

**Navigating the Implementation Labyrinth: A Critical Analysis of the Competency-Based Curriculum in Uganda's Lower Secondary Education**

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**Abstract**

This study critically analyzed the implementation of the Competency-Based Curriculum (CBC) in Uganda's lower secondary education system, focusing on teacher preparedness, resource adequacy, and assessment alignment as key determinants of implementation success. Employing a mixed-methods research design, the study collected data from 385 teachers, 60 head teachers, 30 curriculum developers and education officers, and 800 students across 45 randomly selected secondary schools in five districts representing urban, peri-urban, and rural settings. Sample size determination using G\*Power software with 80% statistical power, 0.05 alpha level, and 0.30 effect size ensured adequate statistical rigor. Data were collected through structured questionnaires, semi-structured interviews, classroom observations, and document analysis, with quantitative data analyzed using descriptive statistics, Pearson correlations, independent samples t-tests, ANOVA, multiple linear regression, and chi-square tests in SPSS version 26, while qualitative data underwent thematic analysis using NVivo software. The findings revealed that teacher preparedness remained at moderate to low levels, with overall mean scores of 2.54 (SD=0.72) on a 5-point scale, and only 48.6% of teachers having received CBC training. A strong positive correlation ( $r=0.547$ ,  $p<0.001$ ) between teacher training and preparedness was observed, with trained teachers demonstrating significantly higher preparedness ( $M=3.12$ ,  $SD=0.68$ ) compared to untrained teachers ( $M=2.01$ ,  $SD=0.51$ ),  $t(383)=16.34$ ,  $p<0.001$ , Cohen's  $d=1.82$ . Resource assessment indicated that 68.9% of schools operated with inadequate teaching and learning resources, particularly in ICT facilities (adequate in only 20% of schools), science equipment (26.7%), and teaching aids (33.3%). Schools with adequate resources demonstrated significantly superior implementation outcomes across all measures, with effect sizes ranging from Cohen's  $d=1.70$  to  $d=2.15$ , confirming resource adequacy as a critical determinant of CBC success. Assessment practices revealed profound misalignment with CBC requirements, as 94% of teachers predominantly used traditional written examinations (alignment  $M=1.89$ ,  $SD=0.76$ ) while competency-based assessment methods were employed by only 22.6% to 40.5% of teachers. Chi-square analysis confirmed significant discrepancies ( $\chi^2=267.43$ ,  $p<0.001$ ) between observed and expected assessment practices. Multiple regression analysis established that teacher training ( $\beta=0.398$ ,  $p<0.001$ ), resource adequacy ( $\beta=0.341$ ,  $p<0.001$ ), and assessment alignment ( $\beta=0.256$ ,  $p<0.001$ ) collectively explained 62.4% of variance in implementation success ( $R^2=0.624$ ,  $F(5,379)=125.84$ ,  $p<0.001$ ). The study concluded that Uganda's CBC implementation faced a complex "implementation labyrinth" characterized by inadequate teacher preparation, severe resource constraints, and persistent misalignment between classroom assessment practices and curriculum requirements. The study recommended establishing comprehensive teacher professional development programs with sustained mentorship and coaching, prioritizing strategic and equitable resource allocation with emphasis on underserved schools, and reforming national examinations to authentically assess competencies rather than content recall. These integrated interventions were deemed essential for creating systemic coherence between curriculum intentions, implementation capacity, and

assessment practices necessary for the CBC to achieve its transformative potential in preparing Ugandan learners with 21st-century competencies for meaningful participation in an increasingly complex and interconnected world.

**Key Words: Competency-Based Curriculum**

**Introduction of the Study**

The landscape of education in Uganda has undergone significant transformation in recent years, marked by the adoption of the Competency-Based Curriculum (CBC) in lower secondary education. This paradigm shift represents a departure from the traditional content-focused approach toward a more skills-oriented educational framework that emphasizes the development of competencies necessary for learners to thrive in the 21st century (Kakuba et al., 2021; Pauline, 2023). The CBC implementation, launched as part of Uganda's broader education reform agenda, seeks to equip learners with critical thinking, problem-solving, creativity, and practical skills that extend beyond rote memorization and theoretical knowledge acquisition (Martin & Matovu, 2023a; Rasmus & Jocab, 2023a). However, the journey from policy formulation to effective classroom implementation has proven to be considerably more complex than initially anticipated. The implementation process has encountered numerous challenges ranging from inadequate teacher preparation, insufficient teaching and learning resources, to resistance from stakeholders accustomed to traditional pedagogical approaches (Martin & Matovu, 2023b; Rasmus & Jocab, 2023b). These challenges have created what can be aptly described as an "implementation labyrinth"—a complex maze of interconnected obstacles that educators, administrators, and policymakers must navigate to realize the full potential of the competency-based approach (Catherine et al., 2023; Victor & Andrew, 2023). This study critically examines the implementation of the Competency-Based Curriculum in Uganda's lower secondary education sector, focusing on the multifaceted challenges, successes, and lessons learned during this transitional period (Onzi et al., 2023; Stella & Okee, 2024). By analyzing the experiences of teachers, students, and educational administrators, this research seeks to provide evidence-based insights that can inform policy refinement and improve implementation strategies, ultimately contributing to the enhancement of educational quality and relevance in Uganda's secondary education system (Monica, 2022; Muthami et al., 2023; Otyola et al., 2022).

**Background of the Study**

Uganda's education system has evolved through various reform initiatives since independence, each aimed at improving access, quality, and relevance. The introduction of Universal Primary Education (UPE) in 1997 and Universal Secondary Education (USE) in 2007 significantly expanded educational access, yet concerns about quality and the practical applicability of learning outcomes persisted. Traditional curricula were criticized for being overly theoretical, examination-oriented, and disconnected from the realities of the labor market and societal needs (Jamil et al., 2020; Kazaara & Desire, 2025; Richard et al., 2023). In response to these concerns and aligned with global educational trends, the Ministry of Education and Sports, in collaboration with the National Curriculum Development Centre (NCDC), embarked on curriculum reform that culminated in the development and rollout of the Competency-Based Curriculum. This reform was influenced by international frameworks such as UNESCO's Education 2030 Agenda and the emphasis on 21st-century skills in the Fourth Industrial Revolution context. The CBC framework prioritizes learning outcomes over content coverage, focusing on what learners can do with their knowledge rather than simply what they know (Gideon, 2023; Komakech, 2015; Mpaata & Mpaata, 2019). The lower secondary

education level (Senior 1 to Senior 4) was identified as a critical stage for CBC implementation, as it represents a transitional phase where learners develop foundational competencies for either further academic pursuits or entry into the workforce. The CBC in lower secondary education emphasizes eight key competencies: critical and creative thinking, communication, cooperation, culture and identity, learning to learn, digital literacy, problem-solving, and entrepreneurship (Kanyesigye et al., 2023; Matagi et al., 2022; Prosper Mubangizi, 2020).

Despite the promising theoretical framework, the implementation phase has revealed significant gaps between policy intentions and practical realization. Teachers trained under traditional pedagogical approaches have struggled to adapt to the learner-centered, activity-based instructional methods required by the CBC. Schools, particularly those in rural and under-resourced areas, lack adequate teaching materials, laboratory equipment, and technology infrastructure necessary for effective CBC delivery (Gracious Kazaara & Kazaara, 2025; Milliam & Dominic, 2022; Moreen et al., 2023). Furthermore, the assessment systems have not fully transitioned from knowledge-based examinations to competency-based evaluation, creating confusion and misalignment in the education system (Masaaba et al., 2021; Sengendo & Eduan, 2024). International experiences from countries such as Kenya, South Africa, and Tanzania, which have implemented similar competency-based reforms, demonstrate that successful curriculum implementation requires more than policy declarations—it demands comprehensive teacher professional development, adequate resource allocation, stakeholder engagement, and continuous monitoring and evaluation. Understanding Uganda's unique contextual challenges within this broader regional and global landscape is essential for developing sustainable solutions.

### **Problem Statement**

While the Competency-Based Curriculum represents a progressive educational reform with the potential to enhance learning outcomes and better prepare students for contemporary challenges, its implementation in Uganda's lower secondary education has been fraught with significant obstacles that threaten to undermine its intended benefits. Teachers report inadequate training and limited understanding of competency-based pedagogy, resulting in inconsistent application of learner-centered instructional approaches across schools. Many educators continue to rely on traditional teaching methods despite curriculum requirements, creating a disconnect between policy expectations and classroom realities (Julius et al., 2023; Katurebe & Nalukwago, 2024; Mubaraka, 2023). Resource constraints present another critical challenge, with many schools lacking the necessary materials, equipment, and infrastructure to facilitate the practical, hands-on learning experiences central to the CBC philosophy. This is particularly acute in rural schools where access to technology, science laboratories, and even basic teaching aids remains severely limited. Additionally, the assessment framework has not fully evolved to measure competencies effectively, with national examinations still largely emphasizing content recall rather than skill demonstration, creating confusion among teachers and students about learning priorities (Charles et al., 2023; Chemutai et al., 2023; Ma et al., 2022).

Stakeholder resistance and limited community understanding of the CBC further complicate implementation efforts. Parents, school administrators, and even some education officials remain skeptical about the departure from familiar examination-focused approaches, fearing that the new curriculum may compromise students' performance in national examinations. This resistance manifests in pressure on teachers to revert to traditional methods and in limited support for CBC-related activities (Julius & Isaac Kazaara, 2025; O'Sullivan & Ring, 2021). Without a comprehensive

understanding of these implementation challenges and their underlying causes, the Competency-Based Curriculum risks becoming another well-intentioned reform that fails to achieve its transformative potential. There exists a critical need for empirical investigation into the specific obstacles educators face, the support systems available, and the strategies that have proven effective in navigating the implementation process. This study addresses this gap by providing a detailed analysis of the CBC implementation landscape in Uganda's lower secondary education, generating evidence that can inform policy adjustments and practical interventions to ensure the curriculum's successful realization.

### **Main Objective of the Study**

To critically analyze the implementation of the Competency-Based Curriculum in Uganda's lower secondary education system, examining the challenges, opportunities, and strategies for effective delivery.

### **Specific Objectives**

1. To assess the level of teacher preparedness and pedagogical competence in implementing the Competency-Based Curriculum in lower secondary schools in Uganda.
2. To examine the adequacy and effectiveness of teaching and learning resources available for the implementation of the Competency-Based Curriculum in lower secondary education.
3. To investigate the alignment between assessment practices and competency-based learning outcomes in Uganda's lower secondary education system.

### **Research Questions**

1. What is the level of teacher preparedness and pedagogical competence in implementing the Competency-Based Curriculum in lower secondary schools in Uganda?
2. How adequate and effective are the teaching and learning resources available for the implementation of the Competency-Based Curriculum in lower secondary education?
3. To what extent do current assessment practices align with competency-based learning outcomes in Uganda's lower secondary education system?

### **Research Hypotheses**

**H<sub>1</sub>:** There is a significant positive relationship between teacher training in competency-based pedagogy and the effective implementation of the Competency-Based Curriculum in lower secondary schools.

**H<sub>2</sub>:** Schools with adequate teaching and learning resources demonstrate significantly better implementation outcomes of the Competency-Based Curriculum compared to schools with inadequate resources.

**H<sub>3</sub>:** There is a significant discrepancy between current assessment practices and the competency-based learning outcomes prescribed in Uganda's lower secondary education curriculum framework.

### **Methodology**

This study employed a mixed-methods research design, combining quantitative and qualitative approaches to comprehensively examine the implementation of the Competency-Based Curriculum in Uganda's lower secondary education system. The research was conducted across 45 secondary schools randomly selected from five educational districts in Uganda, representing urban, peri-urban, and rural settings to ensure geographical diversity and representativeness. Using G\*Power software for sample size determination with an assumed effect size of 0.30, alpha

level of 0.05, and desired statistical power of 80%, the study recruited 385 teachers, 60 head teachers, 30 curriculum developers and education officers from the National Curriculum Development Centre and District Education Offices, and 800 students from Senior 2 to Senior 4 classes. Data collection involved structured questionnaires administered to teachers and students to assess pedagogical preparedness, resource availability, and assessment practices; semi-structured interviews conducted with head teachers, curriculum developers, and education officers to explore implementation challenges and strategies; classroom observations using a standardized observation protocol to evaluate actual teaching practices and learner engagement; and document analysis of lesson plans, schemes of work, assessment tools, and student performance records.

Quantitative data were analyzed using SPSS version 26, employing descriptive statistics (frequencies, percentages, means, and standard deviations) to summarize demographic characteristics and key variables; Pearson correlation coefficients to examine relationships between teacher training and implementation effectiveness; independent samples t-tests and one-way ANOVA to compare implementation outcomes across schools with varying resource levels; multiple linear regression analysis to identify predictors of successful CBC implementation; and chi-square tests to assess the alignment between assessment practices and competency-based learning outcomes. Qualitative data from interviews and open-ended questionnaire items were transcribed verbatim, coded using NVivo software, and analyzed thematically using Braun and Clarke's six-phase thematic analysis framework to identify patterns, themes, and sub-themes related to implementation experiences, challenges, and facilitating factors. Triangulation of quantitative and qualitative findings was conducted to enhance validity and provide a comprehensive understanding of the implementation landscape. Ethical approval was obtained from the institutional review board, and informed consent was secured from all participants, with assurances of confidentiality, anonymity, and voluntary participation. Reliability of the research instruments was established through pilot testing with 30 teachers and 50 students from non-sampled schools, yielding Cronbach's alpha coefficients ranging from 0.78 to 0.89 for the various scales, while content validity was ensured through expert review by education researchers and curriculum specialists (Nelson et al., 2022, 2023).

**Results**

**Table 1: Demographic Characteristics of Teacher Respondents (N=385)**

Characteristic	Category	Frequency	Percentage
<b>Gender</b>	Male	218	56.6
	Female	167	43.4
<b>Age Group</b>	25-30 years	89	23.1
	31-40 years	156	40.5
	41-50 years	98	25.5
	Above 50 years	42	10.9
<b>Teaching Experience</b>	1-5 years	112	29.1
	6-10 years	134	34.8
	11-15 years	87	22.6

	Above 15 years	52	13.5
<b>Highest Qualification</b>	Diploma	145	37.7
	Bachelor's Degree	198	51.4
	Master's Degree	42	10.9
<b>CBC Training Received</b>	Yes	187	48.6
	No	198	51.4
<b>School Location</b>	Urban	128	33.2
	Peri-urban	115	29.9
	Rural	142	36.9

**Interpretation of Demographic Characteristics**

The demographic profile of the 385 teacher respondents revealed a relatively balanced gender distribution, with males constituting 56.6% (n=218) and females 43.4% (n=167) of the sample, reflecting the general composition of secondary school teachers in Uganda. The age distribution showed that the majority of teachers (40.5%, n=156) were between 31-40 years, representing a mature workforce with substantial career prospects, while younger teachers aged 25-30 years comprised 23.1% (n=89) and those above 50 years represented only 10.9% (n=42). In terms of teaching experience, the largest proportion of respondents (34.8%, n=134) had 6-10 years of experience, followed by those with 1-5 years (29.1%, n=112), suggesting a workforce with moderate experience levels that could potentially be receptive to pedagogical innovations. Educational qualifications indicated that the majority held bachelor's degrees (51.4%, n=198), while 37.7% (n=145) possessed diplomas and only 10.9% (n=42) had attained master's degrees, highlighting a need for advanced professional development opportunities in the teaching force.

A critical finding from the demographic data was that slightly more than half of the respondents (51.4%, n=198) had not received any formal training in the Competency-Based Curriculum, compared to 48.6% (n=187) who had received such training. This near-even split was concerning given that the CBC had been officially rolled out, suggesting significant gaps in teacher preparation that could undermine implementation effectiveness. The geographical distribution of schools showed that rural schools accounted for the largest proportion (36.9%, n=142), followed by urban schools (33.2%, n=128) and peri-urban schools (29.9%, n=115), ensuring adequate representation across different contexts. This demographic landscape was particularly important for understanding implementation variations, as teachers with limited experience, lower qualifications, and absence of CBC-specific training, especially in resource-constrained rural settings, were likely to face greater challenges in transitioning from traditional pedagogical approaches to the competency-based framework, thereby necessitating targeted interventions in professional development and ongoing support systems.

**Table 2: Teacher Preparedness and Pedagogical Competence in CBC Implementation (N=385)**

Variable	Mean (SD)	Min-Max	Low Level n(%)	Moderate Level n(%)	High Level n(%)
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Understanding of CBC principles	2.68 (0.84)	1-5	98 (25.5%)	201 (52.2%)	86 (22.3%)
Knowledge of learner-centered methods	2.54 (0.91)	1-5	124 (32.2%)	178 (46.2%)	83 (21.6%)
Ability to develop competency-based lesson plans	2.41 (0.88)	1-5	142 (36.9%)	169 (43.9%)	74 (19.2%)
Skills in facilitating active learning	2.73 (0.79)	1-5	79 (20.5%)	215 (55.8%)	91 (23.6%)
Competence in competency-based assessment	2.36 (0.93)	1-5	156 (40.5%)	155 (40.3%)	74 (19.2%)
Confidence in CBC implementation	2.49 (0.87)	1-5	131 (34.0%)	183 (47.5%)	71 (18.4%)
<b>Overall Teacher Preparedness Score</b>	<b>2.54 (0.72)</b>	<b>1-5</b>	<b>122 (31.7%)</b>	<b>187 (48.6%)</b>	<b>76 (19.7%)</b>

Note: Scale: 1=Very Low, 2=Low, 3=Moderate, 4=High, 5=Very High

#### Correlation between CBC Training and Teacher Preparedness

- Pearson correlation coefficient:  $r = 0.547$ ,  $p < 0.001$
- Teachers with CBC training ( $M=3.12$ ,  $SD=0.68$ ) vs. Without training ( $M=2.01$ ,  $SD=0.51$ );  $t(383) = 16.34$ ,  $p < 0.001$ , Cohen's  $d = 1.82$

#### Statistical Interpretation of Teacher Preparedness

The quantitative assessment of teacher preparedness and pedagogical competence revealed moderate to low levels across all measured dimensions, with the overall teacher preparedness score averaging 2.54 ( $SD=0.72$ ) on a 5-point scale. The distribution showed that nearly one-third of teachers (31.7%,  $n=122$ ) demonstrated low preparedness levels, while 48.6% ( $n=187$ ) exhibited moderate preparedness, and only 19.7% ( $n=76$ ) achieved high preparedness for CBC implementation. Among the specific competencies examined, teachers scored highest in skills for facilitating active learning ( $M=2.73$ ,  $SD=0.79$ ) and understanding of CBC principles ( $M=2.68$ ,  $SD=0.84$ ), suggesting some foundational awareness of the curriculum's philosophical underpinnings. However, critical implementation competencies such as competency-based assessment ( $M=2.36$ ,  $SD=0.93$ ) and ability to develop competency-based lesson plans ( $M=2.41$ ,  $SD=0.88$ ) yielded the lowest mean scores, with 40.5% and 36.9% of teachers respectively demonstrating low competence in these areas. The independent samples t-test revealed a statistically significant difference in overall preparedness between teachers who received CBC training ( $M=3.12$ ,  $SD=0.68$ ) and those who did not ( $M=2.01$ ,  $SD=0.51$ ), with  $t(383) = 16.34$ ,  $p < 0.001$ , and a large effect size (Cohen's  $d = 1.82$ ), indicating that training had a substantial practical impact on teacher preparedness.

The strong positive correlation between CBC training and teacher preparedness ( $r = 0.547$ ,  $p < 0.001$ ) was statistically significant and represented a large effect size, explaining approximately 30% of the variance in teacher preparedness levels. This finding provided robust empirical evidence supporting the first hypothesis that teacher training in competency-based pedagogy significantly influences implementation effectiveness. However, the relatively low mean

scores across all competency dimensions, even among trained teachers, suggested that the training provided may have been insufficient in duration, depth, or practical application. The particularly weak performance in competency-based assessment was alarming, as assessment drives learning and teaching practices in any educational system; without adequate assessment competence, teachers were likely to revert to traditional knowledge-testing methods, thereby undermining the entire CBC philosophy. The moderate confidence levels in CBC implementation (M=2.49, SD=0.87), with 34% of teachers expressing low confidence, indicated significant psychological barriers to effective implementation beyond mere technical skills. These findings aligned with implementation science literature that emphasized the importance of not only knowledge and skills but also self-efficacy in driving behavioral change among practitioners. The data strongly suggested that Uganda's CBC implementation required a more comprehensive, sustained, and practice-oriented professional development program that extended beyond one-time workshops to include ongoing mentorship, peer learning communities, and classroom-based support to build both competence and confidence among teachers in diverse school contexts.

**Table 3: Adequacy and Effectiveness of Teaching and Learning Resources (N=45 Schools)**

Resource Category	Schools with Adequate Resources n(%)	Schools with Inadequate Resources n(%)	Mean Availability Score (SD)	Mean Effectiveness Rating (SD)
Textbooks and reference materials	18 (40.0%)	27 (60.0%)	2.31 (1.08)	2.54 (0.89)
Science laboratory equipment	12 (26.7%)	33 (73.3%)	1.87 (0.94)	2.12 (0.96)
ICT facilities and digital resources	9 (20.0%)	36 (80.0%)	1.64 (0.88)	1.89 (0.91)
Teaching aids and learning materials	15 (33.3%)	30 (66.7%)	2.18 (1.02)	2.43 (0.87)
Library facilities	21 (46.7%)	24 (53.3%)	2.47 (1.13)	2.69 (0.94)
Sports and co-curricular equipment	16 (35.6%)	29 (64.4%)	2.24 (1.06)	2.51 (0.88)
<b>Overall Resource Adequacy</b>	<b>14 (31.1%)</b>	<b>31 (68.9%)</b>	<b>2.12 (0.85)</b>	<b>2.36 (0.74)</b>

Note: Availability Scale: 1=Very Inadequate, 2=Inadequate, 3=Moderate, 4=Adequate, 5=Very Adequate  
Effectiveness Rating Scale: 1=Very Ineffective, 2=Ineffective, 3=Moderately Effective, 4=Effective, 5=Very Effective

**Comparison of CBC Implementation Outcomes by Resource Levels:**

Implementation Outcome	Schools with Adequate Resources (n=14) M(SD)	Schools with Inadequate Resources (n=31) M(SD)	t-value	p-value	Cohen's d
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Quality of lesson delivery	3.67 (0.73)	2.41 (0.68)	5.89	<0.001	1.79
Student engagement levels	3.84 (0.68)	2.38 (0.71)	6.78	<0.001	2.10
Competency development	3.52 (0.79)	2.29 (0.65)	5.63	<0.001	1.70
Overall implementation success	3.68 (0.64)	2.36 (0.59)	7.12	<0.001	2.15

**Statistical Interpretation of Resource Adequacy**

The assessment of teaching and learning resources across the 45 schools revealed severe inadequacies that significantly constrained CBC implementation, with only 31.1% (n=14) of schools possessing adequate overall resources while the majority (68.9%, n=31) operated with inadequate resources. The mean overall resource adequacy score of 2.12 (SD=0.85) fell substantially below the moderate level, indicating systematic resource deficits across the education system. Specific resource categories demonstrated alarming gaps, particularly in critical areas for competency-based learning: ICT facilities and digital resources were adequate in only 20% (n=9) of schools with a mean availability score of 1.64 (SD=0.88), science laboratory equipment was adequate in 26.7% (n=12) of schools with M=1.87 (SD=0.94), and teaching aids and learning materials were adequate in just 33.3% (n=15) of schools with M=2.18 (SD=1.02). Even basic textbooks and reference materials, fundamental for any educational delivery, were adequate in only 40% of schools (n=18), while library facilities showed relatively better availability at 46.7% (n=21), though still inadequate for the majority. The mean effectiveness ratings for available resources (M=2.36, SD=0.74) suggested that even where resources existed, their quality and appropriateness for competency-based instruction were questionable, falling below the moderate effectiveness threshold.

The comparative analysis of implementation outcomes between schools with adequate versus inadequate resources provided compelling evidence for the second hypothesis, revealing statistically significant differences across all measured outcomes with large to very large effect sizes. Schools with adequate resources demonstrated substantially higher quality of lesson delivery (M=3.67, SD=0.73) compared to those with inadequate resources (M=2.41, SD=0.68), with  $t(43)=5.89$ ,  $p<0.001$ , and Cohen's  $d=1.79$ . The most pronounced difference emerged in student engagement levels, where well-resourced schools scored M=3.84 (SD=0.68) versus M=2.38 (SD=0.71) in under-resourced schools, with  $t(43)=6.78$ ,  $p<0.001$ , and an exceptionally large effect size of Cohen's  $d=2.10$ , indicating that resource availability had a profound practical impact on learner participation and involvement. Similarly, competency development outcomes showed significant disparities ( $t(43)=5.63$ ,  $p<0.001$ , Cohen's  $d=1.70$ ), as did overall implementation success ( $t(43)=7.12$ ,  $p<0.001$ , Cohen's  $d=2.15$ ), with well-resourced schools achieving mean scores in the "high" range while under-resourced schools remained in the "low" range. These findings definitively confirmed that resource adequacy was not merely a facilitating factor but a critical determinant of CBC implementation success. The particularly severe deficits in ICT infrastructure and science equipment were especially problematic given the CBC's emphasis on digital literacy, practical skills, and experiential learning—competencies that could not be

adequately developed through traditional chalk-and-talk methods alone. The data illuminated a troubling reality: Uganda's ambitious curriculum reform was being implemented in an environment characterized by systemic resource poverty, creating a fundamental mismatch between policy expectations and operational capacity that threatened to transform the CBC into an aspirational document rather than a lived classroom reality, particularly in rural and disadvantaged schools that bore the brunt of resource inadequacies.

**Table 4: Alignment Between Assessment Practices and Competency-Based Learning Outcomes (N=385)**

Assessment Practice	Frequency of Use n(%)	Alignment with CBC Outcomes M(SD)	Challenges Reported n(%)
<b>Current Assessment Methods Used:</b>			
Traditional written examinations	362 (94.0%)	1.89 (0.76)	289 (75.1%)
Multiple choice tests	341 (88.6%)	2.12 (0.83)	256 (66.5%)
Practical demonstrations	156 (40.5%)	3.67 (0.89)	198 (51.4%)
Project-based assessments	128 (33.2%)	3.84 (0.92)	231 (60.0%)
Portfolio assessments	87 (22.6%)	3.72 (0.95)	267 (69.4%)
Peer and self-assessments	94 (24.4%)	3.58 (0.88)	253 (65.7%)
Continuous assessment	234 (60.8%)	2.94 (1.02)	187 (48.6%)
Oral presentations	178 (46.2%)	3.41 (0.86)	176 (45.7%)

Note: Alignment Scale: 1=Very Poor Alignment, 2=Poor Alignment, 3=Moderate Alignment, 4=Good Alignment, 5=Very Good Alignment

**Chi-Square Analysis of Assessment Practice vs. CBC Requirements:**

Assessment Type	Observed Use Frequency	Expected Use (CBC Standards)	$\chi^2$	p-value
Traditional examinations	94.0%	30.0%	267.43	<0.001
Competency-based methods*	35.2%	70.0%	189.56	<0.001

\*Competency-based methods include: practical demonstrations, projects, portfolios, peer/self-assessment

**Regression Analysis: Predictors of Effective CBC Implementation (N=385)**

Predictor Variable	B	SE	$\beta$	t	p-value	95% CI
Constant	0.847	0.234	-	3.62	<0.001	[0.388, 1.306]
Teacher CBC training	0.621	0.087	0.398	7.14	<0.001	[0.450, 0.792]
Resource adequacy	0.543	0.091	0.341	5.97	<0.001	[0.364, 0.722]
Assessment alignment	0.387	0.079	0.256	4.90	<0.001	[0.232, 0.542]
Teaching experience	0.156	0.068	0.119	2.29	0.023	[0.022, 0.290]

School location (urban)	0.289	0.102	0.147	2.83	0.005	[0.088, 0.490]
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*Model Summary:  $R^2 = 0.624$ , Adjusted  $R^2 = 0.619$ ,  $F(5, 379) = 125.84$ ,  $p < 0.001$*

### Statistical Interpretation of Assessment Practices

The examination of assessment practices revealed a profound misalignment between current classroom assessment methods and the competency-based learning outcomes prescribed in the CBC framework, providing strong evidence in support of the third hypothesis. The data demonstrated that teachers overwhelmingly relied on traditional assessment methods, with 94.0% (n=362) regularly using conventional written examinations and 88.6% (n=341) employing multiple choice tests, despite these methods showing poor alignment with CBC outcomes (M=1.89, SD=0.76 and M=2.12, SD=0.83 respectively). In stark contrast, assessment methods that authentically measured competencies—such as project-based assessments (M=3.84, SD=0.92), practical demonstrations (M=3.67, SD=0.89), portfolio assessments (M=3.72, SD=0.95), and peer/self-assessments (M=3.58, SD=0.88)—were utilized by only a minority of teachers, ranging from 22.6% to 40.5%. The chi-square analysis confirmed a statistically significant discrepancy between observed and expected assessment practices ( $\chi^2=267.43$ ,  $p<0.001$  for traditional examinations;  $\chi^2=189.56$ ,  $p<0.001$  for competency-based methods), indicating that actual classroom assessment practices deviated substantially from CBC requirements. Furthermore, the majority of teachers (60.0-75.1%) reported significant challenges in implementing competency-based assessments, citing factors such as large class sizes, time constraints, lack of assessment tools, and pressure to prepare students for national examinations that remained largely knowledge-focused.

The multiple regression analysis provided crucial insights into the relative importance of various factors influencing effective CBC implementation, with the overall model explaining 62.4% of the variance in implementation success ( $R^2=0.624$ ,  $F(5,379)=125.84$ ,  $p<0.001$ ), indicating robust predictive validity. Teacher CBC training emerged as the strongest predictor ( $\beta=0.398$ ,  $p<0.001$ ), followed by resource adequacy ( $\beta=0.341$ ,  $p<0.001$ ) and assessment alignment ( $\beta=0.256$ ,  $p<0.001$ ), all demonstrating statistically significant positive relationships with implementation effectiveness. The standardized beta coefficients revealed that for every one standard deviation increase in teacher training quality, implementation success increased by 0.398 standard deviations, holding other variables constant. Resource adequacy similarly exerted substantial influence, while assessment alignment, though significant, showed a relatively smaller effect size, possibly because assessment practices were themselves constrained by teacher competence and resource availability. Teaching experience ( $\beta=0.119$ ,  $p=0.023$ ) and urban school location ( $\beta=0.147$ ,  $p=0.005$ ) were also significant predictors, though with smaller effect sizes, suggesting that experienced teachers and those in better-resourced urban settings achieved marginally better implementation outcomes. These findings illuminated a critical systemic failure: despite the CBC's emphasis on competency demonstration, the assessment culture remained stubbornly anchored in traditional examination paradigms, creating a fundamental contradiction at the heart of the reform. Teachers faced a double bind—policy documents demanded competency-based assessment, yet national examinations, which determined student progression and school rankings, continued to emphasize content recall, creating powerful incentives to maintain traditional teaching and assessment practices. This assessment misalignment effectively undermined the entire CBC implementation, as research consistently demonstrated that assessment shapes what teachers teach and what students learn. The combined evidence from this study strongly

indicated that successful CBC implementation required a comprehensive, integrated approach addressing teacher preparation, resource provision, and assessment reform simultaneously, as these factors operated synergistically rather than independently to determine implementation success or failure.

### **Conclusion**

This study critically analyzed the implementation of the Competency-Based Curriculum in Uganda's lower secondary education system, examining teacher preparedness, resource adequacy, and assessment alignment as key determinants of implementation success. The findings revealed that teacher preparedness and pedagogical competence remained at moderate to low levels, with only 19.7% of teachers demonstrating high preparedness for CBC implementation and a concerning 51.4% having received no formal training in competency-based pedagogy. The strong positive correlation ( $r=0.547$ ,  $p<0.001$ ) between CBC training and teacher preparedness, coupled with the large effect size (Cohen's  $d=1.82$ ) observed in the comparative analysis, definitively confirmed the first objective and demonstrated that teacher training constituted a critical prerequisite for effective implementation. However, the relatively low competency scores even among trained teachers, particularly in competency-based assessment ( $M=2.36$ ,  $SD=0.93$ ) and lesson planning ( $M=2.41$ ,  $SD=0.88$ ), indicated that existing training programs were insufficient in depth, duration, and practical application. Regarding the second objective, the study established that teaching and learning resources were severely inadequate across 68.9% of schools, with particularly alarming deficits in ICT facilities (adequate in only 20% of schools), science laboratory equipment (adequate in 26.7% of schools), and teaching aids (adequate in 33.3% of schools). The statistically significant differences in implementation outcomes between well-resourced and under-resourced schools, with exceptionally large effect sizes ranging from Cohen's  $d=1.70$  to  $d=2.15$ , provided compelling evidence that resource adequacy was not merely facilitative but fundamentally determinative of CBC implementation success, affecting lesson delivery quality, student engagement, competency development, and overall implementation effectiveness.

Addressing the third objective, the study uncovered a profound misalignment between current assessment practices and competency-based learning outcomes, with 94% of teachers predominantly using traditional written examinations despite their poor alignment with CBC principles ( $M=1.89$ ,  $SD=0.76$ ), while authentic competency-based assessment methods were employed by only 22.6% to 40.5% of teachers. The chi-square analysis confirmed statistically significant discrepancies ( $\chi^2=267.43$ ,  $p<0.001$ ) between observed and expected assessment practices, validating the third hypothesis that current assessment systems were incompatible with CBC requirements. The multiple regression analysis synthesized these findings by demonstrating that teacher training ( $\beta=0.398$ ), resource adequacy ( $\beta=0.341$ ), and assessment alignment ( $\beta=0.256$ ) collectively explained 62.4% of the variance in implementation success, establishing them as interconnected and mutually reinforcing determinants of effective CBC implementation. The overall evidence painted a sobering picture of Uganda's CBC implementation: a theoretically sound curriculum reform was being implemented within a system characterized by inadequately prepared teachers, severe resource constraints, and persistent reliance on traditional assessment methods that directly contradicted the curriculum's philosophical foundations. These systemic challenges created what was aptly termed an "implementation labyrinth"—a complex web of interconnected obstacles that transformed the CBC from a transformative educational innovation into a

partially realized aspiration, particularly in rural and under-resourced schools where implementation gaps were most pronounced. Without comprehensive, sustained, and integrated interventions addressing teacher development, resource provision, and assessment reform simultaneously, the CBC risked joining the catalogue of well-intentioned but poorly implemented education reforms that failed to achieve their transformative potential in Uganda's education system.

### **Recommendations**

**Establish a Comprehensive and Sustained Teacher Professional Development Program:** The Ministry of Education and Sports, in collaboration with the National Curriculum Development Centre, should design and implement an intensive, practice-oriented teacher professional development program that extends beyond one-time workshops to include ongoing mentorship, classroom-based coaching, and professional learning communities. This program should prioritize competency-based pedagogy, particularly in assessment design and implementation, and should be mandatory for all lower secondary teachers, with certification requirements tied to demonstrated classroom competence rather than mere attendance. Given that the study found only 48.6% of teachers had received CBC training and that even trained teachers exhibited moderate competence levels, the professional development initiative should incorporate sustained support mechanisms including monthly school-based mentoring, peer observation protocols, and digital learning platforms providing continuous access to resources, exemplar lessons, and expert guidance to build both technical skills and implementation confidence among teachers across diverse school contexts.

**Prioritize Strategic Resource Allocation with Emphasis on Equity and Adequacy:** The government should significantly increase budgetary allocations to lower secondary education, specifically targeting the provision of essential teaching and learning resources including ICT infrastructure, science laboratory equipment, textbooks, and teaching aids, with deliberate prioritization of rural and under-resourced schools to address the profound inequities revealed in this study. Given that 68.9% of schools operated with inadequate resources and that resource adequacy demonstrated a very large effect on implementation outcomes (Cohen's  $d$  ranging from 1.70 to 2.15), a phased resource enhancement plan should be developed with clear targets, timelines, and accountability mechanisms.

**Reform the Assessment System to Align National Examinations with Competency-Based Learning Outcomes:** The Uganda National Examinations Board (UNEB), in partnership with the National Curriculum Development Centre, should urgently undertake comprehensive reform of the national examination system to incorporate authentic competency-based assessment methods including practical demonstrations, project work, portfolios, and performance tasks that genuinely measure the competencies outlined in the CBC framework. Given the finding that 94% of teachers relied on traditional examinations due to misalignment between CBC requirements and national assessment practices, this reform should be accompanied by clear assessment guidelines, exemplar assessment tasks, marking rubrics, and teacher training in competency-based assessment design and scoring.

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