

Enhancing Critical Thinking Skills in Nigerian Undergraduates

Odetade Ibitayo O.

Department of English

Adeyemi Federal University of Education

Ondo, Nigeria

odetadeio@afued.edu.ng

Adesuyi Omolola P.

Ph.D. Department of English

Adeyemi Federal University of Education

Ogun, Nigeria

adesuyiop@afued.edu.ng

Ade-Ali, Funmilayo A.

Ph.D. Nigeria and Department of Philosophy

Olabisi Onabanjo University

Ogun, Nigeria

ade-ali.funmilayo@oouagoiwoye.edu.ng

Abstract

Nigerian undergraduates often struggle to analyse complex information, evaluate evidence and develop well-supported arguments, hindering their academic and professional success. This study is to improve the level of creativity among them, develop effective communication in teaching-learning situations and analyse complex problems and identify key issues. Critical thinking is a reflective process of actively analyzing, evaluating, and synthesizing information in order to make reasonable judgments or decisions. The analysis was carried out with the use of goggle form questionnaire in getting data from one hundred and fifty (150) undergraduate students of Adeyemi Federal University of Education, Ondo. The data was analysed with the usage of Edward Glaser's (1941) Critical Thinking Theory emphasizing the importance of critical thinking in education and everyday life. The findings revealed that critical thinking skill in Nigerian undergraduates can be achieved and enhanced through inquiry-based learning, instructional practices, encouraging active participation and fostering a supportive environment for the students. By prioritising critical thinking, Nigerian Universities can empower students to become independent thinkers, better equipped to tackle complex challenges in their academic and professional pursuits. It was recommended that in enhancing critical thinking skills in Nigerian undergraduates, critical thinking should be integrated into the curriculum, there should be inquiry-based learning, professional development for lecturers and free access to resources.

Keywords: Critical thinking, undergraduates, communication, learning, education

Introduction

Nigerian undergraduates often struggle to analyse complex information, evaluate evidence and develop well-supported arguments, hinderin

g their academic and professional success. This leads to poor problem-solving abilities, limited creativity, and adequate decision-making, ultimately affecting their employability and contribution to society. Also, Nigerian undergraduates frequently rely on memorization rather than critical thinking, resulting in a shallow understanding of concept and limited ability to navigate complex information landscapes, evaluate sources, make informed decisions, compromising their academic and professional integrity.

Literature Review

1. Impact of Nigerian Culture on Critical Thinking

The influence of culture on cognitive development and learning patterns is well documented, and in the Nigerian context, cultural values and norms significantly shape how individuals engage with ideas and express critical thought. Nigerian culture, characterized by strong respect for hierarchy, collectivism, and elder authority, often fosters an environment where questioning or challenging dominant perspectives is discouraged (Phillips, 2023). This cultural orientation may suppress the development of critical thinking, which thrives on open inquiry, skepticism, and independent reasoning. A major cultural barrier is the emphasis on rote learning and obedience in educational and social settings. According to Okebukola (2002), the Nigerian education system, heavily influenced by traditional expectations, tends to reward conformity and memorization over analytical reasoning. Students often refrain from expressing dissenting views due to cultural expectations of respect for teachers and elders, thereby limiting opportunities for cognitive exploration and debate (Adeyemi&Adeyinka, 2003).

The value placed on communal consensus rather than individual assertion can hinder critical analysis and the articulation of personal perspectives. Marvi (2023) argue that in such collectivist settings, students are socialized to value group harmony over critical discourse, which

may result in passive learning habits and limited engagement with controversial or abstract ideas. However, some scholars suggest that indigenous Nigerian cultures do possess elements conducive to critical thinking, such as storytelling, proverbs, and oral traditions that encourage reflection and interpretation (Gbeleyi et al., 2023). These cultural resources, if integrated meaningfully into modern pedagogy, could support the cultivation of critical reasoning in contextually relevant ways.

2. Role of Language and Communication in Critical Thinking

Language is a fundamental tool for thought, and its role in shaping critical thinking cannot be overstated. In the Nigerian context, where over 500 indigenous languages exist alongside English—the official language of instruction—language serves as both a bridge and a barrier to cognitive development. The ability to articulate, question, analyze, and evaluate ideas critically is intrinsically tied to linguistic competence (Vygotsky, 1986). Where language proficiency is weak, especially in English, learners may struggle to fully engage in analytical reasoning tasks. English, as the primary medium of instruction in Nigerian schools, often poses challenges for students whose first language is not English. According to Bamgbose (2000), this linguistic mismatch can impede comprehension and limit students' ability to formulate and express critical arguments effectively. The problem is compounded by the fact that many teachers themselves may not have a high command of English, reducing their capacity to model critical discourse and engage students in dialogic teaching (Olaoye, 2013).

Communication styles rooted in cultural expectations also play a role. Nigerian communication tends to be high-context, indirect, and deferential, especially in hierarchical settings. These patterns may inhibit the kind of open, direct questioning and debate that critical thinking demands. Students may avoid challenging a teacher's viewpoint out of fear of appearing disrespectful, thereby suppressing critical engagement. However, when learners are taught in their

mother tongue, especially in early education, they tend to perform better cognitively. UNESCO (2003) emphasizes that mother-tongue instruction in early learning enhances critical reasoning, comprehension, and creativity. Some Nigerian scholars, like Fafunwa (1974), have long advocated for bilingual or mother-tongue-based education to promote deeper conceptual learning and cognitive flexibility. In essence, language and communication serve as both the medium and structure of thought. Where students can express themselves clearly, and where classroom communication encourages dialogue rather than monologue, the development of critical thinking is more likely to thrive.

3. Innovative Approaches to Assessment and Evaluation

Traditional assessment methods, particularly in many Nigerian educational settings, have been largely summative and reliant on standardized testing and rote memorization. These conventional techniques often fail to assess students' ability to think critically, solve problems, or apply knowledge in novel situations (Okpala & Onocha, 2011). As a result, there has been a growing global and local shift toward innovative assessment methods that align with the development of critical thinking, creativity, and real-world application.

Performance-based assessment, one such innovative method, evaluates students through practical tasks such as debates, problem-solving scenarios, and project-based work. These methods require learners to synthesize information, evaluate alternatives, and defend their choices—core components of critical thinking (Darling-Hammond & Adamson, 2010). In Nigerian universities, pilot programs introducing project-based assessments in fields like engineering and education have shown improved student engagement and analytical reasoning (Oyewo et al., 2022).

Formative assessment strategies, which provide continuous feedback during the learning process, also play a crucial role. Unlike summative tests, formative evaluations help students

understand their learning gaps and make corrections, fostering metacognitive awareness and reflective thinking (Black & Wiliam, 2009). In Nigerian classrooms, however, the implementation of formative practices is still limited due to large class sizes, teacher workload, and lack of training (Veugen et al., 2024).

Rubric-based evaluations are another innovative approach that clarifies expectations and assessment criteria, encouraging students to self-monitor and evaluate their work critically. Rubrics help teachers assess not just content knowledge but also reasoning, clarity of argument, and depth of understanding (Andrade, 2005). In Nigeria, universities like the University of Ibadan and Obafemi Awolowo University have adopted rubric-based assessment in thesis evaluation, improving transparency and analytical standards (Jeyaraj, 2020).

Portfolio assessment, which compiles a student's work over time, also promotes critical reflection. Through reflective journals, essays, and creative outputs, students are encouraged to track their cognitive development and justify their learning decisions. Although not yet widespread in Nigeria, institutions piloting portfolio use report enhanced student ownership of learning and deeper intellectual engagement (Christodoulou, & Papanikolaou, 2023).

Technology-enhanced assessments, including computer-based testing (CBT) and online discussion forums, offer new avenues for evaluating higher-order thinking. With the rise of e-learning in Nigeria—especially during and after the COVID-19 pandemic—more institutions have begun integrating online assessment tools like Google Forms, Moodle quizzes, and asynchronous discussion boards. These platforms allow for creative questioning formats, peer assessment, and collaborative inquiry (Eze et al., 2020), though access to stable internet and digital literacy remains a challenge. Innovative assessment practices, when carefully adapted to the Nigerian context, can significantly enhance the development and measurement of critical thinking. The challenge lies in

training educators, revising curricula, and ensuring institutional support for these methodologies to become embedded in everyday teaching practice.

4. Cultural and Contextual Factors Influencing Critical Thinking

The development of critical thinking skills is deeply embedded within broader cultural and contextual frameworks. In Nigeria, various socio-cultural, religious, economic, and institutional factors either support or hinder the cultivation of critical thought in educational settings. Understanding these underlying influences is essential for designing pedagogical strategies that are both culturally responsive and intellectually rigorous.

One key cultural factor is the high value placed on respect for authority and seniority, which often discourages open disagreement or questioning in academic and social contexts. According to Kole (2025), Nigerian students are frequently socialized to accept information from teachers and elders without critique, a tradition rooted in communal values and respect for hierarchy. This dynamic can suppress divergent thinking and discourage inquiry-based learning.

Religious beliefs and moral codes also play a significant role in shaping thought processes. While religion promotes moral discipline, it can sometimes foster dogmatism or discourage the exploration of alternative worldviews. Anderson (2017) observed that in some religious schools, topics that challenge doctrinal beliefs are avoided or superficially addressed, limiting students' exposure to complex, controversial ideas necessary for critical engagement.

Economic and infrastructural contexts further complicate the landscape. Many Nigerian schools, particularly in rural or underfunded areas, lack essential resources like libraries, internet access, and qualified teaching staff. These limitations reduce opportunities for students to engage with diverse perspectives and practice analytical reasoning. As Nwosu (2018) notes, overcrowded classrooms and rigid curricula often prioritize syllabus completion over exploratory learning.

In addition, the national examination system, especially standardized tests like WAEC and NECO, heavily emphasizes factual recall rather than higher-order thinking. This creates a “teaching-to-the-test” culture, where educators focus on preparing students to pass exams rather than fostering critical and creative thought (Nahar, 2023). Such assessment systems reinforce surface-level learning and discourage intellectual curiosity.

On the other hand, Nigeria's diverse multicultural environment offers rich opportunities for cultivating critical thinking through exposure to multiple viewpoints, languages, and worldviews. If appropriately leveraged, this diversity can enhance students' cognitive flexibility and tolerance for ambiguity—both of which are essential to critical thinking (Okebukola, 2002). Encouraging intercultural dialogue and experiential learning can turn Nigeria’s cultural complexity into an asset rather than a barrier.

Moreover, contextual realities such as political instability and social injustice often provide authentic content for critical discourse. Educators who incorporate local case studies, civic issues, and ethical dilemmas into teaching can help students develop critical consciousness, a deeper awareness of social inequalities and the ability to question oppressive systems (Lamsal, 2024).

5. Challenges and Barriers to Developing Critical Thinking Skills

Despite the recognized importance of critical thinking in education and national development, numerous challenges continue to undermine its development in Nigerian schools and universities. These barriers are systemic, pedagogical, institutional, and even psychological, cutting across both public and private educational sectors.

One of the most pressing challenges is the dominance of rote learning in Nigerian classrooms. The curriculum at primary, secondary, and tertiary levels often emphasizes memorization of facts over deep understanding and analysis. According to John and Oko-Joseph

(2025), the pressure on students to pass high-stakes examinations has led to a widespread culture of cramming, where students focus on reproducing textbook content rather than evaluating it critically.

Closely related is the teacher-centered pedagogy still prevalent in many Nigerian schools. Many educators use a didactic approach, where the teacher lectures and the students listen passively. This method discourages questioning, collaboration, and creative problem-solving—hallmarks of critical thinking. This is often a result of inadequate teacher training; many teachers lack both the skills and orientation to facilitate inquiry-based or discussion-oriented classrooms (Olatunji, 2017).

Large class sizes and insufficient infrastructure pose additional constraints. In overcrowded classrooms, particularly in public schools, teachers are unable to provide personalized feedback or facilitate group discussions that nurture analytical skills. Schools with insufficient chairs, books, and writing materials often prioritize control and compliance over innovation and critical engagement.

Assessment practices also hinder critical thinking development. Most national examinations do not assess higher-order cognitive skills such as evaluation, synthesis, or problem-solving. Instead, they focus on factual recall, which disincentivizes both teachers and students from pursuing deeper learning strategies. Until assessment systems are redesigned to value critical engagement, teaching practices are unlikely to change meaningfully.

Cultural norms, including deference to elders and avoidance of confrontation, further limit students' willingness to challenge ideas or engage in debate. Critical thinking requires the courage to ask “why” and to question accepted beliefs, behaviours that are sometimes seen as disrespectful or rebellious in Nigerian cultural contexts (Nuritdinov, 2024).

Language barriers are another obstacle. Many students, particularly in rural areas, are taught in English even when it is not their first language. Limited proficiency can restrict their ability to express complex thoughts, defend positions, or engage in classroom dialogue. This linguistic gap affects not only students but also teachers, some of whom struggle to communicate sophisticated concepts clearly.

Additionally, technological challenges hinder access to digital tools and resources that promote critical thinking. Online learning platforms, research databases, and multimedia learning resources are often underutilized due to lack of internet access, electricity, or ICT literacy (Adedoyin & Soykan, 2020).

Methodology

Research Design

This study adopts a descriptive survey research design. The design is appropriate because it allows the researcher to systematically collect data from a large population to examine existing practices, perceptions, and strategies for enhancing critical thinking skills among Nigerian undergraduates. The population of the study comprises one hundred and fifty (150) undergraduates, selected from Adeyemi Federal University of Education, Ondo. These include students from different faculties and levels of study to ensure a broad representation of opinions and experiences regarding teaching methods and critical thinking development. Faculties and levels of study served as strata to ensure proportional representation. From each stratum, respondents were randomly selected to participate in the study. Data was collected using a structured questionnaire titled “Enhancing Critical Thinking Skills Questionnaire (ECTSQ)”. The questionnaire was divided into sections, covering demographic information, teaching methods,

learning environment, assessment practices, and students' critical thinking experiences. The instrument was used through google form.

The questionnaire was subjected to face and content validity. Experts in education and measurement reviewed the instrument to ensure clarity, relevance, and adequacy of the items in measuring critical thinking skills. The researcher administered the questionnaires personally through google form and with the assistance of trained research assistants. This approach will ensure a high rate of response and proper clarification of questionnaire items where necessary. Data collected were analyzed using descriptive statistics such as frequency counts, percentages, mean, and standard deviation. The results were presented using tables for clarity and ease of interpretation. Ethical standards were strictly observed. Participation was voluntary, respondents' anonymity was guaranteed, and data collected were used solely for academic purposes.

Data Analysis

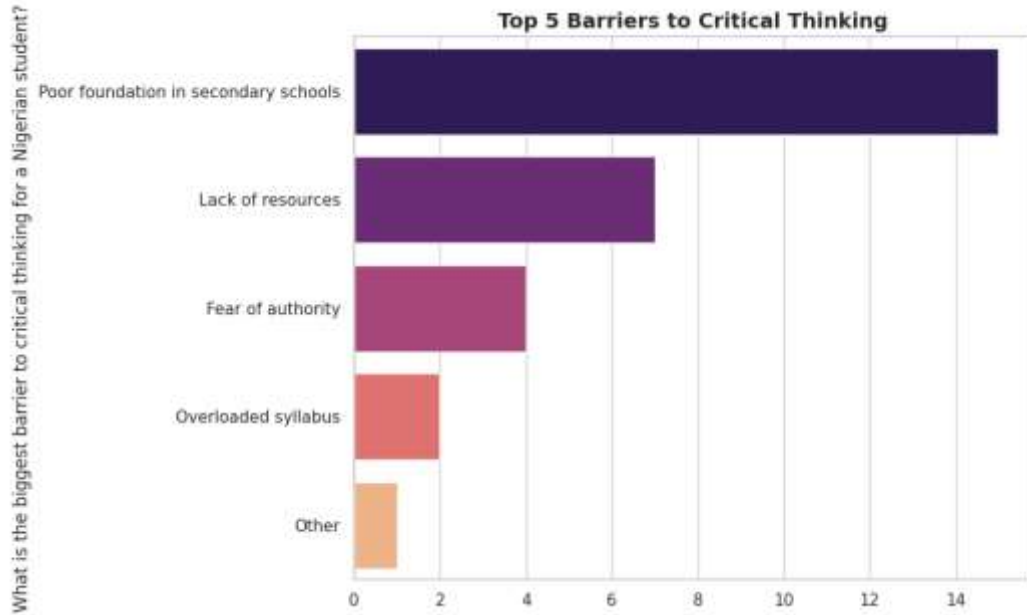
Research Analysis of Undergraduate Students

This report analyzes the state of critical thinking skills among Nigerian undergraduates. The findings suggest that while students possess a moderate level of confidence in their analytical abilities, structural issues within the educational system—specifically poor foundational training in secondary schools and a 'handout culture'—act as significant inhibitors to independent thought.

Key Insights

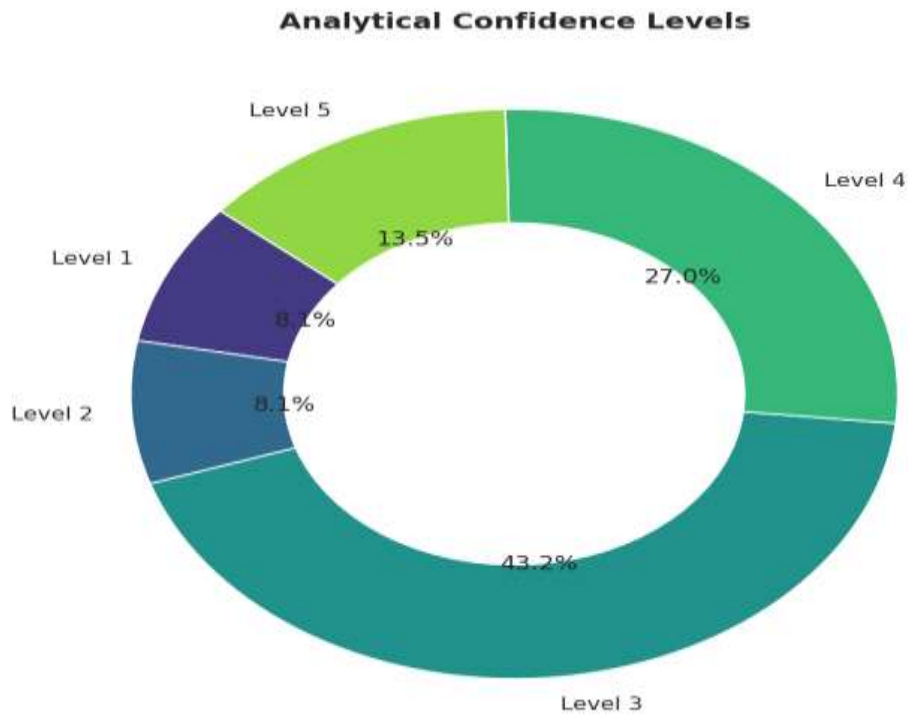
1. Barriers to Critical Thinking

The primary barrier identified by respondents is the weak foundation provided at the secondary school level. Additionally, the fear of authority and lack of resources were noted as major constraints.



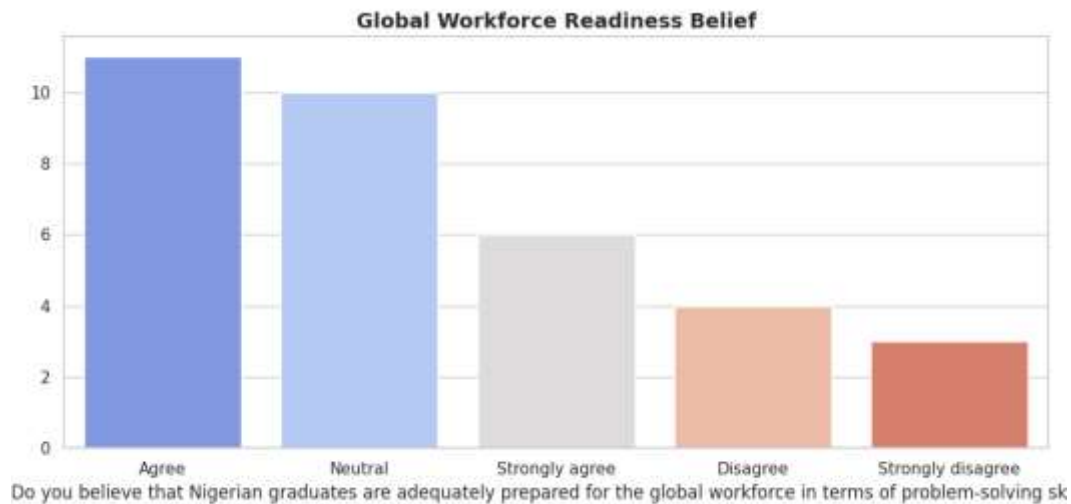
2. Analytical Confidence

On a scale of 1 to 5, the majority of students clustered around level 3, showing that while they are not unconfident, there is significant room for growth in high-level analytical skills.



3. Global Workforce Readiness

There is mixed sentiment regarding whether Nigerian graduates are prepared for the global workforce. While a segment 'Agrees', a substantial number remain 'Neutral' or 'Disagree'.



Findings

1. Summary of the Analysis

This report analyzes data collected from 150 respondents of different levels at Adeyemi Federal University of Education. The study explores the intersection of academic pressure, "Handout Culture," and the development of critical thinking skills within the Nigerian university system.

2. Demographic Overview

Institution: 100% Federal (Adeyemi Federal University of Education/AFUED).

Level of Study: 25% (100 level), 25% (200 level), 25% (300 level), 25% (400 level).

Gender Distribution: Female (73% of respondents) and Male (27% of respondents).

3. Key Findings and Data Breakdown

A. Self-Perception and Cognitive Habits

Confidence in Analysis: On a scale of 1–5, the average confidence level is 3.3. While students feel moderately capable of analyzing information, there is a gap between confidence and practice.

Problem-Solving Preference: A significant majority prefer ‘Creating my own solution’ over following a formula, indicating a desire for creative autonomy despite systemic constraints.

Intellectual Humility: A large portion of students reported feeling ‘Not comfortable’ or only ‘Somewhat comfortable’ admitting their previous viewpoints were wrong, suggesting a fear of social or academic judgment.

B. The ‘Lecturer-Student’ Dynamics

i. **The Culture of Silence:** A staggering majority (over 85%) of respondents selected: ‘Only if I am certain I am right (I would never do that)’ regarding disagreeing with a lecturer.

ii. **Originality vs. Note Memorization:** While some students noted that lecturers ‘Often’ reward originality, a high frequency of ‘Rarely’ and ‘Sometimes’ responses suggests that ‘cramming’ remains a viable pathway to passing exams.

iii. **Curriculum Openness:** Most students feel the curriculum encourages debate in theory, but their actual behavior in class (avoiding disagreement) suggests a ‘Fear of Authority’.

C. Barriers to Critical Thinking

Respondents identified the following as the biggest obstacles:

- i. **Poor Foundation in Secondary Schools:** (Most cited barrier).
- ii. **Lack of Resources:** Inadequate libraries, laboratories, and learning materials.
- iii. **Fear of Authority:** Students are afraid of victimization if they question status quos.
- iv. **CGPA Pressure:** 60% of students rated the pressure to maintain a high CGPA as a 4 or 5 out of 5 in terms of how much it discourages them from exploring topics outside the syllabus.

External Engagement

Resource Usage: Most students use external sources (YouTube, Podcasts, Journals) Daily or Weekly, showing that they seek knowledge outside the provided handouts to supplement their learning.

Logic/Philosophy Courses: A majority of students who have taken these courses reported that it helped them think more clearly, suggesting these should be prioritized.

Recommendations for NUC

Students were asked what one change they would suggest to the Nigerian University Commission (NUC). Common themes include:

1. They should allow students to practice hand skills of their choice at school.
2. The NUC should require every Nigerian university student—regardless of discipline—to complete at least one problem-based, discussion-driven course focused on reasoning, argumentation, and real-world problem solving, assessment shifts from memorization to essays, case studies, debates, and project work.
3. Teaching methods should emphasize socratic questioning, peer critique, and evidence-based reasoning.
4. Nigeria's university system should heavily rewards recall and exam performance by making critical inquiry a graduation requirement.
5. The NUC would force a system-wide change in how students think, not just what they memorize—without overhauling every curriculum at once.
6. Reduce note copying and give tasks that need reasoning and solutions.
7. They should provide proper and adequate atmosphere for learning.

8. Shifting of students core assessment from rote memorization to practical problem (while solving an analyzing essay).

In addition, based on the open-ended responses, the following suggestions are proposed:

- i. Shift Assessment Methods: Move away from 70% exam-based grading to Project-Based Learning (PBL), case studies, and debates.
- ii. Mandatory Logic Courses: Standardize a problem-solving/reasoning course for all disciplines.
- iii. Infrastructure Investment: Improve the ‘learning atmosphere’ and provide practical resources for hand-on skills.
- iv. Secondary School Reform: The NUC should collaborate with secondary education boards to ensure students do not arrive at university with a ‘memorize-and-forget’ mindset.

Conflict of Interest: The corresponding author, on behalf of second author, confirms that there are no conflicts of interest to disclose.

Copyright: © 2026 by Odetade Ibitayo O., Adesuyi Omolola P., Ade-Ali Funmilayo A. Author(s) retain the copyright of their original work while granting publication rights to the journal.

License: This work is licensed under a Creative Commons Attribution 4.0 International License, allowing others to distribute, remix, adapt, and build upon it, even for commercial purposes, with proper attribution. Author(s) are also permitted to post their work in institutional repositories, social media, or other platforms.

References

- Adedoyin, O. B., & Soykan, E. (2020). COVID-19 Pandemic and Online Learning: The Challenges and Opportunities. *Interactive Learning Environment*. <https://doi.org/10.1080/10494820.2020.1813180>
- Adeyemi, M.B., & Adeyinka, A.A. (2003). The Principles and Content of African Traditional Education. *Educational Philosophy and Theory*, 35, 425-440. <https://doi.org/10.1111/1469-5812.00039>
- Anderson, S. (2017). Critical Thinking in Religious Education. *Religious Educator: Perspectives on the Restored Gospel* 18(3), 69-81. <https://scholarsarchive.byu.edu/re/vol18/iss3/6>
- Andrade, H. G. (2005). Teaching with rubrics: The good, the bad, and the ugly. *College Teaching*, 53(1), 27-30.
- Bamgbose, A. (2000). *Language and exclusion: The consequences of language policies in Africa*. Münster: LIT Verlag.
- Black, P. and Wiliam, D. (2009). Developing the Theory of Formative Assessment. *Educational Assessment, Evaluation and Accountability*, 21, 5-31. <https://doi.org/10.1007/s11092-008-9068-5>
- Christodoulou, P., & Papanikolaou, A. (2023). Examining Pre-Service Teachers' Critical Thinking Competences within the Framework of Education for Sustainable Development: A Qualitative Analysis. *Education Sciences*, 13(12), 1187. <https://doi.org/10.3390/educsci13121187>
- Darling-Hammond, L., & Adamson, F. (2010). *Beyond Basic Skills: The Role of Performance Assessment in Achieving 21st Century Standards of Learning*. Stanford University, Stanford

Center for Opportunity Policy in Education.

<https://edpolicy.stanford.edu/library/publications/1462>

Eze, S. C., & Okoye, J. E. (2020). Infrastructure deficit and its implications for effective teaching in Nigerian public schools. *International Journal of Educational Development in Africa*, 7(2), 42–58.

Eze, S. C., Chinedu-Eze, V. C., Okike, C. K., & Bello, A. O. (2020). Factors Influencing Students' Use of E-Learning Facilities in a Private Higher Education Institution (HEI) in a Developing Economy. *Humanities and Social Sciences Communications*, 7, Article No. 133. <https://doi.org/10.1057/s41599-020-00624-6>

Fafunwa, A. B. (1974). *History of education in Nigeria*. London: George Allen & Unwin.

Gbeleyi, O. A., Olusegun, O. P., & Tetteh, A. (2023). Reducing Underachievement and Promoting Critical Thinking Skills in Computer Studies Through a Culturally Sensitive Instructional Method. *Research in Education and Learning Innovation Archives*, (31), 81–98. <https://doi.org/10.7203/realia.31.25192>

Jeyaraj, J. J. (2020). Academic writing needs of postgraduate research students in Malaysia. *Malaysian Journal of Learning and Instruction*, 17(2), 1-23.

John, B. & Oko-Joseph, C. (2025). Reforming Nigeria's Educational Curriculum: A Panacea for Mediocrity and Workplace Inefficiency.

Kole, J.K.T. (2025) Applying Hofstede's Cultural Dimensions in Education: Insights, Critiques, and Implications for Diverse Classrooms. *Open Journal of Social Sciences*, 13, 94-110. doi: [10.4236/jss.2025.135007](https://doi.org/10.4236/jss.2025.135007).

- Lamsal, H. L. (2024). Critical Pedagogy in Addressing Social Inequality and Promoting Social Justice in Education. *Advances*, 5(3), 77-83. <https://doi.org/10.11648/j.advances.20240503.12>
- Marvi, K. (2023) Impact of Cultural Diversity in Classrooms of Secondary Schools. *Creative Education*, 14, 197-211. doi: [10.4236/ce.2023.141014](https://doi.org/10.4236/ce.2023.141014).
- Nahar, L. (2023). The Effects of Standardized Tests on Incorporating 21st Century Skills in Science Classrooms. *Integrated Science Education Journal*, 4. 36-42. [10.37251/isej.v4i2.324](https://doi.org/10.37251/isej.v4i2.324).
- Nuritdinov, N. (2024). Socio-Cultural Factors of the Effective use of Critical Thinking in the Development of Modern Legal Knowledge. *Pubmedia Social Sciences and Humanities*. 2. 9. [10.47134/pssh.v2i2.294](https://doi.org/10.47134/pssh.v2i2.294).
- Nwosu, J., John, H. C., Izang, A. A., & Adejokun, A. (2018). The Inclusion of Thinking Skills: A Panacea for Improving Instructional Practices in Nigerian Secondary School Education. *American Journal of Educational Research*, 6(8), 194-1197. doi: [10.12691/education-6-8-19](https://doi.org/10.12691/education-6-8-19).
- Okebukola, P.A. (2002). *The State of University Education in Nigeria*. National Universities Commission, Abuja.
- Okike, C. O., & Olaniran, S. O. (2020). Communication styles and classroom interaction: A cultural perspective from Nigeria. *International Journal of Educational Research and Development*, 9(1), 55–66.
- Okpala, P. N., & Onocha, C.O. (1988). Classroom interaction patterns: Nigerian physics Trainees Physics Education. *A Journal of the British institute of physics*, 23(5), 288-290.

- Olaoye, A. A. (2013). The role of language in national rebranding: A sociolinguistic perspective. *i-manager's Journal on English Language Teaching*, 3(3), 41–47.
- Olatunji, M. O. (2017). Critical thinking in Nigeria's pre-service teachers education: A philosophical investigation. *Journal of Teacher Education and Educators*, 6(2), 205-221.
- Omotayo, F. A. (2020). Teaching style and students' cognitive engagement: The case for learner-centered instruction in Nigeria. *Journal of Educational Research and Practice*, 10(1), 88–96.
- Oyewo, O. A., Ramaila, S., & Mavuru, L. (2022). Harnessing Project-Based Learning to Enhance STEM Students' Critical Thinking Skills Using Water Treatment Activity. *Education Sciences*, 12(11), 780. <https://doi.org/10.3390/educsci12110780>
- Phillips, H. N. (2023). Developing critical thinking in classrooms: Teacher responses to a Reading-for Meaning workshop *Reading & Writing*, 14(1), a401. <https://doi.org/10.4102/rw.v14i1.401>
- UNESCO. (2003). *Education in a multilingual world: UNESCO Education Position Paper*. Paris: UNESCO.
- Veugen, M., Gulikers, J., & Pj, B. (2024). Secondary School Teachers' Use of Formative Assessment Practice to Create Co-regulated Learning. *Journal of Formative Design in Learning*. 8. 10.1007/s41686-024-00089-9.
- Vygotsky, L. S. (1986). *Thought and language* (A. Kozulin, Trans.). Cambridge, MA: MIT Press.