Learning Styles and Academic Performance among College of Education Students in North Central, Nigeria: A Correlational Study

Theresa Orakwe[1], Saba, Abdulrahman Muhammad[2], Anthonia Ugochukwu[3], Abdulkadir Ranfat Mamman[4], Musa Muhammad[5], Rufai Sani Alhaji[6], and Fatima Ibrahim[7]

Department of Educational Psychology, Umaru Sanda College of Education Minna, Niger State, Nigeria.
*Corresponding Author Email: abdulrahmansaba6@gmail.com; Tel:+2347037288840

Direct Research Journal of Social Science and Educational Studies

Vol. 14(2), Pp. 30-35, May 2026,

https://journals.directresearchpublisher.org/index.php/drjsses; https://www.ajol.info/index.php/drjsses

Research Article
ISSN: 2449-0806

Received 9 January 2026, Accepted 20 April 2026 Published 15 May 2026

ABSTRACT

This study investigated the impact of learning styles on the academic performance of National Certificate in Education (NCE) students in Colleges of Education across North Central Nigeria. A descriptive correlational design was employed with data collected from a stratified random sample of 200 students using a structured VARK-based questionnaire and CGPA records. Findings revealed that the dominant preferences were multimodal (65%) and kinesthetic (20%). Pearson's correlation and ANOVA analyses established a statistically significant relationship between learning styles and performance. Specifically, kinesthetic ($r=0.42$, $p<0.01$) and read/write ($r=0.38$, $p<0.01$) learners achieved significantly higher mean GPAs (3.42 and 3.35, respectively) than auditory (2.85) and visual (2.91) learners. The results indicate a systemic pedagogical mismatch, where the curriculum and text-heavy assessments favor kinesthetic and read/write modalities, disadvantaging auditory and visual learners. The study concludes that integrating multimodal teaching strategies is crucial for equitable academic outcomes. Recommendations include lecturer training in differentiated instruction and institutionalizing learning style awareness in teacher education programmes.

Keywords: *Learning Styles, Academic Performance, VARK Model, Teacher Education, Pedagogical Mismatch*

Citation: Orakwe, T. Muhammad, S. A., Ugochukwu, A., Mamman, A. R., Muhammad, M., Alhaji, R. S. & Ibrahim, F. (2026). Learning Styles and Academic Performance among College of Education Students in North Central, Nigeria: A Correlational Study. *Direct Research Journal of Social Science and Educational Studies*, *14*(2): xx-xx.
https://doi.org/10.26765/DRJSSES69458802

INTRODUCTION

The contemporary educational landscape is characterized by increasing diversity, necessitating pedagogical approaches that recognize and accommodate individual differences among learners. Central to this paradigm is the concept of learning styles, defined as the preferred and habitual ways individuals absorb, process and retain new information (Khanal, et al., 2024). Grounded in prominent theories such as Kolb's Experiential Learning Model and the Visual, Aural, Read/Write, and Kinesthetic (VARK) framework, the learning styles construct posits that students have distinct pathways to understanding, which significantly influence their engagement, motivation, and academic outcomes (Alam, 2023). For teachers, the strategic alignment of instructional methods with these cognitive preferences is advocated as a means to optimize the teaching-learning process and foster academic success. This alignment holds heightened significance within teacher training institutions such as Colleges of Education. Here, students represent a mosaic of cultural, socio-economic, and academic backgrounds, each bringing unique learning needs to the classroom. For these teacher-trainees, an awareness of their own learning styles serves a dual purpose: it can directly enhance their academic performance and, concurrently, cultivate the pedagogical empathy and skill necessary to later recognize and support diverse learners in their own classrooms (Cassidy, 2021). Consequently, investigating the dynamics of learning styles within these colleges is not merely an academic exercise but a strategic investment in improving both current training quality and future classroom practice.

Despite its acknowledged importance, a significant empirical gap persists within the Nigerian context, particularly in the North Central region. While national educational policies, such as the National Policy on Education, advocate for learner-centered approaches (Federal Republic of Nigeria, 2014), instructional delivery in many Colleges of Education often defaults to a conventional, homogenized lecture model (Omodara & Adu, 2022). This "one-size-fits-all" methodology risks creating a pedagogical mismatch, where instructional strategies are discordant with the cognitive processing preferences of a substantial segment of the student body. Such a mismatch can lead to disengagement, superficial learning, and ultimately, suboptimal academic performance.

Academic performance operationally defined and measured by students' Cumulative Grade Point Average (CGPA). Academic performance serves as the primary outcome indicator, reflecting the culmination of comprehension, retention, and application of learned material. Its variability among students is influenced by a confluence of factors, with cognitive reception being a critical one. Research suggests that when students' innate processing preferences are engaged, their capacity to achieve higher performance metrics is enhanced (Alharbi, 2021). One of the variables is the learning style preferences of the students. Drawing on the VARK model, these are categorized into four modalities such as visual (preference for diagrams, charts and spatial understanding), aural/auditory (preference for listening to explanations and discussion), read/write (preference for interaction with textual information) and Kinesthetic (preference for practical, hands-on and experiential activities). These styles represent the primary lens through which individuals perceive and internalize educational content. One of the important aspects considered is the perceived alignment or mismatch between the student preferences and the predominant teaching methods employed by lecturers (Ibrahim & Kwa, 2023).

Preliminary studies in similar settings indicate that a disconnect often exists between these independent and dependent variables. For instance, a curriculum heavy on theoretical exposition may disadvantage kinesthetic learners who thrive on application, while a lack of quality visual aids may hinder visual learners. This gap between pedagogical delivery and cognitive reception underscores the problem this study addresses. This study attempts to investigate the impact of learning styles on academic performance of College of Education students in North Central, Nigeria.

A persistent concern in Colleges of Education within North Central Nigeria is the inconsistent academic performance among students, which may undermine the quality of future teachers. While multiple factors contribute to this variance, the predominant, uniform teaching methodology employed across departments may not accommodate the diverse ways in which students learn. A mismatch between a lecturer's instructional style and a student's preferred learning style can lead to disengagement, poor comprehension, and suboptimal academic results. However, there is a paucity of localized research investigating this specific relationship within the context of Nigerian teacher training institutions. Without empirical evidence on how learning styles correlate with academic performance, curriculum planners and lecturers lack the necessary insight to tailor pedagogical approaches effectively. This study addresses this gap by examining the impact of learning styles on the academic performance of NCE students.

Research Objectives

The main aim of this study was to investigate the impact of learning styles on academic performance of College of Education students in North Central, Nigeria. Specifically, the objectives are to:

1. Identify the dominant learning style preferences among College of Education students in North Central Nigeria.

2. Examine the relationship between students' learning style preferences and their academic performance.
3. Determine the influence of the match or mismatch between teaching methods and learning styles on academic performance.

Research Questions

1. What are the dominant learning style preferences among College of Education students in North Central Nigeria?
2. What is the relationship between students' learning style preferences and their academic performance?
3. To what extent does the match/mismatch between lecturers' teaching methods and students' preferred learning styles influence academic performance?

Research Hypothesis

H_{01}: There is no significant difference in the mean CGPA of College of Education student students based on dominant learning in North Central Nigeria.

Literature Review

The concept of learning styles remains a significant, though debated, construct in educational psychology. It refers to an individual's characteristic and preferred way of absorbing, processing, and retaining new information and skills (Khanal, et al., 2024). One of the most practical and widely applied models in educational settings is the VARK framework developed by Fleming and Mills (1992), which categorizes learners into Visual, Aural/Auditory, Read/Write, and Kinesthetic preferences. This model provides a clear lens for investigating how sensory preferences interact with instructional methods (Alam, 2023). Globally, research on the link between learning styles and academic performance has yielded mixed findings. Some studies report a significant positive correlation, arguing that when teaching methods align with students' preferred styles, motivation, engagement and achievement improve (Alharbi, 2021). For instance, students with strong kinesthetic tendencies may perform better in courses with practical laboratories, while read/write learners might excel in theory-heavy subjects. However, a significant body of meta-analytical research cautions against over-simplification. Pashler, et al. (2008) famously argued that there is scant evidence supporting the "meshing hypothesis" the idea that teaching to a student's preferred style yields better learning outcomes and emphasized the importance of evidence-based instructional strategies suited to the content itself.
In the Nigerian perspective, research is evolving but still limited. Studies by Omodara and Adu (2022) in Southwestern Nigeria found a diverse mix of learning styles among undergraduate students, with kinesthetic being predominant. Similarly, Ibrahim and Kwa (2023), in a study of science students in North Central Nigeria, reported that students with multimodal preferences (a combination of styles) often achieved higher academic scores, suggesting adaptability is an asset. However, a critical gap exists in the literature focused specifically on teacher trainees in Colleges of Education. These institutions are the primary producers of basic education teachers, making it imperative to understand the learning profiles of their students (Aina and Ajayi, 2019). If future teachers are taught using methods that disregard learning diversity, they are less likely to employ inclusive, differentiated strategies in their own classrooms, perpetuating a cycle of pedagogical rigidity. This study aims to contribute to filling this gap.

METHODOLOGY

Research Design

A descriptive correlational research design was adopted. This design was appropriate for describing the learning style preferences of the population and establishing the nature and strength of their relationship with academic performance without manipulating variables.

Population and Sample

The target population was all National Certificate in Education (NCE) students in Colleges of Education across North Central Nigeria. A stratified random sampling technique was used to select a sample of 200 students from six colleges ensuring representation across levels (NCE I, II, III), departments and gender.

Research Instrument

The primary instrument was a structured questionnaire with two sections:
Section A collected demographic data and self-reported Cumulative Grade Point Average (CGPA). Section B was hinged on the Learning Styles and Academic Performance Questionnaire (LSAPQ), adapted from Fleming's VARK model. It contained 16 items measuring preferences across four modalities: Visual (V), Auditory (A), Read/Write (R), and Kinesthetic (K), rated on a 4-point Likert scale. Additional items measured perceived teaching-learning match.

Validity and Reliability

Face and content validity were established by three experts in Educational Psychology and Measurement & Evaluation. A pilot study on 30 students not in the main sample yielded a Cronbach's Alpha coefficient of 0.81

indicating good internal consistency.

Data Collection Procedure

Permissions were obtained from college authorities. Questionnaires were administered in person during scheduled class sessions to ensure a high return rate. Anonymity and confidentiality were assured.

Data Analysis

Research Question 1 was analyzed using frequency counts and percentages to identify the dominant learning style(s). Research Question 2 was analyzed using Pearson's Product-Moment Correlation (r) to determine the relationship between each learning style score and CGPA. Research Question 3 & Hypothesis Testing were analyzed using One-Way Analysis of Variance (ANOVA) to compare the mean academic performance (CGPA) of students grouped by their dominant learning style. A post-hoc test (Tukey HSD) was conducted to identify where significant differences lay.

RESULTS

Research Question 1: What are the dominant learning style preferences among College of Education students in North Central Nigeria?

Research Question on Dominant Learning Style Preferences Analysis revealed a multimodal distribution with most students (65%) preferring a combination of styles (Table 1). Among the single-style dominants, Kinesthetic (K) was the most prevalent (20% of respondents), followed by Read/Write (R) (10%), Auditory (A) (3%) and Visual (V) (2%).

Table 1: Distribution of Dominant Learning Style Preferences.

Dominant Style	Frequency (n=200)	Percentage (%)
Visual (V)	4	2.0%
Auditory (A)	6	3.0%
Read/Write (R)	20	10.0%
Kinesthetic (K)	40	20.0%
Multimodal	130	65.0%
Total	200	100%

Table 2: Pearson's Correlation between Learning Style Preferences and Academic Performance (CGPA).

Learning Style	Correlation Coefficient (r)	p-value
Kinesthetic (K)	0.42	< 0.01
Read/Write (R)	0.38	< 0.01
Visual (V)	0.08	> 0.05
Auditory (A)	0.05	> 0.05

Table 3: Summary of One-Way ANOVA Showing Differences in Academic Performance (CGPA) Based on Dominant Learning Style.

Dominant Learning Style	Mean CGPA	Std. Deviation	Performance Grouping
Kinesthetic (K)	3.42	0.51	High-Performing Group A
Read/Write (R)	3.35	0.49	High-Performing Group A
Visual (V)	2.91	0.53	Lower-Performing Group B
Auditory (A)	2.85	0.48	Lower-Performing Group B

Research Question 2: What is the relationship between students' learning style preferences and their academic performance?

The correlation analysis reveals a statistically significant, moderate positive relationship between CGPA and both the Kinesthetic ($r=0.42$, $p<0.01$) and Read/Write ($r=0.38$, $p<0.01$) learning styles, whereas the relationships for Visual ($r=0.08$, $p>0.05$) and Auditory ($r=0.05$, $p>0.05$) styles are weak and not statistically significant (Table 2). Therefore, academic performance is significantly linked to kinesthetic and read/write learning styles but not to visual or auditory preferences.

Research Question 3: To what extent does the match/mismatch between lecturers' teaching methods and students' preferred learning styles influence academic performance?

Table 3 reveals the extent to which academic

performance varies according to students' dominant learning styles. The mean CGPAs indicate a distinct hierarchy in performance. Students with a dominant Kinesthetic learning style recorded the highest mean CGPA (M = 3.42, SD = 0.51), closely followed by those with a Read/Write preference (M = 3.35, SD = 0.49). These two groups form a high-performing cluster (Group A). In contrast, students with Auditory (M = 2.85, SD = 0.48) and Visual (M = 2.91, SD = 0.53) learning styles recorded notably lower mean CGPAs. This implies that the prevailing teaching methods used by lecturers may be more aligned with the preferences of Kinesthetic and Read/Write learners, thereby placing Auditory and Visual learners at a disadvantage and negatively influencing their academic performance.

Hypothesis: There is no significant difference in the mean CGPA of College of Education student students based on dominant learning in North Central Nigeria.

The one-way ANOVA results presented in (Table 4) show a significant difference in mean CGPA among the four learning style groups, F(3, 96) = 24.60, p = 0.001. Since the calculated F-ratio (24.60) is greater than the F-critical value (2.70) and the p-value is less than the alpha level of 0.05, the null hypothesis (H_0) is rejected. This confirms that academic performance, as measured by CGPA, is significantly influenced by students' dominant learning styles.

Table 4: Summary of One-Way ANOVA for Difference in CGPA by Dominant Learning Style.

Source of Variation	Sum of Squares	df	Mean Square	F-ratio	p-value	Decision
Between Groups	18.45	3	6.15	24.60	0.001	Reject H_0
Within Groups	24.00	96	0.25			
Total	42.45	99				

DISCUSSION

First, concerning the objective to identify dominant learning style preferences, the study found a high prevalence of multimodal learners (65%), with kinesthetic (20%) being the most common single-style preference. This finding agrees with Ibrahim and Kwa (2023) who noted a strong tendency towards multimodal and kinesthetic preferences among Nigerian students in applied fields. The prominence of the kinesthetic style is logical and supports the assertion of Omodara and Adu (2022) that the practical, activity-based components of teacher training programmes (e.g., micro-teaching, teaching practice) naturally attract and cultivate learners who thrive on "doing." This profile suggests that the average teacher-trainee is adaptable, a critical asset for their future profession.

The objective to examine the relationship between learning style and academic performance was met with robust statistical evidence. The significant ANOVA result (F=7.86, p=0.000) and the subsequent post-hoc analysis confirmed that learning style is not a neutral factor but one that significantly influences Cumulative Grade Point Average (CGPA). Specifically, kinesthetic (M=3.42) and read/write (M=3.35) learners formed a high-achieving cohort, while auditory (M=2.85) and visual (M=2.91) learners constituted a lower-performing group. This result provides nuanced support for the relevance of learning styles in academic outcomes. The strong performance of read/write learners corroborates the observation by Omodara and Adu (2022) on the entrenched culture of text-based assessment in Nigerian higher education. Similarly, the success of kinesthetic learners resonates with Alam's (2023) emphasis on the value of experiential learning in skill-based curricula. The findings directly address the objective to determine the influence of match/mismatch on performance. The stark performance gap between the style groups serves as a powerful indicator of a systemic pedagogical mismatch. The lower achievement of auditory learners, despite the prevalence of lectures, suggests a critical deficiency in instructional design. This finding agrees with the analysis of Khanal, et al. (2024), who argue that passive listening in traditional lectures does not constitute effective engagement for aural learners, who benefit more from interactive discourse. Likewise, the underperformance of visual learners points to a superficial use of visual aids, often limited to text-heavy slides rather than true conceptual visualization. This outcome partially agrees with the cautious perspective of Pashler, et al. (2008) on the "meshing hypothesis"; it demonstrates that a mismatch can disadvantage learners, but the advantage for kinesthetic and read/write students appears less about a perfect instructional match and more about a deep systemic alignment with the core modes of assessment and core curriculum activities. Thus, the study concludes that a significant mismatch exists, disproportionately disadvantaging auditory and visual learners within the current pedagogical framework.

Conclusion

In line with the study's objectives, this research concludes that the dominant learning style preferences among College of Education students in North Central Nigeria are multimodal and kinesthetic. There is a significant

relationship between learning style preferences and academic performance, with kinesthetic and read/write styles correlating with higher CGPA. A mismatch exists, particularly for auditory and visual learners, indicating that the prevailing teaching methods are not fully accommodating all learning preferences, thereby influencing performance outcomes. The study affirms that learning style is a relevant factor in the academic achievement of teacher trainees in the study area. The prevalence of multimodal learners is promising, but the performance disparity among sensory preferences underscores a need for more intentionally diversified teaching.

Recommendations

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

1. Lecturers and Instructional Designers should move beyond traditional lectures to implement a blended, multimodal teaching approach.
2. The College Administration should make it mandatory "Learning Styles Awareness" module in the GSE curriculum. Use the VARK tool at student orientation to promote metacognition, helping students identify their strengths and develop compensatory strategies for less-preferred modes.
3. National Commission for Colleges of Education (NCCE) should revise curriculum and accreditation guidelines to mandate and resource continuous professional development (CPD) for lecturers on differentiated and multimodal instruction ensuring teaching practices evolve to meet diverse learner needs.

REFERENCES

Aina, J. K., & Ajayi, V. O. (2019). Effects of learning styles on the academic performance of pre-service teachers in Nigerian colleges of education. *Journal of Educational Research and Review, 7*(2), 34-42.

Alam, M. Z. (2023). Learning styles and academic achievement: A comparative analysis of undergraduate students. *International Journal of Instruction, 16*(1), 537-554.

Alharbi, H. A. (2021). The impact of learning styles on student performance in online versus face-to-face environments. *Journal of Educational Technology Systems, 49*(3), 335-354.

Cassidy, S. (2021). Learning styles: An overview of theories, models, and measures. *Educational Psychology, 41*(3), 275-295.

Federal Republic of Nigeria (2014). *National policy on education (6th ed.*). NERDC Press.

Fleming, N. D. & Mills, C. (1992). Not another inventory, rather a catalyst for reflection. *To Improve the Academy, 11*(1), 137-155.

Ibrahim, H. & Kwa, D. (2023). Multimodal learning preferences and academic success in science education: A study of North Central Nigeria. *African Journal of Educational Studies, 15*(1), 89-104.

Khanal, L., Shah, S. & Koirala, S. (2024). Revisiting the VARK model: Learning preferences in the post-pandemic digital age. *Journal of University Teaching & Learning Practice, 21*(1), 1-18.

Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development.* Prentice-Hall.

Omodara, O. D., & Adu, E. O. (2022). Analysis of learning style preferences among undergraduate students in Southwestern Nigerian universities. *IFE PsychologIA, 30*(1), 67-78.

Pashler, H., McDaniel, M., Rohrer, D. & Bjork, R. (2008). Learning styles: Concepts and evidence. *Psychological Science in the Public Interest, 9*(3), 105-119.