

DECOLONIZING THE CURRICULUM THROUGH IMMERSIVE STORYTELLING: THE IMPACT OF AUGMENTED REALITY ON STUDENT ENGAGEMENT WITH SOCIO-SOCIAL HISTORY IN NIGERIAN HIGHER EDUCATION

Chinenye Nkiru Chibueze, PhD

Department of History and International Studies

Nnamdi Azikiwe University Awka, Nigeria

Email: cn.chibueze@unizk.edu.ng

Abstract

The restoration of history to the Nigerian curriculum following a sixteen-year attempt at "foundational erasure" (2009–2025) has triggered a profound "restoration crisis" in Higher Education, characterized by a generation of students cognitively distanced from their national identity. This study employs a Comparative Empirical Analysis to measure the "Success Ratio" of Augmented Reality as an itinerant pathway for bypassing systemic technological neglect and the stagnation of traditional 2D textbooks. Drawing on a landscape where professionals report a lack of ICT integration and existing tools suffer from low functionality, we contrast the Nigerian "passive recipient" baseline with validated international benchmarks. Empirical data from Japan and the Philippines demonstrates that Augmented Reality (AR) mediated immersive storytelling can boost knowledge retention from a stagnant 5% to a transformative 25%, effectively bridging the "retention gap" created by the "null curriculum". By synthesizing findings on historical empathy and the artifact advantage in archaeological AR, this research argues that 3D digital reconstructions facilitate digital repatriation, granting students and even lecturers sensory access to cultural treasures currently inaccessible due to physical or colonial erasure. The study concludes that the transition to a constructivist, AR-empowered classroom is an epistemological necessity for digital decolonization. The paper recommends mandatory digitalization metrics for university accreditation and the establishment of a National AR Artifact Library to reinstate indigenous vantage points within the Nigerian Humanities

Keywords: *Augmented Reality in History Education, Nigerian History Restoration, Digital Decolonization, Itinerant Curriculum, Historical Empathy, Digital Repatriation, 4IR Pedagogy, Null Curriculum, Knowledge Retention Gap, Immersive Storytelling*

Introduction: The Digital Pedagogy of the Future

In the contemporary landscape of Nigerian Higher Education, history is a discipline under siege not merely by the erasure of its content, but by the stagnation of its medium. For decades, the Nigerian government has demonstrated a systemic "institutional disrespect" toward the humanities, viewing history as a "non-productive" subject compared to the capital-intensive STEM fields (Agwanda, 2019). This marginalization reached its zenith with the controversial removal of history from the basic education curricula in 2009 during the President Umaru Musa Administration. The government's justification was student apathy, a dearth of history teachers and that very few schools offered the subject. In March 2018, during the 2018/2019 academic session, the subject was reintroduced following relentless public outcry with the Historical Society of Nigeria at the forefront (Aleke, 2025). However, some schools across the nation did not recommence the subject. The reintroduction was a partial success. Recently in 2025, 16 years later, the nation witnessed an official education curriculum rollout, History was made a compulsory subject in the basic education curriculum and Nigerian pupils would study it continuously from Primary 1 to Junior Secondary School 3 (Kenechi, 2025). Sadly, the 16 years lacuna created a generation without memory nor national awareness, with eroded civic values and disconnection from the past and its wealth of knowledge. Despite the "restored" curriculum, the study of history remains anchored in a pedagogical time-lock: the colonial-era, static textbook (Akanbi & Jekayinfa, 2021; Garcia, 2020).

The central crisis of the discipline is not a lack of agency among Nigerian educators—who often possess the departmental autonomy to teach "pro-African" narratives—but the **medium of delivery**. Even the most decolonized lesson becomes a vestige of colonial methodology when delivered via monotonous, 2D text (Garcia, 2020). Within this framework, the student remains a "passive recipient" of history rather than an "active explorer" (Baharuddin et al., 2020). Empirical data from the Nigerian teaching landscape highlights the severity of this stagnation; a study of teaching professionals found that **100.00% of respondents** did not use digital tools for classroom instruction, while functionality rates for even basic interactive boards in universities remain as low as **27.8%** (Oyediran & Dick, 2017; Oyefara et al., 2022). Consequently, history is perceived as a "memory subject" to be memorized and discarded, rather than a living experience to be engaged with.

This pedagogical decay is the direct result of "poor behavior" toward the discipline that predates the 2009 removal. In some contexts, history was phased out as a compulsory subject as early as **1982**, reflecting a long-standing government belief that history lacks economic utility in a developing nation (Nafziger, 2022). Even with the

restoration, the government has failed to lead a digitalization effort in the humanities, leaving a vast majority of students (of which only **5.2%** of applicants typically gain university admission) with outdated facilities (Abakporo et al., 2025; Adebisi & Olatunji, 2022). This technological neglect creates a "null curriculum", a space where history is taught in name, but its emotional and visual power is erased by the lack of 4IR integration (Fomunyan, 2020; Gottlieb, 2017). 4IR integration (Fourth Industrial Revolution integration) is the fusion of digital, physical, and biological technologies that blurs traditional boundaries and transforms how industries operate and societies function (Wikipedia). It involves incorporating advanced, interconnected technologies such as Artificial Intelligence (AI), the Internet of Things (IoT), and robotics into every aspect of business operations, manufacturing, and daily life to create smarter, more autonomous systems.

This study posits that **Augmented Reality** (AR) is the essential "itinerant pathway" for reclaiming Nigerian socio-social history (Fomunyan, 2020). By replacing flat textbook descriptions with **AR Artifacts**—3D digital reconstructions of events, pre-colonial tools, terracotta, regalia and the like, one can bridge the gap between a neglected past and a digital future (Puspasari et al., 2021). Evaluating the "Success Ratio" of these tools is critical; global benchmarks suggest that AR-mediated history lessons lead to an **85% student engagement rate** and a **25% improvement in knowledge retention**, compared to a mere 5% for traditional text (Kobayashi et al., 2025). The integration of AR does more than just present facts; it generates "historical empathy" by allowing students to "touch and explore" artifacts that are otherwise physically inaccessible or lost (Durak et al., 2020; Hourdakakis et al., 2023). By leveraging mobile-based AR—a technology proven effective in the Nigerian context with "above average" learnability—this research offers a blueprint for decolonizing the classroom through immersive storytelling (Elivera & Palaoag, 2020; Oke et al., 2021). If the Nigerian government will not fund the physical restoration of history, educators must utilize digital innovation to "re-territorialize" the Nigerian past ("Critical Digital Pedagogy in Higher Education," 2022).

Theoretical Frameworks

To analyze the efficacy of Augmented Reality in the Nigerian historical landscape, this study synthesizes two transformative frameworks: **Decolonial Theory** and **Constructivist Learning Theory**. Together, they provide the lens through which AR artifacts is viewed not merely as technical tools, but as agents of cognitive and political liberation.

Decolonial Theory: Dismantling the Coloniality of Knowledge

In the context of Nigerian higher education, decolonization must extend beyond the syllabus to the very structures of knowledge production. Decolonial Theory here, addresses the "coloniality of knowledge"—the enduring legacy of colonial power that continues to dictate whose history is told and how it is visualized. Traditional history pedagogy in Nigeria has long been criticized for its "ethics of digital neocolonialism," where indigenous narratives are often filtered through Western-centric mediums like the static textbook (Zembylas, 2021).

By integrating AR, we enact a "decolonial approach" to technology. Rather than allowing AI and digital tools to become new instruments of Western hegemony, we use them to reinstate **indigenous vantage points** (Zembylas, 2021). AR allows for the "digital repatriation" of artifacts, enabling Nigerian students to engage with pre-colonial tools and regalia in their own cultural space. This technological intervention disrupts the "passive recipient" model by providing a platform for "undoing" the ethics of digital neocolonialism, ensuring that the Nigerian student is the primary actor in the reconstruction of their own history.

Constructivist Learning Theory: From Passive Recipient to Active Explorer

While Decolonial Theory addresses the *power* of history, Constructivist Learning Theory addresses the *psychology* of learning it. This study moves away from the "banking model" of education toward a **Constructivism Learning Environment**, where knowledge is actively constructed by the learner through experience (Baharuddin et al., 2020). Within this framework, AR serves as the "cognitive bridge." Unlike traditional 2D media, AR "artifacts" trigger what psychologists term "**exploratory behavior**"—a state where the learner is compelled to interact, rotate, and examine a digital object to derive meaning (Baharuddin et al., 2020; Elivera & Palaoag, 2020).

The integration of AR creates a "student-centered" environment that is particularly effective for complex subjects like history and archeology (Durak et al., 2020). In this setting:

- **The Artifact as Trigger:** Digital 3D models of pre-colonial tools act as catalysts for independent meaning-making, moving the student away from rote memorization (Elivera & Palaoag, 2020).
- **Active Engagement:** The "immersive storytelling" of AR transforms the student from a spectator into an "active explorer" (Garcia, 2020).
- **Historical Empathy:** The tactile-visual nature of AR generates a high-level "sense of presence," which is essential for developing historical empathy—the ability to connect emotionally with the lived experiences of the past (Durak et al., 2020; Hourdakakis et al., 2023).

These two theories converge in what we define as the **"Itinerant Curriculum Pathway"** for the 4IR era (Fomunyan, 2020). By combining the political imperative of decolonization with the pedagogical power of constructivism, AR provides a way to bypass the "technological neglect" of the state. This framework posits that the "Success Ratio" of AR is not just measured in test scores, but in the restoration of student agency and the dismantling of the "coloniality" that has long haunted the Nigerian classroom.

Methodology: Comparative Empirical Analysis

This study employs a Comparative Empirical Analysis to measure the projected "Success Ratio" of Augmented Reality intervention against the established baseline of traditional Nigerian pedagogy. To define the state of pedagogical stagnation, we establish a control variable using data from the Nigerian teaching landscape, where a staggering 100% of professionals report a lack of ICT integration and existing interactive tools suffer from a low 27.8% functionality rate (Oyediran & Dick, 2017; Oyefara et al., 2022). We contrast this "passive recipient" baseline with validated international AR benchmarks, specifically Japan's empirical evidence of a 25% knowledge retention rate (compared to a mere 5% for text-based cohorts) and the Philippines' model of immersive storytelling for colonial history. By synthesizing these metrics with the "historical empathy" factors identified in Turkish archeological AR studies and the "above average" learnability of mobile AR applications, this research projects a Success Ratio that positions 3D digital artifacts as the primary itinerant pathway for bypassing systemic technological neglect in the Nigerian Humanities (Durak et al., 2020; Elivera & Palaoag, 2020; Fomunyan, 2020).

Historical Background: Erasure and Restoration

The current crisis in Nigerian Higher Education cannot be understood without analyzing the "foundational erasure" that occurred between 2009 to 2018 and endured up to 2025 for some schools. For nearly two decades, history was expunged from the Basic Education curriculum, a policy decision that scholars describe as a "state-sponsored amnesia". While history remained an elective at the Senior Secondary level and a degree program in Universities, the removal from the basic level created a "null curriculum"—a space where the absence of the subject signaled to an entire generation that their national past was irrelevant (Gottlieb, 2017). This study argues that the University-level "restoration crisis" is a direct result of this nine-year gap; professors are now tasked with teaching complex historical analysis to students who lack the most basic chronological and cultural foundations.

The Era of Null Curriculum

The removal of history in 2009 was the culmination of years of systemic marginalization, where the Nigerian government increasingly viewed the humanities as "non-productive" in comparison to STEM disciplines (Agwanda, 2019). By categorizing history as a "null curriculum," the state effectively marginalized the national consciousness of Nigerian youth, leaving them without the historical tools to navigate modern citizenship (Akanbi & Jekayinfa, 2021; Gottlieb, 2017). For the Nigerian University system, this created a "pipeline fracture." Some students entered higher education with a profound "historical void," making traditional university pedagogy, which assumes a baseline of secondary-level historical knowledge, difficult.

The Restoration Crisis in Higher Education

The 2018/2019 reintroduction of history albeit largely ineffective was a victory for basic education, but it triggered a new crisis for some Universities (Akanbi & Jekayinfa, 2021). University lecturers are currently grappling with a "restoration" that is hindered by a lack of modern teaching aids and a reliance on "boring," text-heavy curriculum that fails to ignite interest in a generation raised in the digital age (Abakporo et al., 2025; Garcia, 2020). Standard texts are often criticized for a "passive relativism" that does not challenge the neocolonial structures of the classroom (Garcia, 2020). In the context of Higher Education, the challenge is not just *what* to teach, but *how* to bridge the decade-long gap in historical empathy. Especially in today's world where many students are overly stimulated by their phones and suffer from short span attentiveness. At institutions such as Nnamdi Azikiwe University, Awka, teaching and learning have highlighted the desperate need for more engaging, multi-sensory pedagogical approaches to overcome the "historical lethargy" of the student and even staff population.

Socio-Social Impact: AR as Virtual Reconstruction

This study posits that the "virtual reconstruction" of heritage via Augmented Reality is the preferred viable method for reclaiming these disenfranchised narratives. For the University student who survived the "era of erasure," AR provides an immediate, immersive "crash course" in identity. By interacting with 3D digital artifacts, students are moved from being "passive recipients" of a broken educational pipeline to "active explorers" of a reconstructed past (Baharuddin et al., 2020; Garcia, 2020). The acceptance of AR in this context is driven by its ability to foster "historical empathy"—a critical requirement for a generation of university students who were systematically denied their national story for nearly a decade (Dalim et al., 2017; Hourdakakis et al., 2023).

AR Artifacts vs. Traditional Textbooks

The comparative efficacy of Augmented Reality over traditional textbooks in Nigerian Higher Education is not merely a matter of technological preference; it is an epistemological necessity. In a landscape where the "null

curriculum" has left students conceptually disenfranchised, the medium of instruction must do more than inform—it must resurrect.

1. The Static vs. The Immersive: Resurrecting Pre-Colonial Nigeria

Traditional history textbooks in Nigeria offer "dry facts" delivered through a 2D medium that inherently distances the learner from the subject matter (Garcia, 2020). This "static" model forces the university student into the role of a passive recipient, a position that is particularly detrimental when teaching the complex, socio-social narratives of pre-colonial Nigeria (Baharuddin et al., 2020). Conversely, AR provides an **"immersive storytelling"** experience that brings the past to life.

By overlaying digital 3D models onto the physical classroom, AR transforms a lecture on the Benin Empire or the Nok culture from a linguistic abstraction into a spatial reality. This immersive approach allows students to "enter" the historical narrative, fostering an environment where they can actively explore pre-colonial tools and regalia as if they were physically present (Durak et al., 2020; Garcia, 2020). The "Success Ratio" here is driven by this shift in agency: the student no longer reads about the past; they navigate it.

2. Digital Repatriation: Accessing the Inaccessible

One of the most profound applications of AR in the Nigerian context is **Digital Repatriation**. A significant portion of Nigeria's historical tools and regalia are physically inaccessible to students, either due to their fragile state in domestic archives or their presence in foreign collections. AR artifacts provide a solution to this "physical erasure" by granting students sensory access to 3D reconstructions of these cultural treasures.

This "virtual reconstruction" of heritage allows university students to examine the intricate details of a terracotta head or a ceremonial staff that they would otherwise never see. Research indicates that this "sense of presence" provided by AR is crucial for developing **historical empathy** (Durak et al., 2020). By allowing students to "touch and explore" digital twins of their stolen or hidden heritage, AR acts as a decolonial tool that reinstates indigenous vantage points within the University walls (Hourdakakis et al., 2023; Zembylas, 2021).

3. Beyond Monotony: The Sensory Engine of Curiosity

The "textbook-only" model is defined by pedagogical monotony, which has been statistically linked to low engagement and poor knowledge retention in Nigerian classrooms. AR breaks this monotony through **multi-sensory engagement**, integrating 3D graphics, spatial audio, and interactive touch-points (Elivera & Palaoag, 2020).

The data backing this transition is compelling:

- **Curiosity and Engagement:** AR applications that utilize sensory triggers have been shown to significantly arouse student curiosity, moving them from bored spectators to "active explorers" (Baharuddin et al., 2020; Elivera & Palaoag, 2020).
- **The Retention Gap:** While traditional text-based instruction often results in a mere **5% growth** in knowledge retention, AR-mediated history lessons have demonstrated a **25% increase** in retention rates (Kobayashi et al., 2025).
- **Learnability:** In the Nigerian context, mobile-based AR applications have achieved "above average" learnability scores, proving that even with limited institutional infrastructure, the "Success Ratio" remains high because the technology leverages the students' own mobile devices (Elivera & Palaoag, 2020; Oke et al., 2021).

By replacing the "monotonous" textbook with high-level sensory engagement, the technological neglect of the state can be effectively bypassed and provide a pedagogical experience that is both academically rigorous and humanly engaging.

Comparative Case Studies: Empirical Proof of Concept

To validate the "Success Ratio" of Augmented Reality in a landscape of technological neglect, this paper looked at international benchmarks where digital innovation has successfully bypassed traditional pedagogical barriers. These case studies provide the quantitative and qualitative evidence required to move the Nigerian University system beyond the "monotony" of the textbook.

1. The Japanese Quantitative Benchmark: Closing the Retention Gap

Empirical evidence from a 2025 study in Japan offers a startling contrast between digital and traditional methodologies. In a controlled experiment involving 200 students, those utilizing AR-mediated history lessons demonstrated a **25% improvement** in historical recall and knowledge retention (Kobayashi et al., 2025). Conversely, the group restricted to traditional textbooks showed a retention growth of only **5%**, essentially plateauing after the initial lecture (Kobayashi et al., 2025).

This "Knowledge Retention Gap" is a critical metric for Nigerian Higher Education. If Nigerian university students, already burdened by a decade of "null curriculum", continue to rely on textbooks that offer only a 5% success rate in recall, the restoration of history will remain a statistical failure. The Japanese data proves that AR

is not a luxury, but a high-performance engine for complex history lessons, making students **85% more likely** to engage with the material than their text-based counterparts (Kobayashi et al., 2025).

2. The Philippine Model: Immersive Narratives of Colonization

The challenge of teaching sensitive "colonization" history is addressed through the Philippine experience. Researchers developed AR immersive storytelling modules to navigate the American colonization period, moving past the "dry text" that often sanitizes or simplifies historical trauma (Garcia, 2020).

The "Success Ratio" in the Philippines was driven by the creation of emotive, interactive narratives that foster significant "**pedagogical value**". By transforming the student from a spectator into a participant in the historical narrative, AR successfully bridged the emotional distance inherent in colonial-era textbooks. This provides a direct roadmap for Nigeria: AR can be used to navigate the "restoration crisis" by providing a platform where pre-colonial and colonial narratives are no longer "boring" relativism, but vital, interactive experiences.

3. The Archeological "Artifact Advantage" and Digital Repatriation

Further evidence from the field of archeology highlights how 3D animations and AR models eliminate "accessibility barriers" (Durak et al., 2020). In university settings, student opinions on AR in archeology fields emphasize the "**Artifact Advantage**"—the ability to "touch and explore" 3D digital twins of ruins, sculptures, and regalia that are otherwise locked away in foreign collections or domestic archives.

This model of **Digital Repatriation** allows for:

- **Virtual Reconstruction:** Rebuilding lost or damaged heritage site models that students can explore via mobile devices.
- **Sensory Connection:** Creating a "sense of presence" that traditional fieldwork or photography cannot replicate, leading to higher student sentiment and independent "exploratory behavior".

By mapping these international success rates onto the Nigerian University landscape, we see that the integration of 3D AR models is the only itinerant pathway capable of reversing the socio-social impact of a decade of erasure.

Conclusion

The restoration of history to the Nigerian curriculum represents an important policy intervention; however, this study suggests that curricular reinstatement alone may be insufficient to address the long-term consequences of reduced historical engagement among learners. Challenges associated with limited historical consciousness, inadequate instructional resources, and insufficient integration of digital technologies continue to affect the teaching and learning of history in Nigerian higher education.

This study argues that Augmented Reality (AR) offers a viable pedagogical framework for enhancing history education by complementing conventional instructional approaches with immersive and interactive learning experiences. Through the use of three-dimensional digital artifacts and storytelling techniques, AR-supported instruction encourages constructivist learning by promoting active participation, historical inquiry, and greater learner engagement. Evidence from previous studies indicates that AR-based learning environments can improve students' understanding and retention of historical concepts when compared with traditional text-based approaches.

Furthermore, the integration of digitally reconstructed artifacts provides opportunities for virtual access to cultural heritage resources that are geographically distant, physically inaccessible, or inadequately represented in existing educational materials. Such approaches may contribute to broader efforts aimed at preserving indigenous knowledge and strengthening students' appreciation of Nigerian historical experiences within the context of the Fourth Industrial Revolution.

The study concludes that the effective integration of AR technologies into history education has the potential to enrich historical understanding, promote digital literacy, and support innovative teaching practices in Nigerian universities. Consequently, it recommends the incorporation of digital-learning indicators into quality-assurance frameworks, increased investment in ICT infrastructure and staff training, and the establishment of a National AR Heritage Repository to facilitate wider access to digitally preserved historical resources.

Recommendations

To bridge the chasm between the "null curriculum" of the past and a 4IR-ready future, this study proposes three systemic interventions aimed at the National Universities Commission and institutional stakeholders.

1. Mandatory Digitalization: Digital Humanities as an Accreditation Metric

The Nigerian University Commission should move beyond traditional infrastructure metrics and include "**Digital Humanities Readiness**" as a core criterion for university accreditation. As global Digital Transformation opens

new frontiers for business and educational opportunities, the Nigerian University system cannot afford to remain static. It is recommended that history departments be audited based on their integration of digital pedagogical tools, ensuring that "digital literacy" is treated with the same urgency as laboratory equipment in STEM disciplines.

2. 3D Repository Creation: A National AR Artifact Library

The Nigerian government, through the Ministry of Education and National Museums, should fund the creation of a centralized "**National AR Artifact Library**." This digital repository would provide high-fidelity 3D reconstructions of pre-colonial tools, regalia, and archaeological sites for use in all higher education history departments (Puspasari et al., 2021).

- **Proof of Concept:** Empirical studies within the Nigerian context have already demonstrated that AR technology offers significant "benefits" in complex environments, suggesting that the technological infrastructure is viable if institutional will is applied.
- **Functionality:** Such a library would achieve "Digital Repatriation" at scale, allowing students in remote Nigerian universities to "touch and explore" artifacts that are physically housed in distant or foreign collections.

3. Faculty Retooling: From Lecturers to Immersive Storytellers

The "restoration crisis" cannot be solved by technology alone; it requires a radical shift in faculty training. We recommend a nationwide "Faculty Retooling" program that trains history teachers to transition from traditional "lecturers" to "**immersive storytellers**" using mobile AR technology.

- **Critical Digital Pedagogy:** This shift must be grounded in "Critical Digital Pedagogy," ensuring that technology is used to challenge neocolonial narratives rather than just replicate them digitally.
- **Constructivist Training:** Educators must be trained to manage a "Constructivism Learning Environment," where they facilitate "exploratory behavior" and student-led meaning-making through AR artifacts, rather than merely delivering rote facts.

References

- Abakporo, P. C., Ohenhen, S. T., Egbe, F. E., et al.. Experimenting dance content for historical pedagogy in Nigeria: Lessons from the Imo State University experience. *Journal of Nigerian Educational Research*, 12, 45-58. (Abakporo et al., 2025)
- Adebisi, T. A., & Olatunji, T. I.. Sociodemographics and psychosocial experiences of distance learners in Nigeria: A comparison of single-mode and dual-mode universities. *International Journal of Distance Education Technologies*. (Adebisi & Olatunji, 2022)
- Agwanda, B.. Is history losing its popularity as an academic discipline? A case study of USA and Nigeria. *Global Journal of Social Sciences*, 18, 101-115. (Agwanda, 2019)
- Akanbi, G. O., & Jekayinfa, A. A.. History education in Nigeria: Past, present and future. *Journal of the Historical Society of Nigeria*, 30, 1-22. (Akanbi & Jekayinfa, 2021)
- Aleke, L. (2025, October 13). *How the Historical Society of Nigeria fought to return history to Nigerian schools*. Arise News. <https://www.arise.tv/how-the-historical-society-of-nigeria-fought-to-return-history-to-nigerian-schools/>
- Baharuddin, N. B., Rosli, H., & Juhan, M. S.. Constructivism learning environment by using augmented reality in art history course. *International Journal of Academic Research in Business and Social Sciences*, 10, 1256-1270. (Baharuddin et al., 2020)
- Critical digital pedagogy in higher education..* OpenAccess. ("Critical Digital Pedagogy in Higher Education," 2022)
- Dalim, C. S. C., Kolivand, H., Kadhim, H., et al.. Factors influencing the acceptance of augmented reality in education: A review of the literature. *International Journal of Interactive Mobile Technologies*, 11, 74-89. (Dalim et al., 2017)
- Digital transformation - Towards new frontiers and business opportunities..* OpenAccess Publishing. ("Digital Transformation - Towards New Frontiers and Business Opportunities," 2022)
- Durak, H. Y., Sarıtepeci, M., & Çam, F. B.. Examination of university students' opinions on use of augmented reality technology in archeology field. *Journal of Educational Technology & Online Learning*, 3, 342-365. (Durak et al., 2020)
- Elivera, A. F., & Palaoag, T. D.. Development of an augmented reality mobile application to enhance the pedagogical approach in teaching history. *International Journal of Interactive Mobile Technologies*, 14, 45-59. (Elivera & Palaoag, 2020)

- Fomunyan, K. G.. The itinerant curriculum as an alternative curriculum pathway in Nigerian higher education. *Journal of Higher Education in Africa*, 18, 89-104. (Fomunyan, 2020)
- Fomunyan, K. G.. Theorising itinerant curriculum as the pathway to developing 4IR skills in Nigerian higher education. *International Journal of Civil Engineering and Technology*, 11, 112-124. (Fomunyan, 2020)
- Fourth Industrial Revolution. (n.d.). In *Wikipedia*. https://en.wikipedia.org/wiki/Fourth_Industrial_Revolution
- Garcia, M. B.. Augmented reality in history education: An immersive storytelling of American colonisation period in the Philippines. *Journal of Educational Computing Research*, 58, 512-535. (Garcia, 2020)
- Gottlieb, O.. Time travel, labour history, and the null curriculum: New design knowledge for mobile augmented reality history games. *International Journal of Heritage Studies*, 23, 782-799. (Gottlieb, 2017)
- Hourdakis, A., Ieronymakis, Y., Kounalakis, M., et al.. Augmented reality application to highlight health policies about refugee students in the interwar period: An example of empathetic study of an archival collection. *Digital Education Review*, 88-105. (Hourdakis et al., 2023)
- Kenechi, S. (2025, September 18). In Detail: History returns to Nigeria's basic school curriculum after 16 years. *The Cable*. <https://www.thecable.ng/in-detail-history-returns-to-nigerias-basic-school-curriculum-after-16-years/>
- Kobayashi, R., Sato, H., Suzuki, R., et al.. Applying augmented reality for history lessons in Japan. *Journal of Digital Learning in Teacher Education*, 41, 22-37. (Kobayashi et al., 2025)
- Nafziger, R. N.. *Crossing the great divide*. OpenAccess Press. (Nafziger, 2022)
- Oke, A. E., Arowoia, V. A., & Ekundayo, D.. An empirical study on the benefits of augmented reality technology: A Nigerian construction industry context. *Journal of Engineering, Design and Technology*, 19. (Oke et al., 2021)
- Oyediran, W. O., & Dick, T. T.. Use of information communication technology in teaching profession in Ogun state, Nigeria. *Journal of Education and Practice*, 8, 162-171. (Oyediran & Dick, 2017)
- Oyefara, J. L., Adejoh, P. E., Adisa, W. B., et al.. 5 - ICT utilisation and associated barriers in teaching among middle-level academics in Nigerian universities. *Nigerian Journal of Social Sciences*. (Oyefara et al., 2022)
- Puspasari, S., Suhandi, N., & Iman, J. N.. Evaluation of augmented reality application development for cultural artefact education. *Journal of Physics: Conference Series*, 1869, 012085. (Puspasari et al., 2021)
- Zembylas, M.. A decolonial approach to AI in higher education teaching and learning: Strategies for undoing the ethics of digital neocolonialism. *Learning, Media and Technology*, 46, 253-267. (Zembylas, 2021)