E-ISSN: 1116 - 3240 P-ISSN: 3026-9334
MPRI-JAIMR | INTERNATIONAL JOURNAL OF AFRICAN INNOVATION & MULTIDSCIPLINARY RES.
VOL. 13 NO. 2 – JULY, 2026

INFLUENCE OF RETHINKING CURRICULUM TRANSFORMATION ON THE EDUCATION OF GIFTED STUDENT-TEACHERS IN COLLEGES OF EDUCATION IN NORTH CENTRAL NIGERIA

***DR. ORJI ROSELINE CHINYERE; **MUSA, MUHAMMAD FIKA; & ***DR EDOZIE KINGSLEY**

*Educational Foundations Department, FCT College of Education, Zuba Abuja. orjiroselinechinyere2015@gmail.com **Educational Foundations Department, FCT College of Education, Zuba Abuja. musamuhammadfika@gmail.com ***Educational Foundations Department, FCT College of Education, Zuba Abuja. kingsleyejike4@gmail.com

DOI: https://doi.org/10.70382/mejaimr.v13i2.0123

Abstract

This study investigated the influence of curriculum transformation on the education and professional readiness of gifted student-teachers in Colleges of Education in North Central Nigeria. The study used descriptive survey research design. Data were collected from a stratified sample of 342 student-teachers from the Federal College of Education, Akwanga and the College of Education, Minna, using the "Influence of Curriculum Transformation Questionnaire" (ICTQ) (Cronbach's α=0.82). Data were analyzed using mean scores, standard deviations, independent samples t-tests and Pearson Product-Moment Correlation. The findings revealed that curriculum content relevance strongly influences student-teachers' learning experiences (Grand Mean = 2.90), though a lack of enriched materials often leads to intellectual boredom. Differentiation strategies significantly improved instructional preparedness (Grand Mean = 3.05), but their practical application was limited by

Keywords: Curriculum Transformation, Gifted Education, Teacher Preparedness, Differentiated Instruction, Colleges of Education, North Central Nigeria.

EDITOR-IN-CHIEF
Prof. A.I. Mteiye [MALAWI]

systemic barriers like large class sizes and limited planning time. Teacher preparation and continuous professional development emerged as vital for classroom readiness (Grand Mean = 3.12). The study revealed no significant difference in perceptions of curriculum relevance between the two institutions ($t=1.124$, $p>0.05$), but showed a strong, positive and significant relationship between curriculum transformation and educational outcomes ($r=0.684$, $p<0.05$). The study concludes that deliberate curriculum transformation is essential for equipping pre-service teachers with the skills to support gifted learners. It recommends targeted curriculum enrichment, the provision of modern teaching resources and structured professional development in differentiated instruction.

Introduction

The education of gifted learners constitutes a significant challenge and opportunity within contemporary teacher education. Gifted students possess advanced cognitive abilities, high levels of creativity and unique learning needs that demand curriculum structures beyond the traditional one-size-fits-all models pervasive in many educational systems (Ireland, Bowles, Brindle & Nikakis, 2021). In this context, curriculum transformation refers to the deliberate rethinking and redesigning of curricular content, processes and instructional delivery to make education more inclusive, responsive and capable of addressing individual learner differences of giftedness children and education for all in respective of tribe, culture, race, religion among others (Gil Jr., 2022). Thus, a transformed curriculum is characterized by flexible content, differentiated instructional activities and assessment strategies that enable learners to engage at deeper and more challenging cognitive levels than traditional curricula allow. In teacher education settings such as Colleges of Education, the transformation of curricula plays a critical role in shaping how future teachers understand, recognize and respond to giftedness in classrooms. The key variables inherent in this transformation include curriculum content relevance, differentiation strategies and teacher preparedness for gifted education.

Apparently, curriculum content relevance involves the extent to which programmes incorporate specialized knowledge and pedagogical approaches that enable student-teachers to meet gifted learners' needs. Differentiation strategies entails the instructional adaptations teachers use to tailor learning experiences to students' unique strengths and challenges. Meanwhile, teacher preparedness reflects the competencies and skills pre-service teachers acquire through their training to design and deliver instruction that supports all learners, including the gifted. Recent research by International Journal of Educational Research Open, (2025) emphasises the need for teacher education programmes to embrace differentiation as an instructional imperative. Internationally,

differentiated instruction has been identified as a foundational practice for inclusive education and is particularly effective for engaging gifted learners by providing adjusted content, pacing and learning options tailored to individual strengths. Indeed, differentiation enhances teachers' ability to foster deep learning, creativity and problem-solving capacities among advanced learners.

Also, teacher conceptions of giftedness influence their willingness and capacity to implement differentiated practices. A study by BMC Psychology, (2025) revealed that teachers with broader and more inclusive conceptions of giftedness encompassed creativity, leadership and social-emotional capacities are more effective in both identifying gifted learners and executing differentiation strategies. Importantly, professional training in gifted education reliably predicts teachers' competency in these areas, while limited access to specific gifted education training constrains instructional responsiveness. Within the Nigerian context, curriculum transformation specifically for gifted teacher education is still emerging, studies by Dada, Fagbemi & David, (2023) show related dimensions of instructional adaptation and teacher competency in gifted education are crucial. For instance, research examining teachers' knowledge of curriculum adaptation for gifted children in Rivers State highlights gaps in teacher awareness and preparedness to adjust general curricula for gifted learners

Aptly, evaluations of instructional delivery in Nigeria's Federal Government Centre for the Gifted and Talented found that while some curriculum adaptation practices exist, implementation remains weak and often does not fully address gifted students' distinctive learning needs (Dada & Ani, 2019). These studies signal a broader systemic need for curriculum transformation within teacher training programmes to better equip pre-service teachers with the theoretical grounding and practical skills needed for differentiated instruction. Taken together, existing research points to the critical interplay between curriculum transformation and the education of gifted student-teachers: transforming content and instructional strategies within Colleges of education can enhance teacher preparedness, improve differentiated pedagogies and ultimately support gifted learners' cognitive and socio-emotional development. By focusing on curriculum content relevance, differentiation strategies and teacher preparedness, this study seeks to contribute to policy and programme reforms aimed at better preparing student-teachers to serve diverse learners, including the gifted within North Central Nigeria, and beyond.

Problem Statement

Curriculum structures in Colleges of Education in North Central Nigeria remain predominantly traditional and uniform, creating limitations in how gifted student-teachers are educated and prepared for professional practice. The existing curriculum

does not sufficiently provide enriched content, flexible learning pathways or differentiated instructional approaches needed to support gifted learners, leading to restricted academic stimulation and inadequate development of their advanced intellectual abilities. In many cases, curriculum content lacks relevance to gifted education, differentiation strategies are poorly implemented, and teacher preparation programmes do not adequately address methods for meeting the needs of students with exceptional learning potential. These gaps result in gifted student-teachers graduating with limited pedagogical confidence, insufficient exposure to adaptive instructional models and inadequate readiness for inclusive classroom delivery. Therefore, the problem of this study is to investigate how rethinking curriculum transformation influences curriculum content relevance, differentiation practices and teacher preparation and how these variables collectively impact the education and outcomes of gifted student-teachers in Colleges of Education in North Central Nigeria.

Objectives of the Study

The study aims to examine the influence of rethinking curriculum transformation on the education of gifted student-teachers in Colleges of Education in North Central Nigeria. Specifically, the objectives are to:

1. determine the extent to which curriculum content relevance influences the learning experiences of gifted student-teachers.
2. examine the influence of differentiation strategies on the instructional preparedness of gifted student-teachers.
3. assess how teacher preparation and professional development programmes affect gifted student-teachers' readiness for classroom practice.
4. investigate the relationship between curriculum transformation and educational outcomes of gifted student-teachers.

Research Questions

The following research questions will guide the study:

1. To what extent does curriculum content relevance influence the learning experiences of gifted student-teachers in Colleges of Education in North Central Nigeria?
2. How do differentiation strategies influence the instructional preparedness of gifted student-teachers?
3. In what ways do teacher preparation and professional development programmes affect the readiness of gifted student-teachers for effective classroom delivery?
4. What relationship exists between curriculum transformation and the educational outcomes of gifted student-teachers?

Research Hypotheses

Two null hypothesis will be use for the study;

Ho_1: There is no significant difference between the influence of curriculum content relevance on the learning experiences of gifted student-teachers in Colleges of Education in North Central Nigeria.

Ho_2: There is no significant relationship between curriculum transformation and the educational outcomes of gifted student-teachers in Colleges of Education in North Central Nigeria.

Literature Review

Curriculum transformation involves redesigning curricular content to be more responsive to learners' diverse needs particularly those of gifted learners whose capabilities often exceed what traditional curricula offer. For gifted learners, relevant curriculum content must extend beyond fundamental competencies to incorporate advanced, complex, and enriching knowledge that stimulates higher-order thinking and problem solving, as well as opportunities for individualized inquiry and deeper conceptual engagement (Gifted Education Procedural Guide, 2024). Research on curriculum modification strategies accentuate that adapting content to better match gifted learners' strengths such as through curriculum compacting and acceleration permits learners to engage more deeply with advanced subject matter and avoid unnecessary repetition that can lead to boredom and underachievement (Renzulli Center for Creativity, Gifted Education, & Talent Development, 2025). Curriculum compacting in particular, allows educators to eliminate or streamline portions of traditional curricular content that learners have already mastered and replace them with more challenging tasks that enable gifted learners to pursue autonomous study, enriched projects and heightened cognitive exploration (Enrichment and Gifted Education Pedagogy, 2025). These insights highlight the central role that curriculum content relevance plays in fostering sustained engagement, higher-order thinking and intellectual growth among advanced learners.

One of the most widely acknowledged elements of curriculum transformation is the implementation of differentiation strategies that modify instructional content, processes and assessment to meet varied learner profiles. Differentiated instruction has been recognized as essential for addressing gifted learners' unique educational needs as it allows for the adaptation of teaching to meet diverse learning rates and cognitive capacities (Yüreğilli & Gelişli, 2023). Differentiation strategies such as enrichment, acceleration and compacting are associated with improved verbal creativity and problem-solving skills, demonstrating that when curriculum is adapted to gifted learners, it supports the development of advanced competencies (MDPI Sustainability, 2025). Research by Alegría & Kelly-Williams, (2022) also highlights that teachers frequently

EDITOR-IN-CHIEF
Prof. A.I. Mteiye [MALAWI]

encounter significant challenges in implementing differentiated curricula which can hinder the integration of differentiation into core instructional practices.

Studies by Papanthymou & Darra, (2023) indicate that barriers such as limited time for planning and preparation, lack of instructional resources, large class sizes and insufficient professional support restrict teachers' capacity to enact differentiation consistently. For example, limited planning time makes it difficult for teachers to design and adjust lessons that address individual learners' needs, particularly in classrooms with diverse ability levels (Alegría & Kelly-Williams, 2022). Also, Papanthymou & Darra, (2023) study examines second, third and fourth grade teachers found that conceptual misunderstandings and defensive attitudes toward differentiation can result from conflicting professional development experiences, leading teachers to implement strategies only superficially or postpone them until they are better aligned with their existing curriculum practices. These constraints stressed out that effective differentiation requires structural support, adequate resourcing, and clear professional learning pathways for teachers to successfully integrate differentiated instructional approaches as part of curriculum transformation, rather than treating them as optional or add-on activities (Alegría & Kelly-Williams, 2022; Papanthymou & Darra, 2023).

Curriculum transformation for gifted education requires teachers who are well prepared to design, adapt and implement enriched and differentiated instruction aligned with the unique needs of gifted learners. Effective teacher preparation and professional development improve educators' knowledge, skills, instructional confidence and classroom practices, which in turn positively influence student learning outcomes (Townend, Jolly & Chew, 2024). Sustained and evidence-based professional development enhances teachers' ability to differentiate curriculum content, process, and assessment for gifted learners and supports the adoption of Responsive instructional strategies that cater to a range of learner profiles (Townend et al., 2024). Equally, systematic reviews of professional development programmes in gifted education emphasize that professional learning should include collaborative activities, ongoing mentoring support, and evidence-based pedagogical practices to foster teacher growth and efficacy (Townend et al., 2024). Though, focused training models that integrate technology and specialized teaching methods for gifted learners have been shown to strengthen teachers' instructional competencies and confidence, particularly in adapting instruction to challenge advanced learners and personalize their learning experiences (Ayık & Gül, 2025). Collectively, these studies suggest that without sustained, targeted preparation and professional learning opportunities, teachers may lack the essential competencies needed for effective gifted education, thereby limiting the potential impact of curriculum transformation initiatives on the educational development of gifted student-teachers.

Transforming curricula to include relevant content and differentiated instruction, supported by robust teacher preparation, contributes to improved educational outcomes for gifted learners. Research on differentiated curriculum practices suggests that when gifted learners are provided with appropriately challenging content and instructional strategies tailored to their needs, they demonstrate improved engagement, creativity, and academic competence (MDPI Sustainability, 2025). Studies also show that gifted students' verbal and cognitive skills are enhanced when instructional strategies match their learning profiles through compacted and enriched curricula (MDPI Sustainability, 2025). In teacher education, curriculum transformation equips student-teachers with the necessary competencies to design and implement personalized instruction, increasing their readiness for professional practice. This readiness includes the ability to recognize giftedness, plan differentiated lessons and apply inclusive teacher strategies that support gifted learners' academic achievement and socio-emotional development. Collectively, these studies point to the positive impact that curriculum transformation can have on both learner engagement and teacher effectiveness when design and implementation are thoughtfully aligned with gifted education principles.

Although specific empirical studies on curriculum transformation for gifted education within Nigeria's Colleges of Education are limited, related evidence from studies on curriculum adaptation and differentiated instruction highlights significant gaps that transformation could address. For example, research conducted in Nigerian contexts indicates that regular teachers often lack sufficient knowledge in curriculum adaptation for gifted learners, suggesting a critical need for curriculum reforms that build differentiation competencies (Dada et al., 2023). Without such reforms, gifted student-teachers in North Central Nigeria may continue to be underprepared for meeting the learning needs of gifted learners in diverse classroom settings. Therefore, aligning curriculum transformation efforts with enhanced teacher preparation and differentiation strategies can help strengthen educational outcomes for gifted student-teachers and open pathways toward more equitable and inclusive teacher education in the region.

Research Methodology

This study adopted a descriptive survey research design to explore the perceptions, experiences, and educational outcomes of gifted student-teachers within the context of curriculum transformation. The design allowed for the systematic collection of quantitative data from the respondents without the manipulation of variables, thereby providing an objective, detailed account of the current curriculum practices and their influence on gifted student-teachers. The population for this study comprised all student-teachers enrolled in the Federal College of Education, Akwanga, Nasarawa State, and the College of Education, Minna, Niger State. The combined population of student-teachers

in these two institutions was approximately 3,500. Using Krejcie and Morgan's (1970) table for sample size determination, a representative sample of 350 student-teachers was drawn from the target population.

A stratified random sampling technique was utilized to select the participants proportionally across various academic departments and levels of study. This stratification ensured that students from different course combinations and stages of training had an equitable opportunity to be represented. The selected institutions Federal College of Education, Akwanga, and College of Education, Minna were chosen due to their prominent role in teacher education, the availability of gifted education-related courses, and their geographical representation within North Central Nigeria. Data were collected using a structured questionnaire titled *"Influence of Curriculum Transformation Questionnaire (ICTQ)"*, which was developed specifically for this study. The instrument was divided into four distinct sections: Section A: Demographic information of the respondents, Section B: Items measuring curriculum content relevance, Section C: Items measuring differentiation strategies and Section D: Items assessing teacher preparation and educational outcomes. The items were structured on a 4-point Likert scale, scored as: Strongly Agree (SA) = 4 points, Agree (A) = 3 points, Disagree (D) = 2 points and Strongly Disagree (SD) = 1 point respectively.

To establish the face and content validity of the instrument, the draft questionnaire was subjected to review by two experts in the Department of Curriculum Studies and Gifted Education at the University of Abuja, Nigeria. Their corrections, suggestions, and insights were integrated to refine the clarity, relevance, and coverage of the items. The reliability of the instrument was established through a pilot study conducted using 30 student-teachers from a College of Education in the region that was not part of the final sample. The internal consistency of the items was computed using Cronbach's Alpha, which yielded an overall reliability coefficient of 0.82. Since this value exceeded the threshold of 0.70, the instrument was deemed highly reliable and stable for field administration. The questionnaires were physically administered to the sampled student-teachers within their respective institutions with the assistance of research aides. Ethical protocols including securing informed consent, ensuring voluntary participation, and guaranteeing anonymity were strictly maintained throughout the field exercise. Out of the 350 copies distributed, 342 were successfully retrieved, cleaned, and processed for analysis, representing a 97.7% return rate.

Descriptive and inferential statistics were used to analyze the retrieved data. Research Questions 1, 2, and 3 were answered using mean score ($\bar{X}$) and standard deviation (SD), with a benchmark decision mean of 2.50. Mean scores of 2.50 and above indicated agreement/positive influence, while mean scores below 2.50 indicated disagreement/negative influence. Research Question 4 was answered using Pearson

Product-Moment Correlation (r). Hypothesis 1 (H01) was tested using an Independent Samples t-test to compare the mean perceptions of student-teachers across the two institutions, and Hypothesis 2 (H02) was tested using Pearson Correlation Analysis. All hypotheses were tested at a 0.05 level of significance.

Data Analysis and Results

Research Question 1: To what extent does curriculum content relevance influence the learning experiences of gifted student-teachers in Colleges of Education in North Central Nigeria?

Table 1: Mean and Standard Deviation of the Influence of Curriculum Content Relevance

S/N	Questionnaire Item	SA (4)	A (3)	D (2)	SD (1)	Mean ($\bar{X}$)	SD	Remark
1.	The integration of advanced and enriching content stimulates my critical thinking and problem-solving skills.	145	132	45	20	3.18	0.84	Agree
2.	Streamlining basic content via curriculum compacting allows me to focus on independent and deeper learning.	120	148	54	20	3.08	0.81	Agree
3.	The current curriculum lacks challenging materials, leading to intellectual boredom.	98	115	88	41	2.79	0.96	Agree
4.	Curricular activities encourage me to engage in autonomous research and complex conceptual projects.	65	112	110	55	2.55	0.94	Agree
	Grand Mean / Standard Deviation					**2.90**	**0.89**	**High Extent**

The data in Table 1 reveal that the grand mean score is 2.90, which is significantly above the benchmark mean of 2.50. This indicates that curriculum content relevance strongly influences the learning experiences of gifted student-teachers. Specifically, Item 1 scored the highest mean ($\bar{X}$=3.18), proving that advanced, enriching content stimulates critical thinking. However, the respondents also agreed that the lack of challenging academic materials sometimes leads to intellectual boredom ($\bar{X}$=2.79), underscoring the vital need for targeted curriculum transformation.

Research Question 2: How do differentiation strategies influence the instructional preparedness of gifted student-teachers?

Table 2: Mean and Standard Deviation of the Influence of Differentiation Strategies

S/N	Questionnaire Item	SA (4)	A (3)	D (2)	SD (1)	Mean ($\bar{X}$)	SD	Remark
5.	Exposure to differentiated teaching methods equips me to modify instructional content for diverse learners.	130	155	37	20	3.16	0.79	Agree
6.	Understanding how to apply acceleration and enrichment strategies increases my confidence to teach gifted children.	115	140	60	27	3.00	0.87	Agree

EDITOR-IN-CHIEF
Prof. A.I. Mteiye [MALAWI]

S/N	Questionnaire Item	SA (4)	A (3)	D (2)	SD (1)	Mean ($\bar{X}$)	SD	Remark
7.	Large class sizes and limited planning time in my college prevent me from practicing differentiation.	150	122	50	20	3.18	0.83	Agree
8.	I struggle to transition from theoretical models of differentiation to actual classroom application.	95	130	85	32	2.84	0.91	Agree
	Grand Mean / Standard Deviation					**3.05**	**0.85**	**Positive Influence**

Table 2 shows a grand mean of 3.05 (SD=0.85), showing that differentiation strategies significantly influence the instructional preparedness of gifted student-teachers. While student-teachers feel that differentiation training equips them with necessary competencies ($\bar{X}$=3.16), they also strongly indicate that systemic barriers such as large class sizes and limited preparation time ($\bar{X}$=3.18) severely hinder the practical execution of these strategies.

Research Question 3: In what ways do teacher preparation and professional development programmes affect the readiness of gifted student-teachers for effective classroom delivery?

Table 3: Mean and Standard Deviation of the Impact of Teacher Preparation & Professional Development

S/N	Questionnaire Item	SA (4)	A (3)	D (2)	SD (1)	Mean ($\bar{X}$)	SD	Remark
9.	Specialized courses in gifted education have improved my overall teaching competency and readiness.	125	142	55	20	3.09	0.83	Agree
10.	Practical mentoring and collaborative training programs help me master inclusive pedagogy.	108	150	64	20	3.01	0.81	Agree
11.	My training lacks hands-on technological tools and modern teaching resources for gifted learners.	138	118	62	24	3.08	0.88	Agree
12.	Continuous professional workshops are necessary to sustain my knowledge of curriculum modification.	162	128	42	10	3.29	0.75	Agree
	Grand Mean / Standard Deviation					**3.12**	**0.82**	**High Impact**

The results in Table 3 indicate a grand mean of 3.12 (SD=0.82). This implies that teacher preparation and professional development are vital pathways to cultivating classroom readiness among gifted student-teachers. The respondents strongly argued that continuous professional development and workshops are highly necessary for sustaining effective curriculum adaptation practices ($\bar{X}$=3.29).

EDITOR-IN-CHIEF
Prof. A.I. Mteiye [MALAWI]

Research Question 4: What relationship exists between curriculum transformation and the educational outcomes of gifted student-teachers?

Table 4: Pearson Correlation Matrix for Curriculum Transformation and Educational Outcomes

Variables	Mean ($\bar{X}$)	SD	N	Pearson Correlation Coefficient (r)	p-value	Decision
Curriculum Transformation	12.18	2.45	342	0.684*	0.000	Significant Relationship
Educational Outcomes	11.85	2.10	342			

**** Correlation is significant at the 0.05 level (2-tailed).***

Table 4 presents a calculated Pearson Correlation coefficient (r) of 0.684 between curriculum transformation (relevance, differentiation, and teacher training) and the educational outcomes of student-teachers. Because the calculated p-value (0.000) is less than the significance level of 0.05, a strong, positive, and statistically significant relationship exists between curriculum transformation efforts and the professional development outcomes of these pre-service teachers.

Hypothesis Testing

Hypothesis 1 (H01): There is no significant difference between the influence of curriculum content relevance on the learning experiences of gifted student-teachers in Colleges of Education in North Central Nigeria (FCE Akwanga vs. COE Minna).

Table 5: t-Test Comparison of Curriculum Content Relevance Mean Ratings by Institution

Institution	N	Mean ($\bar{X}$)	SD	df	calculated t-value	p-value	Decision
FCE Akwanga	182	11.55	2.22	340	1.124	0.262	Retain H01
COE Minna	160	11.28	2.18				

Interpretation of Table 5 (Hypothesis 1): An independent samples t-test was conducted to compare the mean scores of respondents from FCE Akwanga and COE Minna regarding the influence of curriculum content relevance. The results indicate that the calculated t-value is 1.124 and the p-value is 0.262 ($p>0.05$). Consequently, the null hypothesis (H01) is retained. This implies that there is no statistically significant difference between the perceptions of gifted student-teachers in FCE Akwanga and COE Minna regarding how

relevant, enriched curriculum content shapes their academic experience. Both groups share a highly similar perspective on its positive influence.

Hypothesis 2 (H02): There is no significant relationship between curriculum transformation and the educational outcomes of gifted student-teachers in Colleges of Education in North Central Nigeria.

Table 6: Hypothesis Testing for Pearson Correlation (H02)

Variables	N	r-value	p-value	Alpha Level	Decision
Curriculum Transformation vs. Educational Outcomes	342	0.684	0.000	0.05	Reject Ho 2

Interpretation of Table 6 (Hypothesis 2): Table 6 tests the second null hypothesis using the Pearson Product-Moment Correlation. The calculated correlation coefficient (r=0.684) shows a strong, positive linear relationship. Because the associated p-value is 0.000, which is well below the threshold of 0.05, the null hypothesis (H02) is rejected. The study concludes that there is indeed a highly significant relationship between curriculum transformation and the educational outcomes of gifted student-teachers in North Central Nigeria. Effective, deliberate curriculum transformation directly maps to improved academic performance, instructional confidence, and pedagogical readiness among student-teachers.

Findings

The first objective of this study was to determine the influence of curriculum content relevance on the learning experiences of gifted student-teachers. The descriptive analysis yielded a high grand mean of 2.90, indicating that aligning curriculum content with the advanced cognitive profiles of gifted learners significantly improves their educational engagement. Specifically, the integration of advanced, enriched content (Mean = 3.18) was shown to directly stimulate critical thinking and problem-solving skills. This finding aligns with the Renzulli Center for Creativity, Gifted Education, & Talent Development (2025), which asserts that modifying content through acceleration and curriculum compacting prevents underachievement and sustains cognitive stimulation. However, the findings also revealed a critical paradox: student-teachers agreed that the existing curriculum frequently lacks challenging materials, resulting in intellectual boredom (Mean = 2.79). This reflects the systemic gap identified by Dada, Fagbemi, and David (2023) regarding the limitations of general curricular frameworks in Nigeria. When testing the first null hypothesis (*H*01), the independent samples t-test (*t*=1.124, *p*=0.262) showed no statistically significant difference between the perceptions of student-teachers at FCE

Akwanga and COE Minna. Both cohorts shared the view that a relevant, enriched curriculum is vital to their development. This consensus emphasizes that the demand for curriculum content reform is a systemic, region-wide issue rather than an isolated institutional challenge.

The second objective explored how exposure to differentiation strategies influences the instructional preparedness of pre-service teachers. The grand mean of 3.05 suggests a strong positive influence. Student-teachers acknowledged that learning to modify content, process, and products for diverse learners builds their professional confidence (Mean = 3.16), supporting the findings of Yüreğilli and Gelişli (2023), who frame differentiation as a foundational practice for inclusive education. Despite this positive perception, the study highlights a significant gap between theory and classroom execution. Respondents strongly agreed that structural barriers, such as large class sizes and limited preparation time (Mean = 3.18), severely restrict their ability to practice differentiation. They also noted difficulties in transitioning from theoretical models of differentiation to actual classroom application (Mean = 2.84). These results validate the work of Papanthymou and Darra (2023) and Alegría and Kelly-Williams (2022), which identifies planning constraints and inadequate resources as major barriers to implementing differentiated instruction. For colleges of education in North Central Nigeria, this means that teaching the theory of differentiation is insufficient; teacher training institutions must also address the practical, systemic challenges that pre-service teachers face during teaching practice.

The third objective assessed the impact of teacher preparation and professional development on student-teachers' readiness for classroom delivery. With a high grand mean of 3.12, the findings indicate that structured training is a key predictor of teacher efficacy. Respondents strongly expressed the need for continuous professional workshops to sustain their knowledge of curriculum modification (Mean = 3.29). This is consistent with Townend, Jolly, and Chew (2024), who argue that sustained, evidence-based professional development involving mentoring and collaboration is crucial for building long-term teacher competence. The data also pointed to a lack of hands-on technological tools and modern instructional resources for gifted learners (Mean = 3.08). This gap restricts pre-service teachers from adopting interactive, high-tech pedagogical approaches. As noted by Ayık and Gül (2025), integrating modern educational technology with specialized gifted education training is essential for equipping teachers to personalize instruction. Addressing this resource gap in Nigerian Colleges of Education is critical to producing graduates who can lead inclusive, modern classrooms.

The fourth objective sought to evaluate the relationship between curriculum transformation and the educational outcomes of gifted student-teachers. The Pearson Correlation analysis revealed a strong, positive, and statistically significant relationship

(*r*=0.684, *p*=0.000). Consequently, the second null hypothesis (*H*02) was rejected. This statistical relationship indicates that systematic efforts to transform the curriculum by enriching content, integrating differentiation, and strengthening teacher preparation directly correspond to improved academic performance, instructional confidence, and pedagogical readiness among pre-service teachers. This finding supports the broader literature (such as MDPI Sustainability, 2025) showing that when curriculum design, instructional delivery, and teacher training are aligned with gifted education principles, student-teachers are better equipped to recognize, support, and cultivate exceptional potential in their future classrooms.

Conclusion

This study demonstrates that transforming the curriculum within Colleges of Education in North Central Nigeria is vital for improving the academic experiences and professional readiness of student-teachers. While enriching curriculum content and introducing differentiation strategies significantly enhance cognitive engagement and teaching confidence, systemic barriers such as rigid, traditional curricular frameworks, large class sizes, limited planning time, and a lack of instructional resources limit the transition from theory to practice. The strong statistical relationship between curriculum transformation and educational outcomes shows that structured reforms in teacher preparation directly improve pre-service teachers' pedagogical capabilities. To produce teachers capable of meeting the needs of diverse learners, teacher education programmes must move beyond traditional, one-size-fits-all models and embrace flexible, resource-rich, and differentiated training frameworks.

Recommendations

Based on the findings of this study, the following recommendations are made:

1. The National Commission for Colleges of Education (NCCE) should reform teacher training curricula to incorporate advanced, enriched content and curriculum compacting techniques. This will help prevent intellectual boredom among gifted student-teachers and equip them with the skills to design advanced learning pathways for their future students.
2. College administrators should address structural constraints by optimizing class sizes, allocating dedicated lesson-planning periods during teaching practice, and integrating practical, hands-on micro-teaching sessions focused on differentiation.
3. Governments and institutional proprietors should equip Colleges of Education with modern educational technology and specialized instructional materials for gifted education, ensuring pre-service teachers gain experience with contemporary teaching tools.

EDITOR-IN-CHIEF
Prof. A.I. Mteiye [MALAWI]

4. Colleges of Education should establish mandatory, collaborative professional workshops and mentoring programmes focused on inclusive and gifted pedagogies to sustain student-teachers' instructional readiness.
5. Educational policymakers in Nigeria should design and implement dedicated teacher training guidelines that make specialized courses in gifted and talented education a core requirement for all pre-service teachers.

References

Alegría, M., & Kelly-Williams, N. (2022). Barriers to implementing differentiated instruction in diverse classrooms: Teacher perceptions and experiences. *Journal of Educator Development, 12*(3), 45–60.

Ayık, Z., & Gül, M. D. (2025). *Enhancing teachers' GTPACK competencies in gifted education: The impact of GIFTLED AR integrated enrichment method*. Education and Information Technologies. Springer Link

BMC Psychology, (2025). *Sustained primary teacher provision for the gifted: The influence of gifted conceptions on nomination and differentiation*. 13, Article 901.

Dada, O. A., & Ani, A. (2019). Evaluation of instructional delivery in gifted education programme in Nigeria. *International Journal of Development Research,* 09 (1) 56-68.

Dada, O. A., Fagbemi, O. O., & David, U. M. (2023). Assessment of teacher knowledge of curriculum adaptation for gifted children in Rivers State, Nigeria. *International Journal Of Applied Research And Innovative Development.* 3 (2) 88-102.

Enrichment and Gifted Education Pedagogy to Develop Talents, Gifts, and Creative Productivity. (2025). *Education Sciences*, 11(10), 615. https://www.mdpi.com/2 227-7102/11/10/615.

Gifted Education Procedural Guide. (2024). *Procedural guide for gifted education: Differentiation, acceleration and content modification*. Florida District Schools. Retrieved from https://fl01803656.schoolwires.net/cms/lib/FL01803656/Centricity/Domain/18844/2024%20Gifted%20Procedural%20Safeguards.pdf.

Gil Jr., T. O. (2022). *Curriculum models in gifted education: A comparative study for 21st-century schools*. Journal of Education Research, 6(4). jer.or.id

International Journal of Educational Research Open. (2025). *A scoping review and thematic analysis of differentiated instruction practices: How teachers foster inclusive classrooms for all students, including gifted students*. 8, 100439. ScienceDirect

International Journal of Educational Research Review. (2023). *Differentiation models for the curriculum of gifted and talented individuals: A literature review*. ijere.com

Ireland, C., Bowles, T. V., Brindle, K. A., & Nikakis, S. (2021). *Curriculum differentiation's capacity to extend gifted students in secondary mixed-ability science classes*. TALENT, 10(1), 40–61.

MDPI Sustainability. (2025). *The effect of differentiated social studies curriculum on secondary school gifted students' verbal creativity*. 15(12), 9205.

Papanthymou, E., & Darra, E. (2023). Understanding teachers' integration of differentiated curriculum and pedagogy: Challenges and professional development implications. *Journal of Curriculum Studies,* 55(4), 510–529.

Renzulli Center for Creativity, Gifted Education, & Talent Development. (2025). *Curriculum compacting: A systematic procedure for modifying the curriculum for above-average ability students*. University of Connecticut. Retrieved from https://gifted.uconn.edu/schoolwide-enrichment-model/curriculum _compacting/ Renzulli Center for Creativity.

Townend, G., Jolly, J. L., & Chew, A. W. (2024). Professional development in gifted education: A systematic literature review. *Australian Journal of Teacher Education*, 49(6). https://doi.org/10.14221/1835-517X.6515.

Yüreğilli Göksu, D., & Gelişli, Y. (2023). Differentiation models for the curriculum of gifted and talented individuals: A literature review. *International Journal of Educational Research Review*, 8(2), 268–279.

ACKNOWLEDGEMENT

The commitment of Tertiary Education Trust Fund (TETFUND) to the advancement of research and academic development is commendable, and I am sincerely appreciative of their dedication to fostering excellence in tertiary education. Their support has not only facilitated the realization of this research but has also contributed significantly to the broader goals of promoting knowledge, innovation, and scholarly pursuits within the academic community.

EDITOR-IN-CHIEF
Prof. A.I. Mteiye [MALAWI]