

# Challenges and mitigation Strategies in Competency Based Education Implementation in Senior Secondary Schools in Bungoma County, Kenya: A Descriptive Survey Study

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**Abstract:** *This study examined challenges affecting competency-based education implementation in senior secondary schools in Bungoma County, Kenya and proposed mitigation strategies. A descriptive survey design was used with 244 Grade 10 teachers sampled from 24 public schools. Data were collected using structured questionnaires with established reliability and analyzed using descriptive statistics. Findings revealed key challenges including inadequate ICT infrastructure, insufficient teacher training, financial constraints, and negative stakeholder attitudes. Teachers also reported difficulties in curriculum planning and assessment practices. Suggested mitigation strategies included enhanced teacher in-service training, improved resource allocation, policy support, and stakeholder sensitization. The study concludes that strengthening institutional support mechanisms is essential for effective implementation of competency based education in Kenya.*

**Keywords:** Competence based curriculum, teacher training, secondary education reform, Kenya education policy, descriptive survey, curriculum implementation challenges.

## 1. Introduction

Education is not just another government sector project. It is Kenya's strongest tool for equality-the only system that allows a child born in poverty to compete fairly with one born in privilege (Walekhwa, 2026). In light of this, there is growing recognition, reorientation, inclination, and intergration of CBE in the education system of some countries in the world. Competency based education started in the United States of America (USA) in the 1970s (Ford et al., 2014). It was later expanded into United Kingdom (UK), Germany and other European countries in the 1980s, and in Australia in 1990s (Nsengimama, 2021).

Komba and Mwandangi (2015) noted that in Africa, CBE was first adopted for the first time in South Africa in 1998, following the acute shortage of professionals like engineers, technicians and artisans. Other African countries that have adopted CBE include; Nigeria, Zambia, Tanzania, Rwanda, Ethiopia and Kenya. In most of the developing countries, CBE was adopted from developed countries and adapted to the specific needs of the country (Nsengimama, 2021). In line with the UNESCO (2015), on educational policies the agency stresses the importance of curriculum evaluation and review periodically. The Kenya Institute of Curriculum Development (KICD) evaluation report established that 8-4-4 system of education was not providing flexible pathways for career development. In addition, 8-4-4 system was majorly examination oriented instead of nurturing learners' competencies for future life and careers (KICD, 2017). Further, the system has been releasing half-baked graduates who cannot fit in the job market. Hence, need for an education system that focuses on developing learners' competencies instead of just acquiring knowledge and skills theoretically.

There is a compelling educational shift from acquisition of knowledge and skill to development of learners competencies needed in the 21<sup>st</sup> Century for them to flourish globally in the present job market. The shift can be attributed to the rapid technological revolution and increased globalization hence need for adaptation to the changing world of work (Akinrionla et al, 2021). Komba and Kira (2013) argued that, the review of any curriculum is always prompted by economic, political, and cultural changes.

Although there is a large published literature describing CBE in the world, there is not much on Kenya and even less about challenges facing CBE implementation in senior secondary schools in Kenya. Hence, need for this study to identify challenges and determine the level of in-service of teachers and suggest mitigations to the CBE limitations for the effective and efficient implementation of CBE in senior secondary schools in Kenya.

## 2. Theoretical Underpinning

This study is based on the concept of social constructivism (Vygotsky,1978). Social constructivism proposed by Vygotsky (1978) suggested that teaching and learning should be in a practical orientation. The school and teachers should provide a classroom environment for practices that promote competence-based learning in secondary education. The social constructivists propose that learning is achieved as a result of social interaction between themselves and learning materials. Interaction occurs in the process of collaborative inquiry which enables learners to draw upon each other's experience in solving difficult tasks (Vygotsky, 1978). Constructivism approaches allow learners to play an active role in their education as they engage in real-world and meaningful application of the practical skills. Teachers act as facilitators to guide the learner.

This study adopted social constructivist theory based on how CBE teachers should use different tasks, peer assessments and other approaches to the teaching and learning process to facilitate the acquisition of knowledge and skills in preparation for the world of work. The teaching and learning activities employed by teachers are anticipated to develop in the learner the seven key competencies namely; self efficacy, learning to learn, digital literacy, citizenship, imagination and creativity, communication and collaboration, critical thinking and problem solving (KICD, 2017). The expectations from authors and agencies endorsing CBE are high. Graduates are expected to be marketable, real- world relevant, have high self efficacy, increased mobility and intrinsic motivation in performing tasks.

### 3. Review of literature

#### Challenges facing CBE implementation

Studies show that implementation of CBC in schools had been complex since its introduction because teachers still focused on developing content with the hope that the learners would develop the intended competence automatically. According to (KICD, 2026) some of the common pedagogies in CBE for learning in senior school science subjects may cut across the curriculum. Pedagogies include inquiry-based learning, problem-based learning, collaborative learning, experiential (hands-on) learning, project-based learning, use of ICT (digital learning), differentiated learning and reflection and self-assessment. Most of these pedagogies are still a challenge to most of the teachers who still employ lecture method. This could have far-reaching implications on CBE curriculum implementation.

Competence based education entails differentiated learning (KICD, 2026). Differentiated learning can be identified using the eight type of intelligence. Learners differ in their preferred learning style. Appropriate learning methods relative to each of the style are based on the types of intelligence, learning strength and how best the learner receives knowledge. The verbal-linguistic are language smart therefore, remember terminologies and writes, observe clearly after an activity. The logical-mathematical are number smart can solve quantitative problems and predict outcomes. The visual-spatial are picture smart visualizes based on spatial arrangements. The bodily-kinesthetic are body smart manipulates equipments and uses models or acts to explain a concept. The musical are music smart create memory by using rhythmic pattern by creating mnemonics or songs. The interpersonal are people smart understands and interacts with others for collaboration, teamwork and sharing knowledge and learn from their peers. The intrapersonal are self-smart and can self-reflects on their learning process, identifies learning styles and understands one's strength and weaknesses and seeks help and guidance. While the naturalistic are nature smart and can relate concepts to real-world and understand day-to-day life. Majority of the teachers are not able to integrate differentiated learning in the classroom. This could adversely affect CBE curriculum implementation.

Competency Based Assessment (CBA) methods and tools are meant to determine a learner's ability to apply related knowledge, skills, values and attitude to perform a task successfully. Such assessment should be regular, valid and reliable to measure the learners' understanding of the content (KICD, 2026). Competence based education incorporates both formative and summative assessments. Formative assessments are continuous assessments used to monitor learning and provide feedback to learners and teachers. For example, classroom assignments, homework and end-of-term assessments. While summative assessments are conducted at the end of a specific learning period or level to evaluate overall learning. It includes national examinations conducted by Kenya National Examination Council (KNEC) in Grades 6, 9 and 12 (KICD, 2026).

Kubai (2023) observed that away from the former academic assessments of knowledge in the 8-4-4 system of education, CBE demands that KNEC has to quickly shift to design a Competency Based Assessment Framework (CBAF) to guide its activities to ensure correct procedures are followed. In the study on challenges facing Competence-Based Assessments in Nairobi County, Kenya, Kubai (2023) revealed that formative assessment presents a huge challenge to the teachers. Pointing out that the scores uploaded to the KNEC portal lacks validity and reliability. This revelation is enough to cause alarm among education stakeholders. Hence, need for this study to explore CBE, challenges in senior secondary schools and suggest mitigations to the challenges.

#### Level of teachers' in-service on CBE implementation

A good number of studies have investigated different issues on Competence Based Curriculum (CBC), (Kafyulilo et al; 2012; Akinrionla et al., 2021 & Kubai, 2023). For example, Akinrionla et al., (2021) conducted a study on the implementation of competence- based curriculum in Tanzanian secondary schools. In this study, the authors revealed that pre-service teachers needed a kind of training on practice with the CBC teaching approaches in order to be able to effectively implement the approaches in their teaching. Moreover, in the study conducted by Kubai (2023): A critical review of the challenges facing the Competence Based Assessment (CBA) in Kenya; highlighted some factors such as lack of trained teachers, financial constraints, and lack of integrity among teachers as key factors affecting the implementation of CBE in Kenya. Kubai (2023) further argued that CBA framework involves installation of ICT infrastructure, in-servicing of staff and teachers, and continuous sensitization of stakeholders on effective ways of implementing CBA.

Kubai (2023) insisted that the re-tooling of teachers and staff, involves holding workshops to change their teaching methods and approaches, attitude about the new model of assessment and trust that once the trained teachers will assess the learners' abilities. The researcher further noted that there is need for continuous training of teachers on measurement and evaluation to improve their psychometric skills of assessments for effective implementation of CBA in Kenya. Based on the previous studies, the re-tooling of teachers on CBE and CBA should be continuous for capacity building. The training should involve the use of

ICT technologies so that they can integrate technology in teaching and learning process.

The 21<sup>st</sup> century has brought about incredible innovations in technology. The recent discovery of Artificial Intelligence (AI) has presented a great challenge to teachers. While CBE require that teachers integrate ICT in the teaching and learning, the limited ICT gadgets, lack of internet connectivity for learners to search for information online. In addition, lack of ICT skills hinders effective curriculum implementation. Government policies such as the ban on students owning mobile phones in school yet one of the CBE competencies is digital literacy. Such policies put the teacher in an awkward state. This study explored the challenges facing CBE implementation in senior secondary schools in Kenya.

#### **Suggested mitigation to the CBE challenges**

Studies that have investigated different issues on CBC revealed numerous challenges affecting the implementation of the curriculum. Some studies suggested mitigations to the challenges. Komba and Mwandangi (2015) suggested that since teachers are the cornerstone in implementation of any curriculum. The ministry of Education should improve the teacher training programs in order to provide pre-service teachers with necessary skills for curriculum implementation. Kubai (2023) emphasized that the re-tooling of teachers on CBE and CBA should be continues for capacity building. Stating that the training should involve the use of ICT technology in the teaching and learning process.

Makunja (2016) as cited by Kubai (2023) identified financial constraints as another key factor affecting implementation of CBE. The study suggested that the ministry of Education should provide adequate resources for effective implementation of CBE. Further, Kubai (2023) noted that effective method of evaluation of CBE is through several formative assessments as compared to a one-time summative examination. The study revealed that Competence Based Assessment (CBA) is coupled with challenges of validity and reliability as scores uploaded on the KNEC portal lacked credibility. Hence need to increase the monitoring activities of quality assurance of the assessment process.

Nsengimama (2021) found out that CBE implementation is affected by lack of teaching and learning materials, laboratory equipments and chemicals for science experiments. The study suggested improvisation of missing materials, use of simulations for some practical experiments in mathematics and science subjects. Moreover, the study suggested reduce the teaching load to allow teachers enough time to make lesson plans and collect teaching and learning materials. In addition, the study suggested English language training as a medium language of communication for teachers who were trained in French.

Akinrionla et al., (2021) found out that teachers in the three countries (Nigeria, Rwanda and South Africa) involved in the study had a positive perception using Competence-based approaches but lack professional training and support, which affected the quality of their assessment practice in the classroom. The study suggested that education stakeholders in Africa should provide models, illustrating key knowledge,

skills and attitudes that teachers can use to implement appropriate competence-based approaches in the classroom effectively.

However, there are no or limited studies which have been conducted to identify challenges facing implementation of CBE in senior secondary schools in Kenya, and also suggest mitigations to the challenges. In this regard, it was pertinent to conduct this study in order to identify challenges, and suggest mitigations, purposely to improve implementation of CBE in senior secondary schools in Kenya

#### **Objectives of the study**

- 1) To identify challenges facing CBE implementation in senior secondary schools in Kenya.
- 2) To find out the level of training of teachers on CBE implementation in senior secondary schools in Kenya.
- 3) Suggest mitigations to the challenges facing CBE implementation in Kenya.

#### **4. Methodology**

The study adopted a descriptive survey research design. Bungoma County was purposefully sampled to represent the 47 counties of Kenya. Two secondary schools from each of the 12 sub-counties within the County were purposively selected, making a total of 24 public senior schools. These schools included two C1, four C2, eight C3 and ten C4 schools. The study target population was 815 teachers in the selected schools. Ten teachers handling Grade 10 were sampled using simple random technique. A total of 244 teachers (162 male and 82 female) participated in this study. The Grade 10 teachers were purposively sampled because they were handling the Grade 10 learners, hence, having the valuable information about CBE and its challenges.

A structured questionnaire consisting of both closed-ended and open-ended questions was administered to teachers to collect data about challenges facing CBE education at Grade 10 in senior schools. But before administering the questionnaires, reliability and validity of the tools was established through piloting, triangulation and consulting with the experts in research and education. The questionnaire was piloted in two schools outside the sampling frame and a reliability coefficient of Cronbach's alpha was found to be 0.87, making it suitable for data collection.

#### **Data analysis**

The quantitative data collected from the closed-ended questionnaires was entered into the computer by the expert. Using the SPSS computer software data was analyzed. The data was analyzed using descriptive statistics and findings presented in the form of frequency tables, means and percentages. While for the qualitative data from the open-ended questionnaires it was generated into themes and categories using codes then interpretations were made.

#### **5. Findings and Discussion**

The first objective of this study was to identify the challenges facing CBE implementation in senior schools in Kenya. To achieve this objective, responses were obtained

from a series of eight statements depicting various CBE challenges. Respondents were asked to respond on a five-point Likert scale: Strongly Agree (SA), Agree (A), Undecided (U), Disagree (D) and Strongly Disagree (SD).

The categories were collapsed into agree and disagree. Statements depicting various challenges affecting CBE implementation in senior schools in Kenya are shown in Table 1.

**Table 1: Challenges facing CBE in senior secondary schools in Kenya**

Statement	SA	A	U	D	SD
1.CBE is very costly that most parents can't afford	122	60	0	16	46
2. The government has underfunded CBE education	182	41	3	5	13
3. CBE was introduced in a rush without proper plan	39	102	48	21	34
4. Some of the G9 learners haven't transitioned to G10	108	36	27	18	45
5. Barrier to transition include: school fees & uniform	129	64	23	35	16
6. Classrooms in my school are over-crowded	59	63	0	71	51
7. ICT & internet facilities are not sufficiently	198	24	1	14	7
8. Teachers are very few to handle CBE classes	101	45	0	55	39
Total	938	435	102	227	251
Percentages (%)	48.0	22.2	5.2	11.6	12.8
Agreeing /Disagreeing (%)	70.2		5.2	24.4	

As Table 1 shows, a higher percentage (70.2%) of the respondents reported existence of challenges in the implementation of CBE in Kenya, compared to (24.4%) of the respondents who were of the contrary opinion.

In Kenya. To achieve this objective, respondents were asked to respond to a set of eight statements depicting level of training on CBE. The responses were on a five-point Likert scale: Strongly Agree (SA), Agree (A), Undecided (U), Disagree (D) and Strongly Disagree (SD). The categories were collapsed into agree and disagree as shown in Table 2.

The second objective was to find out the level of teachers' training on CBE implementation in senior secondary schools

**Table 2: Teachers in-service training on CBE**

Level of training & information on CBE	SA	A	U	D	SD
1. I have never been re-tooled/trained on CBE	100	28	0	61	55
2. I have been trained on CBE differentiation learning	118	31	0	107	18
3.I lack technological skills required to implement CBE	123	23	0	69	29
4. I am unable to make CBE schemes & lesson plan	107	24	1	85	48
5. I do not understand CBE terminologies. eg strand	98	66	0	53	47
6. I am unable to improvise learning aids	99	58	3	20	24
7. I am unable to assess CBE competencies	124	34	12	51	23
8. I am unable to observe work related skills	106	79	2	21	36
Total	883	343	18	467	280
Percentages (%)	45.1	17.4	0.8	23.7	14.2
Agreeing /Disagreeing (%)	62.5		0.8	37.9	

A majority of the respondents (62.5%) as shown on Table 2 reported lack skills to effectively implement CBE in senior secondary schools. In this study, respondents who were senior school teachers agreed that lack of training on CBE, technological facilities and skills hinder effective curriculum implementation. Majority of the teachers further stated that due to the ill- preparedness for CBE, they were unable to effectively make lesson plans, schemes of work and assess CBE competences. A minority (37.9%) of the teachers on the contrary had no challenge in implementing CBE

curriculum in senior schools in Kenya. The third objective of this study was to suggest mitigations to the challenges facing CBE implementation in senior secondary schools in Kenya. To achieve this objective, respondents were asked to respond to a set of eight statements. The responses were on a five-point Likert scale: Strongly Agree (SA), Agree (A), Undecided (U), Disagree (D) and Strongly Disagree (SD). The categories were collapsed into agree and disagree as shown in Table 3.

**Table 3: Suggested mitigations to the challenges facing CBE in Kenya**

Statement	SA	A	U	D	SD
1. Consolidation and merger of NG-CDF funds needed	94	56	6	26	62
2. Secondary education should be made totally free	209	20	0	13	2
3. Government to release capitation & books on time	83	68	0	53	40
4. Education stakeholders should be inducted on CBE	58	72	0	56	54
5. Government should re-train teachers on improvisation	96	59	2	78	9
6. Employ more teachers to enhance CBE implementation	106	75	0	29	34
7. Teachers in-service training on CBE be made continuous	122	38	4	54	36
8. The government should make policies to guide CBE	148	56	7	14	19
Total	916	444	19	323	256
Percentages (%)	46.9	22.7	0.9	16.4	13.1
Agreeing /Disagreeing (%)	69.6		0.9	29.5	

A larger proportion (69.6%) of the respondents agreed with the suggested CBE challenge mitigation statements against a minority (29.5%) as shown in Table 3.

## 6. Discussion

The first objective of this study was to identify the challenges facing CBE implementation in senior schools in Kenya. The results indicated that CBE curriculum implementation in Kenya faces various challenges as shown in Table 1. This finding is in agreement with Akinrionla et al., (2021), Nsengimama (2021) and Kubai (2023). For example Akinrionla et al., (2021) studied Competence-Based Education in Africa: Exploring Teachers' perceptions, understanding and practice. The study identified lack of teaching and learning resources, lack of full government support and over-crowded classrooms, being key constraints to CBC implementation in African countries like Nigeria and Rwanda. Similarly, Nsengimama (2021) found out that stakeholders like teachers, parents and school non-teaching staff were neither well informed nor trained on CBC implementation. Moreover, Kubai (2023) in the study: A critical review of the Challenges facing the Competence-Based Assessments in the CBC in Nairobi, Kenya revealed that lack of trained teachers, financial constraints, and lack of integrity among teachers as key factors affecting the implementation of CBE in Kenya. Based on the previous studies discussed, the present study agreed with previous studies that, CBE implementation in Kenya faces various challenges that need to be addressed.

The second objective was to find out the level of teachers' training on CBE implementation in senior secondary schools in Kenya. The results showed that teachers' in-service training on CBE curriculum implementation in Kenya is not up-to-date as shown in Table 2.

This study finding converges with previous studies like Komba and Mwandangi (2015) and Akinrionla et al., (2021) who both singled out teachers as one of the key factors affecting CBE implementation. Komba and Mwandangi (2015) in the study: Reflection on the implementation of Competence Based Curriculum in Tanzanian secondary schools revealed that majority of the teachers were not knowledgeable on what CBC was all about. In addition, the study further observed that although teachers are the cornerstone in the implementation of any educational innovation, the practices exhibited by majority of teachers in selected schools indicated that they were not effectively implementing the curriculum.

The third objective of this study was to suggest mitigations to the challenges facing CBE implementation in senior secondary schools in Kenya. The findings as shown in Table 3, shows that majority of the teachers supported the mitigations for improving CBE curriculum implementation in senior secondary schools in Kenya.

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In the same light, Akinrionla et al., (2021) noted that teachers claimed that the CBE curriculum is over-loaded, therefore teachers find it difficult to express themselves using different CBE approaches because of the limited time allocated to each subject.

## 7. Conclusion and Recommendation

The study demonstrates that competency- based education implementation in senior secondary schools in Bungoma County is constrained by systemic resource limitations, insufficient teacher preparedness, and policy implementation gaps. Addressing these barriers require coordinated institutional support, sustained professional development programs, and improved infrastructure investment. Strengthening monitoring frameworks and stakeholder engagement mechanisms with the essential to ensure effective curriculum transition and long term educational outcomes in Kenya.

This study made the following recommendations; government to release enough capitation and books on time, the ministry of education to provide adequate ICT resources in schools. In addition, the ministry should employ more teachers and train them on CBE pedagogies. Moreover, the government should make policies to guide CBE and take responsibility to induct stakeholder during public barazas.

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