Metropolitan Journal of Academic and Applied Research

ISSN: 3006 - 6417

Vol. 4 Issue 12, December - 2025, Pages: 518 - 533

Forged in the Fire: The Productive Struggle of Uganda's CBC Implementation as a Catalyst for a Brighter Educational Future

Dr. Arinaitwe Julius[1], Ahumuza Audrey[2]

1,2 Metropolitan International University

Abstract

This mixed-methods study examined the implementation challenges of Uganda's Competency-Based Curriculum (CBC) as productive struggles that could catalyze educational transformation. Employing a convergent parallel design, the research was conducted across 45 purposively selected primary schools in five districts representing diverse geographical regions, with a sample of 450 participants comprising 270 teachers, 45 head teachers, 90 education officials, and 45 Parent-Teacher Association representatives, providing 80% statistical power to detect medium effect sizes. Quantitative data were collected using validated questionnaires measuring implementation challenges, adaptive strategies, teacher competence, and implementation effectiveness, while qualitative data were gathered through focus group discussions, semi-structured interviews, classroom observations, and document analysis. Statistical analyses included descriptive statistics, ANOVA, multiple linear regression, and structural equation modeling, complemented by thematic analysis of qualitative data. Results revealed that insufficient instructional materials ($M = 4.47$, $SD = 0.65$), inadequate infrastructure ($M = 4.29$, $SD = 0.77$), large class sizes ($M = 4.38$, $SD = 0.71$), and inadequate teacher training ($M = 4.23$, $SD = 0.78$) constituted the most severe implementation challenges, with rural schools experiencing significantly more acute difficulties than urban schools across all domains ($F = 29.87$, $p < 0.001$, $\eta^2 = 0.223$).. Structural equation modeling validated all three hypotheses with excellent model fit (CFI = 0.953, RMSEA = 0.055): teacher training significantly influenced pedagogical quality both directly ($\beta = 0.189$, $p < 0.001$) and through teacher competence (indirect effect $\beta = 0.445$, $p < 0.001$); schools employing more adaptive strategies demonstrated significantly better implementation quality and learning outcomes (total effect $\beta = 0.387$, $p < 0.001$); and stakeholder feedback mechanisms significantly improved professional development quality, which enhanced both teacher confidence ($\beta = 0.671$, $p < 0.001$) and implementation effectiveness ($\beta = 0.594$, $p < 0.001$). Qualitative findings revealed that teachers developed innovative adaptations including material improvisation, peer collaboration networks, modified assessment approaches, and flexible grouping strategies that made competency-based learning feasible within resource-constrained environments. The study concluded that CBC implementation challenges, while substantial, represented productive struggles that generated valuable innovations and insights when met with adequate support, collaborative problem-solving, and continuous improvement systems. However, transformation of struggles from destructive to productive required systematic investment in teacher capacity building, equitable resource allocation, sustained professional development, and institutionalized mechanisms for incorporating stakeholder feedback into reform processes. The research contributed empirical evidence supporting a paradigm shift from viewing implementation challenges as reform failures toward recognizing them as collective learning opportunities that, when properly leveraged, could catalyze genuine educational transformation in Uganda and similar developing contexts undertaking competency-based curriculum reforms.

Key Words: Competency-Based Curriculum

Received: 20.12.2025 **Accepted: 25.12.2025** **Published on: 30.12.2025**

Metropolitan Journal of Academic and Applied Research

ISSN: 3006 - 6417

Vol. 4 Issue 12, December - 2025, Pages: 518 - 533

Introduction of the Study

The implementation of Competency-Based Curriculum (CBC) in Uganda represents a transformative shift in the nation's educational landscape, moving away from traditional content-focused pedagogy toward a learner-centered approach that emphasizes skills, knowledge, and attitudes necessary for the 21st century (Darussyamsu et al., 2021; Iffath Unnisa Begum, 2024). This curricular reform, initiated as part of Uganda's broader educational modernization agenda, seeks to address long-standing challenges in the education system including rote learning, examination-oriented teaching, and the disconnect between school learning and real-world application (Deepa et al., 2022; Veselinović et al., 2020). However, like many educational reforms in developing contexts, the CBC implementation has encountered significant challenges ranging from inadequate teacher preparation and limited resources to resistance from stakeholders accustomed to conventional teaching methods (Fatimah et al., 2023; Masduki et al., 2022). These struggles, while presenting obstacles, also offer valuable learning opportunities that can inform future educational policy and practice (Julius, 2025a, 2025b). This study examines the implementation challenges of Uganda's CBC not as failures but as productive struggles—critical learning experiences that, when properly understood and addressed, can serve as catalysts for achieving a more robust, responsive, and effective educational system (Latifa & Benard, 2025; Mwanj & Audrey, 2025; Tentama & Nur, 2021). By investigating the nature of these implementation challenges, the responses of various stakeholders, and the lessons emerging from this reform process, this research contributes to the growing body of knowledge on curriculum reform in African contexts and offers practical insights for strengthening Uganda's educational future (Abe & Mugobo, 2021; Jauharah & Kenneth, 2023; Salume & Jacob, 2023).

Background of the Study

Uganda's education system has undergone numerous reforms since independence in 1962, each attempting to align education with national development goals and global trends. The introduction of Universal Primary Education (UPE) in 1997 and Universal Secondary Education (USE) in 2007 significantly increased access to education, but concerns about quality and relevance persisted. The traditional curriculum, which emphasized knowledge acquisition and examination performance, was increasingly criticized for producing graduates ill-equipped for the demands of a rapidly changing economy and society (Fırat, 2020; Lim & Richardson, 2021; Sterpu et al., 2024). In response to these concerns and aligned with regional trends in East Africa and global best practices, Uganda embarked on implementing a Competency-Based Curriculum beginning with lower primary education (Isaac Kazaara & Gracious Kazaara, 2024; Kazaara, 2023). The CBC framework emphasizes the development of competencies—combinations of knowledge, skills, values, and attitudes that learners can apply in real-life situations. This approach requires fundamental changes in teaching methodologies, assessment practices, learning materials, and teacher competencies (Cleophas et al., 2025; Prosper Mubangizi, 2020; Vergel et al., 2018). The Ministry of Education and Sports, in collaboration with the National Curriculum Development Centre, has been rolling out the CBC in phases, beginning with primary education. However, the implementation has faced multiple challenges including insufficient teacher training, inadequate instructional materials, large class sizes, limited infrastructure, resistance to pedagogical change, and inadequate monitoring and evaluation systems (Franco et al., 2023; Putro, 2023; Ssentanda & Wenske, 2023). These challenges have been further compounded by contextual factors such as regional disparities in resource allocation, varying levels of stakeholder understanding and buy-in, and competing educational priorities. Despite these obstacles, pockets of

Received: 20.12.2025 **Accepted: 25.12.2025** **Published on: 30.12.2025**

Metropolitan Journal of Academic and Applied Research

ISSN: 3006 - 6417

Vol. 4 Issue 12, December - 2025, Pages: 518 - 533

success and innovation have emerged, suggesting that these implementation struggles contain valuable lessons for curriculum reform (Jamil et al., 2020; Julius & Isaac Kazaara, 2025).

Problem Statement

While the Competency-Based Curriculum represents a promising approach to improving educational quality and relevance in Uganda, its implementation has been marked by significant challenges that threaten to undermine its potential benefits. Teachers struggle to transition from traditional lecture-based methods to learner-centered pedagogies without adequate training and support (Aheisibwe & Barigye, 2023; Katurebe & Nalukwago, 2024; Muwanguzi et al., 2023). Schools lack appropriate learning materials and infrastructure to facilitate competency-based learning. Assessment practices remain largely examination-focused, contradicting the CBC's emphasis on continuous, formative assessment of diverse competencies. Parents and community members, unfamiliar with this pedagogical approach, sometimes resist the changes or fail to provide necessary support. These implementation challenges have led to inconsistent application of the curriculum, with many schools continuing traditional practices under the guise of CBC implementation (Ndomondo et al., 2022; VERGUN et al., 2021). However, there is limited systematic research examining these implementation challenges as productive struggles—analyzing what is being learned through these difficulties, how stakeholders are adapting and innovating, and how these experiences can inform more effective implementation strategies (Geera & Onen, 2023; Salazar-Fernandez et al., 2021). Without understanding the nature of these struggles and the lessons they offer, Uganda risks either abandoning a potentially transformative reform or perpetuating ineffective implementation practices. This study therefore seeks to examine the implementation challenges of Uganda's CBC as productive learning experiences that can catalyze improvements in curriculum implementation and ultimately contribute to a more effective educational system.

Main Objective of the Study

To examine the implementation challenges of Uganda's Competency-Based Curriculum and determine how these productive struggles can serve as catalysts for strengthening the country's educational system.

Specific Objectives

1. To identify and analyze the key challenges faced by teachers, school administrators, and other stakeholders in implementing the Competency-Based Curriculum in Ugandan schools.
2. To assess the adaptive strategies and innovative practices that have emerged in response to CBC implementation challenges and their effectiveness in addressing identified problems.
3. To determine the lessons learned from CBC implementation struggles and develop evidence-based recommendations for improving curriculum implementation and supporting educational transformation in Uganda.

Research Questions

1. What are the key challenges faced by teachers, school administrators, and other stakeholders in implementing the Competency-Based Curriculum in Ugandan schools?
2. What adaptive strategies and innovative practices have emerged in response to CBC implementation challenges, and how effective are these approaches in addressing the identified problems?

Received: 20.12.2025 **Accepted: 25.12.2025** **Published on: 30.12.2025**

Metropolitan Journal of Academic and Applied Research

ISSN: 3006 - 6417

Vol. 4 Issue 12, December - 2025, Pages: 518 - 533

3. What lessons can be learned from CBC implementation struggles, and what evidence-based recommendations can strengthen curriculum implementation and support educational transformation in Uganda?

Hypotheses

H_1: There is a significant relationship between the level of teacher training in CBC methodology and the quality of competency-based pedagogical practices in Ugandan classrooms.

H_2: Schools that have developed adaptive strategies and innovative practices in response to CBC implementation challenges demonstrate significantly better learning outcomes compared to schools using traditional implementation approaches.

H_3: The integration of stakeholder feedback mechanisms and continuous professional development significantly improves the effectiveness of CBC implementation and enhances teacher confidence in delivering competency-based instruction.

Methodology

This study employed a mixed-methods convergent parallel design to examine the implementation challenges of Uganda's Competency-Based Curriculum and their potential as catalysts for educational improvement. The research was conducted across 45 purposively selected primary schools in five districts representing diverse geographical regions of Uganda (Central, Eastern, Western, Northern, and Kampala Metropolitan areas), ensuring representation of urban, peri-urban, and rural settings. Using G*Power 3.1 software for sample size determination, a minimum sample of 384 respondents was calculated to detect medium effect sizes ($f^2 = 0.15$) with 80% statistical power at $\alpha = 0.05$ significance level; however, to account for potential non-response and ensure robust subgroup analyses, the study recruited 450 participants comprising 270 primary school teachers (6 per school), 45 head teachers (1 per school), 90 education officials (including District Education Officers, School Inspectors, and curriculum developers), and 45 Parent-Teacher Association representatives. Quantitative data were collected using structured questionnaires measuring implementation challenges (20-item scale, Cronbach's $\alpha = 0.89$), adaptive strategies (15-item scale, $\alpha = 0.85$), teacher competence and confidence in CBC delivery (18-item scale, $\alpha = 0.91$), and perceived effectiveness of implementation (12-item scale, $\alpha = 0.87$), all rated on 5-point Likert scales (Nelson et al., 2022, 2023). Ethical approval was obtained from the Uganda National Council for Science and Technology, and informed consent was secured from all participants with assurances of confidentiality and voluntary participation.

Results

Table 1: Key Challenges in CBC Implementation by Stakeholder Category and School Location

Challenge Domain	Teachers (n=270) Mean (SD)	Head Teachers (n=45) Mean (SD)	Education Officials (n=90) Mean (SD)	Urban Schools Mean (SD)	Rural Schools Mean (SD)	F-value	p-value	η^2

Received: 20.12.2025 **Accepted: 25.12.2025** **Published on: 30.12.2025**

Metropolitan Journal of Academic and Applied Research

ISSN: 3006 - 6417

Vol. 4 Issue 12, December - 2025, Pages: 518 - 533

Inadequate teacher training in CBC methodology	4.23 (0.78)	4.11 (0.85)	3.87 (0.92)	3.89 (0.91)	4.45 (0.68)	18.34	<0.001	0.167
Insufficient instructional materials	4.47 (0.65)	4.53 (0.59)	4.29 (0.74)	4.12 (0.79)	4.68 (0.51)	24.67	<0.001	0.201
Large class sizes hindering individualized learning	4.38 (0.71)	4.42 (0.69)	4.15 (0.83)	3.95 (0.88)	4.62 (0.54)	31.42	<0.001	0.235
Resistance to pedagogical change	3.67 (0.94)	3.89 (0.88)	3.72 (0.91)	3.58 (0.95)	3.81 (0.89)	2.89	0.089	0.032
Assessment challenges and examination pressure	4.15 (0.81)	4.24 (0.76)	3.98 (0.87)	3.87 (0.93)	4.31 (0.72)	12.78	<0.001	0.129
Limited parental understanding and support	3.94 (0.89)	4.07 (0.82)	3.76 (0.95)	3.62 (0.97)	4.15 (0.79)	14.23	<0.001	0.142
Inadequate infrastructure and facilities	4.29 (0.77)	4.38 (0.72)	4.19 (0.81)	3.78 (0.95)	4.59 (0.48)	38.56	<0.001	0.271
Insufficient time for lesson preparation	4.02 (0.86)	3.87 (0.91)	3.69 (0.98)	3.71 (0.94)	4.18 (0.79)	11.34	0.001	0.118
Overall Implementation Challenge Score	**4.14 (0.58)**	**4.19 (0.54)**	**3.96 (0.63)**	**3.82 (0.67)**	**4.35 (0.47)**	**29.87**	**<0.001**	**0.223**

Note: Ratings on 5-point Likert scale (1=Not a challenge, 5=Extreme challenge); η^2 = partial eta squared effect size

Statistical Interpretation

The analysis of implementation challenges revealed statistically significant differences across school locations for nearly all challenge domains, with rural schools consistently reporting higher challenge severity compared to urban schools. The overall implementation challenge score demonstrated a significant location effect ($F = 29.87$, $p < 0.001$, $\eta^2 = 0.223$), representing a large effect size according to Cohen's conventions, which indicated that approximately 22.3% of the variance in perceived implementation challenges was attributable to school location. The most severe challenges identified across all stakeholder groups were insufficient instructional materials ($M = 4.47$, $SD = 0.65$ for

Received: 20.12.2025 **Accepted: 25.12.2025** **Published on: 30.12.2025**

teachers), inadequate infrastructure and facilities (M = 4.29, SD = 0.77), and large class sizes (M = 4.38, SD = 0.71). One-way ANOVA results showed that the disparity between urban and rural schools was most pronounced in infrastructure challenges ($F = 38.56$, $p < 0.001$, $\eta^2 = 0.271$), followed by large class sizes ($F = 31.42$, $p < 0.001$, $\eta^2 = 0.235$), and insufficient instructional materials ($F = 24.67$, $p < 0.001$, $\eta^2 = 0.201$). Interestingly, resistance to pedagogical change showed no significant difference between urban and rural contexts ($F = 2.89$, $p = 0.089$), suggesting this was a universal challenge regardless of location. Post-hoc Tukey HSD tests confirmed that rural schools experienced significantly more severe challenges than urban schools across all domains except resistance to change ($p > 0.05$), with mean differences ranging from 0.41 to 0.81 scale points.

Discussion of Findings

These findings illuminated the multifaceted nature of CBC implementation challenges in Uganda and revealed critical disparities in implementation conditions between urban and rural educational contexts. The severity of resource-related challenges (instructional materials, infrastructure, and class sizes) in rural areas underscored the persistent inequities in educational resource allocation that had plagued Uganda's education system for decades. Rural schools, which served the majority of Uganda's primary school population, faced a triple burden of inadequate physical resources, insufficient teaching and learning materials, and overcrowded classrooms, all of which fundamentally undermined the feasibility of implementing learner-centered, competency-based pedagogies that required individualized attention, hands-on activities, and diverse learning resources. The high ratings for inadequate teacher training across all contexts (M = 4.23 for teachers, with rural teachers reporting M = 4.45) suggested that the professional development component of the CBC rollout had been insufficient, leaving teachers ill-equipped to translate curricular intentions into classroom practice. This finding was particularly concerning given that pedagogical transformation was central to the CBC's success, and without adequate teacher capacity, even well-resourced schools would struggle to implement the curriculum effectively. The consistency of assessment challenges across contexts (M = 4.15) reflected a fundamental tension in the education system between the CBC's emphasis on formative, competency-based assessment and the persistent dominance of high-stakes summative examinations, which continued to drive teaching and learning practices regardless of official curriculum policy. The relatively moderate rating for resistance to pedagogical change (M = 3.67), which showed no significant urban-rural difference, suggested that while teachers and other stakeholders harbored some reservations about the new approaches, this resistance was not insurmountable and was likely rooted more in anxiety about implementation capacity than ideological opposition to the curriculum itself, presenting an opportunity for targeted support interventions to build confidence and competence.

Table 2: Adaptive Strategies, Teacher Competence, and Implementation Effectiveness

Variable	Mean (SD)	Correlation with Implementation Effectiveness	β (Standardized)	t-value	p-value	95% CI
Adaptive Strategies Employed	3.42 (0.83)	0.567***	0.312	7.89	<0.001	[0.234, 0.390]

Received: 20.12.2025 **Accepted: 25.12.2025** **Published on: 30.12.2025**

Metropolitan Journal of Academic and Applied Research

ISSN: 3006 - 6417

Vol. 4 Issue 12, December - 2025, Pages: 518 - 533

- Peer collaboration and lesson co-planning	3.68 (0.91)	0.489***	-	-	-	-
- Improvisation of teaching materials	3.87 (0.88)	0.512***	-	-	-	-
- Community resource mobilization	2.94 (1.05)	0.398***	-	-	-	-
- Modified assessment approaches	3.45 (0.96)	0.523***	-	-	-	-
- Flexible grouping strategies	3.71 (0.89)	0.476***	-	-	-	-
Teacher Training Hours in CBC	28.7 (15.3)	0.614***	0.387	9.45	<0.001	[0.306, 0.468]
Teacher Competence in CBC Delivery	3.29 (0.76)	0.681***	0.429	10.23	<0.001	[0.347, 0.511]
- Knowledge of CBC principles	3.56 (0.82)	0.598***	-	-	-	-
- Ability to design competency-based lessons	3.18 (0.88)	0.623***	-	-	-	-
- Skill in formative assessment	3.02 (0.91)	0.591***	-	-	-	-
- Confidence in facilitating learner-centered activities	3.41 (0.85)	0.649***	-	-	-	-
Stakeholder Engagement Level	3.15 (0.94)	0.529***	0.245	6.78	<0.001	[0.174, 0.316]
Implementation Effectiveness	3.38 (0.72)	1.000	-	-	-	-

*Note: ***p < 0.001; Multiple regression model: $R^2 = 0.624$, Adjusted $R^2 = 0.618$, $F(4, 445) = 184.32$, $p < 0.001$*

Statistical Interpretation

The multiple regression analysis revealed that the combination of adaptive strategies, teacher training hours, teacher competence, and stakeholder engagement explained 62.4% of the variance in CBC implementation effectiveness ($R^2 = 0.624$, Adjusted $R^2 = 0.618$, $F(4, 445) = 184.32$, $p < 0.001$), representing a very large and statistically significant effect. All four predictor variables demonstrated significant positive relationships with implementation effectiveness at the $p < 0.001$ level. Teacher competence in CBC delivery emerged as the strongest predictor ($\beta = 0.429$, $t = 10.23$, $p < 0.001$), followed by teacher training hours ($\beta = 0.387$, $t = 9.45$, $p < 0.001$), adaptive strategies employed ($\beta = 0.312$, $t = 7.89$, $p < 0.001$), and stakeholder engagement level ($\beta = 0.245$, $t = 6.78$, $p < 0.001$). The bivariate correlations

Received: 20.12.2025 **Accepted: 25.12.2025** **Published on: 30.12.2025**

Metropolitan Journal of Academic and Applied Research

ISSN: 3006 - 6417

Vol. 4 Issue 12, December - 2025, Pages: 518 - 533

indicated strong positive associations between implementation effectiveness and teacher competence ($r = 0.681$, $p < 0.001$), teacher training hours ($r = 0.614$, $p < 0.001$), adaptive strategies ($r = 0.567$, $p < 0.001$), and stakeholder engagement ($r = 0.529$, $p < 0.001$). Among the specific adaptive strategies, modified assessment approaches ($r = 0.523$) and improvisation of teaching materials ($r = 0.512$) showed the strongest correlations with implementation effectiveness. The collinearity diagnostics indicated acceptable levels with variance inflation factors (VIF) ranging from 1.42 to 2.18, well below the threshold of 10, confirming that multicollinearity was not problematic in the model. Examination of residual plots confirmed that assumptions of linearity, homoscedasticity, and normality were adequately met.

Discussion of Findings

These results provided compelling evidence that implementation effectiveness was not simply a function of top-down curriculum design but was significantly influenced by ground-level adaptations, teacher capacity building, and collaborative engagement processes. The finding that teacher competence was the strongest predictor of implementation effectiveness ($\beta = 0.429$) validated the central importance of human capital development in curriculum reform and underscored that no amount of curriculum documentation or policy directives could substitute for well-prepared, confident, and competent teachers. The particularly strong relationship between teacher confidence in facilitating learner-centered activities ($r = 0.649$) and implementation effectiveness highlighted that the pedagogical shift required by CBC was as much about teacher identity and self-efficacy as it was about technical knowledge, suggesting that professional development interventions needed to address not only what teachers knew but also how they perceived themselves as facilitators of learning. The significant positive effect of teacher training hours ($\beta = 0.387$) demonstrated a clear dose-response relationship, with teachers who had received more extensive training ($M = 28.7$ hours, $SD = 15.3$) showing markedly better implementation outcomes, though the wide standard deviation indicated considerable variability in training access that likely corresponded to the urban-rural disparities identified in Table 1. The substantial contribution of adaptive strategies ($\beta = 0.312$) to implementation effectiveness revealed that teachers and schools were not passive recipients of curriculum but were active problem-solvers who developed context-appropriate solutions to implementation challenges, transforming obstacles into opportunities for innovation. The particularly strong correlations of material improvisation ($r = 0.512$) and modified assessment approaches ($r = 0.523$) with implementation effectiveness suggested that these adaptations were not compromises that diluted curriculum fidelity but rather creative contextualizations that made competency-based learning feasible within resource-constrained environments, embodying the "productive struggle" concept central to this study. The significant role of stakeholder engagement ($\beta = 0.245$), though smaller than other predictors, indicated that schools functioning as isolated entities struggled more than those that had cultivated partnerships with parents, community members, and educational officials, highlighting the importance of viewing curriculum implementation as a collective rather than individual endeavor that required shared understanding, commitment, and support across the educational ecosystem.

Table 3: Structural Equation Model Results Testing Hypothesized Relationships

Hypothesized Path	Standardized Path Coefficient (β)	Standard Error	Critical Ratio	p-value	Hypothesis Result

Received: 20.12.2025 **Accepted: 25.12.2025** **Published on: 30.12.2025**

Metropolitan Journal of Academic and Applied Research

ISSN: 3006 - 6417

Vol. 4 Issue 12, December - 2025, Pages: 518 - 533

H_1: Teacher Training → Teacher Competence	0.623	0.047	13.26	<0.001	Supported
H_1: Teacher Competence → Pedagogical Quality	0.714	0.051	13.99	<0.001	Supported
H_1: Teacher Training → Pedagogical Quality (direct)	0.189	0.054	3.50	<0.001	Supported
H_2: Adaptive Strategies → Implementation Quality	0.418	0.056	7.46	<0.001	Supported
H_2: Implementation Quality → Learning Outcomes	0.537	0.062	8.66	<0.001	Supported
H_2: Adaptive Strategies → Learning Outcomes (direct)	0.163	0.058	2.81	0.005	Supported
H_3: Stakeholder Feedback Mechanisms → Professional Development Quality	0.482	0.059	8.17	<0.001	Supported
H_3: Professional Development Quality → Implementation Effectiveness	0.594	0.053	11.21	<0.001	Supported
H_3: Professional Development Quality → Teacher Confidence	0.671	0.048	13.98	<0.001	Supported
Indirect Effects					
Teacher Training → Pedagogical Quality (via Competence)	0.445	0.039	11.41	<0.001	-
Adaptive Strategies → Learning Outcomes (via Implementation Quality)	0.224	0.034	6.59	<0.001	-
Stakeholder Feedback → Teacher Confidence (via Prof. Development)	0.323	0.042	7.69	<0.001	-

Model Fit Indices: $\chi^2 = 387.42$ (df = 164, $p < 0.001$); $\chi^2/df = 2.36$; CFI = 0.953; TLI = 0.947; RMSEA = 0.055 (90% CI: 0.048-0.062); SRMR = 0.048; GFI = 0.928

Note: All standardized path coefficients significant at $p < 0.01$ or better

Statistical Interpretation

The structural equation modeling analysis provided robust support for all three hypotheses, with the overall model demonstrating excellent fit to the observed data according to multiple fit indices. The chi-square to degrees of freedom ratio ($\chi^2/df = 2.36$) was within the acceptable range of 1-3, indicating good model fit. The comparative fit index (CFI = 0.953) and Tucker-Lewis index (TLI = 0.947) both exceeded the conventional threshold of 0.95, suggesting that the hypothesized model explained the observed covariances substantially better than a null model. The root mean square

Received: 20.12.2025 **Accepted: 25.12.2025** **Published on: 30.12.2025**

Metropolitan Journal of Academic and Applied Research

ISSN: 3006 - 6417

Vol. 4 Issue 12, December - 2025, Pages: 518 - 533

error of approximation (RMSEA = 0.055, 90% CI: 0.048-0.062) fell within the acceptable range below 0.06, and the standardized root mean square residual (SRMR = 0.048) was well below the cutoff of 0.08, both indicating close fit between the model and observed data. For Hypothesis 1, teacher training demonstrated a strong direct effect on teacher competence ($\beta = 0.623$, $p < 0.001$) and a modest but significant direct effect on pedagogical quality ($\beta = 0.189$, $p < 0.001$), while the indirect effect through teacher competence was substantial ($\beta = 0.445$, $p < 0.001$), confirming that teacher competence partially mediated the relationship between training and pedagogical quality with a combined total effect of 0.634. Teacher competence itself showed a very strong direct relationship with pedagogical quality ($\beta = 0.714$, $p < 0.001$), the strongest path coefficient in the model. For Hypothesis 2, adaptive strategies significantly predicted implementation quality ($\beta = 0.418$, $p < 0.001$), which in turn strongly predicted learning outcomes ($\beta = 0.537$, $p < 0.001$), while adaptive strategies also retained a significant direct effect on learning outcomes ($\beta = 0.163$, $p = 0.005$), indicating partial mediation with a total effect of 0.387. For Hypothesis 3, stakeholder feedback mechanisms significantly influenced professional development quality ($\beta = 0.482$, $p < 0.001$), which demonstrated strong effects on both implementation effectiveness ($\beta = 0.594$, $p < 0.001$) and teacher confidence ($\beta = 0.671$, $p < 0.001$), the latter being one of the strongest relationships in the model.

Discussion of Findings

The structural equation modeling results provided compelling evidence for the theorized mechanisms through which CBC implementation challenges could be transformed into productive learning experiences that enhanced educational outcomes. The partial mediation finding for Hypothesis 1, where teacher competence mediated 70.2% of the total effect of training on pedagogical quality (indirect effect 0.445 / total effect 0.634), revealed that training improved classroom practice both by directly equipping teachers with new methods and, more substantially, by building their underlying competence as reflective practitioners capable of adapting pedagogical approaches to diverse learning contexts. This finding suggested that effective professional development must go beyond transmission of techniques to foster deeper professional capabilities including pedagogical content knowledge, diagnostic assessment skills, and adaptive expertise. The very strong path from teacher competence to pedagogical quality ($\beta = 0.714$) indicated that investments in building teacher capacity yielded substantial returns in classroom practice, validating the prioritization of teacher development in educational reform efforts. The support for Hypothesis 2, with adaptive strategies predicting learning outcomes both directly and through implementation quality, demonstrated that schools' creative responses to implementation challenges were not merely coping mechanisms but represented genuine innovations that enhanced educational effectiveness. The finding that implementation quality partially mediated this relationship (accounting for 57.9% of the total effect) suggested that adaptive strategies improved learning through two pathways: by enhancing overall implementation fidelity and quality, and through direct mechanisms such as increasing student engagement or contextual relevance. Schools that had developed more adaptive strategies (higher scores on the measure) achieved better learning outcomes, with the effect being amplified when these strategies translated into higher overall implementation quality, providing empirical validation for the study's central premise that productive struggle could catalyze educational improvement. The particularly strong relationship between implementation quality and learning outcomes ($\beta = 0.537$) confirmed that when CBC was implemented with fidelity and quality, it delivered on its promise of improved student learning, but this quality implementation required the adaptive innovations that emerged from

Received: 20.12.2025 **Accepted: 25.12.2025** **Published on: 30.12.2025**

grappling with implementation challenges. The results for Hypothesis 3 illuminated the critical role of continuous improvement systems in sustaining curriculum reform. The strong relationship between stakeholder feedback mechanisms and professional development quality (β = 0.482) demonstrated that when schools created systematic processes for gathering and responding to teacher experiences, concerns, and suggestions, the resulting professional development was more relevant, responsive, and ultimately more effective. The very strong path from professional development quality to teacher confidence (β = 0.671) suggested that well-designed, contextually responsive professional development was one of the most powerful levers for building the teacher self-efficacy essential for the pedagogical risk-taking and learner-centered facilitation required by CBC. The combined effects in this pathway indicated that stakeholder feedback mechanisms, by enhancing professional development quality, indirectly but substantially influenced both teacher confidence and implementation effectiveness, creating a virtuous cycle where teachers' voices shaped support systems that in turn enhanced their capacity and willingness to implement reforms effectively. Collectively, these findings painted a picture of curriculum implementation as a complex, dynamic system where challenges, when met with appropriate support structures, collaborative problem-solving, and continuous learning, could indeed serve as catalysts for educational transformation rather than barriers to it, fully validating the study's conceptualization of CBC implementation struggles as potentially productive rather than simply problematic.

Conclusion

This study achieved its main objective of examining the implementation challenges of Uganda's Competency-Based Curriculum and determining how these productive struggles could serve as catalysts for strengthening the country's educational system. Regarding the first specific objective, the research successfully identified and analyzed key challenges faced by teachers, school administrators, and other stakeholders in implementing CBC, revealing that insufficient instructional materials, inadequate infrastructure and facilities, large class sizes, and inadequate teacher training constituted the most severe obstacles, with rural schools experiencing significantly more acute challenges than their urban counterparts across nearly all domains ($p < 0.001$). These findings illuminated critical systemic inequities in resource allocation that fundamentally undermined equitable access to quality competency-based education. For the second specific objective, the study assessed adaptive strategies and innovative practices that emerged in response to CBC implementation challenges, finding that improvisation of teaching materials, modified assessment approaches, peer collaboration, and flexible grouping strategies were significantly associated with implementation effectiveness ($r = 0.512$ to $r = 0.523$, $p < 0.001$). The multiple regression analysis demonstrated that these adaptive strategies, combined with teacher competence, training hours, and stakeholder engagement, explained 62.4% of the variance in implementation effectiveness, confirming that schools' creative responses to challenges represented genuine innovations rather than mere compromises. Addressing the third specific objective, the structural equation modeling validated all three research hypotheses and generated crucial lessons about the mechanisms through which implementation struggles could be transformed into educational improvements: teacher training enhanced pedagogical quality primarily through building teacher competence (β = 0.623, $p < 0.001$), adaptive strategies improved learning outcomes both directly and through enhanced implementation quality (total effect β = 0.387), and stakeholder feedback mechanisms significantly improved professional development quality, which in turn enhanced both teacher confidence (β = 0.671, $p < 0.001$) and implementation effectiveness (β = 0.594, $p < 0.001$).

Received: 20.12.2025 **Accepted: 25.12.2025** **Published on: 30.12.2025**

Metropolitan Journal of Academic and Applied Research

ISSN: 3006 - 6417

Vol. 4 Issue 12, December - 2025, Pages: 518 - 533

The overarching conclusion was that Uganda's CBC implementation challenges, while substantial and requiring urgent attention, represented productive struggles that generated valuable insights for educational reform when stakeholders engaged in adaptive problem-solving, collaborative learning, and continuous improvement processes. The research demonstrated empirically that implementation effectiveness was not predetermined by curriculum design or resource availability alone but was significantly shaped by how schools, teachers, and education systems responded to challenges through innovation, capacity building, and stakeholder engagement. The findings revealed that the disparity between implementation intentions and ground realities, rather than constituting evidence of reform failure, created spaces for contextually appropriate adaptations that made competency-based learning feasible within Uganda's diverse educational contexts. However, the study also underscored that productive struggle required supportive conditions including adequate teacher preparation, reasonable resource provision, mechanisms for sharing innovations across schools, and systems for incorporating stakeholder feedback into ongoing reform processes. Without these enabling conditions, struggles risked becoming destructive rather than productive, leading to teacher burnout, curriculum dilution, and perpetuation of educational inequities. The evidence suggested that Uganda's CBC could indeed catalyze a brighter educational future, but only if policymakers and education leaders recognized implementation challenges not as problems to be denied or individual failures to be blamed, but as collective learning opportunities to be studied, addressed, and leveraged for continuous system improvement. By embracing this perspective of productive struggle and acting on the evidence-based lessons generated through implementation experiences, Uganda could transform its current curriculum reform from a contested policy initiative into a genuine educational transformation that enhanced learning outcomes, built teacher capacity, and strengthened the education system's responsiveness to diverse contexts and needs.

Recommendations

Establish a National CBC Implementation Support System: The Ministry of Education and Sports should establish a comprehensive support infrastructure comprising regional CBC resource centers equipped with teaching and learning materials that schools can access, mobile training teams providing sustained on-site coaching rather than one-off workshops (targeting minimum 40 hours per teacher with quarterly follow-up sessions), and a digital platform documenting and disseminating adaptive strategies and innovations from successful schools, thereby addressing the critical gaps in teacher training, instructional materials, and professional isolation while reducing urban-rural disparities in implementation support.

Institutionalize Stakeholder Feedback and Continuous Improvement Mechanisms: Education authorities at district and national levels should implement systematic quarterly feedback cycles involving teachers, head teachers, parents, and learners to identify emerging implementation challenges and co-create context-appropriate solutions, with dedicated funding (minimum 5% of education budget) allocated for responsive professional development and school-based innovations that emerge from these consultations, transforming CBC implementation from a top-down mandate into a participatory reform process that builds on ground-level expertise and adaptive capacity.

Develop Differentiated Implementation Standards and Equitable Resource Allocation: The National Curriculum Development Centre should develop differentiated implementation guidelines that acknowledge varying school contexts while maintaining core competency standards, accompanied by a resource equalization strategy that

Received: 20.12.2025 **Accepted: 25.12.2025** **Published on: 30.12.2025**

prioritizes rural and under-resourced schools for infrastructure development, material provision, and intensive teacher support, ensuring that all Ugandan children have equitable access to quality competency-based education regardless of their geographical location or school's resource base, with implementation fidelity assessed not by uniformity of practice but by achievement of learning outcomes through contextually appropriate pedagogies.

References.

Abe, I., & Mugobo, V. (2021). Low research productivity: Transformation, institutional and leadership concern at a South African University. *Perspectives in Education*, *39*(2). https://doi.org/10.18820/2519593X/pie.v39.i2.9

Aheisibwe, I., & Barigye, E. (2023). Pedagogical Experiences of Bishop Stuart University Students on School Practice about the New Lower Secondary School Curriculum in South Western Uganda. *East African Journal of Education Studies*, *6*(1). https://doi.org/10.37284/eajes.6.1.1140

Cleophas, A., Sophie, N., & Richard, K. (2025). Impact Of Cultural Beliefs And Practices On Gender Equality. A Case Study Of Bukuya Sub-County In Kassanda District. In *Metropolitan Journal Of Social And Educational Research* (Vol. 4).

Darussyamsu, R., Suhaili, N., Mudjiran, M., & Nirwana, H. (2021). THE IMPORTANCE OF GUIDANCE AND COUNSELING SERVICES IN HIGHER EDUCATION; BIOLOGICAL EDUCATION STUDENT PERSPECTIVE. *Jurnal Perspektif Pendidikan*, *15*(1). https://doi.org/10.31540/jpp.v15i1.1273

Deepa, V., Sujatha, R., & Mohan, J. (2022). Unsung voices of technology in school education-findings using the constructivist grounded theory approach. *Smart Learning Environments*, *9*(1). https://doi.org/10.1186/s40561-021-00182-7

Fatimah, A. T., Isyanto, A. Y., & Toto. (2023). Science, technology, engineering, agriculture, mathematics, and health in agribusiness curriculum. *International Journal of Evaluation and Research in Education*, *12*(4). https://doi.org/10.11591/ijere.v12i4.25665

Fırat, E. A. (2020). Science, Technology, Engineering, and Mathematics Integration: Science Teachers' Perceptions and Beliefs. *Science Education International*, *31*(1). https://doi.org/10.33828/sei.v31.i1.11

Franco, L. F. M., da Costa, A. C., de Almeida Neto, A. F., Moraes, Â. M., Tambourgi, E. B., Miranda, E. A., de Castilho, G. J., Doubek, G., Dangelo, J. V. H., Fregolente, L. V., Lona, L. M. F., de La Torre, L. G., Alvarez, L. A., da Costa, M. C., Martinez, P. F. M., Ceriani, R., Zemp, R. J., Vieira, R. P., Maciel Filho, R., … Suppino, R. S. (2023). A competency-based chemical engineering curriculum at the University of Campinas in Brazil. *Education for Chemical Engineers*, *44*. https://doi.org/10.1016/j.ece.2023.04.001

Geera, S., & Onen, D. (2023). Challenges in Reforming University Curricula for Graduate Employability: Head of Academic Departments Perspective. *East African Journal of Education Studies*, *6*(3). https://doi.org/10.37284/eajes.6.3.1661

Received: 20.12.2025 **Accepted: 25.12.2025** **Published on: 30.12.2025**

Iffath Unnisa Begum. (2024). Role of Artificial Intelligence in Higher Education- An Empirical Investigation. *International Research Journal on Advanced Engineering and Management (IRJAEM)*, *2*(03). https://doi.org/10.47392/irjaem.2024.0009

Isaac Kazaara, A., & Gracious Kazaara, A. (2024). Enhancement of School Health Policies for Improved Student Academic Outcomes. An Investigative Study on Metropolitan International University. In *Metropolitan Journal Of Social And Educational Research* (Vol. 3).

Jamil, M., Muhammad, Y., Masood, S., & Habib, Z. (2020). Critical thinking: A qualitative content analysis of education policy and secondary school science curriculum documents. *Journal of Research and Reflections*, *14*(2).

Jauharah, N., & Kenneth, N. (2023). 608-620 PRODUCTION AND USAGE OF THREE-DIMENSIONAL TOOLS FOR LEARNING IN LOWER PRIMARY SECTION (A CASE STUDY OF JOY AND JOLLY NURSERY SCHOOL. In *Pages METROPOLITAN JOURNAL OF SOCIAL AND EDUCATIONAL RESEARCH* (Vol. 2).

Julius, A. (2025a). *Are Ugandan University Learners Ready to Harness AI? The Garbage In, Garbage Out Dilemma*.

Julius, A. (2025b). *Research Study Framework: The Critical Role of Research Transformation and Leadership in Higher Education in Africa, Referencing Agenda 2063*.

Julius, A., & Isaac Kazaara, A. (2025). The Competency Paradox: How Traditional Grading Nullifies the Objectives of Uganda's Competency-Based Curriculum. In *International Journal of Academic Multidisciplinary Research (IJAMR)* (Vol. 9). www.ijeais.org/ijamr

Katurebe, B., & Nalukwago, H. (2024). THE INFLUENCE OF COMPETENCY-BASED CURRICULUM PROMOTED STUDENTS' SELF-DISCOVERY IN SELECTED GOVERNMENT-AIDED SECONDARY SCHOOLS OF WAKISO DISTRICT, UGANDA. A CROSS-SECTIONAL SURVEY. *SJ Education Research Africa*, *1*(1). https://doi.org/10.51168/sjeducation.v1i1.5

Kazaara, A. I. (2023). THE IMPACT OF DIFFERENT TYPES OF EDUCATION SERVICES PROVIDED BY CURRENT EDUCATION ACTORS AND HUMANITARIAN EDUCATION AGENCIES TO THE REFUGEES SETTLING IN WEST NILE REGION FROM 2010-2023. In *METROPOLITAN JOURNAL OF BUSINESS & ECONOMICS (MJBE* (Vol. 2, Issue 6).

Latifa, S., & Benard, B. (2025). Assessing The Influence Of Poverty On The Promotion Of Street Children In Uganda; A Case Study Of Central Division Of Arua City Local Government. In *Pages Metropolitan Journal Of Social And Educational Research* (Vol. 4).

Lim, J., & Richardson, J. C. (2021). Predictive effects of undergraduate students' perceptions of social, cognitive, and teaching presence on affective learning outcomes according to disciplines. *Computers and Education*, *161*. https://doi.org/10.1016/j.compedu.2020.104063

Received: 20.12.2025 **Accepted: 25.12.2025** **Published on: 30.12.2025**

Masduki, N. A., Mahfar, M., & Senin, A. A. (2022). A bibliometric analysis of the graduate employability research trends. *International Journal of Evaluation and Research in Education*, *11*(1). https://doi.org/10.11591/ijere.v11i1.22145

Muwanguzi, E., Kibaya, E., Serunjogi, D., & Dickens, C. (2023). Assessing the Impact of Competency-Based Curriculum on O' LEVEL History Education in Uganda: A Comprehensive Literature Review 1. In *Quest Journals Journal of Research in Humanities and Social Science* (Vol. 11, Issue 7).

Mwanj, S. J., & Audrey, A. (2025). Painting As A Mean Of Cultural Environmental Conservation And Human Rights In Ndeeba-Mengo, Rubaga Division, Central Uganda, Kampala District. In *Pages Metropolitan Journal Of Social And Educational Research* (Vol. 4).

Ndomondo, E., Mbise, A., & Katabaro, J. (2022). History teachers' conceptualization of competency-based curriculum in transforming instructional practices in lower secondary schools in Tanzania. *Social Sciences and Humanities Open*, *6*(1). https://doi.org/10.1016/j.ssaho.2022.100331

Nelson, K., Christopher, F., & Milton, N. (2022). *Teach Yourself Spss and Stata*. *6*(7), 84–122.

Nelson, K., Kazaara, A. G., & Kazaara, A. I. (2023). *Teach Yourself E-Views*. *7*(3), 124–145.

Prosper Mubangizi. (2020). UGANDA'S NEW LOWER SECONDARY SCHOOL CURRICULUM: MOVING TOWARDS A COMPETENT AND QUALITY EDUCATION SYSTEM. Policy Brief. In *NCDC*.

Putro, H. Y. S. (2023). Implementation of Inspirative Models of Guidance and Counseling Services Curriculum Independent at Inspiring School. *International Journal of Asian Education*, *4*(1). https://doi.org/10.46966/ijae.v4i1.323

Salazar-Fernandez, J. P., Sepúlveda, M., Munoz-Gama, J., & Nussbaum, M. (2021). Curricular analytics to characterize educational trajectories in high-failure rate courses that lead to late dropout. *Applied Sciences (Switzerland)*, *11*(4). https://doi.org/10.3390/app11041436

Salume, A., & Jacob, K. (2023). A STUDY ON THE IMPACTS OF COVID-19 OUTBREAK ON TEENAGE PREGNANCIES AMONG THE SCHOOL GOING CHILDREN A CASE STUDY OF KANYUM SUBCOUNTY KUMI DISTRICT. In *research.miu.ac.ug/publications METROPOLITAN JOURNAL OF SOCIAL AND EDUCATIONAL RESEARCH* (Vol. 2).

Ssentanda, M. E., & Wenske, R. S. (2023). Either/or literacies: teachers' views on the implementation of the Thematic Curriculum in Uganda. *Compare*, *53*(6). https://doi.org/10.1080/03057925.2021.1995700

Sterpu, I., Herling, L., Nordquist, J., Rotgans, J., & Acharya, G. (2024). Team-based learning (TBL) in clinical disciplines for undergraduate medical students—a scoping review. *BMC Medical Education*, *24*(1). https://doi.org/10.1186/s12909-023-04975-x

Received: 20.12.2025 **Accepted: 25.12.2025** **Published on: 30.12.2025**

Tentama, F., & Nur, M. Z. (2021). The correlation between self-efficacy and peer interaction towards students' employability in vocational high school. *International Journal of Evaluation and Research in Education*, *10*(1). https://doi.org/10.11591/ijere.v10i1.20573

Vergel, J., Quintero, G. A., Isaza-Restrepo, A., Ortiz-Fonseca, M., Latorre-Santos, C., & Pardo-Oviedo, J. M. (2018). The influence of different curriculum designs on students' dropout rate: a case study. *Medical Education Online*, *23*(1). https://doi.org/10.1080/10872981.2018.1432963

VERGUN, A. R., YAGELO, S. P., VERGUN, O. M., HAVRYLIUK, I. M., & KIT, Z. M. (2021). Academic integrity of applicants: curriculum and examination of scientific papers in the context of counteraction to academic plagiarism. *Higher Education of Ukraine in the Context of Integration to European Educational Space*, *88*((I)). https://doi.org/10.38014/osvita.2021.88.03

Veselinović, L., Mangafić, J., & Turulja, L. (2020). The effect of education-job mismatch on net income: evidence from a developing country. *Economic Research-Ekonomska Istrazivanja* , *33*(1). https://doi.org/10.1080/1331677X.2020.1723427

Received: 20.12.2025 **Accepted: 25.12.2025** **Published on: 30.12.2025**