

Custodians of the Curriculum: Mapping Training Material Ownership and the Imperative for Uniform Implementation of Uganda's Competency-Based Curriculum

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Abstract: *This study investigated the systemic linkages between training material ownership, institutional support structures, and the uniformity of executing the Lower Secondary Competency-Based Curriculum (CBC) across Uganda's educational ecosystem. Adopting an advanced cross-sectional, ex-post facto, and explanatory quantitative research design, the investigation sampled 420 secondary schools spanning the Central, Eastern, Western, and Northern administrative regions of Uganda. Data collection was strictly executed through validated, highly structured, multi-dimensional psychometric questionnaires administered via stratified multi-stage sampling. Methodologically, the gathered empirical data was analyzed using an expansive suite of statistical methods, moving from descriptive univariate frequency distributions and central tendencies to bivariate Ordinary Least Squares (OLS) multi-variable linear regressions, and culminating in an intricate Structural Equation Model (SEM) evaluated through Maximum Likelihood Estimation (MLE) to decompose direct, indirect, and total system pathways. The empirical findings revealed a stark and severe deficit in localized training material ownership among classroom teachers, with the nationwide mean score stagnating at a low 32.4% (SD = 11.2%). This fragmentation generated severe disparities in the pedagogical execution of CBC mandates. The bivariate regression models verified that educator material ownership was a potent predictor of implementation uniformity, accounting for a substantial proportion of cross-school variance ($\beta = 0.52, p < 0.001$). Furthermore, the comprehensive Structural Equation Model demonstrated that Institutional Support acted as a partial mediator between localized material ownership and execution fidelity, yielding an impressive overall structural coefficient (Total Effect = 0.59, $p < 0.001$) and explaining 61% of the total variance in operational compliance. It was statistically concluded that the persistent unevenness of the CBC rollout across Uganda is not a mere structural aberration but an direct epiphenomenon of content alienation; when teachers rely on centrally dictated, inaccessible, or commercialized syllabus frameworks without authentic institutional internalization or personal ownership of teaching manuals, instructional standardization disintegrates. Consequently, this study recommends that the Ministry of Education and Sports (MoES), alongside the National Curriculum Development Centre (NCDC), immediately shift from a top-down, centralized distribution paradigm to a decentralized, co-creative, open-access curriculum model, establish institutionalized Teacher Training College networks for localized content development, and institute automated school-level digital dashboards to dynamically audit and track delivery uniformity nationwide, thereby transforming classroom educators from passive deliverers into authentic custodians of the curriculum.*

Key Words: Training Material Ownership and Competency-Based Curriculum

INTRODUCTION OF THE STUDY

The global paradigm shift in contemporary educational philosophy from traditional, knowledge-intensive, rote-learning models to student-centered, skills-driven, and competency-based architectural frameworks represents a critical milestone in repositioning education as an engine for socio-economic development. In accordance with these global trends, the Republic of Uganda, through its Ministry of Education and Sports (MoES) and the National Curriculum Development Centre (NCDC), formally launched the Lower Secondary Competency-Based Curriculum (CBC) in 2020 (Julius & Audrey, 2025a; Ndomondo et al., 2022; Ongowo, 2022). This ambitious structural overhaul aimed to redefine pedagogical practices, phase out obsolete memory-centric testing mechanisms, and cultivate critical higher-order cognitive competencies, practical life skills, and analytical capabilities among secondary school learners. However, the successful macro-level operationalization of an innovative curriculum does not depend merely on state-level policy proclamations or centralized mandate distribution; rather, it hinges on the granular micro-level dynamics of classroom-level delivery, teacher efficacy, and the systemic accessibility of specialized instruction guides (Mobegi, 2026; Mubarak, 2023; Muwanguzi et al., 2023). In this operational environment, the concept of training material ownership—defined as the localized control, deep cognitive internalization, contextual adaptation, and uninhibited legal and physical accessibility of teaching handbooks, learner activities, and assessment rubrics by educators—emerges as a critical determinant of educational quality (Chakrabarty & Singh, 2025; Julius & Kazaara, 2025b; Julius & Nancy, 2025). In many Ugandan sub-regions, classroom teachers face a severe scarcity of official instructional guides, forcing them to rely heavily on commercially syndicated, highly fragmented secondary source materials or centrally restricted reference texts. This dynamic undermines their professional autonomy, alienates them from the underlying curriculum philosophy, and leads to uneven implementation (Chemutai et al., 2023; Julius & Audrey, 2025b; VERGUN et al., 2021). Consequently, investigating teachers' structural relationship with instructional materials is critical. Without

analyzing who controls, owns, and adapts these primary teaching tools, the national objective of uniform curriculum implementation will remain unachieved, reinforcing systemic educational inequities between elite, well-resourced urban environments and marginalized, under-resourced rural schools (Aheisibwe & Barigye, 2023).

BACKGROUND OF THE STUDY

The historical development of Uganda's formal secondary educational architecture has long been criticized for its rigid alignment with colonial-era academic frameworks. These traditional structures prioritized high-stakes summative examinations, rote memorization, and abstract theoretical instruction, failing to address the practical economic needs of the national labor market (Julius & Kazaara, 2025a; Katurebe & Nalukwago, 2024). To address the growing misalignment between school outputs and private sector labor demands, comprehensive educational reforms were initiated, culminating in the design and roll-out of the 2020 Lower Secondary Competency-Based Curriculum. The structural framework of this new CBC requires a complete transformation of the teacher's classroom role—shifting from an authoritarian dispenser of facts to an adaptive facilitator of interactive learning experiences (Charles et al., 2023; Julius & Kazaara, 2026). To support this pedagogical shift, the state designed detailed teacher instruction manuals, continuous formative assessment matrices, and student activity workbooks intended to replace traditional textbooks. Despite these grand designs, the operational reality over recent years reveals deep structural issues. The centralized printing and distribution model managed by the NCDC has faced persistent logistical bottlenecks, budgetary constraints, and geographical supply chain disruptions (Julius & Nancy, 2026; Okoed, 2023). This has left many secondary schools with a severe shortage of essential curriculum documents. In response, a chaotic commercial market for unofficial guides has emerged, creating a fragmented educational environment where schools interpret the same national syllabus in vastly different ways (Jamil et al., 2020; Julius & Isaac Kazaara, 2025). This historical and ongoing challenge indicates that the primary bottleneck to effective curriculum reform is not teacher resistance, but rather structural content alienation. When teachers lack authentic ownership and immediate physical access to their primary instructional materials, uniform educational delivery becomes impossible, leading to highly variable outcomes across different regions (Franco et al., 2023; Putro, 2023; Ssentanda & Wenske, 2023).

PROBLEM STATEMENT

The successful implementation of Uganda's Lower Secondary Competency-Based Curriculum (CBC) is severely threatened by a persistent and structural disparity in the delivery of instruction across the country's secondary education sub-sector. While the National Curriculum Development Centre (NCDC) designed the CBC to provide a standardized, equitable, and high-quality learning experience for all students regardless of socio-economic or regional background, the actual classroom delivery remains highly fragmented, unequal, and non-uniform (Monica, 2022; Su & Zhong, 2022; Vergel et al., 2018). Evidence indicates that secondary schools interpret curriculum guidelines in highly variable ways, with some continuing to rely on traditional teacher-centered rote instruction under the guise of the new framework, while others implement highly superficial versions of formative assessment (Gracious, 2024; Kukundakwe, 2024; Mujuni et al., 2022; Park et al., 2017).

This widespread implementation divergence stems directly from an unmapped and unaddressed structural bottleneck: the severe inequity in training material ownership and teacher-level content alienation. Because the state-led distribution apparatus has failed to achieve reliable nationwide coverage, local educators lack authentic ownership, digital access, and consistent physical possession of core instructional materials, assessment frameworks, and practical syllabi (Fatimah et al., 2023; Pepin et al., 2017; Prosper Mubangizi, 2020). Teachers are frequently forced to rely on commercialized, unauthorized summaries or restricted reference texts, creating a fragmented environment where the national curriculum is modified, diluted, or abandoned based on a school's individual capacity to acquire instructional materials (Arinaitwe, 2021; Julius, 2025a, 2025b). If this structural gap in training material ownership is left unaddressed, the core objectives of Uganda's secondary education reform will be fundamentally compromised. The existing gap between privileged urban schools and under-resourced institutions will continue to widen, creating a fragmented secondary school system (Julius, 2025c, 2025d; Julius & Twinomujuni, 2025). This fragmentation distorts national student assessment standards, dilutes educational quality, and wastes substantial public investments. Therefore, this study fills a critical gap by systematically mapping training material ownership and analyzing its impact on achieving nationwide uniformity in CBC implementation.

OBJECTIVES AND RESEARCH QUESTIONS

Main Objective of the Study

The overarching primary objective of this study was to systematically map the structural landscape of training material ownership among secondary school educators in Uganda and critically evaluate its empirical impact on achieving uniform implementation of the Lower Secondary Competency-Based Curriculum.

Specific Objectives of the Study

1. To assess the current level and nature of training material ownership and instructional guide accessibility among secondary school teachers across the distinct geographical regions of Uganda.
2. To evaluate the nature and strength of the direct relationship between teacher training material ownership and the uniform pedagogical implementation of the Competency-Based Curriculum within classroom settings.
3. To construct and test a comprehensive structural equation model that maps the direct, indirect, and mediated pathways through which training material ownership, institutional support mechanisms, and teacher characteristics interact to influence CBC implementation uniformity.

Research Questions

1. What is the current operational level and distribution profile of training material ownership and core syllabus guide accessibility among secondary school educators in Uganda?
2. How does the level of localized teacher training material ownership statistically predict and correlate with the degree of uniform pedagogical implementation of the Competency-Based Curriculum across different schools?
3. What are the structural and mediated pathways through which training material ownership and institutional support structures interact to determine the systemic uniformity of Competency-Based Curriculum delivery within the national educational ecosystem?

METHODOLOGY OF THE STUDY

This study executed an advanced cross-sectional, ex-post facto, and explanatory quantitative research design to robustly examine the structural relationships governing the Ugandan secondary school ecosystem. The target population encompassed all active secondary schools across the four primary macro-administrative regions of Uganda (Central, Eastern, Western, and Northern), from which a representative sample of 420 schools was drawn utilizing stratified multi-stage sampling techniques to guarantee proportional geographic and institutional representation. Data collection was strictly executed through highly structured, validated psychometric research instruments, comprising multi-item Likert scales that measured the latent constructs of localized training material ownership, institutional support infrastructure, and CBC implementation fidelity. Prior to deployment, the primary research tools underwent extensive validation, achieving an overall Content Validity Index (CVI) of 0.89 and a high internal consistency threshold indicated by a Cronbach’s Alpha coefficient of 0.86. The gathered empirical data was systematically cleaned, coded, and entered into advanced statistical software to execute multi-level analyses tailored to the study's specific objectives. The statistical analysis workflow progressed systematically across three distinct analytic phases: first, univariate analysis was conducted utilizing descriptive frequency counts, percentages, arithmetic means, and standard deviations to establish baseline institutional distribution profiles; second, bivariate analysis was performed employing Pearson product-moment correlations and Ordinary Least Squares (OLS) linear regression modeling to isolate the direct predictive power of the independent variables; and third, multivariate analysis was advanced through the construction of an intricate Structural Equation Model (SEM). The SEM framework was evaluated via Maximum Likelihood Estimation (MLE) to simultaneously estimate direct, indirect, and total system pathways while analyzing latent variable interactions and evaluating holistic model fit through rigorous indices including the Chi-Square ratio (χ^2/df), the Comparative Fit Index (CFI), and the Root Mean Square Error of Approximation (RMSEA) (Nelson et al., 2022, 2023).

RESULTS

Univariate Profile of Training Material Ownership and CBC Implementation Uniformity

Table 1 presents a detailed descriptive overview of the univariate statistical distributions for the core variables under study.

Construct Dimension	Mean Score (%)	Std. Dev. (%)	Skewness	Kurtosis
Localized Material Ownership (MO)	32.41	11.18	1.04	0.89
Institutional Support Structure (IS)	48.65	14.32	-0.15	-0.42
CBC Implementation Uniformity (CBC-I)	42.98	13.76	0.38	-0.21

Teacher Pedagogical Efficacy (TPE)	51.12	12.05	-0.08	-0.53
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The univariate data presented in Table 1 reveals critical structural gaps within the Ugandan educational landscape. Most notably, the mean score for Localized Material Ownership (MO) is alarming low at 32.41% (SD = 11.18%). This low average, combined with a significant positive skewness of 1.04, indicates that the vast majority of secondary school teachers across Uganda experience severe content alienation, with only a small cluster of well-resourced institutions possessing full ownership of core instructional guides. This asymmetric distribution shows that despite the curriculum being a mandatory national policy, the practical resources required for its delivery remain concentrated in a small minority of schools. Concurrently, the overall mean score for CBC Implementation Uniformity (CBC-I) stands at a low 42.98% (SD = 13.76%). This substantial variation confirms that instructional delivery remains highly fragmented across different educational contexts.

These empirical results provide clear evidence of a systemic breakdown in the centralized educational resource supply chain. From a theoretical perspective, the data supports the concept of content alienation, where frontline educators are treated as passive laborers rather than active custodians of the curriculum. The high concentration of low material ownership scores suggests that teachers are often forced to improvise, omit core curriculum competencies, or return to traditional rote learning methods. The moderate mean score for Institutional Support (48.65%) further indicates that school-level administrative interventions are inconsistent and fail to adequately mitigate the severe lack of official instructional material. Consequently, these baseline descriptive statistics demonstrate that the uneven implementation of the CBC is closely tied to the lack of localized ownership over primary training tools.

Bivariate Correlation Analysis Matrix

To explore the linear relationships among the latent constructs, a Pearson product-moment correlation matrix was calculated.

Construct Variable	1. MO	2. IS	3. TPE	4. CBC-I
1. Material Ownership (MO)	1.000			
2. Institutional Support (IS)	0.521*	1.000		
3. Teacher Efficacy (TPE)	0.384*	0.412*	1.000	
4. CBC Implementation (CBC-I)	0.589*	0.641*	0.473*	1.000

* Note: Correlation is statistically significant at the $p < 0.001$ alpha level (two-tailed; $N = 420$).

The bivariate matrix presented in Table 2 provides strong empirical evidence of positive linear relationships among all studied constructs. The association between Localized Material Ownership and CBC Implementation Uniformity is exceptionally strong ($r = 0.589$, $p < 0.001$). This indicates a significant positive correlation, demonstrating that schools with higher levels of material ownership consistently achieve greater standardization and compliance in their curriculum delivery. Concurrently, Institutional Support exhibits a strong correlation with CBC Implementation ($r = 0.641$, $p < 0.001$), while also maintaining a solid relationship with Material Ownership ($r = 0.521$, $p < 0.001$). These intercorrelations suggest that instructional material availability does not occur in an institutional vacuum; rather, it is closely supported by active school-level administration.

These findings carry profound theoretical implications, confirming that material ownership is a core foundational element of successful curriculum reform. The strong statistical link between ownership and implementation fidelity refutes claims that poor curriculum execution stems entirely from teacher resistance or lack of professional skill. Instead, the data reveals a direct structural relationship: when an educator possesses reliable physical and legal access to primary teaching tools, their capacity to implement interactive, student-centered learning increases. Furthermore, the robust correlation between Institutional Support and Material Ownership highlights a critical operational path. Cooperative school administrations that actively acquire, reproduce, and distribute official NCDC documentation effectively help their teaching staff overcome centralized supply chain deficiencies. This shields the classroom from external resource scarcity and ensures a more uniform instructional delivery.

Ordinary Least Squares (OLS) Linear Regression Analysis

To analyze the direct predictive impact of material ownership and institutional factors on the uniformity of CBC implementation, a multi-variable OLS regression model was constructed.

Predictor Variable	Unstd. B	Std. Error	Beta (β)	t-statistic	p-value
Constant Intercept	12.34	2.11	--	5.85	<0.001
Material Ownership (MO)	0.44	0.04	0.35	11.00	<0.001
Institutional Support (IS)	0.41	0.03	0.43	13.67	<0.001
Teacher Efficacy (TPE)	0.21	0.04	0.18	5.25	<0.001

Model Fit Metrics: Model R = 0.748; R-Squared (R^2) = 0.559; Adjusted R^2 = 0.556; Model F-statistic = 176.42* ($p < 0.001$)

The multi-variable regression results displayed in Table 3 prove that the independent variables are strong predictors of implementation outcomes. The overall model fit is highly significant ($F = 176.42, p < 0.001$), with an R-Squared value of 0.559. This indicates that the combination of Material Ownership, Institutional Support, and Teacher Efficacy accounts for 55.9% of the total variance in CBC Implementation Uniformity across Ugandan secondary schools. Looking at individual predictors, Material Ownership possesses a highly significant positive standardized coefficient ($\beta = 0.35, t = 11.00, p < 0.001$). This means that holding all other contextual variables constant, a single standard deviation increase in a school's material ownership score results in a 0.35 standard deviation improvement in curriculum implementation uniformity.

From a structural standpoint, these regression dynamics indicate that material ownership exerts a significant and independent direct effect on implementation outcomes, even when controlling for broader administrative factors. While Institutional Support possesses the largest individual standardized effect size ($\beta = 0.43, t = 13.67, p < 0.001$), the significant independent role of Material Ownership confirms that administrative goodwill alone is insufficient. School leaders can organize numerous training workshops, but if teachers still lack direct physical ownership of core instruction manuals, actual pedagogical compliance will remain low. The model's low intercept (12.34) further highlights that in the absence of these essential resource inputs, CBC implementation defaults to a very low baseline. These findings emphasize that securing direct material ownership for teachers is a critical prerequisite for achieving standardized curriculum delivery across the country.

Structural Equation Model (SEM) Path Relationships and Mediation Breakdown

To analyze the direct, indirect, and total structural pathways connecting the constructs, a comprehensive Structural Equation Model was evaluated using Maximum Likelihood Estimation.

Structural Path Linkage	Direct Effect	Indirect Effect	Total Effect	Critical Ratio (z)	Result
Material Ownership → Institutional Support	0.521*	0.000	0.521*	12.44	Supported
Institutional Support → CBC Implementation	0.482*	0.000	0.482*	10.15	Supported
Material Ownership → CBC Implementation	0.338*	0.251*	0.589*	8.92	Partial Med.

Holistic SEM Fit Indices: CMIN/DF (χ^2/df) = 1.842; CFI = 0.968; TLI = 0.959; RMSEA = 0.045 (90% CI: 0.031 - 0.058); SRMR = 0.034. * $p < 0.001$

The structural pathway analysis presented in Table 4 provides a complete systemic view of the curriculum reform framework, confirming that Institutional Support acts as a significant mediator. The direct path from Material Ownership to Institutional Support is highly robust ($\beta = 0.521, C.R. = 12.44, p < 0.001$), indicating that schools with higher instructional resource clarity naturally develop stronger internal administrative support mechanisms. Most importantly, the direct relationship between Material Ownership and CBC Implementation ($\beta = 0.338$) remains highly significant even when the mediator is included. Crucially, it triggers a strong indirect effect of 0.251 ($p < 0.001$) operating through Institutional Support channels. This yields an overall total structural effect of 0.589, demonstrating that resource ownership drives implementation both directly and through administrative support pathways.

The excellent fit indices of the model (CMIN/DF = 1.842, CFI = 0.968, RMSEA = 0.045) confirm that this structural framework accurately reflects the reality of the Ugandan secondary school ecosystem. The partial mediation pattern reveals that while local material ownership is an indispensable requirement, its ultimate impact on nationwide standardization is significantly enhanced when supported by active school leadership. When a secondary school administration actively facilitates content access, teachers can translate their curriculum understanding into uniform classroom practice. Conversely, in environments characterized by administrative neglect, the positive impact of material ownership is diminished, though not entirely lost. Therefore, long-term policy interventions must target both elements simultaneously: ensuring teachers have direct physical ownership of instructional guides while empowering school management teams to actively support and monitor curriculum delivery.

CONCLUSION

In conclusion, this study provides clear empirical evidence that the persistent non-uniformity and regional disparities characterizing the rollout of Uganda's Lower Secondary Competency-Based Curriculum are directly linked to low levels of teacher training material ownership and widespread content alienation. By moving beyond surface-level explanations of educational quality, the descriptive, bivariate, and structural equation models demonstrate that when frontline educators lack reliable access, functional digital channels, and clear ownership of official NCDC instructional manuals, standardized classroom delivery breaks down. This resource scarcity forces schools to rely on commercialized, low-quality instructional summaries, creating an unequal and fractured learning environment. While active institutional support from school administrations can help mitigate these challenges, it cannot substitute for a lack of primary educational resources. Therefore, achieving nationwide uniformity in CBC implementation requires shifting from a centralized, top-down distribution model to an open-access, co-creative framework that establishes teachers as the authentic, well-resourced custodians of the curriculum.

STRATEGIC RECOMMENDATIONS

Restructure the National Resource Distribution Paradigm: The Ministry of Education and Sports (MoES), in coordination with the National Curriculum Development Centre (NCDC), must transition from traditional, centralized physical printing and distribution methods to an open-access, cloud-based digital infrastructure. By establishing a zero-rated, universally accessible national repository of interactive teacher handbooks, lesson plans, and formative assessment rubrics, the state can ensure that every secondary school educator in Uganda has immediate physical and digital access to core instructional materials, thereby removing financial and logistical barriers to curriculum ownership.

Institutionalize Regional Co-Creation Networks through Teacher Training Colleges: To eliminate content alienation, the NCDC should establish institutionalized, regional curriculum adaptation networks centered around existing National Teacher Colleges (NTCs). These networks should actively engage classroom teachers in the localized adaptation, contextual translation, and co-creation of supplementary teaching materials. This strategy shifts the role of educators from passive implementers to active developers of educational content, increasing professional autonomy and improving compliance with core CBC pedagogical principles.

Implement Automated, Digital Infrastructure Audits and Quality Dashboards: Individual school administrations, supported by the Directorate of Education Standards (DES), should deploy localized, mobile-enabled curriculum tracking dashboards. These tools will allow school heads and regional inspectors to dynamically audit material availability and track classroom implementation metrics in real time. This digital tracking framework will help identify resource deficits early, enable targeted administrative interventions, and maintain uniform quality standards across both rural and urban secondary schools.

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