effect of resources on teaching maths	Pearson Correlation	.381**	1	-.010
	Sig. (2-tailed)	.000		.917
	N	103	103	103
Overall effect	Pearson Correlation	.062	-.010	1
	Sig. (2-tailed)	.532	.917	
	N	103	103	103

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

Relationship Between Type of Resource and Mathematics Teaching

The third objective was to determine the relationship between type of resources and teaching of maths and language curriculum. The results in Table 2 have contrasting findings.

Table 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.072 ^a	.005	-.015	2.04755

a. Predictors: (Constant), Type of resource, Effect of resources on teaching maths

The Pearson correlation analysis revealed a moderate positive and statistically significant relationship between the type of resource available and the perceived effect of resources on teaching Mathematics, $r(101) = .381$, $p < .001$).

This finding implies that the quality, relevance, and diversity of resources significantly influence Mathematics instruction in Junior Schools. Schools possessing appropriate instructional materials, digital tools, and specialized facilities are more likely to support effective Mathematics teaching.

The findings are consistent with previous studies showing that Mathematics achievement improves when learners and teachers have access to relevant instructional materials, manipulatives, digital technologies, and well-equipped learning environments. Research conducted by the Organisation for Economic Co-operation and Development similarly found that access to quality instructional resources positively influences learner engagement and achievement in Mathematics.

The moderate strength of the relationship suggests that resources matter, but they are only one component of effective Mathematics instruction. Teacher competence, instructional strategies, learner motivation, and assessment practices remain equally important determinants of learning outcomes.

The study found a very weak and statistically non-significant relationship between type of resource and overall effect, $r(101) = .062$, $p = .532$.

This finding suggests that while specific resources may contribute to Mathematics teaching, they do not significantly influence broader educational outcomes measured in the study. The negligible correlation indicates that overall educational effectiveness is likely determined by multiple interacting factors beyond resource availability.

This finding diverges from traditional educational input-output models, which often assume a direct relationship between resource provision and educational outcomes. Instead, it supports contemporary systems-based perspectives that view educational effectiveness as a product of complex interactions among resources, teacher quality, school leadership, parental support, learner characteristics, and institutional culture.

Between Resource Effects on Mathematics Teaching and Overall Effect

The correlation between the perceived effect of resources on Mathematics teaching and the overall effect was virtually non-existent and statistically insignificant, $r(101) = -.010$, $p = .917$.

This finding suggests that positive perceptions of resource usefulness in Mathematics teaching do not necessarily translate into broader improvements in teaching and learning outcomes. It reinforces the notion that curriculum implementation is a multidimensional process influenced by numerous contextual factors.

The finding aligns with research demonstrating that improvements in subject-specific instructional conditions do not automatically produce school-wide educational gains unless supported by systemic reforms and institutional capacity-building initiatives.

Regression Analysis Findings

The regression analysis further examined whether resources significantly predict the teaching of Mathematics and Language in Junior Schools.

Discussion of Findings

The regression analysis revealed a very weak positive relationship between educational resources and the teaching of Mathematics and Language in Junior Schools ($R = .072$). The coefficient of determination ($R^2 = .005$) indicated that resources accounted for only 0.5% of the variation in teaching effectiveness, while the negative Adjusted R^2 value ($-.015$) suggested that the predictor variables contributed virtually nothing to explaining differences in instructional outcomes. These findings imply that the availability of resources alone does not significantly determine the effectiveness of Mathematics and Language teaching. Rather, approximately 99.5% of the variation appears to be attributable to other factors beyond those captured in the model.

The findings converge with existing literature emphasizing that educational quality is influenced by a complex interaction of factors rather than resource availability alone. While adequate infrastructure and instructional materials provide essential conditions for learning, teacher competence, instructional practices, learner engagement, and school leadership often exert a stronger influence on educational outcomes (Darling-Hammond et al., 2020; Fullan, 2016). Similarly, Waweru (2018) found that teacher preparedness was a more significant determinant of Competency-Based Curriculum (CBC) implementation than the mere availability of physical resources. Teachers who possess adequate pedagogical skills, curriculum knowledge, and assessment competencies are more likely to implement learner-centered approaches effectively regardless of resource constraints.

The results also support the argument advanced by the Organisation for Economic Co-operation and Development (OECD, 2020, 2023) that educational effectiveness depends not only on learning resources but also on how teachers utilize those resources to facilitate meaningful learning experiences. This perspective aligns with Darling-Hammond et al. (2020), who contend that high-quality teaching practices and supportive learning environments are stronger predictors of learner achievement than physical resources alone.

Furthermore, the findings resonate with curriculum implementation literature, which suggests that educational reforms rarely succeed solely through the provision of resources. Gross (1971), in his Curriculum Implementation Theory, argues that successful implementation of educational innovations requires supportive organizational structures, adequate training, leadership support, and stakeholder commitment. Similarly, Fullan (2016) emphasizes that educational change is a multidimensional process involving capacity building, continuous professional development, and institutional support systems. In the Kenyan context, the Kenya Institute of Curriculum Development (KICD, 2022) and the Ministry of Education (2023) have consistently highlighted teacher training, instructional supervision, and school leadership as critical enablers of CBC implementation.

However, the findings diverge from studies that have reported strong positive relationships between resource adequacy and academic performance. For example, Barrett et al. (2015) and Earthman (2022) found that well-designed and adequately resourced learning environments significantly contribute to improved learner outcomes. The discrepancy may be explained by the fact that resources in the current study were examined in isolation, whereas effective curriculum implementation often requires a combination of adequate resources, teacher competence, learner readiness, and supportive institutional environments. Consequently, resources may serve as necessary but insufficient conditions for effective teaching and learning.

Overall, the findings suggest that while educational resources remain important enablers of CBC implementation, their influence on Mathematics and Language teaching is limited when considered independently. Effective implementation requires a holistic approach that integrates resource provision with teacher capacity development, instructional leadership, continuous professional support, learner engagement, and effective assessment practices.

4. Conclusion and Recommendations

4.1. Conclusions

The study sought to examine the influence of resources on the implementation of the Competency-Based Curriculum (CBC), particularly in the teaching of Mathematics and Languages in Junior Schools. The findings demonstrate that teachers regard computer laboratories, digital infrastructure, classroom space, and furniture as critical resources for effective curriculum implementation. These resources provide the foundational environment required to support learner-centered, competency-based, and technology-driven instructional approaches envisioned under the CBC framework.

Despite recognizing the importance of these resources, teachers generally rated their impact as average rather than highly effective, suggesting a mismatch between the resources required for successful curriculum implementation and those currently available in schools. This finding points to existing gaps in resource adequacy, accessibility, utilization, and integration into classroom practice.

The study further established a statistically significant positive relationship between the type of resources available and the effectiveness of Mathematics teaching, indicating that appropriate and relevant resources can enhance subject-specific instruction. However, the findings also revealed that resource type has little influence on broader educational outcomes and that perceptions of resource effectiveness in Mathematics teaching are not significantly associated with overall teaching and learning effectiveness.

Moreover, the regression analysis showed that resources account for only a very small proportion of variation in the teaching of Mathematics and Languages. This suggests that while resources are necessary enablers of curriculum implementation, they are not sufficient determinants of teaching effectiveness. Other factors, including teacher preparedness, pedagogical competence, instructional leadership, learner characteristics, school culture, and assessment practices, appear to play a much greater role in shaping educational outcomes.

Overall, the study concludes that successful implementation of the Competency-Based Curriculum requires more than the provision of physical and digital resources. It calls for a holistic and integrated approach that combines adequate resource allocation with teacher capacity development, effective instructional practices, supportive school leadership, learner engagement, and continuous monitoring and evaluation. Only through such a comprehensive approach can the goals of CBC be fully realized in Junior Schools.

4.2. Recommendations

Policy Recommendations

1. The Ministry of Education should prioritize investment in digital infrastructure, computer laboratories, and technology-enabled learning resources to support CBC implementation in Junior Schools.
2. Government and county authorities should accelerate the provision of adequate classroom facilities and learner-friendly furniture to create conducive learning environments.

School-Level Recommendations

3. School administrators should develop mechanisms for maximizing the utilization of available resources through proper planning, maintenance, and monitoring.
4. Schools should establish resource-sharing networks to enhance access to specialized instructional materials, particularly in resource-constrained settings.

Teacher Development Recommendations

5. Continuous Professional Development (CPD) programmes should focus on strengthening teachers' capacity to integrate available resources into Mathematics and Language instruction effectively.
6. Teachers should be supported to adopt innovative pedagogical approaches that optimize both digital and non-digital instructional resources.

Research Recommendations

7. Future studies should investigate other factors influencing Mathematics and Language teaching effectiveness, including teacher preparedness, instructional leadership, learner characteristics, classroom practices, and parental involvement.
8. Further research using multivariate models should be conducted to determine the combined influence of resources, teacher factors, and school context on CBC implementation outcomes.
9. Longitudinal studies should be undertaken to assess how resource investments influence learner competencies and academic achievement over time under the CBC framework.

These findings collectively suggest that while resources are necessary for CBC implementation, they are not sufficient on their own; successful implementation requires a comprehensive ecosystem of support involving teachers, school leadership, learners

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