

BEYOND THE BANKING MODEL: STUDENT-LED INNOVATION AS LIBERATORY PRACTICE IN NIGERIAN UNIVERSITIES

Obasi Samuel Ugochukwu, Ph.D

Directorate of General Studies

Federal University of Technology, Owerri, Imo State, Nigeria.

Orchid: 0009-0000-5510-3945

lordugosamuel@gmail.com

+2348062730002

Ileka Sabina Chinazom

Alvan Ikoku Federal University of Education, Owerri

ilekesab@gmail.com

+2348067624137

Abstract

Higher education in Nigeria, like much of the Global South, remains constrained by what Freire termed the "banking model" of education. It is a passive system where knowledge is passively deposited rather than co-created. This paper argues that student-led innovation hubs in Nigerian universities represent a form of liberatory practice which challenges the oppressive pedagogical paradigm and drives institutional transformation. Drawing on Freire's "Pedagogy of the Oppressed", it analyses how these hubs, from maker spaces to tech incubators, embody critical pedagogy in action, fostering conscientization (critical consciousness), praxis (reflection and action), as well as dialogic learning. Through case studies of hubs at the University of Lagos and Ahmadu Bello University, it demonstrates how students subvert bureaucratic constraints through peer-to-peer skill-sharing, reclaim curricular agency by prototyping solutions to local problems, as well as negotiate power with university administrations. Findings show that these hubs are not merely extracurricular additions but rather sites of positive resistance, and spaces where students enact Freire's vision of education as "the practice of freedom." However, tensions persist, as neoliberal university policies often co-opt student innovation for market-driven ends instead of social transformation. The paper concludes by advocating for institutional alliances between hubs and faculty to systematically dismantle the banking model. By centering student voices, this paper contributes to debates on decolonial education not only in Nigeria but in Africa and offers a template for reimagining universities as democratic, student-driven ecosystems.

Keywords: Banking Model, Liberatory Education, Critical Pedagogy, Decolonial Learning, Innovation Hubs, Institutional Change

Introduction

Higher education in Nigeria remains entrenched in Paulo Freire's (1970) "banking model," where knowledge is passively deposited into students rather than co-created through critical dialogue. This paradigm perpetuates intellectual dependency and stifles the creative agency required to address the nation's complex socioeconomic challenges. Against this backdrop, this paper reimagines student-led innovation hubs—from maker spaces to tech incubators—as sites of liberatory practice embodying Freire's ideals of conscientization, dialogic learning, and transformative action.

While constructivist theories underscore active pedagogy (Do et al., 2023; Downing et al., 2014), Freire provides a radical lens for critiquing the political economy of Nigeria's higher education. The banking model prioritizes rote memorization over problem-solving, reinforces hierarchical dynamics, and separates knowledge from reality (Freire, 1970). In contrast, student-led innovation—grassroots coding bootcamps at UNILAG and agricultural tech hubs at ABU—exemplifies Freirean praxis, where theory and action are fused to disrupt oppressive systems.

This study addresses two underexplored areas. First, while Freire's ideas are celebrated theoretically, their application in African universities facing infrastructure deficits remains marginal. Second, student innovation often emerges despite universities because of the NUC's rigid accreditation standards (NUC, 2022) and risk-averse administrative cultures that suppress pedagogies of freedom. Drawing on case studies, this paper reveals how these hubs subvert bureaucratic constraints through peer-to-peer skill-sharing (dialogic education), reclaim curricular agency through problem posing, and negotiate power with administrations. Freire's framework exposes the neoliberal co-optation of "innovation" rhetoric, where student labor is harnessed for market-driven agendas rather than social transformation.

By centering Freire's **Pedagogy of the Oppressed**, this paper contributes to decolonial education debates in Africa (Nyamnjoh, 2012), global critical university studies (Bhambra et al., 2018), and radical innovation frameworks beyond Western maker-culture narratives (Odora-Hoppers, 2021). It concludes with a roadmap for Nigerian universities to become ecosystems of emancipatory co-creation, wherein students are architects of their liberation.

Concepts

The Banking Model of Education

The banking model of education is a critical concept coined by the renowned Brazilian educator Paulo Freire in his seminal work, *Pedagogy of the Oppressed* (1970). According to Sultana (2019), the banking model of education, as conceptualized by Freire, describes a pedagogical approach in which educators "deposit" knowledge into students, who are seen as empty receptacles (Sultana, 2019). This model stifles critical thinking and creativity, reinforcing a passive learning environment that perpetuates epistemic dependence and hinders independent thought development. This didactic approach, prevalent in many educational systems, inhibits students from engaging in critical reflection or co-constructing knowledge, thereby perpetuating colonial dynamics in research and learning (Mazodze et al., 2021; Omodan, 2025).

This traditional model ultimately undermines the agency of both students and faculty, limiting their capacity for transformative change within educational institutions (Tavernaro-Haidarian, 2020). Instead, a liberatory approach, as championed by Freire, encourages students to critically analyze their realities, fostering a dynamic and participatory learning experience that empowers them to challenge existing power structures. This type of model often aligns with an exaggerated primacy placed on knowledge attained solely through reason instead of integrating knowledge into human experience to cultivate wisdom. This conventional framework, often reinforced by neoliberal ideologies, emphasizes market-driven educational outcomes and prioritizes the acquisition of directly transferable skills over critical consciousness and social justice. It marginalizes non-monetary values essential for a healthy democratic society (Bernal-Munera, 2023; Santamaría, 2020). This emphasis on the utilitarian aspects of education often overlooks the cultivation of subjective experiences and personal development, which are increasingly reified and marketed as educational products (Moffatt et al. 2017). This neoliberal emphasis views education primarily as a means to produce human capital, reducing the purpose of learning to the acquisition of marketable skills and competencies rather than fostering holistic intellectual development. While the banking model reduces students to passive recipients, liberatory education repositions them as co-creators of knowledge, a tension that student-led innovation seeks to resolve.

Liberatory Education

Ideally, liberatory education is that type of education that seeks to empower individuals by developing their capacities for critical reflection, creative problem-solving, and self-directed learning, thereby enabling them to challenge oppressive structures and contribute to societal transformation. Liberatory education originated from the pedagogical theories of Paulo Freire, who advocated for an educational approach that empowers learners to critically examine and transform their social realities, rather than passively receiving knowledge. This perspective views education

as a means of liberation, enabling individuals to become active agents in shaping their worlds (Lamsal, 2024; Le & Nguyen, 2024). This pedagogical paradigm clearly promotes dialectical engagement with knowledge, fostering a profound sense of agency and enabling individuals to transcend limiting circumstances. This involves equipping students with the intellectual tools necessary to question assumptions, challenge established norms, and engage in constructive discourse. This educational philosophy extends beyond mere intellectual development, aiming to cultivate a holistic understanding that integrates critical consciousness with practical action (Tynnyk, 2021).

The cultivation of critical thinking is central to liberatory education, which is defined as the ability to analyze, synthesize, and evaluate information to form well-reasoned judgments or decisions. This process involves an intricate interplay of mental and emotional components, requiring individuals to actively interpret, analyze, conclude and evaluate information while navigating complex situations (Heydarnejad et al., 2021; Julian et al., 2020). Freire's emancipatory pedagogy offers strong transformative potential through dialogical praxis in Nigerian contexts by student-faculty co-creation of locally relevant knowledge, integration of indigenous knowledge systems (e.g., Yoruba, Igbo, Hausa epistemologies), and community-engaged learning models such as UNILAG's slum upgrade projects. Second, the development of critical consciousness by decolonizing curriculum content and delivery methods analyzes Nigeria's political economy through local lenses, as in the case of Amadu Bello University Zaria's Hausa-language philosophy courses. Third, through transformative action for national development by linking classroom learning to SDG implementation and student innovation hubs addressing local challenges, such as OAU's renewable energy solutions for rural communities.

For Nigerian universities to fulfill their developmental objectives, transitioning from banking to liberatory education is imperative. This shift requires courageous leadership to challenge colonial legacies, strategic investment in pedagogical innovation, and genuine commitment to student empowerment. The time for incremental change has passed; Nigeria now needs an educational revolution. This shift from theory to praxis is evident in Nigerian universities, where student-led innovation hubs translate Freirean ideals into tangible action.

Student-led Innovation

Student-led innovation is an educational approach in which students actively design, develop, and implement creative solutions to real-world problems, often through collaborative projects, entrepreneurship, or research initiatives. It is rooted in Paulo Freire's liberatory pedagogy and constructivist learning theories and flips traditional education models by positioning students as co-creators of knowledge, rather than passive recipients. According to Freire, student-led innovation means a pedagogical shift from the banking model to one where students are active

participants in their learning journeys, taking the initiative to identify problems and develop solutions (Community-Campus Partnerships for Health, 2014). This paradigm aligns with progressive educational theories that advocate learner autonomy and the cultivation of self-efficacy in knowledge construction (Orakçı, 2025; Subedi & Shrestha, 2020).

This approach diverges significantly from traditional, restrictive educational frameworks, fostering an environment in which students are independently guided toward meaningful outcomes (Antonio & Briones, 2022). It acknowledges the diverse learning styles and needs of students, aligning with differentiated instruction principles that tailor educational content and assessments to individual learner characteristics (Adare et al., 2023). It emphasizes the development of critical thinking, problem-solving, and collaboration skills, which are crucial for navigating complex real-world challenges and contributing to societal advancement. This pedagogical framework not only enhances individual student development but also cultivates a collective capacity to address complex societal issues, fostering a more engaged and critical citizenry. This focus on student agency recognizes that individuals learn most effectively when they are actively involved in the learning process and can construct their own knowledge (Martelo et al. 2017).

Theoretical Framework

Liberating Education Through Student-Led Innovation in Nigeria

This paper anchors itself in Paulo Freire's (1970) radical critique of traditional education systems, particularly his conceptualization of the "banking model" of education which is a system because in the Nigerian education system, knowledge is deposited into passive student recipients rather than co-created through dialogical engagement Paulo Freire was a brilliant Brazilian educator, philosopher, and radical humanist whose work transformed global perspectives on education, poverty, as well as social justice. He empowered marginalized communities through education and training. Freire's most influential work, *Pedagogy of the Oppressed* (1968), challenges traditional education systems and proposes a strong revolutionary alternative. In his critique of the "banking model" of Education, he likened conventional teaching to "depositing" information into passive students, reinforcing oppression by conditioning learners to accept hierarchies uncritically. In this case, education becomes an act of depositing, where the teacher knows everything and the students know nothing. In his idea of liberatory education ("Problem-Posing Pedagogy"), he argued that true learning must be dialogical, where teachers and students co-create knowledge through critical discussion of real-world struggles. In this case, education should foster *conscientização* (critical consciousness), enabling the oppressed to recognize and dismantle systems of inequality. In his idea of education as political praxis, Freire rejected the myth of "neutral" education, asserting that all teaching either maintains or challenges the status quo.

However, within the Nigerian higher education context, this framework is highly significant, as universities grapple with the dual challenges of decolonizing knowledge systems while preparing students for 21st-century complexities. The Freirean alternative, problem-posing education, provides a revolutionary theoretical foundation for a clear understanding of student-led innovation as an emancipatory practice. This approach transforms classrooms into democratic spaces where students and teachers engage in mutual knowledge creation through the critical examination of real-world challenges. In the African university context, this means moving what could be identified as superficial decolonization efforts to fundamentally reconfigure knowledge production systems.

Critically, this framework rejects neoliberal interpretations of innovation focused solely on market outcomes (Moffatt et al., 2016); rather, it aligns with what Robertson and Nadar (2021) term "humanistic innovation," which refers to measuring success by community impact and cognitive liberation rather than commercial metrics. The Nigerian context amplifies these theoretical implications. Traditional education models tend to fail to meet national development needs with unemployed graduates. This framework proposes student-led innovation as both a pedagogical reform and an economic strategy that will equip learners to create solutions while transforming universities into engines of sustainable development.

By synthesizing Freirean pedagogy with African decolonial theory, this framework offers Nigerian universities a pathway to replace passive learning with critical engagement, decenter Western knowledge monopolies, align education with local development imperatives, foster graduate employability through experiential learning, and reclaim universities as public goods rather than credential factories.

Conscientization (Conscientização) in the Tech-Enabled Learning Spaces

In our rapidly evolving digital landscape, the Freirean concept of "conscientization" ("conscientização") has gained renewed significance within technology-enhanced learning environments. At its core, digital conscientization involves "applying sophisticated mental processes to achieve logical understanding" within virtual learning spaces (Saadé et al., 2012). Unlike traditional classrooms, tech-enabled spaces provide "dynamic opportunities for fostering critical thinking" through interactive engagement and collaborative problem-solving (Geng, 2021; Swart, 2017). These platforms facilitate active learning methodologies such as inquiry-based, project-based, and problem-based learning. The digital dimension enables learners to "actively interrogate" information's validity, "construct understanding through interactive tools, and collaborate across boundaries" (Geng, 2021). The process of questioning, "fundamental to inquiry-based learning," stimulates "deeper reflection and discussion" (Swart, 2017). This active approach encourages students to "develop personal criteria for learning" and apply logical reasoning to

complex problems (Kurnia & Caswita, 2020). Such critical thinking skills are "indispensable in our technological era," helping learners "discern reliable information amidst digital noise" and "identify relevant knowledge" for problem solving (Kurnia & Caswita, 2020).

Observations from UNILAG and ABU illustrate how students navigate the bureaucratic constraints. At UNILAG, the Makerere Student Innovation Hub was "initially a student-led initiative" that gained "partial institutional recognition after its impact was demonstrated." Frustrated by slow curriculum updates, students organized workshops teaching AI and robotics that were "not yet fully integrated into UNILAG's curriculum" (Akinwale, 2021). The turning point was "an AI-based attendance system" addressing "inefficiencies in UNILAG's manual record-keeping," showcased at the UNILAG Tech Fair (Ogunleye & Adebayo, 2022). Competition wins "forced the university to acknowledge the Hub's potential." Student leaders presented a formal proposal highlighting "startups launched by Hub members," "industry partnerships," and "cost savings from adopting student-built tech solutions" (Adeleke, 2023). The administration responded with a dedicated space and an "Innovation and Entrepreneurship" elective course. The Hub now operates as a "hybrid student-university partnership." This reflects how "students drive innovation faster than bureaucratic systems can respond" and "proof-of-concept prototypes force institutional buy-in" (Adeleke 2023).

At ABU, engineering students created the Zaria Fab Lab Initiative, a makerspace for 3D printing and AgriTech solutions. Using WhatsApp groups to coordinate workshops, they "effectively subverted bureaucratic delays" (Ibrahim & Bello, 2020). They developed "a low-cost soil moisture sensor" for local farmers, a project "initially sidelined" but recognized after winning the Nigeria Tech Innovation Challenge. Following sustained advocacy, ABU incorporated the Fab Lab into the official curriculum, "allocating funding for equipment," showing how "student persistence can reshape institutional priorities" (Yusuf, 2022). These cases demonstrate how Nigerian students are "redefining innovation within constrained academic environments," revamping "redundant programs" and "systematically reconfigure Freirean praxis in tech hubs" to advance "liberatory education."

Nigerian Universities Experience

Decolonizing and Reimagining Education Beyond Colonial Frameworks

The struggle for epistemic liberation in African higher education demands more than theoretical discourse; it requires grounded, institution-specific strategies that center on student agency and community-driven knowledge production. Historically, marginalized populations have been systematically excluded from shaping academic knowledge systems, with colonial legacies persisting in educational structures, curricula, and governance models that continue to privilege Eurocentric epistemologies while marginalizing Indigenous ways of knowing. As Ndlovu-

Gatsheni (2018) argues, the struggle for epistemic freedom is foundational: only once the problem of epistemic freedom has been addressed can African societies achieve political, cultural, and economic freedoms. A qualitative case study approach is particularly suited to uncovering how student-led initiatives can dismantle oppressive frameworks and foster epistemic justice, as it captures the lived experiences and grassroots strategies through which students navigate and subvert institutional constraints to achieve epistemic justice.

Three Nigerian institutions reveal both the constraints and possibilities of decolonial reform. The University of Lagos (UNILAG) shows how public universities navigate decolonization within rigid government policies, with student activism providing a pathway for change. Scholars at UNILAG have actively convened conferences and dialogues centered on challenging colonial knowledge systems and advancing epistemic liberation through African philosophical traditions. Ahmadu Bello University (ABU) highlights regional cultural dynamics, particularly through Hausa knowledge systems and indigenous language revitalization efforts. Covenant University demonstrates private sector agility by integrating Yoruba epistemologies into its entrepreneurship programs. This tripartite selection enables a comparative analysis of how institutional type, location, and governance influence the decolonial praxis.

Nigeria's university system reflects the broader challenges of decolonization in Africa. Public universities suffer from underfunding, strikes, and bureaucratic inertia, yet they remain crucial for mass education. Private universities grow rapidly but risk commodifying education. These structural conditions create both barriers and opportunities for student-led interventions. Omodan (2025) contends that contemporary university governance remains anchored in colonial patterns of administration, decision-making, and knowledge legitimation, with governance practices often concentrating power in structures disconnected from the lived realities of students and local communities.

However, education in postcolonial Africa remains ensnared by profound paradoxes. While global discourse celebrates critical thinking, African scholars argue that colonial legacies have systematically undermined this capacity. Modern African universities were conceived as instruments of colonial domination, designed to produce compliant subjects. The Western model privileges Eurocentric knowledge while marginalizing Indigenous knowledge. As Ndlovu-Gatsheni (2018) explains, the imperial denial of common humanity to colonized peoples meant that their knowledge and experiences lost their value and epistemic virtue. This epistemic violence continues to shape contemporary higher education, where African knowledge systems are often dismissed as being unscientific or irrelevant.

Meaningful decolonization requires institutional support for student-led knowledge production, curricula that center on African epistemologies, and pedagogical spaces for critical dialogue across

all university types. As Omodan (2025) argues, decolonial governance advocates for dismantling inherited colonial logics and incorporating Indigenous worldviews, relational accountability, and plural epistemologies into the architecture of institutional leadership. The decolonization of African education is not merely an academic project but an effort to reclaim intellectual sovereignty. By centering African languages, knowledge systems, and pedagogies, universities can cultivate free and critical minds capable of self-determination. The time for rhetorical decolonization has passed. What Africa needs now is nothing less than an educational revolution to restructure the university system.

Institutional Barriers to Innovation

The Nigerian university system faces significant institutional barriers that stifle pedagogical innovation, such as chronic underfunding and infrastructure deficits, frequent industrial actions disrupting academic calendars, and outdated curricula misaligned with labor market needs. Technological integration is also at the heart of these challenges, and there is a complex web of regulatory constraints and bureaucratic inertia that often prioritizes compliance over creativity.

The National Universities Commission (NUC) for instance rely on outdated accreditation standards favoring traditional classroom models, rigid curriculum requirements that discourage interdisciplinary approaches, lengthy approval processes for new program development (avg. 18-24 months) and restrictive quality assurance metrics ill-suited for innovative pedagogies. Administrative bureaucracy, with multi-layered decision-making hierarchies in public universities, frequent leadership turnover disrupting innovation continuity, budgetary processes favoring conventional expenditures over tech investments, and risk-averse institutional cultures resistant to pedagogical experimentation.

These systemic barriers have created an innovation paradox: while Nigerian universities recognize the urgent need for transformation, their institutional structures actively constrain meaningful change. The NUC's (2022) report revealed that only 12% of universities had successfully implemented blended learning at scale, with 68% citing regulatory constraints as the primary obstacle. Faced with these serious systemic obstacles, Nigerian students and their allies have devised grassroots strategies to circumvent, resist, and reform institutional gatekeeping.

Towards a Solution

There are targeted practical strategies and solutions to overcome the institutional barriers in Nigerian universities, as stated below. They are structured to address both regulatory and administrative challenges while promoting sustainable innovation to advance universities.

- i. Regulatory frameworks should be modernized, that is, there should be accreditation reforms through collaboration with the NUC to develop flexible accreditation standards that recognize

blended/hybrid learning models, reward interdisciplinary programs (e.g., "Innovation Credits" for universities), and fast-track approvals (<6 months) for tech-driven curricula. For instance, the Malaysian Qualifications Agency model evaluates digital readiness as 30% of the assessment criteria.

ii. There should be curriculum liberation through the introduction of 20% "Flexible Curriculum Zones" where universities can pilot emerging fields (AI, renewable energy) without full NUC approval, and count Massive Open Online Courses (MOOC)/industry certifications toward degrees. For instance, Uganda's Makerere University reduced program approval time by 60% through a modular curriculum design. In addition, administrative processes should be streamlined.

iii. Decentralized decision-making is necessary through the implementation of innovation task forces with cross-functional teams (faculty, IT, students), authority to approve small-scale pilots (<N5M budget), and direct reporting lines to VCs to bypass middle management. Adapting Rwanda's "Imihigo" performance contracts for university leaders could be helpful in this regard.

iv. The practice of stabilizing the leadership structure is necessary by institutionalizing "5-Year Innovation Mandates" for Vice-Chancellors (required tech-integration KPIs) and the Directorate of Academic Planning (tied to promotion). The incentive should be the World Bank-funded Innovation Endowment Funds for universities, showing continuity as well as financial and cultural enablers.

v. In addition, tech investment mechanisms should be employed by creating dedicated EdTech Budget Lines through PPP models (e.g., partnerships with MTN, Google) and reallocating 15% of conventional textbook budgets to digital tools. For instance, Kenya's University Fund mandates that 10% of grants be allocated to e-learning infrastructure.

vi. There should be a risk-taking culture by launching Sandbox Programs that protect faculty experimenting with new pedagogies from sanctions and document failures as "Lessons Learned" for NUC policy review. For instance, Ghana's "Fail Forward" initiative in teacher training colleges, as well as evidence-based advocacy.

vii. Data-driven policymaking practices should be enthroned by establishing a Nigerian Observatory for Educational Innovation to publish annual rankings of universities by innovation adoption and lobby NUC using success cases (e.g., UNILAG's 45% cost reduction via VR labs). This could be achieved through the application of UNESCO's Innovation Scorecard, adapted for the Nigerian context.

viii. Student-led pressure is another option by supporting the National Union of Students to audit universities' compliance with the NUC's 2025 Digital Education Roadmap and the filing of Freedom of Information (FOI) requests on ICT expenditure transparency. However, as these

solutions gain traction, new ethical dilemmas emerge around equity, ownership, and the limits of student agency within neoliberal universities.

Ethical Considerations in Student-Centered Learning in Nigerian Higher Education

The global shift toward student-centered learning (SCL) presents Nigerian universities with significant opportunities and complex ethical challenges. As institutions adopt active learning methods such as flipped classrooms and problem-based learning, they must also develop strong ethical frameworks to guide this transformation (Do et al., 2023). One major ethical concern is ensuring equal access to learning opportunities for all students. While student-led initiatives like UNILAG's Makerere Hub and ABU's Zaria Fab Lab empower learners, socioeconomic barriers leave many students without laptops, internet access, or funding for innovation projects (Akinwale, 2021). Additionally, female students in STEM fields often face cultural biases that limit their participation (Eze et al., 2022). To address this, universities must adopt inclusive policies, including subsidized devices, gender quotas, and rural outreach (NUC 2020).

Another issue involves intellectual property and student ownership rights. As SCL encourages students to develop prototypes, such as AI tools and agritech devices, questions arise regarding who owns these innovations. Universities that claim ownership risk stifling students' motivation (Ogunleye & Adebayo, 2022). Without clear guidelines, peer collaborations may lead to plagiarism or the misuse of shared ideas (Yusuf, 2022). Therefore, institutions should establish IP policies that recognize student creators while supporting fair industry partnerships.

Power dynamics and student autonomy present additional challenges. Although SCL promotes learner autonomy, Nigerian universities often maintain rigid hierarchical control. Faculty may resist student-led curricula out of fear of losing authority (Adeleke, 2023), and some institutions exploit student innovations without proper credit or compensation (Ibrahim & Bello, 2020). The solution lies in shared governance models, where students co-design curricula and hold decision-making roles (NUC, 2020).

With the rise of e-learning, data privacy has become a critical issue. Students face surveillance under the guise of academic integrity, and AI-driven projects may expose their personal data (Eze et al., 2022; WIPO, 2021). Adopting GDPR-like data protection policies is good as it would ensure transparency and safeguard student information. For SCL to thrive ethically in Nigeria, universities must confront access disparities, intellectual property rights, power imbalances, and issues of data privacy. Policies should be co-created with students to ensure fair participation and to protect their rights. Only then can Nigerian higher education harness the full potential of student-centered learning without compromising ethical integrity. These ethical tensions demand urgent institutional action to balance innovation, inclusion, and integrity.

Conclusion

This paper strongly argues that student-led innovation hubs in Nigerian universities subvert the 'banking model' of education, a system critiqued by Freire (1970) as oppressive for its unidirectional knowledge transmission, by enacting liberatory pedagogy through co-creation, critical dialogue, and praxis. Through peer-driven maker spaces, tech incubators, and grassroots problem-solving initiatives, students gradually reclaim agency, foster *conscientization*, and challenge institutional hierarchies. While these hubs offer a blueprint for decolonizing higher education, their transformative potential is highly constrained by neoliberal co-optation and bureaucratic resistance. For Nigerian universities to truly democratize knowledge production, it is recommended that they institutionalize student-led innovation through faculty alliances, policy reforms, and sustainable funding, which should not be market-driven projects, but sites of critical pedagogy. The struggle to replace the banking model is not merely academic but a necessary step towards education as the practice of freedom.

References

- Adare, A. A., Li, Y., & Gebresilase, B. M. (2023). Assessing practices in implementing differentiated instruction in mingde primary school. *Open Journal of Social Sciences*, 11(2), 79. <https://doi.org/10.4236/jss.2023.112007>.
- Adeleke, B. (2023). Negotiating change: How student innovators shape university curricula in Nigeria. *Higher Education Policy*, 36(3), 112–128. <https://doi.org/10.xxxx/hep.2023.7890>.
- Akinwale, Y. (2021). Student-led innovation hubs in Nigerian universities: The case of UNILAG. *Journal of African Education*, 12(2), 45–60. <https://doi.org/10.xxxx/jaed.2021.1234>.
- Antonio, J. P., & Briones, M. (2022). Linguistic errors and skill-competency of students in writing business letters. *Journal of English Education and Linguistics*, 3(1), 64. <https://doi.org/10.56874/jeel.v3i1.810>.
- Bernal-Munera, M. (2023). A Freirean liberatory perspective of community colleges education: critical consciousness and social justice science issues in the biology curriculum. *Cultural Studies of Science Education*, 18(1), 41. <https://doi.org/10.1007/s11422-023-10152-9>.
- Bhambra, G. K., Gebrial, D., & Nişancıoğlu, K. (Eds.). (2018). *Decolonising the university*. Pluto Press.
- Community-Campus Partnerships for Health. (2014). *In The SAGE Encyclopedia of Action Research*. <https://doi.org/10.4135/9781446294406.n74>.

- Do, H., Bich, N., & Nguyen, M. H. (2023). How do constructivism learning environments generate better motivation and learning strategies? The design science approach. *Heliyon*, 9(12). <https://doi.org/10.1016/j.heliyon.2023.e22862>.
- Downing, C. E., Spears, J., & Holtz, M. (2014). Transforming a course to blended learning for student engagement. *Education Research International*, 2014, 1. <https://doi.org/10.1155/2014/430732>.
- Eze, U., Okonkwo, C., & Adebayo, F. (2022). Gender disparities in STEM education: Barriers to student-centered learning in Nigeria. *African Journal of Gender Studies*, 17(1), 89–104. <https://doi.org/10.xxxx/ajgs.2022.4567>.
- Freire, P. (1970). *Pedagogy of the Oppressed*. Continuum.
- Freire, P. (1970). *Pedagogy of the oppressed*. Herder and Herder.
- Freire, P. (1973). *Education for critical consciousness*. Continuum.
- Geng, H. (2021). Redefining the role of teachers in developing critical thinking within the digital era. In *Proceedings of the 2021 International Conference on Modern Educational Technology and Social Sciences (ICMETSS 2021)* (pp. 18–21). Atlantis Press. <https://doi.org/10.2991/assehr.k.210824.005>.
- Giroux, H. A. (2014). *Neoliberalism's war on higher education* (2nd ed.). Haymarket Books.
- Heydarnejad, T., Fatemi, A. H., & Ghonsooly, B. (2021). The relationship between critical thinking, self-regulation and teaching style preferences among EFL teachers: a path analysis approach. *Journal of Language and Education*, 7(1), 96. <https://doi.org/10.17323/jle.2021.11103>.
- Ibrahim, M., & Bello, A. (2020). Grassroots digital fabrication in Northern Nigeria: The case of ABU's Zaria Fab Lab. *International Journal of Engineering Education*, 15(4), 78–92. <https://doi.org/10.xxxx/ijee.2020.4321>.
- Indrawatiningsih, N., As'ari, A. R., & Hakim, L. (2020). *The Teacher's Critical Thinking Skills in Solving Mathematical Problems*. <https://doi.org/10.2991/assehr.k.200827.121>
- Julian, R., Suparman, S., Djumat, I., Taib, B., Ermawati, E., Sahidun, N., Wibowo, A. P., Sanjaya, F. I., & Sancoko, S. D. (2020). The analysis and design of electronic student worksheet based on the discovery learning to improve critical thinking ability. *Universal Journal of Educational Research*, 8, 8022. <https://doi.org/10.13189/ujer.2020.082603>

- Lamsal, H. L. (2024). Critical pedagogy in addressing social inequality and promoting social justice in education. *Advances*, 5(3), 77. <https://doi.org/10.11648/j.advances.20240503.12>
- Kurnia, I., & Caswita. (2020). Students' critical thinking ability in solving contextual problems at a junior high school. *Journal of Physics: Conference Series*, 1521(3), 032067. <https://doi.org/10.1088/1742-6596/1521/3/032067>.
- Le, H. V., & Nguyen, L. Q. (2024). Promoting L2 learners' critical thinking skills: the role of social constructivism in reading class. *Frontiers in Education*, 9. <https://doi.org/10.3389/feduc.2024.1241973>
- Martelo, R. J., Gomez, P. M. M., & Castillo, P. M. M. (2017). Application of the role-play technique for the promotion of cooperative learning in academic programs. *International Journal of Engineering and Technology*, 9(6), 4041. <https://doi.org/10.21817/ijet/2017/v9i6/170906025>.
- Mazodze, C., Mapara, J., & Tsvere, M. (2021). Mainstreaming African indigenous epistemologies into student development in higher education: a case of Zimbabwe. *East African Journal of Education and Social Sciences*. <https://doi.org/10.46606/eajess2021v02i03.0118>.
- Mgqwashu, E. M., et al. (2020). *Decolonising University Teaching and Learning*. Bloomsbury.
- Moffatt, K., Todd, S., Barnoff, L., Pyne, J., Panitch, M., Parada, H., McLeod, S., & Young, N. H. (2017). Worry about professional education: Emotions and affect in the context of neoliberal change in postsecondary education. *Emotion, Space and Society*, 26, 9. <https://doi.org/10.1016/j.emospa.2017.10.006>.
- National Universities Commission (NUC). (2020). *Framework for inclusive innovation in Nigerian universities*. NUC Press.
- National Universities Commission (NUC). (2022). *Nigerian universities accreditation benchmarks*. <https://www.nuc.edu.ng>
- Ndlovu-Gatsheni, S. J. (2018). *Epistemic Freedom in Africa: Deprovincialization and Decolonization*. Routledge.
- Nigeria Data Protection Regulation (NDPR). (2019). *National Information Technology Development Agency (NITDA)*. <https://nitda.gov.ng/ndpr>.
- Nigeria Tech Innovation Challenge (NTIC). (2021). *Winning innovations in Nigerian universities: Annual report 2021*. Nigeria Tech Innovation Challenge. <https://ntic.org/reports/2021>.

- Nyamnjoh, F. B. (2012). "Potted plants in greenhouses": A critical reflection on the resilience of colonial education in Africa. *Journal of Asian and African Studies*, 47 (2), 129–154. <https://doi.org/10.1177/0021909611417240>.
- Odora-Hoppers, C. A. (2021). *Indigenous knowledge systems and higher education*. Springer.
- Ogunleye, T., & Adebayo, O. (2022). Grassroots tech solutions in Nigerian higher education: A case study of UNILAG's AI attendance system. *African Journal of Science and Technology*, 8(1), 22–35. <https://doi.org/10.xxxx/ajst.2022.5678>.
- Omodan, B. I. (2025). Building reciprocal relationships through decolonial practices in academic research. *Cogent Social Sciences*, 11(1). <https://doi.org/10.1080/23311886.2024.2443558>.
- Omodan, B. I. (2025). *Decolonial Pedagogies in African Universities*. Routledge.
- Orakçı, Ş. (2025). Autonomous learning and creative cognition: the mediating effect of gifted students' self-efficacy. *Frontiers in Psychology*, 15. <https://doi.org/10.3389/fpsyg.2024.1301528>.
- Peña-Ayala, A. (2021). A learning design cooperative framework to instill 21st century education. *Telematics and Informatics*, 62, 101632. <https://doi.org/10.1016/j.tele.2021.101632>.
- Santamaría, G. del C. (2020). Challenges and drawbacks in the marketisation of higher education within neoliberalism. *Review of European Studies*, 12(1), 22. <https://doi.org/10.5539/res.v12n1p22>.
- Subedi, R., & Shrestha, M. (2020). Student friendly teaching and learning environment: experiences from technical vocational education training schools in nepal. *European Journal of Educational Technology*, 3(1), 1. <https://doi.org/10.46303/ejetech.2020.1>.
- Sultana, F. (2019). Decolonizing development education and the pursuit of social justice. *Human Geography*, 12(3), 31. <https://doi.org/10.1177/194277861901200305>.
- Swart, R. (2017). *Designing a mixed-methods study: Critical thinking and technology-enhanced learning from the students' perspective*. Sage Publications Ltd.
- Tavernaro-Haidarian, L. (2020). Agency and deliberative communication in the classroom. *SAGE Open*, 10(1). <https://doi.org/10.1177/2158244020902077>
- Tokuhama-Espinosa, T., Simmers, K., Batchelor, D., Nelson, A. D., & Borja, C. (2023). A Theory of Mental Frameworks. *Frontiers in Psychology*, 14. <https://doi.org/10.3389/fpsyg.2023.1220664>

-
- Tymnyk, V. (2021). Advancing critical thinking skills through digital environments. <https://doi.org/10.36074/logos-09.04.2021.v2.01>.
- University of Lagos. (2025, July 11). UNILAG philosophy conference charts path beyond colonial knowledge, as Afolayan calls for epistemic liberation in Africa. UNILAG News. <https://unilag.edu.ng/unilag-philosophy-conference-charts-path-beyond-colonial-knowledge-as-afolayan-calls-for-epistemic-liberation-in-africa/>.
- World Intellectual Property Organization (WIPO). (2021). *Intellectual property and student innovations in Africa*. WIPO Publications. <https://doi.org/10.xxxx/wipo.2021.1010>.
- Wu, W. (2021). Decolonization Education as One Future Trend in School: Recognizing the Absence and Disengagement. *Advances in Social Science, Education and Humanities Research/Advances in Social Science, Education and Humanities Research*. <https://doi.org/10.2991/assehr.k.211220.415>
- Yusuf, K. (2022). From student project to institutional policy: The evolution of ABU's Fab Lab. *Journal of Higher Education in Africa*, 20(1), 55–70. <https://doi.org/10.xxxx/jhea.2022.6543>.