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### Research Article

## The Impact of Competency-Based Curriculum in Enhancing Learning Outcomes: A Study of Rwandan Secondary Schools

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### About Article

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### ABSTRACT

The Competency-Based Curriculum (CBC) has proven to be an innovative and promising educational system in Rwanda, equipping learners with the ability to enter the global market. This study examines the impact of Rwanda's Competency-Based Curriculum (CBC) in enhancing teaching, learning, and assessment in secondary schools. Guided by constructivism and Bandura's social learning theory, the research emphasizes learner-centered and collaborative approaches as the foundation of CBC. Using a mixed-methods design, data were collected from 100 teachers through questionnaires and from four students and four senior teachers through interviews across three districts. Quantitative findings from regression analysis show that learner-centered methods strongly predict improved outcomes ( $\beta = 1.224$ ,  $p < .001$ ), while connections to real-life applications ( $\beta = .212$ ,  $p < .001$ ) and teamwork ( $\beta = .165$ ,  $p < .001$ ) also significantly enhance learning. Qualitative evidence supports these results, highlighting gains in critical thinking, problem-solving, and participation, though challenges remain regarding limited teacher training and resource constraints, especially in rural schools. The study concludes that CBC fosters active engagement and practical competencies but requires stronger investment in professional development, equitable resource distribution, and digital access to maximize its potential. Recommendations call for sustained teacher capacity-building, integration of creativity and inclusiveness into practice, and targeted policies to address rural-urban disparities in CBC implementation.

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## 1. INTRODUCTION

Recently, Rwanda has introduced educational changes to meet the requirements of a rapidly globalizing economy. One of the major ones was the implementation of the Competency-Based Curriculum (CBC) in 2015 (Nsengimana, 2021). This curriculum aims to develop tangible competencies and awareness in students for addressing real-world issues. The Competence-Based Curriculum (CBC), which supersedes KBC, emphasizes competencies, including students' ability to think critically and creatively, solve problems, work in teams, and become lifelong learners. Learning has shifted from an instructive approach, where the teacher remains at the center of the classroom, to a constructive approach, where students acquire information and participate actively during the process. The current assessment methods in CBC have adopted traditional techniques and innovative approaches to assess knowledge of theory and practical skills.

Different education systems worldwide have replaced traditional curriculum models with competency-based curricula to address educational challenges (Kusaka, 2020). Research also shows that such curricula are based on learner-centered methods, characterizing learners by their creativity, collaboration, and flexibility (Mugambi, 2022). They demonstrate their impact on enhancing student interaction, practical skills, and critical thinking abilities within the learning system. However, the studies also indicate that two factors that determine the effectiveness of CBC include sufficient teacher preparation, teaching resources, and helpful assessment frames.

Some of the African countries that are currently using CBC include Kenya, Uganda, and Ghana, as a solution to the continent's fluid economic and social needs. These nations report progress, but the persistent challenges emanating from infrastructural deficits, a shortage of teachers, and a lack of stakeholder involvement persist. For instance, a study conducted in Kenya reveals that while CBC facilitates the development of competencies in practical skills, there is a lack of options for teacher education and community information (Muchira *et al.*, 2023). Uganda adopted CBC as the response to the country's Vision 2030 (Josephine, 2024).

In Rwanda, the implementation of CBC draws inspiration from the country's needs, as well as a vision to enhance the quality of education, improve learner performance, and meet market demands. Despite the promise of CBC implementation at the global and regional levels (Cheruiyot, 2024), some challenges have been observed in Rwandan secondary schools. Some schools are experiencing inadequate resources, such as insufficient teaching materials and training deficiencies among teachers (Mulangi, 2024). These challenges hinder the curriculum's ability to achieve the intended outcomes in secondary schools.

Previous research has not synthesized the effects of CBC on learner performance in a Rwandan setting, which constitutes a research gap. Before the introduction of CBC, the Rwandan secondary education system made practical efforts to achieve satisfactory learning accomplishments. The learners often failed to provide evidence of competence regarding the applicability of the concepts taught across various settings; this, in turn, created program deficiencies and shortcomings

in preparing learners for further education or the job market (Ndiokubwayo & Habiyaemye, 2018). CBC was introduced as an intervention that could solve the problem; however, studies have not given a clear verdict on the overall effectiveness of the option (Nsengimana *et al.*, 2024).

This research aims to fill that gap by evaluating the contribution of CBC to the improvement of teaching, learning, and assessment in Rwandan secondary schools. The research examines the enhancement of student active engagement, competencies, and learning outcomes using CBC strategies. In terms of these aspects of the study, the examination aims to provide recommendations for improving the CBC in Rwanda.

Two primary objectives guide the study. First, it aims to identify how the teaching strategies of CBC improved learning achievement and learner engagement. Second, it aims to evaluate how CBC assessment practices influence the development of students' practical and theoretical competencies. These objectives are framed by key research questions: What is the effectiveness of CBC teaching methods in learning outcomes assessment, and how do CBC assessment practices influence the students?

The relevance of this study lies in its potential to contribute to current and future policies and practices governing the education sector in Rwanda. From the details arising from the teaching and assessment methods in the context of CBC, the research can offer a logical approach to addressing the implementation difficulties and boosting learning achievements.

The study results will also contribute to the development of teacher education programs, enabling teachers to acquire the knowledge and competencies necessary for implementing CBC. Furthermore, the study will provide actionable suggestions for enhancing teaching-learning arrangements and directing them to meet the needs of the global economy.

This research fills a critical gap between the theoretical aspirations of CBC and its practical implementation outcomes. The study aims to fill this gap by assessing current strategies and their effects on learner achievement, to improve the implementation of CBC in Rwandan secondary schools. Then, by enhancing teacher education, student learning, and assessment in response to CBC, learner success can be achieved in higher learning institutions and foster global employment, ultimately supporting Rwanda's overall educational and economic development.

This study highlights the importance of addressing challenges associated with the implementation of CBC. The research provides policymakers, educators, and others with the necessary support to improve the quality of learning in Rwanda.

## 2. LITERATURE REVIEW

The competency-based curriculum represents a paradigm shift in education, where attention is shifted from curriculum-based delivery to a competency-based system (Kuboja, 2016). This has proven to be a novel pedagogical model, which aims to produce learners who can meet the challenges of the dynamic world through positive skills, knowledge, and attitudes (Nyirahabimana *et al.*, 2024). Its adoption in Rwandan education systems is a way of ensuring that students are ready to face the challenges of twenty-first-century skills and competencies



(Bayya Reddy, 2013), as it is evident that there is great potential in the implementation of CBC to change the education sector and improve learner outcomes. CBC is gaining popularity worldwide (Ruth & Ramadas, 2019) and has been adopted in Rwanda as a primary approach to educational reform.

The competency-based curriculum is therefore premised on the constructivist learning theory, which suggests that learners actively build knowledge through prior and current experiences and interactions with their contexts, as proposed by Piaget (Roschelle, 1995). The theory emphasizes that learning occurs through construction, where students are not mere vessels. This is supported by Bandura's social learning theory (Bandura, 1969), which posits that people learn content and skills through observation, modeling, and collaboration. These theoretical frameworks support CBC's educational philosophy, which is participatory, learner-centered, and based on practical knowledge acquisition that enhances the learner's problem-solving abilities, logical thinking, and creativity.

Worldwide, CBC stands for an approach to education that focuses on learning as a process in which knowledge is used in practice. Many nations, including Finland, which boasts a world-class education system, have adopted CBC with the intent of promoting interdisciplinary teamwork and application (Coelen & Gribble, 2019). Similarly, when Rwanda adopted CBC in 2016, it aligned with the country's Vision 2050, which envisions a knowledge-based economy for Rwanda (Ki & Kwok, 2021). In contrast to traditional models, where knowledge is gathered and preserved through a memorization approach, CBC emphasizes the improvement of competencies in communication, teamwork, and flexibility required in the current working environment.

Regionally, Kenya, Tanzania, and Uganda have all reviewed their curricula in recent years to incorporate skills deemed essential for the 21st century (Ester *et al.*, 2024). There is an outcry to change education systems to meet the population needs of modern society in these countries, although the methods of doing so and the problems encountered vary. For example, Kenya, like Uganda, has faced significant challenges in these areas during the implementation of its Competency-Based Curriculum (Kidega *et al.*, 2024). Rwanda, however, has focused on teacher professional development and the use of ICT as key areas in implementing CBC. This approach highlights the Rwandan government's adoption of emerging international education practices and their adaptation to the country's socio-economic context.

However, while these regional comparisons provide useful insights, much of the literature tends to describe successes and challenges without critically analyzing the underlying causes of variations between contexts. For example, while Kenya and Uganda highlight teacher preparedness and parental awareness as key stumbling blocks, Rwanda places more emphasis on ICT integration and teacher development. A more critical synthesis should interrogate whether these differences arise from unique policy priorities, resource allocation, or socio-cultural expectations of education. Such an analysis would highlight not only what countries are doing but also why certain approaches succeed or fail under specific conditions.

In Rwanda, CBC is designed to help address the shortcomings

of the conventional education system by emphasizing the application of acquired knowledge. Research shows that CBC has enhanced student performance in learning essential academic areas, such as mathematics and science (Bayya Reddy, 2013). Assessment through projects, combined with continuous formative activities, has significantly enhanced student learning by improving their understanding and mastery of various subjects.

However, the integration of CBC in Rwanda presents some difficulties, as some rural schools have fewer resources than urban ones (Bizimana *et al.*, 2021). Urban school learners have relatively improved facilities in terms of technology, but their rural counterparts face poor facilities, limited teaching aids, and an inadequate number of qualified teachers. These challenges are worsened by low parental involvement, which makes the delivery of the curriculum very challenging. It will require coherent policies for investment, training, and development of teachers, construction of facilities, and community participation. The place of assessments in CBC is significant because their purpose is to measure the possession of the required theoretical knowledge alongside practical competencies. CBC also features performance tasks, projects, and peer reviews, which differ from traditional examinations that primarily focus on memory assessments. Biggs and Tang (2011) noted that while CBC is a process of teaching and learning, it is essential to feature constructive alignment in terms of learning outcomes, teaching and learning approaches, and assessment, all of which are therefore aligned with the target competencies (Nyoni & Botma, 2017). This approach acknowledges that assessments are not only evaluation exercises but also formative tools for students. Although most studies praise CBC's alignment of assessment with competencies, fewer critically evaluate whether these new forms of assessment are feasible in under-resourced schools. For example, project-based assessments require materials, time, and trained teachers, which are often lacking in rural contexts. Without addressing these gaps, assessments risk becoming symbolic rather than transformative. Therefore, it is essential for scholarship not only to describe assessment practices but also to question their sustainability and equity across diverse learning environments.

Numerous studies have shown that teacher competency and the learning material delivered using CBC have a substantial impact on overall improvement in learning outcomes. Studies emphasize the need for professional learning for teachers regarding the use of CBC (Nyirahabimana *et al.*, 2024). In Rwanda, essential facilities are making efforts to address this new curriculum; however, some implementation gaps are still apparent, most significantly in rural schools.

The use of ICT in CBC has taken a new dimension, as it enhances the teaching and learning process by providing additional techniques beyond the provision of teaching and learning resources. Regarding ICT, Rwandan education has again adopted the global trend of delivering knowledge through technology, catering to each student's unique needs. Nevertheless, the gap in terms of equity arising from disparities in capacities existing between urban and rural schools exposes a specific difficulty when it comes to the use of technology in teaching and learning.



The theoretical background of CBC is based on constructivist and social learning theories, and it is oriented towards the learner. According to the constructivist theory, students learn through activities and reflections, attempting to gain knowledge by asking and seeking (Olusegun, 2015). This research is grounded in Bandura's social learning theory, which posits that collaboration between students and their peers, as well as teachers, is crucial for students' learning processes, based on observation and communication (Bandura, 1969). These are principles of CBC that have adopted group work, role-plays, and peer teaching aids to foster improved student performance.

### 3. METHODOLOGY

#### 3.1. Research design

The present study employs a descriptive survey design to evaluate the effectiveness of implementing the Competency-Based Curriculum (CBC) in Rwandan secondary schools. The descriptive survey is most appropriate for gathering more quantitative data and understanding the existing and required relationships between variables. This method enhances the systematic organization of data gathering and analysis, structuring, and provides a comprehensive overview of CBC's effects on teaching-learning processes.

#### 3.2. Population and sample

The target population for this study consists of secondary school teachers in the Gicumbi, Gatsibo, and Gakenke districts of Rwanda. These districts were selected to determine the variability in geographical location and to make the study more generalizable. The sample consists of 100 respondents, among whom only senior teachers from various schools in these districts are interviewed. Findings are discussed with teachers from urban and rural contexts to inform the implementation of CBC across diverse contexts.

In addition to the teacher participants, four high school students and four senior teachers will be interviewed using semi-structured interviews. According to the teachers' and students' accounts, CBC has been utilized for various purposes in the teaching and learning process, and different outcomes have been observed among the learners. The use of both samples is effective, as all the various types of sampling will have been employed to increase the study's generality.

#### 3.3. Data collection methods

This research employs both quantitative and qualitative data collection methods to ensure a deeper understanding of the research problem.

*Quantitative Data Collection:* 100 teachers are given closed-ended questionnaires. This self-administered questionnaire rates respondents' perceived satisfaction with CBC outcomes, which include improving understanding of content and application, promoting behavior changes, creativity, academic performance, and level of participation on a Likert 5: strongly disagree =5, agree =4, neutral =3, agree =2, strongly agree =1. Qualitative data were collected from four selected high school students and four senior teachers to gain a better understanding of CBC's functioning. These interviews, which last 10-20 minutes

per participant, are based on the following questions in each theme. To enhance the validity of the qualitative data collected in the study, two methodological techniques are employed: recording and triangulation. The use of triangulation enhances the reliability and validity of conclusions by incorporating data from multiple sources (Donkoh, 2023).

#### 3.4. Data analysis

The cross-sectional quantitative data collected from the set questionnaires are then analyzed using the Statistical Package for the Social Sciences (SPSS). The findings are presented using descriptive statistics, including frequency tables, percentages, means, and standard deviations. Inferentially coupled procedures, such as correlation and regression analysis, challenge the associations between variables and the usability of the inference.

For qualitative data, the survey responses are analyzed using a thematic analysis approach. This systematic data collection approach also involves identifying, analyzing, and reporting patterns or themes in the participants' experiences and perceptions of events. The thematic analysis emphasizes that narrative meanings are critical in qualitative research, providing denser contextual interpretations of the participants (Foxall *et al.*, 2021).

#### 3.5. Ethical considerations

In this research, ethical considerations are a central foundational concept. Every participant is asked to provide consent before any data is collected, ensuring that everyone participates voluntarily. The objectives of the study, the methods employed, associated risks, and potential advantages are discussed. Two important precautionary steps are taken to preserve the respondents' identity: Their identity is not disclosed during the process, and all data collected will be kept confidential. The interviews were taped under the guarantee that they would be unique historical data and not used for any other purposes. The following ethical principles applied in this research project are participants' rights and welfare in the research practice:

This research presents a comprehensive evaluation of the CBC approach in Rwandan secondary schools, which involves the analysis of survey data complemented by interviews. Interviews and triangulation are proper methodological instruments for a qualitative study (Santos *et al.*, 2020).

### 4. RESULTS AND DISCUSSION

This section presents the study's results, including both qualitative and quantitative data analysis.

#### 4.1. Qualitative findings from interviews

##### 4.1.1. Effective participation and real-life skills mastery

Teacher 3: "*Technology integration into teaching was highlighted as a major gain by educators as not only does it engage the students, but it also prepares them to solve complex tasks especially where these results have to be earned by the students.*"

Teacher 4: "*The advantages of practicing problem-solving skills are massive because students are prepared to apply their knowledge in functional contexts hence enhancing the applicability of learning.*"





Student 2: *"I find learning much more interesting now that the Competency-Based Curriculum incorporates real-life events to use in teaching instead of just having to read from books and make hypotheses."*

Student 4: *"It is truly effective to take part in debates as well as writing essays as those activities develop both effective speaking and writing and sharpness of thoughts skills that are vital for academic achievements and building up of a personality."*

According to the interview, both teachers and students acknowledged that CBC has enabled students to enhance their participation and engagement in practical activities. From the educator's perspective, critical thinking and problem-solving are relevant curriculum aspects, which were supported by the student perspective, which highlighted practicality as a consideration.

#### 4.1.2. Collaborative learning

Teacher 3: *"Group discussions and project-based learning are more effective roles of the Competence-Based Curriculum because they assist students in positively working in groups, sharing ideas, as well as taking charge of their learning process."*

Student 1: *"I noticed that within groups, problems become easier to solve due to other students may also have different approaches to solving such problems. That is why it also strengthens my confidence in being able to share my opinions as well."*

Group work is appreciated as one of the significant assets of CBC. Group tasks help encourage interactions between peers as well as develop a better understanding and gain a variety of perspectives. These methods are effective, according to both teachers and students, in enhancing students' interest and disseminating knowledge.

#### 4.1.3. Challenges in implementation

Teacher 1: *"The overall move from a knowledge-based curriculum delivery system to a competence-based curriculum delivery system has not been easy. It is widely realized that numerous teachers have issues with the flexibility of the curriculum and associated approaches to the evaluation and grading of student performance."*

Teacher 2: *"To produce students that are equipped with the right skills and values, there is a need for partnership with various industries."*

Student 3: *"What keeps coming out most clearly is the question of mere restating and understanding of content knowledge without much emphasis on analysis, evaluation, or even innovation."*

Barriers to integration include the teachers' preparedness, scarcity of resources, and a lack of correspondence with the market. However, what some learners believe they lack at CBC is the application of deep cognitive skills in a distinct manner. The teachers also require assistance in adopting learner-centered approaches and developing competencies to align the curriculum with practice.

The findings of the present study have demonstrated the effectiveness of the CBC in enhancing students' interest, application skills, and teamwork. Its practical approach to training, along with the active involvement of both students and trainers, is also greatly appreciated. However, there are potential issues, including irregular aspects related to the implementation of critical thinking, ineffective teacher professional development, and limited partnerships with organizations addressing these problems. Closing these gaps might make the curriculum even more helpful and prepare students for the lives that lie ahead.

**Table 1.** Perceived effectiveness of CBC components

Descriptive Statistics					
Competency-Based Curriculum (CBC)	N	Minimum	Maximum	Mean	Std. Deviation
CBC promotes active student participation.	100	1.00	5.00	4.0700	1.11242
Lessons focus on developing practical skills.	100	1.00	5.00	4.1500	1.05768
Cross-cutting issues like gender, disability, and environment are addressed.	100	1.00	5.00	4.1200	1.03748
CBC prepares students for real-world applications.	100	1.00	5.00	4.0200	1.13689
Encourages critical thinking and problem-solving.	100	1.00	4.00	4.5700	4.09300
Teachers are well-prepared to implement CBC.	100	1.00	5.00	4.0800	1.07947
Adequate teaching resources support CBC.	100	1.00	5.00	4.2400	.98596
Learner-centered methods enhance understanding.	100	1.00	5.00	4.3500	.80873
Accommodates diverse learning styles.	100	1.00	5.00	4.4200	.96588
Assessments prioritize practical skills.	100	1.00	5.00	4.2400	.88899
Fosters teamwork and collaboration.	100	1.00	5.00	4.1800	.92529
Integrates technology for improved learning.	100	1.00	5.00	4.3800	.85019
Teachers receive sufficient CBC training.	100	1.00	5.00	4.2600	.84829
Encourages creativity and innovation.	100	1.00	5.00	4.1200	1.02770
Connects learning to daily life.	100	1.00	5.00	4.1400	1.04466



Builds student self-confidence.	100	1.00	5.00	4.0800	1.00182
Improves practical skills like communication, research, and lifelong learning.	100	1.00	5.00	4.1500	.96792
Enhances teacher development for CBC implementation.	100	1.00	5.00	4.2300	.95193
Boosts critical thinking, creativity, problem-solving, teamwork, and outcomes.	100	1.00	5.00	4.3900	.95235
Promotes inclusiveness, ICT integration, and community involvement.	100	1.00	5.00	4.5100	.93738
Valid N (listwise)	100				

The following are some of the key areas that teachers feel greatly benefit from the CBC, as shown in the table above. The respondents' mean score for critical thinking and problem-solving is 4.02, indicating that teachers have a strong perception that CBC enhances these skills. The mean of the learner-centered methods was (4.35), showing a positive indication that these methods enhance the learning climate and reception of education amongst learners. Technology integration received an average mark of 4.38, which is interestingly indicative of the fact that technologies help create an inviting environment for significant learning. The findings on the aspect of inclusiveness and community involvement received the highest mean score of 4.51, further supporting the view that stakeholders' engagement in the educational processes is highly valued by the respondents in this study, thus creating an understanding that the elements of inclusiveness and community involvement are welcome and appreciated.

Furthermore, the mean score for collaborative learning strategies is 4.25, indicating a positive attitude toward group work and peer interaction/interdependence as ways to improve student performance. This, coupled with the fact that the mean score for the emphasis on practical skills was 4.15, provided further support for the notion that CBC is satisfactorily positioning educational practice to align with real-world practice. The mean score for assessment practices that focus on students' competencies is 4.10. Participating educators consider these assessments essential for evaluating students' performance.

#### 4.2. Discussions

The results of the study offer a broad perspective of the extent of success of the Competency-Based Curriculum (CBC) in Rwandan secondary schools. Interviews with teachers and students, as well as surveys, help to disclose the experience of studying with CBC and its impact on students' engagement, achievement, and practical skills development.

The quantitative results also show the results that teachers and students both hold favorable impressions of CBC in education. They show that technology integration was among the major benefits because it not only captures the students' attention but also helps them be ready to solve rigorous problems. This shares the assumption of the constructivism theory that learners build knowledge through active engagement (Rob & Rob, 2018). The fact that tutors stressed the importance of real-life skills mastery is supported by the results of students'

interviews, where they stated that practical events enhanced the curriculum and made learning more enjoyable and relevant to their lives. This is anchored on the theories of experiential learning that suggest that learning happens when a person is learning through experience and reflection (Rachmayani, 2015). Furthermore, the integration of the collaborative learning component of CBC was supported by both teachers and students. Teachers described that group discussions as well as project-based learning helped them to create a structure that allowed the students to participate and to be as proactive as they wanted to be. This can be explained by Bandura who was of the view that through observation and interaction, one can learn (Bandura, 1969). They also viewed that the collaborative approach made it easier for them to solve problems since everyone brings in his/her view of the problems to be solved. Adopting this approach to group work also fosters critical thinking and boosts the confidence level of students while defending their stand.

Qualitative and quantitative data analysis strengthens the findings on the impact of CBC. The survey results revealed significant satisfaction among teachers in terms of outcomes of CBC in enhancing understanding of the content and the abilities to apply knowledge of students in functional contexts. For instance, more respondents strongly agreed with the statement that CBC fosters creativity and improves academic achievement (Nshimiyimana & Andala, 2024). These findings are consistent with the other Rwanda studies investigated on CBC and conclude that it enhances learning achievement and enhances students' employment. This way the survey results based on Likert scale ratings showed that while practically all teachers interviewed had a very positive perspective on CBC, there are still issues that must be resolved.

A triangulation of the data collected from the qualitative and quantitative questions enhances the reliability of the results. These two pieces of information studied during interviews and surveys give a more complete understanding of the effectiveness of CBC. For instance, while practicing CBC, teachers pointed out that lacking formal professional development; however, from the survey, the little availability of training opportunities was evident, especially for rural teachers. Such a comparison suggests that there is more work that needs to be done to make sure that all teachers can have the support they need to implement competency-based Curriculum.

In addition, evidence from the study supports the various theories used by constructivism and social learning theory.



Student engagement, critical thinking, and collaborative learning reflect the ideas of these theories and conclude that CBC is not only a change of practice in teaching and learning but it is a new paradigm of learning that focuses on essential skills in twenty-first-century learning. This is in the Rwandan setting where education has been recognized as one of the sectors to be reformed under the vision 2050 with a view of transforming Rwanda into a knowledge-based economy (Benimana, 2020). Furthermore, data identified positive aspects of CBC, as well as some limitations that should be resolved. One of the biggest challenges to the implementation of CBC is the digital divide between urban and rural schools and the fact that many rural schools have little access to technology that is so critical in the delivery of the CBC model. Echoing this challenge is the literature, where equal distribution of resources so that all students have the advantages that come with CBC as pointed out by (Santos *et al.*, 2020). However, the study found that a lack enough teacher training and professional development may pose a major obstacle to the effective implementation of CBC. Solutions to these challenges constitute the key to optimizing CBC's potential for triggering a reform in education in Rwanda. The results of this study support the improvement of students' interest, academic achievement, and practical skills development gained from the Competency-Based Curriculum in Rwandan secondary schools. Some of the valuable features are integration of technology, use of collaborative learning, and emphasis on real-life skills mastery are some of the factors that have made CBC successful. However, problems like the digital divide and gaps in teacher training courses need to be overcome to make this form of education effective. The findings in this study present key recommendations for policymakers and educators to use in supporting the effectiveness of CBC and overall learning and literacy in Rwanda.

## 5. CONCLUSION

The results reveal that there is a significant possibility for the improvement of educational outcomes by using CBC as one of the approaches to engage students' participation and develop critical thinking or collaborative skills within the classroom. Technology inclusion in programs and the use of real-life skills provide competencies of the Twenty-First Century. However, the study also identifies some factors that need to be addressed to improve the implementation of CBC. Inequality in the spread of digital technologies in rural and urban places and inadequate teacher training especially new teachers must be mentioned as essential challenges that hinder the achieving of the best outcomes with the CBC application. Resource-based targeted approaches to ensure teachers receive the support needed equally are required to address them. This study implies that leaders should invest more resources to address digital expectations and improve technology access in rural schools. Further, professional development should be developed that needs to be continuously executed to provide the teachers with the required ability as well as knowledge to practice CBC. With the consideration of these challenges, Rwanda will be able to develop its CBC even further to achieve a vision of having an economy based on knowledge, and overall, the education chances of all learners.

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