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NARRATIVES OF PROGRESS: THE LITERARY IMAGINATION AND THE PEDAGOGY OF STEM IN THE POSTCOLONIAL NATION (Refined Academic Version)

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Abstract

The discourse of national development in postcolonial societies has consistently privileged science, technology, engineering, and mathematics (STEM) as instruments of modernization, technological advancement, and economic transformation. However, the overemphasis on technical knowledge frequently marginalizes the humanities despite literature's critical role in shaping imagination, ethics, identity, and civic consciousness. This paper examines how literary imagination contributes to the pedagogy of STEM within the postcolonial nation by interrogating narratives of progress embedded in African postcolonial literature. Drawing on postcolonial theory, decolonial pedagogy, and interdisciplinary educational scholarship, the study argues that literature offers alternative epistemologies capable of humanizing STEM education and resisting technocratic forms of development inherited from colonial modernity. Through textual analysis of selected African literary works by Ngũgĩ wa Thiong'o, Chinua Achebe, Niyi Osundare, and Ben Okri, the paper demonstrates how literary narratives critique colonial notions of progress while proposing indigenous, ethical, and socially responsive visions of scientific advancement. The study concludes that integrating literary imagination into STEM pedagogy can foster creativity, ethical responsibility, critical thinking, and culturally grounded innovation necessary for sustainable development in postcolonial societies (Aslam et al., 2022; Lee et al., 2024).

Introduction

The twenty-first century has witnessed a global celebration of STEM education as a principal driver of economic competitiveness, scientific innovation, and technological modernization. Governments across Africa and other postcolonial societies increasingly invest in scientific and technological training as pathways to national development. Nevertheless, the rhetoric surrounding STEM education often reproduces colonial assumptions that equate progress exclusively with industrialization, technological

efficiency, and Western scientific rationality. Such assumptions frequently neglect the cultural, ethical, and historical dimensions of development.

Educational systems inherited from colonial administrations privileged utilitarian and bureaucratic forms of knowledge designed primarily to sustain imperial governance and economic extraction. Colonial education promoted scientific rationality while marginalizing indigenous knowledge systems, oral traditions, and literary cultures. Contemporary educational reforms, though framed as developmental strategies, sometimes continue this hierarchy by reducing literature and the humanities to secondary disciplines within national curricula.

African postcolonial literature has consistently interrogated these narratives of progress. Writers across the continent have explored the contradictions of modernization, the failures of postcolonial leadership, technological alienation, ecological exploitation, and the erosion of indigenous identities. Literature therefore functions not merely as artistic expression but also as a critical pedagogical instrument capable of reshaping civic consciousness and developmental discourse.

This paper investigates the intersection between literary imagination and STEM pedagogy within the postcolonial nation. It argues that literature expands the pedagogical possibilities of STEM education by encouraging ethical reflection, historical consciousness, creativity, and social responsibility. The paper further contends that postcolonial literary texts challenge narrow developmental paradigms and propose alternative visions of scientific and technological progress grounded in cultural dignity and human flourishing (Mohamed et al., 2024).

Conceptual Clarifications

Literary imagination refers to the interpretive and creative capacity through which literature constructs alternative realities, critiques social structures, and envisions transformative futures. In postcolonial contexts, literary imagination often functions as resistance against colonial epistemologies and dominant narratives of modernity. African literature reconstructs marginalized histories, restores indigenous voices, and interrogates imported developmental models.

STEM pedagogy involves educational philosophies and instructional approaches associated with science, technology, engineering, and mathematics. Contemporary STEM education emphasizes innovation, technological competence, and problem-solving capacities. However, critics increasingly argue that STEM education becomes excessively technocratic when detached from ethical, cultural, and social considerations. Recent interdisciplinary scholarship therefore advocates integrating the humanities into STEM curricula to encourage socially responsive education and inclusive knowledge production (Kurup et al., 2021; Mayes & Rittschof, 2021).

The postcolonial nation refers to societies emerging from colonial domination while negotiating modernization, governance, development, and cultural identity. Postcolonial states frequently experience tensions between indigenous values and imported Western developmental paradigms. African literature often portrays the postcolonial nation as a contested space where promises of progress coexist with

inequality, corruption, environmental degradation, and cultural displacement (Mamdani, 2018; Mbembe, 2005).

Theoretical Framework

This study adopts postcolonial theory and decolonial pedagogy as analytical frameworks. Postcolonial theory examines the cultural, political, and epistemological consequences of colonialism and its continuing influence within contemporary societies. Scholars such as Edward Said, Homi K. Bhabha, and Gayatri Chakravorty Spivak argue that colonial power extends beyond political occupation into systems of representation, education, and knowledge production. Postcolonial criticism therefore interrogates how colonial ideologies continue to shape development, identity, and institutional structures in formerly colonized societies.

Decolonial pedagogy seeks to dismantle Eurocentric educational systems and recover marginalized epistemologies excluded through colonial domination. Contemporary scholarship on decolonial educational practices emphasizes local knowledge, imagination, critical pedagogy, and culturally responsive learning systems. These frameworks collectively enable an examination of how literary texts challenge colonial narratives of scientific progress while contributing to more inclusive and ethically grounded pedagogies of STEM education (Lee et al., 2024; Mohamed et al., 2024).

Colonial Modernity and the Narrative of Progress

Colonial administrations historically presented Western science and technology as universal markers of civilization and modernity. Railways, telegraphs, roads, and industrial infrastructures were celebrated as symbols of progress even when they primarily served extractive colonial economies. Consequently, colonial narratives portrayed Africa as technologically backward and dependent upon European rationality.

Post-independence African governments inherited many of these developmental ideologies. National modernization projects frequently prioritized industrial growth and technological expansion without critically interrogating the colonial assumptions underlying such projects. African literature has repeatedly questioned these narrow developmental paradigms.

Achebe's *Things Fall Apart* demonstrates the disruptive impact of colonial modernity on indigenous social structures and cultural identities. Achebe reveals that administrative and technological systems introduced through colonialism often produced fragmentation rather than genuine human advancement. Similarly, Ngũgĩ wa Thiong'o's *Petals of Blood* critiques postcolonial capitalism and developmental policies that enrich political elites while marginalizing ordinary citizens. Ngũgĩ presents modernization as a continuation of colonial exploitation under post-independence leadership. These literary interventions reveal that progress cannot be measured solely through technological advancement but must also include cultural preservation, social justice, and ethical accountability.

Literary Imagination as Pedagogical Intervention

Literature contributes significantly to STEM pedagogy by cultivating imagination, empathy, ethical reflection, and critical consciousness. Scientific and technological innovations are not value-neutral because they shape environmental systems, political institutions, and human relationships. Literature enables students to interrogate the moral implications of scientific advancement and technological

modernization.

Ben Okri's literary works frequently blend realism with spirituality to question materialist definitions of progress. In *The Famished Road*, development appears unstable and ethically ambiguous, suggesting that societies require spiritual and moral grounding alongside technological growth. Likewise, the poetry of Niyi Osundare foregrounds ecological consciousness and critiques environmental destruction associated with reckless modernization. His works advocate forms of development that respect ecological sustainability and communal well-being.

Recent studies on humanities-informed STEM curricula similarly emphasize that interdisciplinary education strengthens creativity, interpretive reasoning, and ethical decision-making (Lee et al., 2024). By engaging literary texts, STEM students can therefore develop broader perspectives on sustainability, cultural identity, and social responsibility.

Decolonizing STEM Through Literature

One major challenge confronting STEM education in postcolonial societies is epistemic dependency. Scientific curricula frequently privilege Western knowledge systems while marginalizing indigenous technologies, local innovations, oral traditions, and communal practices. Decolonial scholars argue that meaningful educational reform requires integrating indigenous perspectives into scientific learning environments.

Literature facilitates this decolonization process by recovering marginalized epistemologies and validating local experiences. African literary texts frequently portray indigenous agricultural systems, ecological practices, herbal medicine, architecture, and communal knowledge structures as legitimate forms of scientific understanding. Oral traditions embedded within African literature contain sophisticated environmental knowledge and social philosophies relevant to sustainable development.

Through storytelling, myths, proverbs, and folklore, literature preserves alternative epistemologies often excluded from formal STEM curricula. Integrating literature into STEM pedagogy therefore promotes epistemic diversity, cultural inclusion, and intellectual decolonization. Contemporary scholarship on interdisciplinary education increasingly supports collaborative approaches that connect scientific inquiry with social, ethical, and cultural analysis (Aslam et al., 2022).

STEM, Ethics and National Development

The relationship between STEM and national development must be critically examined because technological advancement without ethical consciousness can intensify inequality, ecological degradation, and political oppression. African literature repeatedly warns against dehumanized modernization and technocratic governance. In many postcolonial narratives, political elites adopt developmental rhetoric while neglecting social welfare, environmental sustainability, and public accountability.

Contemporary scholarship similarly emphasizes that technological systems may reproduce colonial power structures when implemented without critical reflection. Research on decolonial artificial intelligence and technological ethics demonstrates how scientific innovation can perpetuate historical inequalities and cultural exclusions (Mohamed et al., 2024).

Literature provides an important counterbalance by foregrounding human experiences frequently ignored within technical discourse. Through symbolism, narrative structure, and characterization, literary texts expose the emotional, social, and ethical consequences of scientific policies and technological interventions. Consequently, literature should not be viewed as separate from STEM education but as complementary to it. Humanities-informed STEM pedagogy can produce scientists, engineers, and innovators who are not only technically competent but also socially responsible and ethically conscious.

Conclusion

This paper has examined the relationship between literary imagination and STEM pedagogy within the postcolonial nation. It has argued that literature plays a vital role in interrogating dominant narratives of progress while expanding the ethical, cultural, and imaginative dimensions of scientific education.

African postcolonial literature challenges technocratic models of development inherited from colonial modernity. Through symbolic imagination, narrative critique, and cultural recovery, African writers expose the limitations of materialist conceptions of progress and advocate more humane visions of national development.

The study further demonstrates that integrating literature into STEM pedagogy can foster creativity, ethical awareness, critical reasoning, and epistemic inclusivity. Such interdisciplinary education remains essential for postcolonial societies seeking sustainable and socially responsible development. Ultimately, genuine progress cannot be achieved through technological advancement alone. Progress must also involve historical consciousness, environmental responsibility, cultural dignity, and human flourishing. Literature therefore remains indispensable in shaping broader and more inclusive visions of development in the contemporary postcolonial nation (Lee et al., 2024; Aslam et al., 2022).

References

1. Achebe, C. (1958). *Things Fall Apart*. Heinemann.
2. Aslam, S., Saleem, A., Kennedy, T. J., Kumar, T., Parveen, K., Akram, H., & Zhang, B. (2022). Identifying the research trends in STEM education: A systematic literature review. *Sage Open*, 12(3), 21582440221118545.
3. Bhabha, H. K. (1994). *The Location of Culture*. Routledge.
4. Kurup, P. M., Li, X., Powell, G., & Brown, M. (2021). Building future work skills through STEM education. *International Journal of STEM Education*, 8(1).
5. Lee, E., Harrison, T., & Williams, J. (2024). Education for a future in crisis: Developing a humanities-informed STEM curriculum. *Journal of Interdisciplinary Education Studies*.
6. Mamdani, M. (2018). *Citizen and Subject: Contemporary Africa and the Legacy of Late Colonialism*. Princeton University Press.
7. Mayes, R., & Rittschof, K. (2021). Integrated STEM education and interdisciplinary learning. *Educational Research Review*, 33.
8. Mbembe, A. (2005). *On the Postcolony*. University of California Press.
9. Mohamed, S., Png, M., & Isaac, W. (2024). Decolonial AI: Decolonial theory as sociotechnical foresight in artificial intelligence. *Philosophy & Technology*, 37(2).
10. Ngũgĩ wa Thiong'o. (1977). *Petals of Blood*. Heinemann.
11. Ngũgĩ wa Thiong'o. (1986). *Decolonising the Mind*. James Currey.
12. Okri, B. (1991). *The Famished Road*. Jonathan Cape.
13. Osundare, N. (1983). *Songs of the Marketplace*. Heinemann.