



FACULTY OF SCIENCE AND EDUCATION

DEPARTMENT OF ATHEMATICS

**CHALLENGES OF IMPLEMENTING THE COMPETENCY-
BASED CURRICULUM IN MATHEMATICS TEACHING IN
SELECTED SECONDARY SCHOOLS IN TORORO DISTRICT**

By

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(BU/UP/2023/1692)

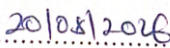
**The Final Year Research Report Submitted to the Department of
Mathematics in Partial Fulfilment of the Requirements for the Award of
the Degree of Bachelor of Science and Education of Busitema University**

JULY 2026

DECLARATION

I, Kiplangat Brian, hereby declare that this report is my original work and has not been submitted to any other institution of higher learning for any academic award.

Signature: 

Date: 

APPROVAL

This is to certify that this research project report by **Kiplangat Brian** was carried out under my supervision and is now ready for submission to the Department of Mathematics, Busitema University, for examination.

Supervisor

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DEDICATION

This work is dedicated to my parents Mr. Mutai Jacob and Mrs. Chebet Catherine for their constant support and sacrifices for my academic journey. I pray that the Almighty Lord may bless you with His grace, love, and faith, and fulfill all your desires.

ACKNOWLEDGEMENT

I appreciate Almighty God for endowing me with strength, wisdom and good health during this project.

I would like to thank Fulgensia Kamugisha Mbabazi (PhD), my supervisor, for all the assistance and guidance she gave me during this study. I am also grateful of my family's financial, moral, and spiritual support during my academic career.

I would especially like to thank friends and colleagues for their support, collaboration, and helpful suggestions, all of which were crucial to finishing this project.

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ABSTRACT

The study aimed at investigating the challenges facing mathematics teachers in the implementation of the Competence Based Curriculum (CBC) in selected secondary schools in Tororo District, Eastern Uganda. In Uganda, the CBC was introduced in February 2020 in the lower secondary education system with the aim of improving learners' competencies through learner-centred approaches, critical thinking, problem-solving skills and continuous assessment. Although such reforms are in place, the shift from conventional pedagogical practices to competency-based education has been faced with many challenges for mathematics teachers, with questions being asked about the curriculum's ability to produce the desired classroom results. The study was guided by three specific objectives: to establish the pedagogical challenges teachers of mathematics face in implementing learner-centred approaches under the CBC, to investigate resource challenges affecting the teaching of mathematics under the CBC, and to evaluate teachers' readiness for CBC mathematics teaching in terms of training and confidence. Research design employed in this research entailed descriptive survey design and used both quantitative and qualitative approaches. Data was collected using questionnaires among 18 mathematics teachers and interviews involving 4 school administrators from four selected secondary schools in Tororo District, namely; Mahanga Senior Secondary School, St. Pius X Seminary Nagongera, Peta Community Secondary School and Town View Secondary School. It has been found that teachers have faced great pedagogical difficulties such as large class size making it hard for them to teach in a learner-centred way, shortage of time to conduct CBC activities and the need to cover syllabus in full. In terms of resource challenges, it was noted that there are not enough teaching aids and lack of ICT facilities with heavy reliance on improvised materials. On the part of teacher readiness, most of the respondents had undergone CBC training and felt confident to implement it, however, all of them stated that they require further professional development.

The results of the study can be helpful to understand what issues are hindering implementation of CBC in Mathematics education and in what areas an intervention is necessary. The research will help the curriculum developers, policy makers, school administrators and Mathematics teachers to enhance implementation of CBC and achieve better results in Mathematics achievement among learners at Uganda Certificate of Education level.

CHAPTER ONE: INTRODUCTION

1.0 Introduction

This chapter introduces the background to the study, the problem statement, the purpose of the study, objectives, research questions, scope and significance of the study.

1.1 Background of the Study

Uganda's education system is being reformed to better align learning outcomes with national development requirements and global trends in education. The main change has been a move away from content-driven, teacher-centred methods toward learner-centred approaches. To reflect this change, the National Curriculum Development Centre (NCDC) launched the Competency-Based Curriculum (CBC) in February 2020, beginning at the lower secondary level (NCDC, 2019). The CBC framework aims to give students both information and the ability to apply that knowledge to real-world situations, such as problem solving, critical thinking, teamwork, and flexibility. CBC is a curriculum that emphasises what learners are expected to do rather than mainly focusing on what they are expected to know. NCDC (2019) indicates that the CBC focuses on problem solving, critical thinking, teamwork and application of knowledge in mathematics education. The OECD (2018) encourages teachers to use interactive pedagogies such as project work, group discussions and practical assignments that promote mathematical thinking and conceptual understanding instead of procedural memorisation. Strong principles from the National Ethics and Values Policy 2013 such as respect, integrity, diligence, independence, and creativity are also emphasized (MoES, 2013). CBC seeks to improve critical thinking as well as communication, teamwork, and self-directed learning. Students begin to perceive connections between academic topics and real-world challenges, such as environmental concerns, maintaining good health, and useful life skills. Uganda's Prime Minister, Ms. Robinah Nabbanja, informed Parliament on December 3, 2021, that the nation was prepared to implement the new lower secondary curriculum when classes resumed in February 2022 (Nabunya, 2020). Ensuring adequate training for staff and adequate teaching resources were among the top priorities. Despite the reforms, there are concerns that the implementation of the CBC may not be yielding the expected improvement needed. There is no empirical data evaluating the real difficulties teachers have while adopting CBC in mathematics, and many schools—particularly those in rural areas—face obstacles such as insufficient teaching resources, teacher capacity constraints, and excessive class numbers (UNESCO, 2021). The transition from traditional teacher-dominated instruction to student-

centered competence-based approaches demands significant changes in teachers' pedagogical practices, assessment strategies, and classroom management techniques. Many mathematics teachers lack adequate training in CBC methodologies, struggle to develop competence-based lesson plans, and face difficulties implementing continuous assessment effectively has stated Wambi et al., 2024. Furthermore, secondary schools frequently lack sufficient instructional resources such as teaching aids, manipulatives, and ICT facilities. Large class sizes complicate the effective use of learner-centered approaches that require individualized attention and collaborative activities (Kidega et al., 2024). Investigating the challenges mathematics teachers face in implementing CBC is therefore essential in determining whether the reform is effectively enhancing learners' competencies and in identifying the contextual factors that may hinder its success. Findings from this kind of research will be vital in helping curriculum planners, policymakers, and teachers learn how to implement CBC effectively so that the outcome of the mathematics learning is improved. The current research hence sought to explore the implementation of CBC in some selected secondary schools in Tororo district.

1.2 Problem Statement

Despite being intended to improve the quality of learning as well as the development of skills among learners, CBC has encountered numerous challenges during its adoption in mathematics learning in Tororo District. Based on the initial findings from preliminary reports and from the schools, numerous math teachers have failed to adopt CBC efficiently due to various reasons. While many teachers have adopted some CBC methodologies, many still return to traditional teacher-centered approaches due to large class sizes, time constraints, and pressure to finish the syllabus. As a result, it is still unclear whether the CBC has improved students' performance and mastery of mathematics in Tororo District. This study examined the difficulties math teachers encountered when putting the CBC into practice in a few Tororo District secondary schools in order to ascertain whether the curriculum has improved learning outcomes and to pinpoint obstacles to its successful implementation.

1.3 Purpose of the Study

The goal of this study was to investigate the obstacles faced by teachers in the implementation of the CBC in mathematics education in selected secondary schools in Tororo District.

1.4 Objectives

1.4.1 General Objective

To investigate the challenges faced by teachers in the implementation of the CBC in mathematics teaching in selected secondary schools in Tororo District.

1.4.2 Specific Objectives

- i. To identify the pedagogical challenges mathematics teachers face when using learner-centered methods under the CBC.
- ii. To examine resource challenges affecting mathematics teaching under the CBC.
- iii. To assess teacher preparedness challenges in terms of training and confidence in mathematics teaching under the CBC.

1.5 Research Questions

- i. What pedagogical challenges do mathematics teachers face when using learner-centered methods under the CBC?
- ii. What resource-related challenges affect mathematics teaching under the CBC?

iii. How prepared are mathematics teachers to implement the CBC in terms of training and confidence?

1.6 Scope of the Study

1.6.1 Content Scope

The study focused on the challenges faced by mathematics teachers in implementing the CBC in lower secondary schools. Specifically, the study examined pedagogical challenges, resource-related challenges, and teacher preparedness in mathematics teaching under the CBC.

1.6.2 Geographical Scope

The study was conducted in four selected secondary schools in Tororo District, Eastern Uganda. The selected schools included Mahanga Senior Secondary School, St. Pius X Seminary Nagongera, Peta Community Secondary School, and Town View Secondary School.

1.7 Significance of the Study

The results of this study will help the District Education Office and head teachers identify particular areas in which mathematics teachers need assistance in implementing the CBC. Additionally, mathematics teachers will gain insight into the main issues impacting their methods of instruction by receiving feedback on these issues.

1.8 Conceptual Framework

The conceptual framework shows the connections between the dependent variable (effective CBC implementation in mathematics teaching), the intervening variables (school environment, government policies, class size, and time allocation), and the independent variables (Preparedness of teachers, educational materials, and assistance with administration).

Independent variable	Intervening variable	Dependent variable
• Preparedness of teachers • Educational materials • Assistance with administration	• School environment, government policies, class size, time allocation	• Effective CBC implementation in teaching mathematics

1.9 Chapter Summary

The study's background, problem statement, purpose, objectives, research questions, scope, significance, and conceptual framework have all been covered in this chapter.

The chapter demonstrated that although the CBC was implemented in Uganda to improve students' abilities through learner-centred approaches, there are substantial obstacles to its application in the teaching of mathematics. The purpose of the study is to look into these issues in a few Tororo District secondary schools.

CHAPTER TWO: LITERATURE REVIEW

2.0 Introduction

The literature on the application of the Competency-Based Curriculum (CBC) in secondary school mathematics instruction is reviewed in this chapter. The concept and tenets of competency-based education, the nature of teaching mathematics under the competency-based curriculum, pedagogical difficulties, resource-related difficulties, and teacher readiness are the main topics of the review. The theoretical, conceptual, and empirical literature from Uganda and other educational contexts is incorporated into the chapter. The review's goal is to determine what prior researchers have discovered on CBC implementation before pinpointing the precise area that needs more study in a few Tororo District secondary schools.

2.1 Theoretical Framework

2.1.1 Constructivist Learning Theory

Constructivist theory, credited to Piaget (1970) and Vygotsky (1978), views learning as an active process in which students create knowledge by interacting with their surroundings. While Vygotsky (1978) stressed the value of social interaction, teamwork, and supervision in learning, Piaget (1970) highlighted the active role of students in creating knowledge. Because the Competency-Based Curriculum (CBC) demands that students actively engage in their education rather than merely absorb knowledge from teachers, the theory is pertinent to CBC. The NCDC Lower Secondary Mathematics Curriculum also places emphasis on generic skills, applicability, problem solving, ICT and formative assessment. Consequently, constructivism offers a suitable theoretical foundation for examining the degree to which teachers are able to create learning environments that support active mathematical learning. These expectations are especially relevant to mathematics, where learners need opportunities to reason, investigate patterns, solve problems, and explain mathematical ideas.

2.1.2 Application of Constructivist Theory to the Study

Constructivist theory is related to all three of the main variables that this study looked at. First, teacher preparation is crucial because teachers need to have the pedagogical knowledge necessary to facilitate learner-centered activities rather than relying solely on direct transmission of information. Teachers need to know how to organize group work, inquiry, problem-solving activities, and classroom discussions. Second, teaching and learning resources support constructivist learning because students need concrete materials, mathematical models,

textbooks, ICT facilities, and other resources to explore concepts and relate mathematical knowledge to real-world contexts teachers may find it challenging to give students relevant practical experiences in situations where such resources are missing. Finally, the use of constructivist methods is influenced by the classroom environment. Group projects, one-on-one assistance, discussion, and ongoing evaluation can be challenging in large class sizes. In a similar vein, a short class period may limit the amount of time students have to research mathematical issues and provide an explanation for their solutions.

Conceptual Review

2.2.1 Concept of Competence-Based Curriculum (CBC)

The development and presentation of information, abilities, attitudes, and values that students may use in everyday circumstances is the focus of a competency-based curriculum. Competency-based education, in contrast to a curriculum that is merely content-oriented, emphasizes students' abilities to apply what they have learned. In order to move education toward learner-centered instruction and the development of general skills, the Ugandan Lower Secondary Curriculum was created. Competencies including critical thinking and problem solving, creativity and invention, communication, teamwork, and self-directed learning were identified by the NCDC framework. These mathematical skills are meant to be cultivated through exercises that call for students to think critically, conduct research, explain mathematical concepts, and use mathematics in practical contexts. As a result, the curriculum necessitates a shift in the teacher's role from that of a transmitter of mathematical procedures to that of a facilitator who helps students find connections, solve problems, and apply mathematical knowledge. This will have implications for lesson planning, classroom management, assessment, and the selection of instructional materials.

2.2.2 Perspectives on CBC in Mathematics Education

It is also important to note that there is a strong background provided by mathematics when discussing competency-based learning because mathematical competence goes beyond getting the correct answers. The learners must be capable of reasoning mathematically, solving problems, communicating their mathematical ideas, understanding information, and applying mathematics in daily situations. This is stressed in the mathematics curriculum of Uganda. It also provides for formative assessment and the incorporation of ICT into mathematics teaching. Under CBC, mathematics teachers are consequently expected to develop chances for pupils to participate actively in mathematical

activities. For instance, rather than just showing students how to solve a problem, a teacher might give them a real-world problem and help them come up with various solutions. This method can enhance students' comprehension of mathematics by encouraging them to make connections between new ideas and what they already know and have experienced. However, its effective application depends on teachers having enough pedagogical knowledge, instructional resources, time, and suitable classroom conditions.

2.3 Empirical Review

2.3.1 Pedagogical Challenges in CBC Implementation

With the implementation of CBC, educators must shift from mostly teacher-centered methods to learner-centered techniques like problem-solving, group work, inquiry, discovery learning, discussion, and project-based activities.

The difficulties instructors have when implementing CBC in secondary schools were examined by Kidega et al. (2024). The researchers discovered thru observations and interviews that teachers faced a number of difficulties that hindered the successful application of CBC. Because it was carried out in the secondary education environment of Uganda and looked at teachers' experiences during implementation, the study is very pertinent to the current research. The findings of Kidega et al. (2024) indicate that curriculum implementation is influenced by the conditions under which teachers work. This suggests that introducing a new curriculum does not automatically result in changes in classroom practice. Teachers require appropriate time, resources, training and institutional support to translate curriculum expectations into classroom activities. The CBC requires learners to participate in activities rather than simply listen to explanations. Such activities generally require more classroom time because learners need to investigate problems, discuss possible solutions, present their findings and receive feedback. The NCDC mathematics curriculum provides for formative assessment and active learning, which means teachers must allocate time for activities as well as assessment and feedback. The evidence therefore suggests that pedagogical challenges are not simply problems of teacher willingness. They may arise from the interaction between teaching methods, class size, available time, curriculum workload and the support available to teachers.

2.3.2 Resource Challenges in CBC Implementation

Sufficient teaching and learning resources are necessary for the effective implementation of CBC. Resources give educators and students the chance to participate in hands-on activities

and simplify abstract ideas. Textbooks, charts, mathematical instruments, models, manipulatives, computers, projectors, calculators, and other ICT facilities are examples of such resources in mathematics. ICT integration and the usage of relevant mathematical learning experiences are acknowledged in the NCDC Lower Secondary Mathematics Curriculum. Additionally, rather than only having students memorize mathematical procedures and information, the curriculum places an emphasis on activities that help students develop mathematical abilities. This suggests that in order to facilitate practical and learner-centered mathematics instruction, schools must supply instructors with resources.

According to Kidega et al. (2024), instructors in Uganda who implemented CBC encountered difficulties that hindered the successful execution of the curriculum. Because teachers cannot always successfully implement learner-centered activities when the required facilities and materials are lacking, their study shows that curriculum change has resource consequences. Because they give educators and students organized learning materials, exercises, and activities, textbooks are especially crucial. However, textbooks must do more than just offer procedural exercises under CBC. Activities that encourage problem-solving, critical thinking, research, teamwork, and practical application should be incorporated. Teachers may continue to use resources created for the prior content-oriented curriculum if textbooks are not sufficiently linked with the competency-based approach.

According to Kachope, Nyakato, and Mwesigye (2025), there were still gaps in ICT integration, assessment procedures, and training adequacy even the teachers reported being comparatively well-prepared for learner-centered teaching and classroom management. The study also found that administrative support and resource availability are critical prerequisites for successful CBC implementation.

Thus, the quantity and quality of learner-centered activities might be impacted by resource constraints. Although a math teacher may recognize the value of using ICT, the school's lack of equipment may prevent them from doing so on a regular basis. Therefore, while evaluating CBC implementation, resource availability should be taken into account in addition to teacher readiness and school support.

2.3.3 Teacher Preparedness and CBC Implementation

Teachers must have competencies beyond subject-matter expertise, according to CBC. Learner-centered pedagogy, competency-based assessment, activity-based learning, lesson planning, and the integration of generic skills are all concepts that educators must comprehend. Concerns

about teachers' readiness for the new curriculum were raised by Wambi et al. (2024), who looked at teachers' opinions about CBC implementation in Uganda. The study brought to light problems with comprehending CBC approaches, creating competency-based lessons, and conducting assessments. These results imply that ongoing professional development, as opposed to one-time training, is necessary for curricular improvement. Omoding (2024) looked into how ready teachers were to teach CBC in a few government-aided secondary schools. The study looked at readiness to employ learner-centered approaches, educational resources, and suitable forms of evaluation. Vygotsky's constructivist theory served as the study's compass, and it concentrated on teacher preparation in Ugandan secondary schools. Along those lines, Kachope et al. (2025) examined the level of preparedness of teachers in adopting CBC effectively. As per the results of their study, while teachers were well-prepared in terms of learner-centered teaching approach, inclusiveness, and classroom management, some deficiencies remained in relation to training, assessment processes, and ICTs.

2.4 Summary of Literature Gaps

The studied literature offers a wealth of information regarding the difficulties in implementing CBC in Uganda and other settings. However, more empirical research is needed in a few areas. Instead, than concentrating only on teaching mathematics, literature looks at CBC implementation in secondary school in general. For instance, Omoding (2024) concentrated on teacher readiness in general, whereas Kidega et al. (2024) looked with CBC issues among secondary school teachers. These studies offer significant evidence, but they don't go into detail about how the difficulties found have an impact on arithmetic instruction in certain Tororo District schools. Individual facets of CBC implementation, such as teacher readiness, evaluation, or overall implementation issues, have also been studied. In the particular context of teaching mathematics, it is necessary to look at pedagogical issues, resource issues, and teacher readiness all at once. Geographical context is still crucial.

Lastly, there is little empirical data from a few Tororo District secondary schools that summarizes the experiences of math teachers and school administrators with regard to pedagogical difficulties, resource accessibility, and teacher readiness. Therefore, by investigating these factors among math teachers and school administrators in the chosen secondary schools, the current study aims to provide district-specific evidence.

2.5 Chapter Summary

This chapter reviewed theoretical, conceptual and empirical literature concerning implementation of the Competency-Based Curriculum in mathematics teaching. Constructivist Learning Theory was identified as an appropriate theoretical foundation because CBC emphasizes active learning, collaboration, problem solving and the application of knowledge. The conceptual review established that CBC requires changes in teaching. Empirical literature showed that pedagogical challenges, inadequate resources, and teacher preparedness influence curriculum implementation. The review further demonstrated that although research on CBC implementation in Uganda is increasing, relatively limited attention has been given to the combined effect of these factors on mathematics teaching in selected secondary schools in Tororo District. This provides the basis for the present study.

CHAPTER THREE: RESEARCH METHODOLOGY

3.0 Introduction

This chapter presents the methodology employed in the study investigating challenges of CBC implementation in mathematics teaching. This therefore talks about the research design, area of study, study population, sample methods, data collection instruments, data collection methods, data analysis and ethical considerations.

3.1 Research Design

This study used a descriptive survey research design with quantitative and qualitative research methods.

Descriptive survey research design was suitable for this study because it provided an opportunity for the researcher to describe the status quo of the research problem and establish relationships among variables without manipulation of the variables. The use of quantitative method helped in measuring the readiness of teachers, resource limitations, and pedagogical competences with the use of numerical figures. The qualitative method provided an opportunity for collecting the experiences and views of school administrators on CBC.

3.2 Study Area

This research was done in Tororo District, located in the eastern part of Uganda and involved secondary schools practicing CBC. Tororo is a typical district composed of both rural and urban schools, and hence results of the study can be used to reflect other districts in Uganda.

The research was done in four schools namely; Mahanga Senior Secondary School, St. Pius X Seminary Nagongera, Peta Community Secondary School, and Town View Secondary School.

3.3 Study Population

This is the set of people from whom the data will be collected. For this research, the study population was made up of mathematics teachers and school administrators.

3.4 Sample Size and Sampling Techniques

A simple random sampling technique was applied in the selection of *mathematics* teachers at the lower secondary level. This is because it ensures that each teacher has an equal probability of being chosen, which eliminates any form of bias.

Purposive sampling was employed in the selection of school administrators, who supervise CBC implementation, because they have specialized knowledge regarding CBC implementation.

Sample refers to a subgroup of a population that represents the whole population under study.

Table 3: 1 Sample Size distribution

Category	Target Population	Sample
Mathematics Teachers	20	18
Head Teachers/School Administrators	4	4
Total	24	22

3.5 Data Collection Tools

Data collection involved structured questionnaires for teachers on their readiness, resource difficulties, and teaching methods. The qualitative interviews were conducted using semi-structured guides for school administrators.

3.5.1 Questionnaires

Questionnaires with semi-structured questions were used for collecting quantitative information on teachers involved in CBC. Questionnaires were used in this research because they make it easy to collect data in large quantities and manage it efficiently. The questionnaire was designed with sections covering background information, teacher preparedness, resource challenges, and pedagogical challenges.

3.5.2 Interview Schedule

Qualitative data were collected using an interview schedule with school administrators since they oversee curriculum supervision. The interview method allowed the researcher to probe the interviewee using relevant questions based on study objectives. The data obtained assisted in interpreting some of the numerical data obtained from questionnaires.

3.6 Data Collection Procedure

An introductory letter was obtained from the university and permission sought from school authorities. The researcher visited the sampled schools on the arranged date and after introductions explained the intention of the research, assured participants of non-disclosure, and emphasized the importance of honest responses. Sampled teachers were allowed to

complete the questionnaires as the researcher interviewed school administrators. Afterwards, collection of completed questionnaires and interview data was done for further data processing.

3.7 Validity and Reliability

3.7.1 Validity

Validity refers to the extent to which research instruments measure what they are intended to measure. To ensure content validity, the questionnaires and interview schedules were designed in line with the study objectives and research questions. The instruments were evaluated by the supervisor in order to determine whether they were relevant, clear, and sufficiently covered the topic. They were also pre-tested on a few selected teachers and administrators from another school that was not part of the research.

3.7.2 Reliability

Reliability means how consistent and stable the methods used to collect data and their findings are. The researcher guaranteed reliability through carrying out a pilot test that revealed problems and inconsistencies in the methods.

3.8 Data Analysis

Analysis of data used both quantitative and qualitative methods. Quantitative data collected through questionnaires was analyzed using descriptive statistics (frequency and percentages) and shown in tables. Qualitative data collected through interviews was analyzed using thematic analysis with quotes directly from the interviewees.

3.9 Ethical Considerations

Confidentiality in relation to the identities of the respondents was observed in this study. The respondents were aware about the objective of the study, their voluntary participation was stressed upon and nothing harmful happened to them during the use of data collection tools.

3.10 Limitations of the Study.

Limitations of this research include limited willingness of some teachers to fully participate, narrow academic time frame, small sample size which limits the ability to generalize the results, narrow scope of participants limited to mathematics teachers and school administrators, and lack of classroom observations relying on self-reports of participants.

3.11 Delimitations

The study was carried out in four selected secondary schools in Tororo District in order to keep the research manageable. It looked at specific problems facing the adoption of CBC, such as preparation of teachers, lack of resources, and teaching methods without looking into other possible reasons.

3.12 Chapter Summary

This chapter has described the research methodology adopted in this study. The use of the mixed methods research methodology and the descriptive survey research design was justified in order to study the challenges facing the application of CBC in the teaching of mathematics. Data were obtained from 22 respondents (18 teachers and 4 administrators) from four selected secondary schools in Tororo District using the questionnaire and interview methods. The analysis of the data used descriptive and thematic analysis techniques.

CHAPTER FOUR: RESULTS AND DISCUSSION

4.0 Introduction

In this chapter, the findings, analyses, and interpretations are reported. The findings are presented in relation to the research objectives of: Teacher Preparedness Issues, Resource Issues, and Pedagogical Issues. The chapter starts with a section on the response rate and demographics of the respondents. Each of the objectives is then addressed in turn.

4.1 Response Rate

Table 4.1 below shows the response rate of all respondents including teachers and school administrators.

Table 4: 1 Response Rate

Category	Respondents sampled	Respondents who participated	Achieved Rate (%)
Teachers	20	18	90
Administrators	4	4	100
Total	24	22	92

Based on Table 4.1, it shows that the response rate of the questionnaires is 90%, whereas the response rate for those who were interviewed is 100%.

4.2 Demographic Characteristics of Respondents

The respondents (teachers) were asked for their genders, academic qualifications, teaching experience, and subjects they teach. The information collected is presented below.

4.2.1 Gender Distribution of Teachers

Table 4: 2 Gender Distribution of Respondents

Gender	Frequency	Percentage
Male	12	66.7%
Female	6	33.3%
Total	18	100%

Interpretation:

The findings indicate that male teachers constituted the majority (66.7%) of the respondents, while female teachers accounted for 33.3%.

4.2.2 Highest academic qualification

Table 4: 3 Academic Levels of Respondents

Academic level	Frequency	Percentage
Diploma	0	0%
Bachelor's degree	18	100%
Master's degree	0	0%
Others	0	0%
Total	18	100%

All participants (100%) had a bachelor's degree certification.

4.2.3 Teaching Experience

Table 4: 4 Teaching Experience

Experience	Frequency	Percentage
Less than 5 years	9	50%
5–10 years	7	38.9%
10+ years	2	11.1%
Total	18	100%

A number of the teachers were fairly new in the profession and may be getting used to the demands of the CBC system, considering the reality that 50% of the respondents were teaching for less than five years, 38.9% were teaching between five and ten years, while 11.1% were teaching for more than ten years.

4.2.4 Teachers' Class

Table 4: 5 Teachers' Class

Class	Frequency
-------	-----------

S1	7
S2	6
S3	9
S4	6

Interpretation:

The findings revealed that the majority of teachers taught Senior Three classes (50%), while the second highest number taught Senior One (38.9%).

4.2.5 Average Class Size

Table 4: 6 Average Class Size

Category	Frequency	Percentage
Below 40	2	11.1%
41-60	6	33.3%
61-80	4	22.2%
Above 80	6	33.3%
Total	18	100%

Interpretation:

According to the findings, 33.3% of teachers instructed classes with 41–60 students, and another 33.3% instructed classes with more than 80 students. This implies that overcrowded classrooms are common and could impede the successful application of learner-centered strategies under CBC.

4.3 Pedagogical challenges

Table 4: 7 Pedagogical Challenges

Indicators	SA	A	N	D	SD
I find it easy to use group work and discovery methods in my mathematics lessons	6 (33.3%)	8 (44.4%)	4 (22.2%)	0 (0%)	0 (0%)
The 40-minute period is enough to complete CBC activities in mathematics	0 (0%)	5 (27.8%)	3 (16.7%)	6 (33.3%)	4 (22.2%)

Large class size makes it difficult to manage learner-centered activities	5 (27.8%)	5 (27.8%)	2 (11.1%)	1 (5.6%)	2 (11.1%)
I often revert to the lecture method because of pressure to cover the syllabus	3 (16.7%)	8 (44.4%)	2 (11.1%)	3 (16.7%)	2 (11.1%)
Learners participate actively when I use real-life examples in mathematics	7 (38.9%)	8 (44.4%)	2 (16.7%)	1 (5.6%)	0 (0%)

Interpretation:

Table 4.7 shows that 77.8% of teachers agree or strongly agree that they find it easy to use group work and discovery methods, while 22.2% are neutral; 55.6% disagree or strongly disagree that the common 40-minute lesson period is sufficient to complete CBC activities; 55.6% agree or strongly agree that large class sizes make it difficult to manage learner-centered activities, confirming that overcrowded classrooms hinder CBC instruction; 61.1% agree or strongly agree that they frequently turn to lecture methods because of syllabus pressure; and 83.3% agree or strongly agree that students actively engage in mathematics.

4.4 Resource challenges

Table 4: 8 Resource Challenges

Indicators	SA	A	N	D	SD
My school provides enough charts, models, and manipulatives for CBC math lessons	1 (5.6%)	5 (27.8%)	7 (38.9%)	5 (27.8%)	0 (0%)
I have access to ICT tools e.g., computer, projector, phone videos for teaching math	5 (27.8%)	4 (22.2%)	6 (33.3%)	3 (16.7%)	0 (0%)
Lack of textbooks aligned to CBC mathematics affects my lesson delivery	5 (27.8%)	6 (33.3%)	5 (27.8%)	2 (11.1%)	0 (0%)

I improvise low-cost materials because the school does not provide them	4 (22.2%)	12 (66.7%)	2 (11.1%)	0 (0%)	0 (0%)
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Interpretation:

Table 4.8 shows that there is insufficient supply of charts, models, and manipulatives in schools, with 66.7% of instructors disagreeing or remaining neutral. 50% of respondents are neutral or disagree with ICT accessibility, while 50% agree or strongly agree that they have access to ICT tools. Lesson delivery is impacted by the absence of CBC-aligned textbooks, according to 61.1% of respondents who agree or strongly agree. There is a discrepancy between CBC resource requirements and accessible supply, as seen by the 88.9% who agree or strongly agree that they improvise low-cost materials because to limited school provision.

4.5 Teacher Preparedness

Table 4: 9 Teacher Preparedness

Indicators	SA	A	N	D	SD
The CBC training I received adequately prepared me to teach mathematics under CBC.	7 (38.9)	11 (61.1%)	0 (0%)	0 (0%)	0 (0%)
I feel confident designing and marking Activities of Integration in mathematics	4 (22.2%)	9 (50.0%)	4 (22.2%)	1 (5.6%)	0 (0%)
I understand how to assess mathematical competences, not just correct answers	7 (38.9%)	9 (50.0%)	2 (11.1%)	0 (0%)	0 (0%)
I need more training on specific CBC mathematics instructions.	9 (50.0%)	9 (50.0%)	0 (0%)	0 (0%)	0 (0%)

Interpretation:

According to Table 4.9, all teachers agree or strongly agree that their CBC training prepared them to teach mathematics under CBC; 72.2% agree or strongly agree that they feel confident designing and marking Activities of Integration; however, 22.2% remain neutral and 5.6%

disagree; 88.9% agree or strongly agree that they understand how to assess mathematical competencies beyond simply identifying correct answers; and all teachers agree or strongly agree that they need more training on specific CBC mathematics instruction.

4.6 Discussion of Findings

The findings coincide with previous literature indicating that learner involvement, preparedness of teachers, and resources availability are key elements in the implementation of CBC (OECD, 2018). The problems encountered in Tororo District are comparable to those experienced in other education systems in developing countries; Wambi et al. (2024) indicated low preparedness of the teachers due to lack of previous training. Constraints in terms of resources, with 12 (66.7%) improvising resources, corroborate the findings of Kidega et al. (2024), who identified resource constraints as major challenges.

Findings of Wambi et al. (2024) are also in line with pedagogical issues like big class size of 6 (33.3%) and syllabus pressure which forced 11 (61.1%) to use lecture method. Positive perceptions about the influence of CBC on comprehension and interests of learners, 15 (83.3%) and 14 (77.8%) respectively, show that under favorable conditions, competency-based strategies yield noticeable benefits despite implementation challenges.

4.7 Summary of Findings

As per the study, implementation of CBC was challenging for the teachers. Learner-centred approach faced difficulties due to overcrowded classroom, shortage of lesson time and the burden of syllabus, which would force teachers to revert to lecture mode. But the learners would be engaged in case real life situations were employed. Due to inadequate resources, the schools had poor access to ICT and teaching aids, hence the need for the teachers to resort to cheap resources. As far as teacher preparedness was concerned, all teachers indicated that their training was enough to teach mathematics within the context of CBC, yet the need for further training on how to carry out integration exercises and assess competencies was important.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

The results, conclusion, recommendation and suggestions for further research are presented in this chapter.

5.1 Summary of the Findings

The problems related to teaching mathematics within the CBC program can be summarized as follows.

5.1.1 Pedagogical Challenges

In this research, it is indicated that the teachers use learner-based methods such as group activities and discovery learning; however, they often need to go back to the lecture method because of the size of their classes and time constraints.

5.1.2 Resource Challenges

From the results of this research, it can be seen that lack of appropriate textbooks, models, charts, and manipulatives for teaching CBC mathematics curriculum remains the biggest hindrance to the effective delivery of CBC mathematics curriculum. While in some instances the teachers did have access to ICT facilities, generally, the teachers improvised due to lack of support from the school.

5.1.3 Teacher Preparedness

From the research findings, the teachers have undergone training in CBC and thus are ready to teach mathematics through CBC. However, most respondents felt confident that they could assess mathematical competencies and perform Activities of Integration, but all teachers acknowledged that there was need for further training in particular topics on mathematics CBC. This means that despite the fact that the teachers have what it takes to implement CBC successfully, there is need for further professional development.

5.2 Conclusions

The outcomes of the study show that while math teachers are always equipped with the ability to adopt CBC, their performance is greatly undermined by the constant need to engage in professional development training to improve their competency-based teaching and evaluation skills. CBC math education is greatly hindered by big class size, limited time for lessons, curriculum completion pressure, and the lack of sufficient teaching resources such as textbooks. Moreover, most students find it difficult to adapt to problem-solving and application learning techniques, and teachers continue to find it difficult to evaluate competencies even though they know how to do it. While CBC has greatly enhanced students' concentration and competence in math, low numeracy skills continue to negatively affect performance.

5.3 Recommendations

5.3.1 To the Ministry of Education and Sports

The Ministry of Education and Sports should support the CBC's implementation thru regular in-service training programs, refresher courses, and continuous professional development initiatives to enhance the knowledge and pedagogical skills of mathematics teachers. Ministry should also ensure that all schools receive enough CBC-aligned textbooks, instructional materials, and assessment guidelines on time in order to facilitate effective teaching.

5.3.2 To the National Curriculum Development Centre

The National Curriculum Development Center shall enhance the application of the CBC by producing and disseminating more teaching, learning, and assessment materials to support maths teachers.

5.3.3 To School Administrators

The school management must ensure that adequate teaching and learning resources which will be required for an effective implementation of the CBC in mathematics will be provided. The teachers must be supported through initiatives aimed at encouraging continuous professional development such as conferences, seminars, peer mentoring programs, and professional learning communities. Acquisition and utilization of ICT resources as well as other technology-based instruction tools must receive top priority from the school management.

5.3.4 To Mathematics Teachers

For mathematics teachers to learn to utilize the CBC effectively, they have to be proactive enough to attend the workshops meant for professional development. Moreover, they have to utilize the available resources in the locality that can be useful in improvising the learning materials due to scarcity of the teaching materials. It is essential for the teacher to use the learner-centered approach of teaching as well as examples in mathematics classes.

5.3.5 To Parents and Guardians

Parents or Guardians can assist the students in a positive manner by providing the necessary learning materials to them as well as creating a conducive learning atmosphere at both school and home level. The students need to be supported in a positive way so as to participate in activities that develop their competencies.

5.4 Areas for Further Researchs

Conclusion of this research can be taken as the beginning point for future researches in academic sphere concerning using of CBC in learning process in mathematics lessons. To understand the influence of constant training on the implementation of effective learning strategies and success, the necessity of conducting research about the influence of professional development of teachers on the effective use of CBC in mathematics lessons in secondary school appears. Moreover,

it can be suggested that conducting research about the ways of improving CBC mathematics by using of ICT can be done. Finally, the effectiveness and acceptability of CBC can be understood through the experience of the students.

REFERENCES

- Care, E., Kim, H., Vista, A., & Anderson, K. (2018). Education system alignment for 21st century skills: Focus on assessment. Washington, DC: Center for Universal Education at Brookings.
- Fernando, S. Y., & Marikar, F. M. (2017). Constructivist teaching/learning theory and participatory teaching methods. *Journal of Curriculum and Teaching*, 6(1), 110-119.
- Harris, K. R., & Graham, S. (1994). Constructivism: Principles, paradigms, and integration. *The Journal of Special Education*, 28(3), 233-247.
- Kachope, G., Nyakato, V. N., & Mwesigye, A. (2025). Teachers' preparedness for effective implementation of the lower secondary competence-based curriculum in Rukungiri District, Southwestern Uganda. *Journal of Research Innovation and Implications in Education*, 9(2), 1079–1086.
- Kidega, C., Song, Z., Ugochinyere, I. C., James, O. A., & Ndikubwimana, F. (2024). Confronting challenges facing teachers in implementing competency-based curriculum in Uganda: A case of secondary schools in Gulu City. *East African Journal of Education Studies*, 7(2), 112-129.
- Maulana Abdillah, S., Acep Ode, M., & Nur Yusuf, F. (2025). Student-centered learning in low-resource Asian ELT contexts: A systematic literature review of challenges and strategies. *Journal of English Language Studies*, 10(1), 45-62.
- Ministry of Education and Sports. (2019). Guidelines for the implementation of the lower secondary curriculum. Republic of Uganda.
- Nabunya, C. (2020, December 4). Government to roll out new lower secondary curriculum in 2022. *The Observer*.
- Namanya, N. (2025). Ethical impropriety in the curriculum review process: A case of Uganda's lower secondary curriculum. *MAWAZO*, 17(1-2), 105-128.
- National Curriculum Development Centre (NCDC). (2019). Lower secondary curriculum framework. Kampala: NCDC.

Omoding, B. (2024). *Teachers' preparedness in delivery of competence based curriculum in selected government-aided secondary schools in Soroti District, Uganda* [Master's dissertation, Kyambogo University].

OECD. (2018). The future of education and skills: Education 2030. Paris: OECD Publishing.

Piaget, J. (1970). Science of education and the psychology of the child. New York: Viking Press.

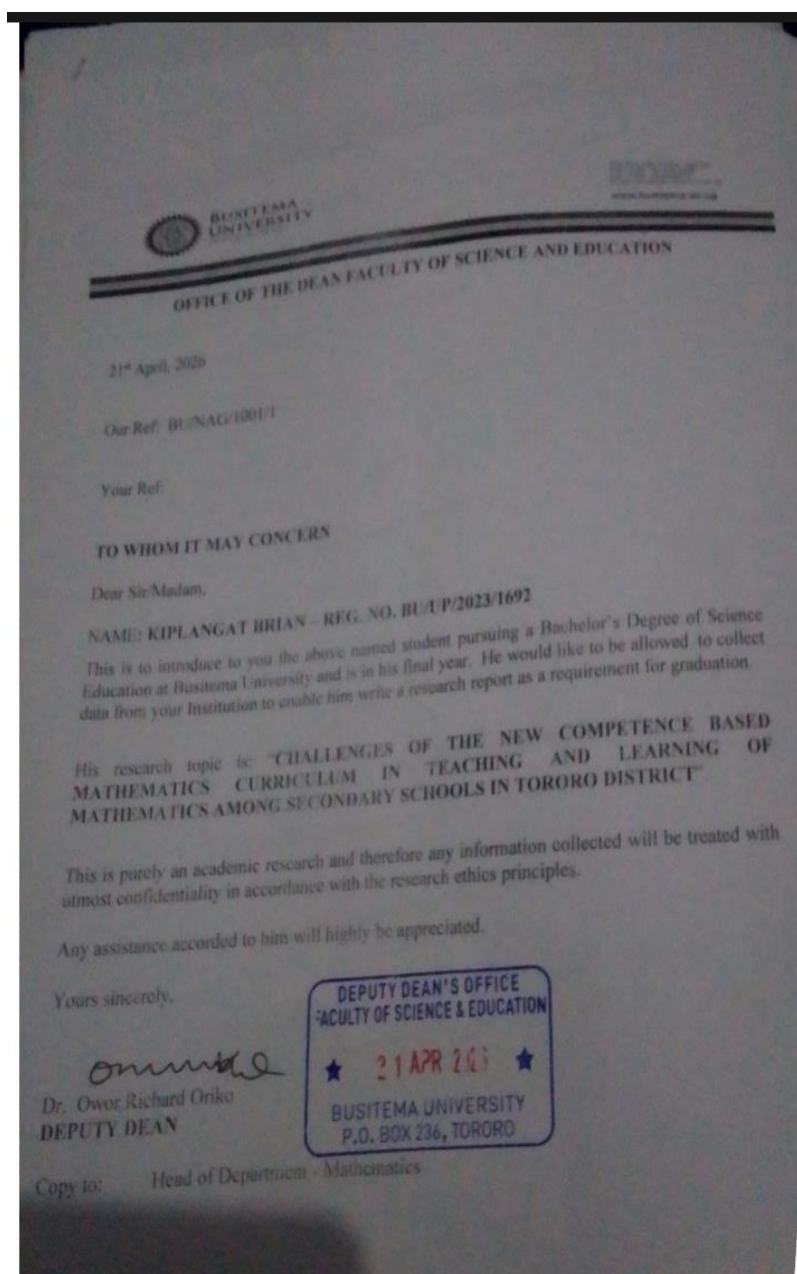
United Nations Educational, Scientific and Cultural Organization. (2021). Education in Africa: Placing equity at the heart of policy. UNESCO.

Vygotsky, L. S. (1978). Mind in society: The development of higher psychological processes. Cambridge, MA: Harvard University Press.

Wambi, G., Okoth, P., & Nabirye, H. (2024). Teachers' perceptions of competence-based curriculum implementation in Uganda. *Uganda Journal of Teacher Education*, 9(3), 101-118.

APPENDICES

Appendix 1: Letter of Introduction



Appendix 2: School Administrators Interview Schedule



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CHALLENGES OF IMPLEMENTING THE COMPETENCY-BASED CURRICULUM IN MATHEMATICS TEACHING IN SELECTED SECONDARY SCHOOLS IN TORORO DISTRICT

INTERVIEW SCHEDULE FOR SCHOOL ADMINISTRATORS

SECTION A: BACKGROUND INFORMATION

1. Name of the school?

.....

2. Position of respondent?

.....

3. How long have you served in this school?

Less than 2 years ☐

2-5 years ☐

6-10 years ☐

More than 10 years ☐

SECTION B: KNOWLEDGE AND UNDERSTANDING OF CBC

1. Have mathematics teachers received any training related to CBC implementation? Yes ☐ No ☐

If yes, what type of training have they received?

.....

2. How well do teachers understand the CBC approach in mathematics?

Very well ☐ Moderately ☐ Slightly ☐ Not at all ☐

3. Are teachers familiar with CBC assessment methods (e.g., formative assessment, portfolios)? Yes ☐ No ☐

4. Do teachers feel confident implementing CBC in mathematics? Yes ☐ No ☐

SECTION C: CHALLENGES OF CBC IN MATHEMATICS

1. What challenges do mathematics teachers face? (Tick all that apply)

- ☐ Lack of training
- ☐ Inadequate teaching resources
- ☐ Large class sizes
- ☐ Time constraints
- ☐ Difficulty in assessment
- ☐ Resistance to change
- ☐ Other (specify): _____

2. How do class sizes affect CBC implementation?

- ☐ No effect ☐ Slightly affects ☐ Moderately affects ☐ Greatly affects

SECTION D: RESOURCES AND SUPPORT

1. Are teaching and learning resources adequate for CBC?

Yes ☐ No ☐

Explain.

.....

2. What support does the school provide to teachers?

.....

SECTION E: PERCEPTIONS OF CBC IN MATHEMATICS

1. Has CBC improved mathematics teaching? Yes ☐ No ☐

Brief reason:

.....

2. What strategies would you suggest to improve CBC implementation?

.....

END

Appendix 3: Mathematics Teacher's Questionnaire



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CHALLENGES OF IMPLEMENTING THE COMPETENCY-BASED CURRICULUM IN MATHEMATICS TEACHING IN SELECTED SECONDARY SCHOOLS IN TORORO DISTRICT

QUESTIONNAIRE FOR MATHEMATICS TEACHERS

Instructions:

- Do not write your name.
- Tick (✓) or write the appropriate answer.
- Answer all questions honestly.

SECTION A: BACKGROUND INFORMATION

1. Gender ☐ Male ☐ Female
2. Age group ☐ 20-29 ☐ 30-39 ☐ 40-49 ☐ 50 and above
3. Highest academic qualification ☐ Diploma ☐ Bachelor's Degree ☐ Master's Degree ☐ Others
4. Teaching experience ☐ Less than 5 years ☐ 5-10 years ☐ Over 10 years
5. Class you teach this year: ☐ S1 ☐ S2 ☐ S3 ☐ S4
6. Average class size ☐ Below 40 ☐ 41-60 ☐ 61-80 ☐ 80 and above
7. Have you attended CBC/SESEMAT training? ☐ Yes, fully ☐ Yes, partially ☐ No

SECTION B: PEDAGOGICAL CHALLENGES

Statement	SA	A	N	D	SD
I find it easy to use group work and discovery methods in my mathematics lessons.					
The 40-minute period is enough to complete CBC activities in mathematics.					

Large class size makes it difficult to manage learner-centered activities.					
I often revert to the lecture method because of pressure to cover the syllabus.					
Learners participate actively when I use real-life examples in mathematics.					

SECTION C: TEACHER PREPAREDNESS

Statement	SA	A	N	D	SD
The CBC training I received adequately prepared me to teach mathematics under CBC.					
I feel confident designing and marking Activities of Integration in mathematics.					
I understand how to assess mathematical competences, not just correct answers.					
I need more training on specific CBC mathematics instructions.					

SECTION D: RESOURCE CHALLENGES

Statement	SA	A	N	D	SD
My school provides enough charts, models, and manipulatives for CBC math lessons.					
I have access to ICT tools e.g., computer, projector, phone videos for teaching mathematics.					
Lack of textbooks aligned to CBC mathematics affects my lesson delivery.					
I improvise low-cost materials because the school does not provide them.					

SECTION H: OPEN-ENDED

1. List the THREE biggest challenges you face implementing CBC mathematics:

.....
.....
.....

2. What one form of support from MoES/D EO/headteacher would help you most?

.....
.....

3. Any other comment about teaching mathematics under CBC?

.....
.....

Thank you for your time and honesty.

END