

Competency-Based Curriculum: Leveraging Resources for Skills Acquisition in Primary Schools in Kenya.

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ABSTRACT

Globally, the issue of quality education is a concern for all the UN member states. Sustainable Development Goal number 4 (SDG 4) on education seeks to ensure inclusive and equitable quality education and to advance opportunities for lifelong learning for everyone. To address quality and inclusive education, a Competency-Based Curriculum (CBC) was introduced in the Kenyan educational system in 2017. The purpose of this study was to discover the variables that affect CBC's adoption in Kenya. This study's conclusions could be applied to create educational policies and legal frameworks for the effective implementation of high-quality education in Kenya and Sub-Saharan Africa. Study findings predicted significance of this study. The study adopted a mixed-method approach that used qualitative and quantitative techniques to examine the issue. A sample size of 396 was employed in the study, which was in accordance with a confidence interval of .05, a confidence level of 95%, a Z-score of 1.96, and a *SD* of .5. The results of the study showed that stakeholders had not been made aware of the need for provision of suitable infrastructure and educational resources. The study also found that the implementation of CBC is threatened by a lack of adequate staffing of teachers in schools and in-service training for teachers. The study provision on of resources for to enable acquisition of CBC skills. It was also recommended that regular in-service training for teachers be administered. The study further suggested sensitization of stakeholders to create awareness on the importance of provision of educational resources.

Keywords: Competency development, Infrastructure, Instructional materials, Teachers' Preparedness

INTRODUCTION

Developing sustainably, the UN member states are bound by SDG 4 to offer inclusive and high-quality education as advocated by the United Nations Educational, Scientific, and Cultural Organization (UNESCO, 2002) and United Nations Children's Education Fund (UNICEF, 2000), quality education is the modification of learning processes that ensure excellence in the acquisition of competencies by learners. States who are UN members had to ratify the SDGs agreement requiring the provision of inclusive and high-quality education. Kenya was required to ratify this international agreement just like every other member state. A task force was established by the Kenyan government to realign education to the new Constitution and Vision 2030 (GOK, 2012). In order to implement the task force's recommendations, the Kenya Institute of Curriculum Development Act No. 4 of 2013 required to be updated (GOK,2013). To address the need for inclusive and high-quality education, a new curriculum program had to be started in Kenya. The new educational program is called the Competency-Based Curriculum (CBC). The Kenya Institute of Curriculum Development (KICD) created it to support learners who are more interested in acquiring skills in a hands-on manner (GOK, 2013). In addition, the CBC emphasizes the value of knowledge and the implementation of

competencies in real-world settings (Mackatiani & Ejore, 2023). It was a deviation from drilling students to pass examinations to acquisition of knowledge and skills (ADEA, 2005). In light of this, the ministry of education rolled it out in 2017 (Mackatiani et al 2023). Through reading, numeracy, life skills, creativity, and values that influence societal development, the abilities attained are actualized. Essential components of CBC include infrastructure creation, instructional support materials production, skill development, and efficient assessment. According to Mackatiani et al. (2022), the CBC's curriculum design depends heavily on the stakeholders' engagement strategy. Yet, there wasn't much involvement when CBC first started.

Thus, it is essential for CBC to have environments that can identify the connections between learning experiences. According to Buckland, 2004; UNICEF, 2007; UNESCO, 2011; Mackatiani 2020; Mackatiani & Mackatiani, 2020; Mackatiani, Likoko, & Mackatiani, 2021; Mackatiani 2022; and Fundia, Likoko & Mackatiani; 2023, supportive environments helped people develop the knowledge and attitudes necessary for upholding human rights. Quality education in this aspect refers to student learning successes that come from facilitation of its (students, teachers, facilities, and supplies). In light of this, Mel & Margarida (2006), learning and teaching materials are critical ingredients in learning and a curriculum cannot be implemented without them.

Therefore, Salem (2017) noted that students in some schools perform better than their counterparts in other schools due to availability of resources. Besides, MoE (2008), notes the performance level of schools are determined by the availability of teaching and learning resources. This implied that learning environments were more conducive in the respective categorized schools. This is in concurrence with Imbova et al, 2018; Mackatiani, 2021; and Mackatiani, Ejore & Imbova, 2023, who applauded the role of resources in the implementation of quality education. Therefore, resources are essential for developing abilities.

Some of the learner-centered teaching and learning approaches used in CBC include case studies, role-playing, study tours, and problem-solving. According to Grasha, 1994; McGrath, 2013; and Mackatiani et al, 2022, several pedagogical models can be applied to suit the requirements of effective teaching and learning. After the CBC was adopted, assessment activities took the role of conventional exams. Learner abilities and capacities are assessed via peer and self-assessments, interviews, presentations, projects, observations, and portfolios. The review and change of the teaching and learning processes form the foundation of learning. As a result of the CBC resources' adoption, current methods of teaching, learning, and assessment must change. Several pedagogical models can be applied to suit the requirements of effective teaching and learning. After the CBC was adopted, assessment activities took the role of conventional exams. Learner abilities and capacities are assessed via peer and self-assessments, interviews, presentations, projects, observations, and portfolios. The review and change of the teaching and learning processes form the foundation of learning. In light of this, Mackatiani et al (2017) indicated that in-service courses play an important role in improving teaching pedagogues. A change in the teaching methods is necessary to accommodate the adaptation of the teacher in-service training programs. Both infrastructure and instructional resources must be available to support the shift. Consequently, the goal of the study was to ascertain whether there were sufficient resources for the implementation of CBC in public and private primary schools in Kakamega County.

Objectives of the study

1. To survey the availability of CBC infrastructure and equipment in primary schools.
2. To assess the availability of CBC instructional materials in primary schools.
3. To establish teachers' preparedness in the implementation of CBC in primary schools.

H₀: Physical infrastructure, Instructional materials and teachers' preparedness do not significantly influence the implementation of CBC primary schools.

Statement of the Problem

In line with Sustainable Development Goal # 4, quality education strives to “provide inclusive and equitable quality education and promote lifelong learning opportunities for all.” As a result, the objective guarantees that by 2030, all boys and girls will have received a free education that meets high standards. The protocol has to be followed by all UN member states. Kenya domesticated the convention on quality inclusive education. Kenya has to switch to the CBC educational system from the 8-4-4 system. The government established a number of structures to carry out the scheme. The required resources, however, don’t seem to be available in the classrooms. This might potentially prevent the fourth sustainable development goal, which calls for high-quality education. It is on this basis that this study investigated the implementation of the Competency-Based Curriculum in primary schools in Kakamega County.

The significance of the study

Study’s findings would be crucial in the development of educational policies and legal frameworks for the effective delivery of high-quality education in Kenya and Sub-Saharan Africa. Education stakeholders would also benefit from the study’s findings. The stakeholders would appreciate the resources required for putting excellent education into practice. The study’s availability of both quantitative and qualitative information on inclusive and high-quality education would be beneficial to comparative and international education.

THEORETICAL CONSTRUCT

Implementation theory guided this study. Mitchell (2011) advanced the implementation theory. The implementation theory is a specified set of planned and intentional activities designed to integrate evidence-based practices into real-world settings. The theory focuses on whether institutions can be designed in a manner that their outcomes implement a given set of normative goals. Approaches, practices, and interventions are delivered in real school and classroom settings. Principals and teachers may decide to adapt elements of a program, and barriers in the school system may prevent an approach from being fully realized. Implementation strategies such as training and ongoing teacher support are also, important to consider in efforts to encourage positive student outcomes. This theory, therefore, stresses the interaction between resources and learners.

RESEARCH METHODOLOGY

The study used a hybrid methodology approach. When qualitative and quantitative research methods are combined and integrated into one study, the process is known as “mixed methods research.” The overarching goal and fundamental tenet of mixed methods research are to use both quantitative and qualitative approaches to yield a more comprehensive grasp of study issues. The 1200 elementary schools in Kakamega County were the focus of the investigation. There are twelve sub-counties in Kakamega County. Subsequently, the study randomly identified four primary schools in each sub-county. Also, 192 students (2 girls and 2 boys per school) and 96 class teachers (1male teacher and 1 female teacher) were included in the sample. Besides, 48 head teachers, 48 Parents Association chairmen (PAs), and 12 Curriculum support officers (CSOs) were sampled. The total number of participants was 396. The sample corresponded to a confidence interval of .05, a confidence level of 95%, a Z-score of 1.96 and a *SD* of 0.5.

Data Collection Techniques

Data were gathered in educational institutions including schools and offices. The respondents were given the

questionnaires by the researchers. Primary data for the study was gathered by having respondents completing questionnaires. The questionnaires contained open and close ended questions. The structure of the questionnaires was according to the objectives of the study. In terms of structure, Section A contained demographic information of the three respondents; Section B contained questions on academic performance of schools. Section C consisted of questions on independent variables: infrastructure in primary schools; instructional materials in primary schools; and teachers’ preparedness infrastructure. The closed ended questions were constructed on a Likert scale of five; very high, high, moderate, low and very low. Researchers’ observations and document analysis were used to complement the information acquired. Following the fieldwork, the researchers collected every completed questionnaire for data cleaning, juxtaposition, coding, and ultimately data analysis.

DATA ANALYSIS

Data analysis entailed organizing, summarizing, and synthesizing information to offer the information required for description. The data were coded and categorized using thematic analysis based on sub-themes connected to the study’s goal. The analysis entailed extracting meaning from qualitative data based on surveys and a review of the literature. The study’s qualitative data came from questionnaires. An examination of qualitative data, attitudes, and opinions of respondents was carried out in this case. The analysis was then used to produce descriptive statistics. This resulted in the data being coded. The factors of the study, namely power and authority, school regulations and procedures, and curriculum, were used to categorize qualitative data. The findings were summarized in frequency tables before being collected into a report.

Data and Data Sources

The data used were acquired from respondents in schools and education offices on variables that influence the implementation of the competency-based curriculum. The outcomes of CBC implementation have an impact on the quality and inclusive education of children in primary schools. The statistics were on the inefficiencies that influence CBC implementation in all primary schools.

Data analysis and Discussions

This study surveyed the influence of the implementation of CBC in primary schools in Kakamega County. The study was guided by the following objectives: To survey the availability of CBC infrastructure in primary schools; to assess the availability of CBC instructional materials in primary schools; and to establish teachers’ preparedness in the implementation of CBC.

The study sought views from the Curriculum support officers (CSOs), Headteachers, and Parents Association chairmen (PAs) relating to the availability of CBC infrastructure. Their perceptions were captured in Table 1

Table 1: Perceptions of education officers, Head teachers, and PAs on the adequacy of infrastructure and equipment.

Perceptions	Headteachers		PAs		CSOs	
	N	%	N	%	N	%
Adequate	10	20.8	10	20.8	0	0
Inadequate	38	79.2	38	79.2	12	100
Total	48	100	48	100	12	100

CSOs referred to Curriculum support officers; while PAs referred to Parents Association chairmen.

Concerning data contained in Table 1, 20.8 percent of head teachers in primary schools indicated that schools had the adequate infrastructure and equipment for CBC Education participation. Besides, 20.8 percent of PAs noted that schools had adequate CBC infrastructure and equipment for implementation of CBC in primary schools. However, none of the CSOs indicated that schools had the adequate infrastructure and equipment for CBC implementation in primary schools.

Further findings from Table 1 revealed that 79.2 percent of headteachers in primary schools indicated that schools had the inadequate infrastructure and equipment for CBC implementation in primary school. Besides, 79.2 percent of PAs noted that schools had inadequate CBC infrastructure and equipment for implementation of CBC in primary schools. However, 100 percent of the CSOs indicated that schools the inadequate infrastructure and equipment for implementation of CBC in primary schools.

Overall, the majority of the respondents noted that Physical infrastructure and equipment were inadequate in primary schools. The findings concur with Salem (2017) noted that students in some schools perform better than their counterparts in other schools due to availability of resources. This implied that the inadequacy of physical infrastructure and equipment was a hindrance to the implementation of a Competency-based Curriculum. For effective achievement of competencies physical infrastructure and equipment are crucial.

The second objective of the study was to assess the availability of CBC instructional materials in primary schools. The study, therefore, assessed the adequacy of instructional materials, the instruction materials interrogated were textbooks, writing materials, and teaching learning materials. To determine the adequacy, on a Likert scale of one to five, views were sought from Curriculum support offices(CSOs), teachers, and pupils. Their perceptions were captured in Table 2.

Table 2: Perceptions on the adequacy of instructional materials.

Respondants	Very high(5)	High(4)	Moderate(3)	Low(2)	Very low(1)
CSOs	0 0%	0 0%	3 25%	9 75%	0 0%
Teachers	0 0%	0 0%	10 10.4%	86 89.6%	0 0%
Pupils	0 0%	0 0%	30 15.6%	162 84.4%	0 0%

CSOs referred to Curriculum support officers.

Concerning Table 2, Lerkert scale rating was used to determine respondents' perceptions on adequacy of instructional materials. From the data in table 2, none of the respondents indicated that the adequacy of instructional materials was either very high, high, or very low. However, 25 percent of CSOs indicated that the level of instructional materials in primary schools was moderate. While 75 percent of the CSOs noted that the level of instructional materials in primary schools was low, Besides. 10.4 percent of teachers in primary schools indicated that the level of instructional materials was moderate. While 89.6 percent of

teachers indicated that it was low Also, 15.6 percent of pupils in primary schools indicated that the level of instructional materials was moderate. While 84.4 percent of the pupils in primary schools noted that the level of instructional materials was low.

Overall, most respondents noted that the level of adequacy of instructional materials was low in primary schools. The findings concur Mel & Margarida (2006), who noted that learning and teaching materials are critical ingredients in learning and a curriculum cannot be implemented without them. This is in light of UNESCO, 2002; and UNICEF, 2000, who attributed high-quality education to availability of resources schools. Besides, it is in concurrence with MoE (2008), which noted that performance level of a school was mostly determined by the availability of teaching and learning resources. This implied that a Competency-based Curriculum is not being effectively implemented due to the inadequacy of instructional materials.

The third study objective sought to establish teachers’ preparedness in the implementation of CBC. To establish the extent, the study sought views from Headteachers, teachers, and CSOs Their views were captured in Table 3.

Table 3: Head teachers, teachers and CSOs views on Teachers’ preparedness.

Respondents	Very high(5)	High(4)	Moderate(3)	Low(2)	Very low(1)
Headteachers	0 0%	0 0%	20 41.7%	28 58.3%	0 0%
Teachers	0 0%	0 0%	30 31.3%	66 68.7%	0 0%
CSOs	0 0%	0 0%	12 100%	0 0%	0 0%

CSOs referred to Curriculum support officers.

Concerning Table 3, Lerkert scale rating was used to determine respondents’ perceptions on Teachers’ preparedness. From the data contained in Table 3, 41.7 percent of headteachers in public primary schools indicated that the level of teachers’ preparedness was moderate. While 58.3 percent of the headteachers noted that the level of teachers’ preparedness was low. Also, 31.3 percent of the teachers in primary schools indicated that the level of teacher preparedness was moderate. While 68.7 percent of the teachers noted that the level of teachers’ preparedness was low. However, 100 percent of the CSOs indicated that the level of teachers’ preparedness in primary schools noted that the level was moderate.

Further findings from data contained in Table 3, indicated that none of the headteachers, teachers and CSOs indicated that the level of teacher preparedness was either very high, high or very low. Also, none of the CSOs indicated that teachers’ level of preparedness was low.

Overall, most respondents noted that the level of teachers’ preparedness in primary schools was wanting. The findings concur Grasha (1994), and McGrath (2013), who revealed that various pedagogical models applied contribute to effective teaching and learning. This implied that CBC is not being effectively implemented due to a lack of teachers’ preparedness.

The study further sought to establish the adequacy of teachers in Primary schools. Views were sought from from Headteachers, teachers, and CSOs Their views were captured in Table 4.

Table 4: Head teachers, teachers and CSOs views on adequacy of Teachers.

Opinions	Headteachers		Teachers		CSOs	
	N	%	N	%	N	%
Adequate	5	10.4	10	5.2	2	16.7
Inadequate	43	89.6	86	94.8	10	83.3
Total	48	100	96	100	12	100

CSOs referred to Curriculum support officers.

Concerning data contained in Table 4, 10.4 percent of headteachers in primary schools indicated that the staffing of teachers was adequate in their school. While 89.6 percent of the headteachers noted that staffing of teachers was inadequate in schools. Also, 5.2 percent of the teachers in primary schools indicated that staffing of teachers was adequate in schools. While 94.8 percent of the teachers noted that the staffing of teachers was inadequate in schools. However, 16.7 percent of the CSOs indicated that the staffing of teachers in primary schools was adequate. While, 83.3 % of the CSOs noted that the staffing of teachers in schools was inadequate.

Overall, most respondents noted that the staffing of teachers in primary schools was inadequate. The findings concur with UNESCO (2011), who noted that friendly environments are crucial for attainment of learning experiences in primary schools This implied that CBC cannot therefore, be effectively implemented due to a inadequacy of teachers.

The study further sought to establish whether stakeholders were involved in the discussion on the introduction of CBC. Views were sought from headteachers, teachers, and PAs. Their views were captured in table 5

Table 5 Head teachers, Teachers and PAs views on Participation.

Opinions	Headteachers		PAs		Teachers	
	N	%	N	%	N	%
Involved	0	0	0	0	0	0
Not Involved	48	100	48	100	96	100
Total	48	100	48	100	96	100

PAs referred to Parents Association chairmen.

Concerning the data contained in Table 5, none of the headteachers, teachers or PAs indicated that education stakeholders were sensitized on CBC prior to inauguration. However, 100 percent of head teachers indicated that education stake holders were not involved in public participation prior to the inauguration of CBC. Besides, 100 percent of the PAs in primary schools noted that there was no participation. Also,100 percent of teachers in primary schools indicated that there was no participation.

Overall, all respondents in primary schools indicated that there was no participation. This implied that stakeholders were not involved in the inaugural process of CBC. This is in concurrence with UNICEF,2007 which identified supportive environments that are crucial in development of knowledge and attitudes. Hence

failure of participation sensitization impacted the implementation process.

To determine the influence of physical infrastructure, instructional materials and teacher preparedness on the implementation of quality education in public and private primary schools, the hypothesis was tested. The hypothesis stated that; H_0 : Physical infrastructure, Instructional materials and teachers’ preparedness do not significantly influence the implementation of CBC primary schools. The results of Regression analysis done to test the hypothesis are indicated in Table 6.

Table 6 Regression model of Influence physical facilities, instructional materials, and teacher preparedness

Change statistic								
R	R Square	Adjusted R Square	Std Error of the Estimate	R Square Change	F Change	df1	df2	Sig F Change
.591 ^a	.349	-.140	.509	.349	.714	9	12	.689

a. Predictors: (Constant), wall charts, teaching aids, textbooks, teachers’ reference books, classrooms, workshops, latrines, administration blocks, in-service courses, staffing, Approaches

b. Dependent Variable: Competency-based curriculum

Concerning the data contained in Table 6, the significance level was at sig $F = .689$. It was greater than $p = .05$. The relationship $F(9, 12) = .714$. $p > .05$, $R = .349$, which is 34.9 percent. The hypothesis was therefore rejected. This meant that X= instructional materials, physical infrastructure and teachers preparedness predicted implementation of competency-based curriculum by 34.9 percent. This was an implication that other factors not covered in the study contributed to 61.1 percent of the CBC implementation in primary schools. The study, therefore established that physical infrastructure, instructional materials and teachers’ preparedness predicted implementation of Competency-based Curriculum in primary schools by 34.9 percent. The results agreed with those of UNESCO (2011), who revealed that conducive environments contributed to the acquisition of skills and attitudes.

Major findings

The study findings revealed that there were no adequate physical infrastructure and equipment in schools for the implementation of Competency-based Curriculum. This implied that the lack of physical infrastructure was a hindrance to the implementation of Competency-based Curriculum. The study findings also noted that the level of adequacy of instructional materials was low in primary schools. This implied that instructional materials for the implementation of a Competency-based Curriculum were insufficient. Hence there is need for the Government of Kenya to improve on capitation to schools which will improve procurement of physical infrastructure and instructional materials.

It was also revealed that there was a lack of sufficient teacher preparedness. Lack of preparedness was attributed to under staffing of teachers in primary schools and lack of professional in-service courses for teachers. This implied that there were inadequate in-service courses for teachers for proper implementation of CBC. Also, teachers don’t effectively prepare in advance for administration of their lessons. Subsequently, lack of preparedness and sufficient in-service courses pose a threat to the implementation of Competency-based Curriculum. Therefore, the Government of Kenya should staff schools with adequate teachers. In service courses on curriculum delivery should be reinforced.

The study findings further revealed that stakeholders had not been sensitized on the provision of adequate infrastructure and instructional materials. Lack of sensitization impede effective implementation of CBC. Hence, stake holders should supplement the capitation from the government for construction of physical

infrastructure and acquisition of instructional materials.

The study revealed that instructional materials, physical infrastructure and teachers' preparedness predicted implementation of competency-based curriculum by 34.9 percent. This was an implication that there were other factors not covered in the study that should be addressed in order to achieve 100 percent implementation of CBC in primary schools.

RECOMMENDATIONS

The recommended suggestions based on the data and analysis of respective objectives. Physical infrastructure, instructional materials, and teacher preparedness are key in implementing CBC in primary schools. Therefore, the study recommended that the National Treasury improves capitation to schools to facilitate provision of physical infrastructure and learning resources to promote implementation of CBC. Sufficient teacher preparedness plays an important role in teaching and learning processes. It was therefore, recommended that. adequate staffing of schools and mounting of in-service courses in respective subjects be enhanced for teachers to be equipped with necessary skills for CBC implementation. Inclusion of all stakeholders in the implementation process of CBC is crucial. The study further recommended that stakeholders be sensitized in order to participate and provide adequate resources to schools.

CONCLUSIONS

The study concluded that there was inadequate physical infrastructure for effective implementation of CBC in primary schools. Besides, it was concluded that inadequate instructional materials, negatively affected implementation of CBC in primary schools. Also, it was concluded that there were inadequate teachers' in-service courses for effective implementation of CBC in schools. The study further concluded that there was a lack of public participation in the initiation process of CBC in Primary schools. Last, but not least, the study concluded that physical infrastructure, instructional materials, and teacher preparedness predicted the implementation of CBC in primary schools by 34.9 percent. In summary, the study concluded that inadequacy of physical infrastructure, instructional materials and lack of teachers' preparedness had a diverse effect on the implementation of Competency-based Curriculum in schools.

ACKNOWLEDGMENT

The study is empirical and original. Subsequently, we appreciate education officers and respondents who participated in the study.

Study Limitations

This study like any other study had various limitations. The geographical setup of the study site was a significant limitation to this study. The site was expansive and cosmopolitan. It affected the transport infrastructure during the rainy season. The sampling procedure was also a limitation. Besides, responses from respondents was a limitation. Furthermore, research tools were a limitation. With regard to the mitigation of limitations, the study was conducted during the month of July, 2023 when rains had subsided. The population being cosmopolitan, study findings were generalized. Besides, the study sampled respondents from all over the study site through stratified sampling. The major study tool was questionnaire. Question items had both open and closed ended questions. The researchers' skills of creativity and flexibility determined reliability and validity of question items. Also, various research tools used to gather information ensured the supplementation of each other. Furthermore, information on CBC was not manipulated. Also, respondents were assured of confidentiality.

Study Contributions

This study is significant to education stakeholders in Kenya and Sub-Sahara Africa. The Stakeholders will be sensitized on the importance of CBC education system. It will highlight on concerns when there are shifts from inefficiency to efficiency in schools. Policy formulators and policy implementers might use the findings of the study to redress issues that promote quality education in learning institutions. The study might be significant to Comparative and international education as it provides data on quality education and adds to the growth of knowledge.

Suggestions for further research.

Further research on education systems should be used to open up discourses about the expectations and realities of skills acquisition. It should emphasize on quality education. Education should focus on in-the-field, experiential training to develop practical skills. Traditional exams will, at least in part, be replaced by assessments of skills and competencies shown while doing, rather than theory. For learners to thrive in the 21st century, it will require acquiring practicable career skills. The role of teachers in a 21st-century classroom should shift, from being an 'expert' to being a 'facilitator'..

Authors' Contributions:

Two Authors participated in the study

Conflict of Interest:

There was no conflict of interest

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