



FACULTY OF SCIENCE AND EDUCATION

DEPARTMENT OF MATHEMATICS

**EVALUATION OF COMPETENCE BASED CURRICULUM
ON THE PERFORMANCE OF MATHEMATICS STUDENTS
AT UGANDA CERTIFICATE OF EDUCATION IN SELECTED
SCHOOLS OF BUGIRI DISTRICT**

By

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(BU/UP/2023/1777)

**A Research Report Submitted to the Department of Mathematics in Partial
Fulfilment of the Requirements for the Award of a Bachelor of Science
Education Degree at Busitema University**

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DECLARATION

I, NAMUKANA DAPHINE, declare that this research is my original work. To the best of my knowledge, it hasn't been submitted to any university or other higher institution for a professional award. Whenever I used someone else's work, I have given proper credit.

Signature:

A handwritten signature in black ink, appearing to read 'Daphine', with a stylized circular flourish at the beginning.

Date:

14/08/2026

APPROVAL

This research report has been submitted for examination and has been approved by the supervisor.

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Date:

14/08/2026

DEDICATION

I dedicate this work to my parents, Ms. Ndiba Harriet and Mr. Mpalanyi Solomon, as well as to my uncle, Mr. Nabba Charles. Their unwavering support, inspiration, and sacrifices have carried me through my academic journey. Their love and guidance have always enthused me.

I also want to thank my lecturers, friends, and classmates whose advice and encouragement helped me complete this study. Above all, I dedicate this to the Almighty God for giving me wisdom, strength, good health, and perseverance.

ACKNOWLEDGEMENT

I am truly appreciative to God for giving me life, strength, healthiness, and the patience to see this research through.

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I'm thankful to the administrators, teachers, and students from the nominated schools who willingly took part in this study and made it possible. I also deeply escalate everyone else who contributed in any way to the success of this research. May God bless you all.

ABSTRACT

The study seeks to gauge the effect of the Competence-Based Curriculum (CBC) on the performance of Mathematics students at the Uganda Certificate of Education (UCE) level in selected secondary schools in Bugiri District. The introduction of the CBC in Uganda's lower secondary education aimed at improving learners' competencies through learner-centered approaches, critical thinking, problem-solving, and continuous assessment. Despite these reforms, Mathematics performance at UCE remains unsatisfactory in many schools, raising concerns about the effectiveness of the curriculum in achieving its intended objectives. The study is directed by three objectives: to assess the extent to which the CBC has been implemented in the teaching and learning of Mathematics, to examine the relationship between CBC implementation and students' performance in Mathematics at UCE level, and to identify strategies for improving the effectiveness of CBC in enhancing Mathematics performance. The study will employ a descriptive research design using both quantitative and qualitative approaches. (Creswell, 2014) Data will be collected from students, Mathematics teachers, and school administrators in selected schools, namely Bukooli College, Standard High School, and Central College Bugiri. Questionnaires, interviews, and document analysis will be used as data collection instruments. The findings of the study are expected to provide insights into the effectiveness of CBC implementation in Mathematics education and identify challenges affecting students' academic performance. The study will contribute valuable information to curriculum developers, policymakers, school administrators, and teachers in strengthening the implementation of CBC and improving Mathematics achievement among learners at UCE level.

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CHAPTER ONE: INTRODUCTION

This chapter gives the background of the study, states the problem, outlines the objectives and research questions, and defines the scope and importance of the research. It lays the foundation for understanding the evaluation of the competency-based curriculum to the performance of Mathematics students at UCE in selected schools of Bugiri district.

1.1 Background information

Education in Uganda has been the subject of continuing reforms aimed at aligning learning outcomes with both national development needs and also global education trends. A key shift has been the move from content-driven, teacher-centered approaches towards learner centered approaches. This change is reflected in the introduction of the CBC by the National Curriculum Development Center (NCDC) beginning at the lower secondary development level in February 2020 (NCDC, 2019).

Under the CBC framework, the aim is to equip learners not only with knowledge but also the ability to apply knowledge to real-life context for example problem solving, critical thinking, collaboration and adaptability. As one study explains, “a CBC is a curriculum that emphasizes what learners are expected to do rather than mainly focusing on what they are expected to know.” In Mathematics education, the CBC emphasizes application of knowledge, critical thinking, collaboration, and creativity in solving problems (NCDC, 2019). Teachers are encouraged to use interactive pedagogies such as project work, group discussions, and practical tasks that develop mathematical reasoning and conceptual understanding rather than procedural memorization (OECD, 2018).

There’s also a focus on strong values from the National Ethics and Values Policy 2013—like respect, honesty, hard work, self-reliance, and innovation (MoES, 2013). CBC aims to boost not just critical thinking, but also communication, collaboration, and independent learning. Students start seeing links between school subjects and real life—problems like environmental issues, staying healthy, and practical life skills.

On 3rd December 2021, Uganda’s Prime Minister, Ms. Robinah Nabbanja, told Parliament that the country was prepared to roll out the new lower secondary curriculum when schools re-opened in February 2022 (Nabunya, 2020). The big urgencies included making sure enough staff were trained and that there were enough teaching resources.

Despite the reforms, there are anxieties that the implementation of the CBC may not be yielding the expected enhancement in learner performance particularly in Mathematics which has historically noted low pass rates in the Uganda Certificate of Education UCE level. Many schools especially in rural areas face challenges such as inadequate instructional materials, limited teacher capacity, and small class sizes. Moreover, there is limited empirical indication assessing the actual effect of CBC on the students' academic achievement in Mathematics (UNESCO, 2021).

Evaluating how competence-based curriculum impacts Mathematics performance at UCE is therefore essential in shaping whether the reform is effectively enhancing learner's competencies and in identifying the contextual factors that may hinder its success. Findings from such studies will provide valuable insights for curriculum developers, policy makers, and educators on how to reinforce CBC implementation for better Mathematics outcomes.

1.2 Problem statement.

Although the CBC was to advance the quality of learning and foster practical competencies among learners, the performance of students in Mathematics at UCE in Bugiri district remains disappointing. Preliminary reports and examinations results indicate that a significant proportion of learners continue to score below average, signifying a possible mismatch between curriculum intentions and classroom results. (UNEB, 2022) While teachers have adopted some CBC methodologies, many still struggle with effective implementation due to inadequate training, lack of teaching aids, and insufficient supervision. Consequently, it remains unclear whether the CBC has had a measurable positive impact on students' mastery and performance in Mathematics. This report evaluated the effect of CBC on the academic performance of Mathematics students at UCE in Bugiri district as examples to determine whether the curriculum has led to improved learning outcomes and to identify challenges affecting its effective execution.

1.3 Objectives

1.3.1 General Objective.

To evaluate the effect of the CBC on the academic performance of Mathematics students at UCE level in secondary schools in Bugiri district.

1.3.2 Specific Objectives.

- i. Find out how much the CBC is actually being used when teaching and learning Mathematics in Bugiri's secondary schools.
- ii. Look at the link between putting the competency-based curriculum into action and how students perform in Mathematics at the UCE level.
- iii. Suggest real, useful ways to make the CBC work better for improving students' performance in Mathematics at UCE.

1.4. Research Questions.

- i. How fully is the CBC being put into practice for teaching and learning Mathematics in Bugiri's secondary schools?
- ii. What's the connection between using CBC and how students perform in Mathematics at UCE level?
- iii. What can schools do to make the CBC more effective in boosting Mathematics results at UCE level?

1.5 Scope of the study

1.5.1 Content scope

The study focused on the implementation of the CBC in lower secondary schools and its influence on students' performance in Mathematics in UCE. Specifically, the study examined:

Teaching methodologies used under CBC in mathematics, continuous assessment and competency-based assessment practices, students' academic performance in mathematics at UCE and the study didn't cover other subjects at UCE level.

1.5.2 Geographical scope

Research was conducted in Uganda, eastern region, Bugiri district at Bukooli College, Standard High School, and Central College Bugiri.

1.5.3 Population scope.

The study targeted O level students who are studying under CBC and Mathematics teachers in lower secondary schools.

1.5.4 Conceptual scope.

The study was limited to examine the relationship between CBC implementation factors (teaching strategies, assessment, approaches, teacher preparedness, and resources) and students' performance in Mathematics at UCE.

CHAPTER TWO: LITERATURE REVIEW

2.1 Theoretical Foundation

2.1.1 Constructivist Learning Theory

Constructivism, developed by Jean Piaget (1970) and Lev Vygotsky (1978), posits that learners actively construct knowledge through interaction, experience, and social collaboration. (Piaget, 1970; Vygotsky, 1978)

Piaget emphasized cognitive development through discovery and problem-solving, while Vygotsky highlighted the importance of social interaction and scaffolding in learning. These principles underpin CBC, which promotes Learner-centered instruction, collaborative problem-solving, continuous assessment and application of knowledge in real-life context.

In Mathematics education, constructivist approaches improve conceptual understanding and analytical reasoning (Darling-Hammond et al., 2019). Therefore, CBC is theoretically expected to enhance Mathematics competence and examination performance.

2.2 Overview of CBC Reform in Uganda

The Lower Secondary Curriculum Framework developed by the National Curriculum Development Centre (2017) outlines key learning outcomes and generic competencies such as critical thinking, communication, and creativity. The reform was implemented under the supervision of the Ministry of Education and Sports. (NCDC, 2017)

Key features include: Reduction of content overload, emphasis on competencies rather than memorization, continuous assessment contributing to final grading, practical and project-based learning.

Assessment at UCE level is conducted by the Uganda National Examinations Board. UNEB reports (2022–2024) indicate efforts to align national examinations with competency-based principles, including structured questions assessing application and reasoning. (UNEB, 2022–2024)

2.3 CBC and Mathematics Instruction

Mathematics is a compulsory subject at UCE level and plays a critical role in science, technology, and economic development. Traditional Mathematics instruction in Uganda has been examination-oriented and teacher-centered. CBC seeks to transform this approach by emphasizing: Problem-based learning, inquiry-based instruction, continuous formative assessment and integration of real-life applications

Research indicates that competency-based and learner-centered approaches improve mathematical reasoning and student engagement (OECD, 2018; Darling-Hammond et al., 2019). However, successful outcomes depend heavily on teacher readiness and resource availability.

2.4 Empirical Evidence on CBC Implementation

2.4.1 International Evidence

Studies across OECD countries show that competency-based reforms enhance critical thinking and problem-solving when supported by strong teacher professional development and assessment alignment (OECD, 2018). However, transitional implementation phases may initially show inconsistent examination outcomes due to adjustment challenges.

2.4.2 Evidence from Uganda.

Monitoring reports by NCDC (2021) and MoES highlight several implementation challenges such as insufficient teacher training on CBC methodologies, limited instructional materials large class sizes, assessment design difficulties

UNEB examination reports (2022–2024) show variations in Mathematics performance during the CBC transition period. While some improvement in reasoning-based questions is observed, disparities persist between well-resourced urban schools and under-resourced rural schools.

These findings suggest that curriculum effectiveness depends not only on design but also on implementation fidelity.

2.5 Assessment Alignment and UCE Performance

Assessment plays a crucial role in determining whether curriculum reforms translate into improved examination results. Under CBC, continuous assessment contributes to final grading, and examinations aim to measure competencies rather than rote memorization (NCDC, 2017).

However, if national examinations are not fully aligned with classroom practices, discrepancies may arise. UNEB's ongoing assessment reforms aim to ensure consistency between instructional objectives and UCE evaluation standards (UNEB, 2023).

2.6 Research Gaps.

Despite existing documentation, several research gaps remain. These include limited quantitative analysis comparing pre-CBC and post-CBC UCE Mathematics results, insufficient large-scale studies measuring the strength of the relationship between CBC practices and examination outcomes, and limited evaluation of moderating variables such as teacher preparedness, class size, and school location.”

This study addresses these gaps by empirically examining the influence of CBC implementation factors on UCE Mathematics performance.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction.

This chapter explains the methods and procedures that were used to carry out the study on the evaluation of the Competence-Based Curriculum and the performance of Mathematics students at UCE level in selected schools in Bugiri District. It presents the research design, sources of data, study area, study population, sampling techniques, sample size, data collection methods and instruments, data collection procedure, validity and reliability of the instruments, ethical considerations, limitations of the study, and measures taken to address the limitations.

3.2 Research design

The study adopted a descriptive research design using both quantitative and qualitative research approaches.

The descriptive research design was considered suitable because it enabled the researcher to describe the existing situation and examine the relationship between the variables without manipulating them. The quantitative approach was used to obtain numerical information about students' Mathematics performance under the Competence-Based Curriculum. This included information obtained from questionnaires. The qualitative approach, on the other hand, helped the researcher obtain detailed information about the experiences and views of students and Mathematics teachers concerning the influence of CBC on the teaching and learning of Mathematics. Combining the two approaches provided a broader understanding of the study and strengthened the findings by bringing together numerical results and detailed explanations.

3.3 Sources of Data

3.3.1 Primary Data

Primary data refers to information collected directly from respondents specifically for the purpose of a particular study. In this research, primary data were obtained directly from the respondents using questionnaires and interview guides.

3.3.2 Secondary Data

Secondary data refers to information that has already been collected, documented, or analyzed by other people, usually for a different purpose. In this study, secondary information was obtained from published research and other relevant materials that were related to the objectives of the study.

3.4 Study Area

The study was carried out in Bugiri District in Eastern Uganda. It focused on selected secondary schools implementing the Competence-Based Curriculum. Bugiri District was considered suitable for the study because it has both urban and rural schools, as well as government and private institutions. This provided an appropriate setting for examining how CBC is being implemented in different school environments.

3.5 Study population

The study population refers to the group of people from whom the researcher intends to obtain information. In this study, the population consisted of Mathematics teachers and students from Senior One to Senior Four in the selected secondary schools.

3.6 Sampling Techniques

Sampling refers to the process of selecting a smaller group from a larger population for purposes of conducting research. The selected group, known as the sample, is expected to represent important characteristics of the wider population.

3.6.1 Simple Random Sampling

This was used to select Mathematics students from Senior One to Senior Four. This method gave each learner an equal opportunity of being selected to participate in the study. It also helped to reduce the possibility of bias during the selection of respondents.

3.6.2 Purposive Sampling

Purposive sampling was used to select Mathematics teachers for the study. The researcher specifically selected teachers who were teaching Mathematics under the Competence-Based Curriculum because they had direct experience and knowledge about its implementation. Their experience enabled them to provide detailed information about the teaching approaches, challenges, and effectiveness of CBC.

3.7 Sample size

A sample is a sub-group of the population selected to represent the entire population in the study.

Table 3-1: Sample size

Category	Sample
Mathematics Teachers	8
Students	50

The selected sample provided satisfactory representation to generate reliable data about the impact of CBC on students' performance in Mathematics.

3.8 Data Collection Methods and instruments.

Data collection employed structured student questionnaires to gather information concerning their experiences, participation, and preferences. Qualitative semi-structured interview guides were administered to teachers to examine lesson structures, application strategies, and institutional constraints. Quantitative data was analyzed using frequencies, percentages, and statistical charts, while qualitative interview responses were written off as via thematic analysis aligned with the specific objectives of the study.

3.8.1 Questionnaires

Questionnaires were administered to Mathematics students. They were designed to obtain information about students' experiences with CBC, their participation in Mathematics lessons, and their views about changes or improvements in their Mathematics performance. Questionnaires were useful because they enabled the researcher to collect information from a relatively large number of respondents within a short period of time.

3.8.2 Interviews

Semi-structured interviews were conducted with mathematics teachers.

The interviews focused on: Implementation of CBC in Mathematics teaching, teaching strategies used under CBC, challenges affecting students' performance, perceived effectiveness of CBC in improving Mathematical abilities.

Interviews provide in-depth insights that cannot be easily obtained through questionnaires.

3.9 Data collection procedure.

After obtaining an introductory letter from the university and permission from the chosen schools, I headed to the study sites. First, I explained the purpose of the study directly to the participants, making sure everyone understood what was going on. I asked for informed consent from each person and promised that everything would stay confidential and unidentified.

I handed out questionnaires to the students who were part of the study, collected them when they were done, and met with the mathematics teachers for interviews at times that worked for them. Everyone had enough time to fill out the questionnaires, and I was there to clarify whenever someone had a question.

After gathering all the responses from both the questionnaires and interviews, I double-checked everything for completeness, accuracy, and consistency before moving on to the analysis.

3.10 Validity

Validity means making sure the research really measures what it's supposed to measure. In the context of evaluating CBC implementation. To ensure the validity of the study, the questionnaires and interview schedules were designed in line with the study objectives and research questions. The instruments were reviewed by the supervisor, to assess their relevance, clarity, and coverage of the subject matter.

3.11 Reliability

Reliability relates to the consistency and stability of data collection instruments and results.

To ensure reliability of the study, a pilot study was carried out which identified ambiguities, inconsistencies and weaknesses in the research instruments.

Standard questionnaires and interview guides were used to ensure uniformity in data collection thereby enhancing the reliability of the findings.

3.12 Ethical Considerations

The researcher ensured that all ethical principles governing educational research are strictly observed throughout the study as explained below.

Permission to Conduct the Study. This ensured that the study is conducted legally and with institutional approval.

Informed consent. Every participant knew about the purpose, objectives, steps, and possible benefits of the study before they agreed to take part.

Confidentiality and Anonymity. Participants' names and personal identities remained private.

Voluntary Participation. Participants were forced or coerced into participating in the study.

Right to Withdraw: Anybody could leave the study at any point, no questions asked and without any penalties.

3.13 Limitations of the Study

Despite careful planning and implementation, the study may encounter several limitations that could affect the findings.

Limited Geographical Coverage. The study was conducted in only three selected secondary schools in Bugiri District. Therefore, the conclusions may not fully represent all schools.

Time constraints. The researcher may have limited time to collect and examine data due to academic schedules and project submission deadlines. This may limit the depth of data collection and follow-up activities.

Financial Constraints. The study may be affected by limited financial resources obligatory for transport, printing questionnaires, photocopying documents, and communication during data collection.

Respondent Bias. Some respondents may provide inexact or exaggerated information due to fear or misunderstanding of questions.

Limited Access to Academic Records. Some schools may be reluctant to provide complete students' performance records due to secrecy policies. This may limit the availability of secondary data for analysis.

3.14 Mitigation of Limitations

To diminish these limitations, the researcher used multiple data collection methods, ensure confidentiality to encourage honest responses, allocate sufficient time for data collection, and triangulate information obtained from questionnaires, interviews, and document analysis to advance reliability and validity of the findings.

CHAPTER FOUR: DATA PRESENTATION, ANALYSIS, AND DISCUSSION

4.1 Respondent Demographics and Background Profiles

Table 4-2: Student Demographics and Perceived Performance Standings (n=50)

	Category	Frequency	Percentage
Gender	Female	30	60%
	Male	20	40%
	Total	50	100%
Class	S1	0	0%
	S2	10	20%
	S3	17	34%
	S4	23	46%
Performance	Below average	11	22%
	Average	35	70%
	Above average	4	8%
Type of school	Government	38	76%
	Private	12	24%

Data interpretation.

The dataset shows a sample consisting of 40.0% male and 60.0% female participants. The majority of respondents were upper-stream learners (46.0% in Senior Four and 34.0% in Senior Three), who provide informed perspectives on lower-secondary curriculum delivery. Most participants are enrolled in government-aided institutions (76.0%), with self-reported performance centered around the "Average" classification (70.0%). Only 22.0% reported performing in the "Above Average" tier on recent exams

Figure 1: Distribution of students' mathematics performance.

Figure 1: Distribution of Student Mathematics Performance Standings (n=50)

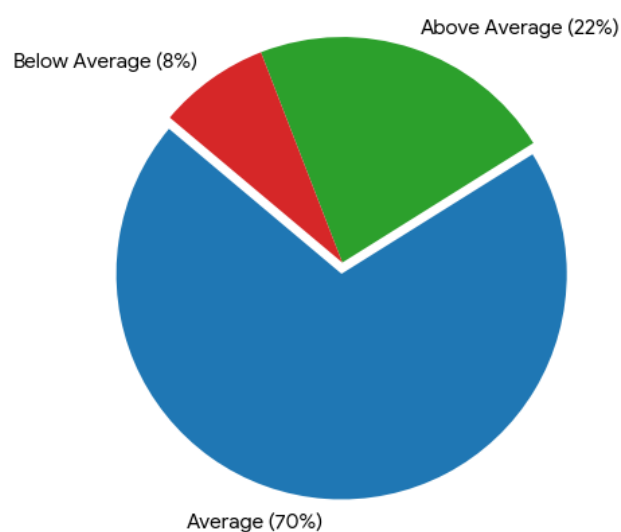


Table 4-3: CBC teachers' experience

Profile Dimension	Category Breakdown	Frequency (f)	Total Percentage (%)
Teaching Experience	0–2 Years	3	37.5%
	3–4 Years	3	37.5%
	4+ Years	2	25.0%
Current Class Distribution	Lower Secondary (S1–S2)	3	37.5%
	Upper Secondary (S3–S4)	5	62.5%
CBC Training Profile	NCDC Formal Workshops	6	75.0%
	SESEMAT Modules	4	50.0%
	Other Channels	1	10.0%

Data interpretation

The teacher profile indicates that 75% of the workforce has 4 years or less of experience, entering service alongside the implementation phase of the secondary curriculum reform. While NCDC initial workshops achieved high coverage 75%, follow-up SESEMAT modular support remains restricted to half of the sample 50%.

4.2 Objective 1: Extent of CBC Implementation in Mathematics Instruction

Table 4-4: Student Reports on Frequency of Classroom Pedagogies (n=50)

Instructional Paradigm Matrix	Always (A)	Often (O)	Sometimes (ST)	Rarely (R)	Never (N)
Teacher-Centered Lecture Loops	11	3	17	14	3
Learner-Centered Group Frameworks	17	9	9	11	3
Activity-Based Interactive Tasks	20	9	14	6	0
Real-Life Investigations / Field Tasks	6	9	14	11	10
Formative Assessment Checkpoints	26	6	3	9	6

Table 4-5: Teacher Methodologies Deployed During Lesson Introductions (n=8)

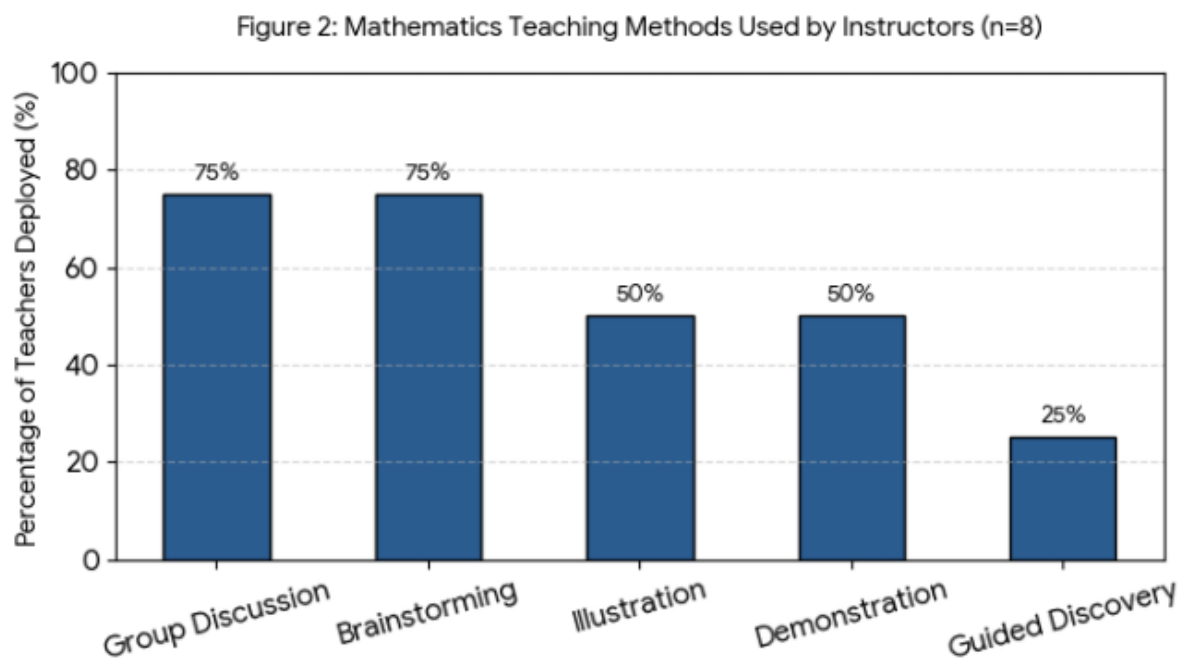
Identified Lesson Method (Multiple Entries Allowed)	Teacher Frequency (f)	Sample Percentage (%)
Group Discussion	6	75.0%
Classroom Brainstorming	6	75.0%

Blackboard Illustration	4	50.0%
Practical Demonstration	4	50.0%
Formative Evaluation	2	25.0%
Guided Discovery	2	25.0%

Data interpretation

The data establishes that while “75%” of teachers leverage brainstorming and discussions when launching new topics, old teacher-centered lecturing habits continue due to class numbers, with “28%” of students encountering standard lecturing loops "Always" or "Often".

Figure 2: Mathematics teaching methods used by instructors



4.3 Objective 2: Relationship Between CBC Practices and Student Performance

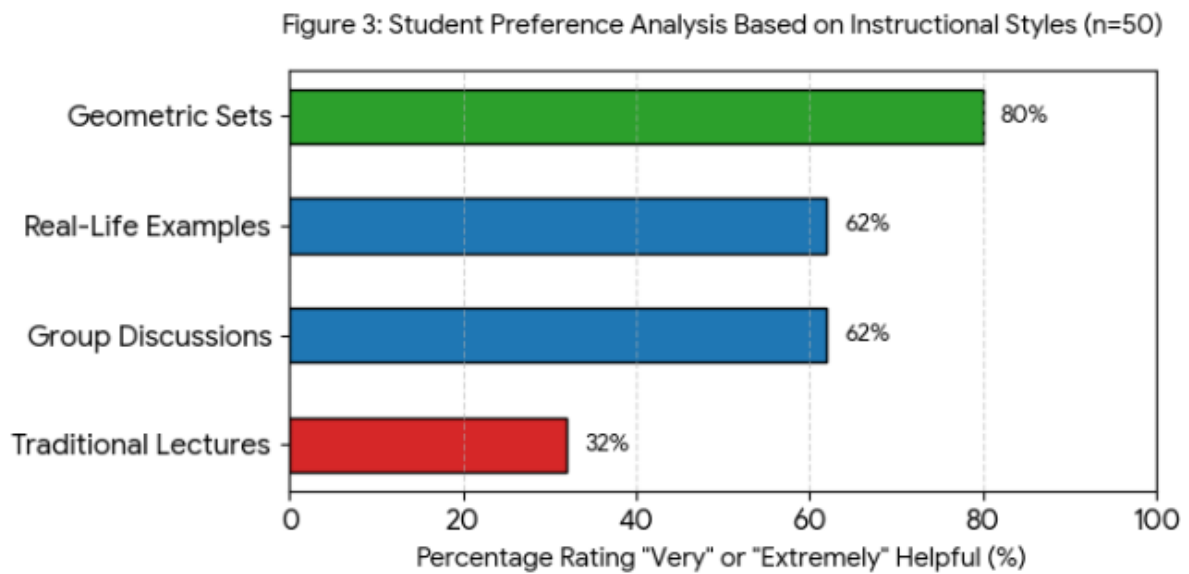
Table 4-6: Perceived Helpfulness Matrix of Core Teaching Methods (n=50)

Evaluated Teaching Method	Not Helpful	Slightly	Moderately Helpful	Very Helpful	Extremely
Traditional Lecture Delivery	14	20	2	14	2
Interactive Group Discussion	0	2	14	23	8
Geometric Instruments & Sets	0	3	6	20	20
Real-Life Examples & context	3	6	6	11	20
Project-Based Assignments	6	6	26	9	3

Table 4-7: Teacher Preferences and Perceived Method Effectiveness (n=8)

Stated Pedagogical Choice	Rationale / Qualitative Justification Provided	Frequency (f)	Percentage
Avoids Traditional Lecture	Perceived as entirely ineffective for CBC outcomes	6	75.0%
Utilizes Brainstorming	Produces strong critical thinking skills	4	50.0%
Utilizes Active Discussion	Enables collaborative knowledge sharing	4	50.0%
Avoids Large Group Presentations	Limited lesson time prevents all groups from participating	2	25.0%

Figure 3: Students preference analysis based on instructional style.



Data interpretation.

A clear alignment emerges: both students and teachers view traditional lectures as poorly matched for performance optimization, with 32% of students rating lectures positively. In contrast, concrete tools like geometric sets 80% high helpfulness rating and real-life examples 62% show high performance value. This is reinforced by teacher preferences for brainstorming 50% and active group activities 50% to foster practical competencies.

Table 4-8: Strategies and Transfer Limitations in Competency Realization (n=8)

Real-World Connection Strategy	Practical Example Deployed	Frequency (f)	Percentage (%)
Narrative Storytelling	Telling stories connected to math parameters	4	50.0%
Financial Literacy Drawing	Drawing money representations and trade items	2	25.0%
Practical Examples	Basic textbook application questions	2	25.0%

Data interpretation

When cross-tabulated, a gap appears: 75% of the teachers observe that students still face major hitches applying mathematical theories outside the classroom structure, even though teachers rely on narrative storytelling 50% and money sketches 25% to make real-world connections.

4.4 Objective 3: Availability and Systemic Limitations of Instructional Materials

Table 4-9: Resource and Technology Availability Profiles (n=8)

Equipment / Resource Category	Always (A)	Often (O)	Sometimes (ST)	Rarely (R)	Never (N)
Standard Printed Textbooks	6	0	2	0	0
Wall Charts and Diagrams	4	0	2	2	0
Geometric Tools & Rulers	4	0	2	2	0
Digital Projectors / Technology	2	0	0	0	6

Data interpretation

The hardware data displays that while core books 75% and basic drawing instruments 50% are accessible, a momentous digital divide exists. 75% of the teachers report using no ICT integration, software systems, or mobile tools during instruction. Advanced graphing applications, such as GeoGebra, are completely absent 0% due to infrastructural barriers, forcing half of the teachers 50% to rely entirely on step-by-step method of simplification when handling abstract topics.

CHAPTER FIVE: SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

5.1 Summary of Findings

Implementation Trajectory: While 75% of the teachers use student discussions and brainstorming to launch new topics, traditional lecturing remains common, with 28% of students reported using it often due to large group sizes.

Performance Relationship: Both students and teachers view old-style lecture formats as poorly suitable for performance optimization. Students highly value geometric tools 80% and real-world context 62% to improve comprehension.

Resource Constraints: Classrooms persist heavily dependent on printed books 75%. A full 75% of teachers integrate no digital technology or ICT tools, and modern instructional software like GeoGebra is completely unutilized 0%.

5.2 Conclusions

The Lower Secondary Competence Based Curriculum has reputable a foundation for active, student-centered learning in Bugiri District's Mathematics classrooms. However, its overall effectiveness is limited by resource constraints. Large student numbers, short class periods, and a lack of digital visualization tools make it difficult for teachers to move beyond basic group discussions. This creates an operational gap where interactive methods are introduced.

5.3 Recommendations

To address these challenges and improve performance at the UCE level, the following strategies are recommended:

Allocate Target Materials: The Ministry of Education and Sports should prioritize distribution formula wall charts, geometric models, and affordable projector tools to public and private schools in Bugiri district to reduce the heavy reliance on textbooks.

Improve Teacher Professional Development: The NCDC and SESEMAT should offer practical training workshops focused on managing large group sizes and running quick formative assessments within tight 40-minute class blocks.

Introduce Basic Technology Tools: School administrators should invest in low-cost digital tools and support preliminary training for math visualization software, helping teachers explain abstract topics more effectively.

5.4 Specific recommendations.

5.4.1 Recommendations to Students

Students should energetically participate in learner-centered classroom activities such as group discussions, projects and problem-solving exercises.

They should regularly practice Mathematics beyond classroom hours to reinforce problem-solving skills.

Students should grow positive attitudes towards Mathematics and make effective use of offered learning resources.

5.4.2 Recommendations to Teachers

Teachers should steadily implement learner-centered teaching approaches recommended under CBC.

They should use more real-life examples and practical activities to advance learners' understanding.

Teachers should increase the use of ICT, teaching aids and continuous formative assessment.

They should participate in systematic professional development programs on CBC implementation.

5.4.3 Recommendations to UNEB

UNEB should continue aligning UCE Mathematics examinations with competency-based learning outcomes.

UNEB should provide regular feedback to schools on learners' strengths and weaknesses.

The board should establish workshops to help teachers comprehend competency-based assessment and examination necessities.

5.4.4 Recommendations to School Administrators

School administrators should provide satisfactory instructional materials and teaching aids.

They should facilitate continuous professional development for Mathematics teachers.

Administrators should supervise and monitor the implementation of CBC to ensure effective classroom practice.

Schools should capitalize in ICT facilities that support competency-based teaching and learning.

5.4.5 Recommendations to Parents

Parents should provide learners with the necessary learning materials and encourage regular study at home.

They should uphold close communication with teachers to monitor learners' academic progress.

Parents should inspire learners by creating a supportive home atmosphere that encourages positive attitudes towards Mathematics.

They should support school programs aimed at improving Mathematics learning and CBC implementation.

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APPENDICES

QUESTIONNAIRE



EVALUATION OF COMPETENCE BASED CURRICULUM ON THE PERFORMANCE OF MATHEMATICS STUDENTS AT UGANDA CERTIFICATE OF EDUCATION IN SELECTED SCHOOLS OF BUGIRI DISTRICT

Dear Respondent,

I am NAMUKANA DAPHINE, a student at Busitema University conducting research on the above topic. You have been selected to participate in this study. Please answer all questions honestly and correctly. The information provided will be used for academic purposes only and will be treated with strict confidentiality. You are not required to write your name anywhere on this questionnaire.

All the information collected will be used for academic purposes and am responsible for its confidentiality

Instructions:

- *Tick (✓) or circle your choice where provided.*
- *Write briefly where asked.*
- *Return the completed questionnaire to your class teacher.*

SECTION A: BACKGROUND INFORMATION

1. Gender:

a. Male

b. Female

2. Your current class:

a. S1

b. S2

c. S3

d. S4

3. In your last mathematics examination, your performance was generally:

a. Above average

b. Average

c. Below average

4. Type of school

a. Government

b. Private

SECTION B: TEACHING METHODS MOST HELPFUL FOR UNDERSTANDING

5. Below are teaching methods your Mathematics teacher may use. For each, indicate how helpful it is for YOUR understanding.

Not Helpful (NH), Slightly Helpful (SH), Moderately Helpful (MH), Very Helpful (VH), Extremely Helpful (EH)

Teaching Method	NH	SH	MH	VH	EH
Lecture (teacher talks, you listen)					
Group discussion					
Problem-solving in pairs					
Using real objects (e.g., stones, sticks, bottles)					
Using mathematical instruments (ruler, compass, calculator)					
Teacher giving real-life examples (e.g., market prices, farming)					

Project work (e.g., measuring classroom area)					
Peer teaching (students explain to each other)					
Mathematics games/puzzles					
Using charts/posters					

6. Which ONE method above helps you understand mathematics BEST?

(Write method name): _____

SECTION C: ABILITY TO APPLY MATHEMATICS TO REAL LIFE

7. Think about the teaching methods your teacher uses most often. Indicate your agreement:

Strongly Disagree (SD), Disagree (D), Neutral (N), Agree (A), Strongly Agree (SA)

Statement	SD	D	N	A	SA
I can solve mathematics problems that come from real life (e.g., budgeting, measuring).					
The methods my teacher uses help me see how math is used outside school					
I can apply what I learn in math to farming, trading, or home activities.					
Without my teacher's methods, I would struggle to connect math to real situations.					

8. Give one example of a real-life problem you solved in math class using a method you liked:

SECTION D: LEARNER-CENTERED VERSUS TEACHER-CENTERED METHODS

9. Compare how often your teacher uses these two types of methods:

TICK Always (A) Often (O), Sometimes (ST), Rarely(R), Never (N)

Type	A	O	ST	R	N
Teacher-centered (lecture, teacher writes on board, you copy)					
Learner-centered (group work, discovery, projects, peer teaching)					

10. For each statement, tick your response:

Strongly Disagree (SD), Disagree (D), Neutral (N), Agree (A), Strongly Agree (SA)

Statement	SD	D	N	A	SA
Learner-centered methods help me explain math to others.					
Teacher-centered methods make me more confident in math					
I feel free to ask questions when we use learner-centered methods.					
Learner-centered methods reduce my fear of Mathematics.					

SECTION E: USE OF TEACHING/LEARNING AIDS & TECHNOLOGY

11. How often does your teacher use these during math lessons?

TICK Always (A) Often (O), Sometimes (ST), Rarely(R), Never (N)

Learning Aid	A	O	ST	R	N
Real objects (stones, seeds, sticks)					
Charts with formulas					
Mathematical sets (ruler, protractor)					
Calculator					
Computers/tablets/projector					
Printed worksheets with diagrams					

12. Indicate your agreement:

Strongly Disagree (SD), Disagree (D), Neutral (N), Agree (A), Strongly Agree (SA)

Statement	SD	D	N	A	SA
Using real objects helps me understand difficult math topics					
I understand abstract topics (e.g., algebra) better when we use aids.					
Lack of teaching aids makes math harder for me.					

SECTION F: ALIGNMENT WITH NCDC CBC SYLLABUS

13. Below are methods recommended in the national CBC Mathematics syllabus. How often does your teacher use them?

TICK Always (A) Often (O), Sometimes (ST), Rarely(R), Never (N)

Statement	A	O	ST	R	N
CBC-Recommended Method Always Often					

Sometimes Rarely Never					
Activity-based learning (you do tasks, not just listen)					
Group problem-solving					
Real-life investigations (e.g., collecting data from community)					
Formative assessment (teacher checks understanding during lesson)					
Integration of topics (e.g., mixing algebra and geometry in one problem)					

14. Do you think the methods your teacher uses match what CBC expects?

Yes,

a. Fully

b. Somewhat

c. No, not really

d. I don't know

16. What ONE thing should your teacher do more to help you perform better in UCE mathematics?

Thank you

SEMI-STRUCTURED TEACHER INTERVIEW GUIDE

Learners' Perceptions of Mathematics Teaching Methods That Enhance Understanding under CBC

Section A: Background

- A1. How long have you taught mathematics? How long under CBC?
- A2. Which classes do you currently teach? Average class size?
- A3. What CBC training have you received? SESEMAT/NCDC/Other?

Section B: Methods Used vs Methods Learners Find Helpful

- B1. Walk me through how you typically teach a new topic, say linear equations. What steps do you follow? Do you start with notes, examples, activities, or real-life applications?
- B2. NCDC recommends learner-centered, activity-based teaching. Which 2–3 methods do you use most often to build understanding? Why those?
- B3. From your experience, which methods make learners say “Now I understand”? Give a specific example.
- B4. Are there methods you know are recommended but you rarely use? Why?

Section C: Building CBC Competences: Real-life application.

- C1. How do you help learners connect math to real life? Give an example you used last term.
 - C2. Do learners struggle to apply math outside class? What method helps most with transfer?
 - C3. How do you balance teacher explanation and learner discovery in your lesson?
- In a 40-min lesson, how many minutes are learners talking/doing vs. you talking?
- C4. When do you use group work or peer teaching? What goes well? What challenges?
 - C5. How do you build learners' confidence to attempt questions when they're unsure?

C6. What teaching/learning aids do you use for topics like fractions, algebra, and geometry?

Are they provided or self-made? How do learners respond?

C7. Do you use ICT – phone, videos, GeoGebra? If yes, how? If no, what barriers?

C8. For a hard abstract topic, what method has worked best for you?

Section D: Differentiation & Equity

D1. Do boys and girls respond differently to certain methods? Any examples?

D2. How do you adapt methods for S1 vs. S4, or for weak vs. strong learners?

D3. Which method works best for struggling learners to “catch the concept”?

Section E: Constraints & Saturation Concepts

E1. CBC assumes activity-based work, but classes are large. How does class size affect which methods you choose?

E2. NCDC expects many activities, but syllabus and time are tight. How do you prioritize?

E3. Do you ever feel learners are “saturated” – too many activities but little depth? How do you handle that?

Section F: Reflection & Recommendations

F1. If learners could choose, which 1–2 methods do you think they would say help them most? Why?

F2. What support do you need from school/MoES to use helpful methods more often?

F3. What would you advise a new teacher about teaching math for understanding under CBC?

Anything we missed that matters for helping learners understand math?

Thank you.