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Toward an AI-Mediated Musical Creativity Framework for Resource-Constrained Contexts: Generative Artificial Intelligence, Creative Labour, and Digital Music Futures in Nigeria

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Abstract

All over the world, generative artificial intelligence (AI) is reshaping the process of music creation, production, performance and dissemination. Most prior research on AI creativity, however, is based on a technologically advanced context, and there is little in the literature that deals directly with the adoption and use of AI in the context of resource poor settings. The AI-Mediated Musical Creativity Framework for Resource-Constrained Environments (AIMCF-RCE) has been created to elucidate the dynamics of AI-supported music creation in Nigeria. The study suggests a framework for Human-AI Co-Creation by combining infrastructure theory, postcolonial digital theory, creative labour theory, AI generative capabilities, and human creative agency, drawing on the theories of Computational Creativity. The framework posits that musical creativity powered by AI is influenced by adaptive innovation practices, cultural context and infrastructural realities as well as by the technological capabilities available for musical creation. Musicians in Nigeria are working in an environment where electricity is unstable, internet access is not widely available, affordability is a concern, and platforms are dependent, which calls for innovative approaches to AI adoption. Additionally, the study argues that human creativity and intuition are essential in AI-assisted music creation, as cultural understanding, integration of local sounds, and artistic decisions cannot be completely automated. The authors bring a uniquely Global South perspective to the study, resulting in a new conceptual model that helps move the understanding of AI mediated creativity forward in developing economies.

Keywords:

Generative artificial intelligence, musical creativity, AI mediated creativity, Nigeria, resource-constrained environments, human –AI co-creation, digital creativity, cultural mediation, creative industries.

1. Introduction

Generative artificial intelligence (AI) has been making strides in the creative sector, impacting music, cinema, design, publishing and digital media around the world. Recent advances in machine learning, deep neural networks, and generative models have paved the way for AI systems to generate increasingly sophisticated creative pieces like melodies, lyrics, arrangements, vocal synthesis, and automated mastering (Amankwah-Amoah, 2024).

Generative AI-driven platforms like AIVA, Suno, Udio, and Stable Audio are revolutionizing the music industry, streamlining the workflow, cutting costs, and opening up new possibilities for creative exploration in music composition and production, music distribution and streaming, and live music performances. Thus, artificial intelligence-driven creativity is seen not just as automation, but as a partner and catalyst that enriches and reshapes the landscape of today's cultural creation (Caramiaux et al., 2025).

Current Situation of AI and Music Creativity in Nigeria

Nevertheless, the current research literature on AI and musical creativity is mainly western and technology-oriented. Most studies take for granted that there is stable digital infrastructure, reliable internet access, advanced computing systems, institutional support and good copyright protection frameworks (Amankwah-Amoah, 2024). Assumptions like this do not accurately address the technological adoption and creative practice under the conditions of resource poverty in Nigeria, where infrastructural limitations play a major role in the adoption of technologies. Unstable power supply, expensive software subscriptions, lack of computational resources, digital divide, and inadequate protection of IP rights are also factors limiting the involvement in AI ecosystems in many African settings.

However, the Nigerian context is an interesting one in which to explore AI-mediated musical creativity. Afrobeats have made Nigeria's music industry a world-class culture and economic powerhouse with the success of the music on the international stage and the use of digitized music distribution. The country also has a creative economy that is young and dynamic, with a swift adaptation to new technologies, the use of mobile technologies and platform-based culture creation. But these creative innovations go hand-in-hand with structural constraints that shape the access, localization and use of new technologies. Little research has been done so far regarding the negotiations between musicians and producers in low-resource settings regarding the opportunities and constraints of the use of generative AI (Herington et al., 2025; Larsen & Zhu, 2024).

The current theories on the creativity of AI are mainly developed with technologically advanced societies, and thus have not been able to explain how generative AI works in resource-limited creative ecosystems. There is a lack of understanding regarding the impact of infrastructural constraints, affordability challenges, platform dependency, informal creative economies, adaptive innovation practices and socio-cultural factors in shaping AI uptake in the music industries in Africa (Okunbor&Alordiah, 2025b; Bryan-Kinns et al., 2024; Raji et al., 2024). More significantly, there is presently no attempt at a comprehensive conceptual approach to the way in which musicians in low resource contexts engage with the co-creative process with AI in the context of technological inequity. The research aims in this paper are therefore an attempt to create a context sensitive conceptual framework towards understanding AI mediated music creativity in Nigeria.

Objective of the Study

The study's objective is to construct a conceptual framework that will provide a new understanding of the impact of generative artificial intelligence on musical creativity, production, performance, and authorship as a case study in the resource-variant Nigeria. This research aims to explore the landscape of generative Artificial Intelligence (AI) in the Nigerian music industry and the structures and technology that influence and condition its use. It is an

effort to imagine and consider the ways in which generative AI can change music composition, production, performance, and creative music authorship in the resource-constrained context of Nigeria while exploring the opportunities and limitations of AI-mediated music creativity in Nigeria. The study also aims to examine how the lack of infrastructure affects the creative adaptation, technological improvisation and innovation of musicians and producers in low resource settings. One of the main goals is the creation of an AI-Mediated Musical Creativity Framework for Resource-Constrained Environments (AIMCF-RCE) to articulate how infrastructure, technology, culture, and humans are all interwoven in music making with AI. In addition, the study seeks to introduce and shed light on a Global South perspective on the ongoing discussions on artificial intelligence; creativity and digital cultural production, which to date have been largely located in Western parts of the world.

For these aims, the study is centered around a number of key research questions. Firstly, what is the conceptualization of generative AI mediated musical creativity in resource-poor contexts? Secondly, what are the structural, technological, economic and cultural factors that influence the uptake and use of AI in Nigeria's music industry. Thirdly, what role does infrastructure play in shaping creative processes, the adoption of technologies, and innovation with the use of generative AI? Fourthly, how does AI transform authorship, work relations, creativity and value production in low-resource music industries? Lastly, which theoretical concept of human–AI co-creativity best captures the dynamics of such human–AI co-creative interaction in a resource poor environment like Nigeria?

2. Theoretical concepts and conceptual foundations

2.1 Computational Creativity Theory

Computational Creativity Theory views creativity as a process which can be partially simulated by computational systems capable of producing outputs that are seen as novel, valuable and meaningful (Huang & Rust, 2021). In the realm of music production, generative AI systems use machine learning algorithms that learn from vast collections of music to create melodies, harmonies, rhythms, lyrics, and sound textures. These systems have now become an integral part of creative processes that have been the preserve of human composers and producers. But, there has been much research disagreement about whether AI can truly be said to “create” or simply “recombine” patterns from the data used to train it. Some scholars have regarded generative systems as being able to demonstrate emergent creative abilities in probabilistic synthesis and adaptive generation (Mazzone &Elgammal, 2019), while others have pointed out that AI systems are missing intentionality, emotional consciousness, and socio-cultural understanding to be truly creative. These restrictions are especially important in the context of African music ecologies, where musical expression is inextricably tied to indigenous identity, oral tradition, spirituality, participation and socio-cultural storytelling, which are hard to computerize.

2.2 Human–AI Co-Creation Theory

Human–AI Co-Creation Theory puts forth the idea that creativity is not just an autonomous process of the machine but a collaborative process between humans and intelligent systems. AI is mostly used as an assistive and augmentative technology to help with ideation, arranging, editing, mastering and experimentation in music production environments. In addition to encouraging, editing, filtering, contextualizing, and culturally interpreting the output of AI-

generated content, human musicians still play a key role in these processes (Davenport & Mittal, 2022). This is especially the case in Nigeria's music industry where producers and artists practically have to improvise and adapt, to overcome infrastructure limitations. Therefore, it is important to interpret AI-supported music production as a collaboration between technology and society, and not a replacement of technology.

2.3 Postcolonial Digital Theory

Postcolonial Digital Theory can be used to critically analyze the relationship between the technology of Global North AI infrastructures and the use of technology by Global South users, as an asymmetrical power dynamic. The development, ownership and training of most generative AI come from a predominantly western data set, which has been found to embed Western aesthetic assumptions and cultural biases into algorithmic systems (Birhane, 2021). This can lead to digital colonialism, cultural homogenization, algorithmic bias and to the marginalisation of African sonic identities. Relying on AI tools from outside Nigeria can limit Nigerian musicians' creativity and freedom, favouring the sounds and aesthetics of music from around the world over the local sounds and linguistic diversity.

2.4 Infrastructure Theory

Infrastructure Theory highlights the influence of the material and institutional infrastructures on the possibilities of technology (Mandal et al., 2026). The fragmented availability of electricity, lack of broadband connectivity, cost of subscription, low hardware capabilities, cloud dependence and low GPU accessibility are all factors that impact the adoption of AI in music production ecosystems in resource-poor settings like Nigeria. The infrastructural constraints affect technological access as well as the nature of local music industries' creative adaptations and improvisations.

2.5 Creative Labor Theory

Creative Labor Theory investigates the nature of work relations in the new cultural industries that are undergoing a transformation through the use of generative AI. The addition of AI-based automation might be a way of making music production more accessible for everyone, reducing the technical complexity of production but also increasing labour precarity, platform dependency and gig-based production systems (Srnicek, 2017). AI in the Nigerian informal music sector can potentially exacerbate the disparities of platform capitalism, digital access, and monetization models while also providing opportunities for self-actualizing artists. AI-supported creativity, therefore, can be viewed as technological change and labour-reorganisation of the developing digital music economy.

3. Literature Review

3.1 Global Music Production with Generative AI

Generative artificial intelligence (AI) has been a game-changer in music production, especially around the world, with the help of powerful AI systems that can create music, lyrics, and even sing. The advent of generative artificial intelligence (AI) has revolutionized music production worldwide, offering sophisticated computational systems that compose melodies, craft lyrics, synthesize vocals, and streamline audio mastering. In recent years, with the ever-evolving technologies of deep learning and generative neural networks, the introduction of AI into music

composition, production, distribution, and performance processes has been on the increase (Amankwah-Amoah, 2024). AI tools for musicians like AIVA, OpenAI's MuseNet, Stable Audio, Suno, and Udio are now helping musicians and producers by generating beats, suggesting compositions, and even handling certain aspects of mixing and sound engineering in real-time. All of these have helped to change the production landscape from studio production to platform and decentralized production. Dwivedi et al. (2023) noted that the application of generative AI technologies is quickly transforming the creative industries by boosting productivity, lowering production barriers, and creating new opportunities for creativity and collaboration.

Production efficiency and accessibility have also been revolutionized by AI mastering systems and synthetic voice technologies. Computer algorithms for automated mastering platforms, like LANDR or iZotope, use machine learning to adjust sound quality with minimal technical know-how. In a comparable way, AI-powered voice synthesis and voice cloning technologies have opened up new opportunities for multilingual production, virtual performances and digital artists. But academics warn that such technologies can also lead to the uniformity of sonic styles as patterns discovered from dominant training data dominate and curtail musical diversity and experimentation (Birhane, 2021).

3.2 Musical creativity and AI

The discussion regarding AI and musical creativity has focused on originality and authenticity, intentionality, and the concept of emotion. According to the researchers of computational creativity, an AI system can generate outputs, which can be considered as novel and aesthetically valuable, by probabilistic recombination and pattern recognition (Mazzone &Elgammal, 2019). However, critics argue that the music produced by AI is not truly conscious, it does not have any real-life experiences, and it is not emotionally intended, which are key aspects of human artistic creation. Whether AI “creates” or simply reproduces stylistic patterns learned is still a question.

In recent years, the field of creativity has begun to recognize that the creative endeavour is a collaborative effort, between people and machines. For now, humans still guide AI creations by prompting, curating, editing, arranging and contextualizing the AI's outputs (Davenport & Mittal, 2022). Thus, AI-driven music creation has come to be seen as more of a collaborative process between AI and human creativity than a process of letting AI create music on its own. But this raises some doubts about the authenticity of AI-produced music, especially in the context of audiences seeking emotional resonance, cultural context, and intentionality in musical creation.

The use of generative AI in music creation has sparked debate around issues of authorship, ownership, and copyright protection. The current copyright landscape is geared more towards human authors and has thus been difficult to apply to the creative work produced by AI. It is unclear whose ownership should be, that of the user, the developer, the platform provider, the dataset contributors or the AI system itself (Gervais, 2022). Things get a bit trickier when it comes to voice cloning, style imitation and the use of copyrighted training data.

There have been also ethical questions related to algorithmic appropriation and exploitation of artists' creative works without consent. AI systems can perpetuate unequal power dynamics, as they may be based on the extraction of cultural data from marginalized communities and focus

technological control within the corporations of the Global North, as Birhane (2021) states. These kinds of dynamics are significant in terms of creative sovereignty and cultural ownership in African music industry.

3.3 Digital Creativity in Africa

Mobile technologies, social media and streaming economies have enabled a significant growth of African digital creativity. As Afrobeats and culturally mediated music production processes have been fast internationalized, Nigeria has become a globally influential music hub in particular. Digital platforms like YouTube, TikTok, Audiomack, Boomplay and Spotify have helped Nigeria's musicians cut out the middlemen and gain access to the international market (de Kloot et al., 2019). Independent music production and online creative entrepreneurship has also been growing through innovation by young people in digital technologies.

However, African digital creativity exists in an environment where infrastructural inequality, lack of electricity, high cost of internet and lack of institutional support prevail (Onalaja&Otokiti, 2025). Analyzing digital cultures in Africa, scholars highlight that the adoption of technologies is a process of adaptive improvisation, informal economies and frugal innovation practices, and not a process that is characterized by stable technological ecosystems (Friederici et al., 2020). These factors play a crucial role in defining the potential applications of generative AI in music production in Nigeria.

The adoption of technology in resource-poor settings

Studies on the use of technology in resource poor settings emphasize the significance of infrastructural improvisations, costs considerations and adaptive innovations. In the literature of frugal innovation, it is explained how users in low-resource settings creatively innovate by using limited technological resources to get productive results (Pansera& Owen, 2018). African digital economies are often characterised by technological entanglements via mobile infrastructures, informal labour arrangements, and platform dependency.

Research also shows that infrastructural challenge, such as unreliable power, accessibility and use of broadband, high subscription fees, cloud dependency, and lack of computing devices, have a significant impact on digital participation and technological experimentation (Hollimon et al., 2025; Okunbor & Alordiah, 2025a; Tahmasebi, 2023). Therefore, it is not enough to merely consider technical capability when discussing the potential of AI in Nigeria's music scene; socio-economic and infrastructural factors that influence creative practice must also be taken into consideration.

The research in this field is not yet extensive at the moment. Existing literature is still limited.

While there are relevant research concerning AI creativity, digital music production and platform economies, there is limited research combining generative AI, African music industries, infrastructural inequality, and conceptual model-building. Existing research is mostly Eurocentric and lacks an understanding of AI-assisted creativity in an environment of limited resources. Furthermore, there is no strong conceptual model that currently accounts for how musicians in low resource settings engage with opportunities and constraints of generative AI use with its cultural implications. This fills the missing gap by suggesting a context-sensitive approach to understanding AI mediated musical creativity in Nigeria.

4. Proposed Conceptual Model

The AI-Mediated Musical Creativity Framework for Resource-Constrained Environments (AIMCF-RCE)

Table 1

The AI-Mediated Musical Creativity Framework for Resource-Constrained Environments (AIMCF-RCE)

Framework Component	Definition	Key Elements	Influence on AI-Mediated Musical Creativity	Expected Outcomes
Structural Conditions Layer	The broader environmental and institutional factors that shape access to and utilization of AI technologies within the music ecosystem.	Electricity instability, internet limitations, cost of AI tools, platform accessibility, regulatory weaknesses, copyright enforcement gaps, educational inequality.	Determines the extent to which musicians can access, afford, and effectively utilize AI-powered music technologies. These conditions act as enabling or constraining forces within the creative ecosystem.	Unequal AI adoption, selective technology utilization, adaptive innovation practices, and varying levels of creative participation.
Technological Access Layer	The technological resources and infrastructures available to musicians and producers for engaging with generative AI systems.	Smartphones, personal computers, advanced studio systems, cloud-based AI platforms, subscription affordability, hardware limitations, GPU access, software availability.	Influences the quality, frequency, and sophistication of AI-assisted music production processes. Access disparities shape creative opportunities and technological dependence.	Differentiated levels of AI engagement, platform dependency, and disparities in creative productivity.
Human Creative Agency Layer	The human-centered creative processes through which musicians interpret, refine, and direct AI-generated outputs.	Prompt engineering, editing, improvisation, curation, workflow adaptation, local sonic integration, linguistic localization, aesthetic judgment.	Serves as the central mediating mechanism through which AI outputs are transformed into culturally meaningful musical products. Human agency determines the final creative value of AI-assisted outputs.	Enhanced creativity, localized innovation, preservation of artistic identity, and culturally relevant musical production.
AI Generative Layer	The functional capabilities of generative AI systems used within music creation processes.	Composition generation, beat creation, lyric generation, vocal synthesis, mastering automation,	Provides creative augmentation by automating technical and compositional tasks while expanding creative	Increased production speed, reduced technical barriers, expanded experimentation, and new forms of

		arrangement suggestions, sound design assistance.	possibilities and production efficiency.	human–AI collaboration.
Cultural Mediation Layer	The socio-cultural processes through which AI-generated outputs are adapted to local cultural contexts and audience expectations.	Indigenous sounds, Afrobeats aesthetics, local languages, cultural identity, authenticity expectations, audience preferences, cultural legitimacy.	Ensures that AI-generated content aligns with local cultural norms, values, and artistic traditions rather than merely reproducing globally dominant musical patterns.	Greater audience acceptance, cultural relevance, authenticity, and preservation of local musical heritage.
Output and Value Creation Layer	The tangible and intangible outcomes generated through AI-mediated music production.	Music products, streaming performance, social media circulation, monetization opportunities, audience reception, creative ownership, commercial sustainability.	Represents the final outcomes of interactions among infrastructure, technology, human creativity, AI capabilities, and cultural mediation.	Commercial success, audience engagement, creative recognition, sustainable music careers, and industry growth.

Proposed Theoretical Relationships within the AIMCF-RCE

Relationship	Description
Structural Conditions → Technological Access	Infrastructure and institutional conditions determine access to AI technologies and digital resources.
Technological Access → Human Creative Agency	Available technologies influence how musicians engage with, adapt, and utilize AI tools.
Human Creative Agency ↔ AI Generative Layer	Human creators and AI systems interact collaboratively through prompting, editing, and iterative refinement.
Human Creative Agency → Cultural Mediation	Musicians actively localize and contextualize AI outputs according to cultural expectations and artistic goals.
Cultural Mediation → Output and Value Creation	Cultural relevance enhances audience acceptance, market performance, and creative legitimacy.
Structural Conditions → Output and Value Creation	Infrastructure indirectly affects commercial outcomes by shaping technology adoption and creative opportunities.
AI Generative Layer → Output and Value Creation	AI capabilities influence productivity, innovation, and creative output quality.

Core Proposition of the AIMCF-RCE

The framework proposes that AI-mediated musical creativity in resource-constrained environments emerges from the dynamic interaction between structural conditions, technological accessibility, human creative agency, AI generative capabilities, and cultural mediation processes. Consequently, creative outcomes are not determined solely by technological sophistication but by the extent to which musicians adapt, localize, and integrate AI technologies within specific socio-cultural and infrastructural contexts.

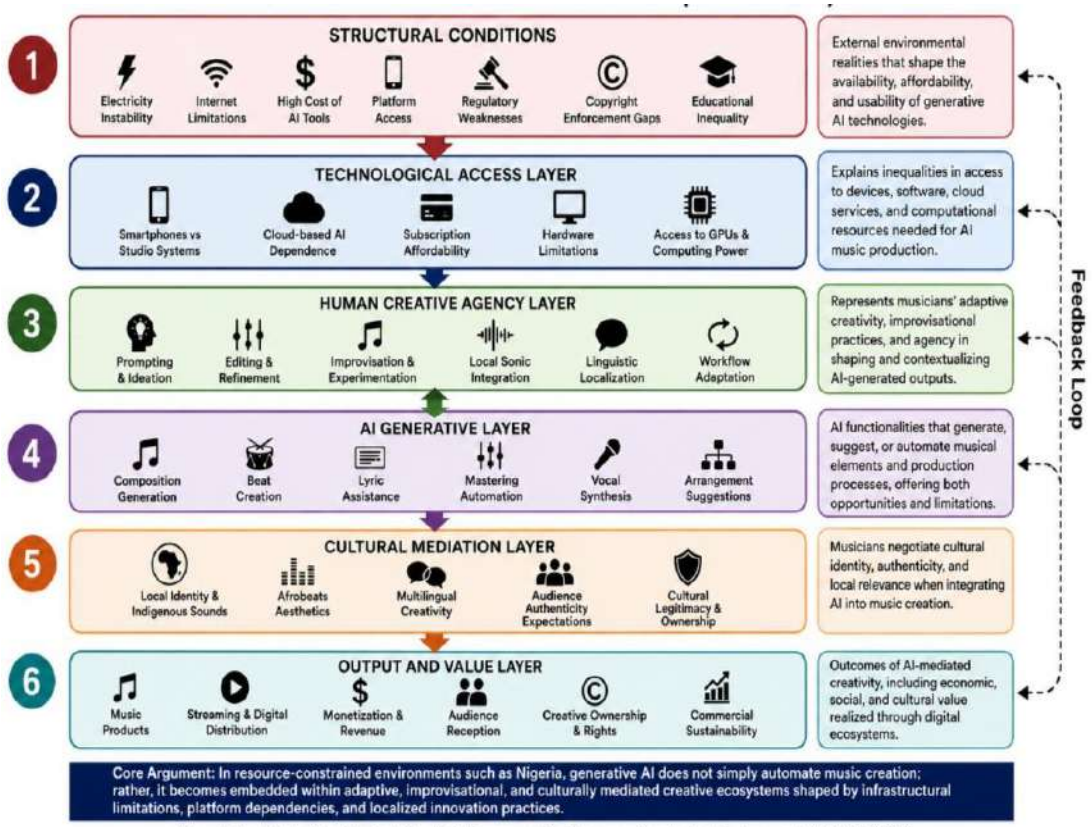

Figure 1: The AI-Mediated Musical Creativity Framework for Resource-Constrained Environments (AIMCF-RCE)

AI-Mediated Musical Creativity Framework for Resource-Constrained Environments (AIMCF-RCE) is suggested as a context-specific conceptual model to explain the reshaping of musical creativity in low-resource contexts like Nigeria, using generative AI. The current models of AI-mediated creativity are built in technologically well-advanced societies with stable infrastructure, institutional support and high level of computational accessibility (Dwivedi et al., 2023). This means they fail to reflect socio-technical realities in the adoption of AI in African creative industries. To fill this theoretical void, the AIMCF-RCE proposes a framework that incorporates infrastructural inequality, technological access, adaptive creativity, cultural mediation and platform dependency in a single explanatory model. The model approaches AI-assisted musical creativity as a multifaceted and interdependent phenomenon and not necessarily a technologically determined product.

Structural factors play a crucial role in access and use of generative AI technologies at a basic level. The practical challenges of Nigeria, including limitations in data infrastructure like internet connectivity, expensive software licenses, and poor copyright protection, significantly influence the accessibility and utilization of AI systems for musicians and producers. Factors such as data infrastructure (e.g., internet connectivity, software pricing), copyright protection frameworks, and educational disparities directly affect how musicians and producers can access and use AI systems in Nigeria. Infrastructure is thus not just a condition as background but a condition that determines the participation in technological and creative opportunities (Friederici et al., 2020).

The second layer of the model is at the level of inequalities of access to technology. While generative AI tools are growing more cloud-based and ubiquitous, access to them is not evenly distributed, and the ability to access the technology is hindered by the lack of computing power, hardware standardization, availability of GPUs and high-speed broadband. The vast majority

of Nigerian musicians have the use of their smartphones as the main instrument used in their music production, and the basic production system. This means that AI has been adopted in a mobile-first manner, through collaborative digital platforms, and by opting in for fee-for-service platforms. This further testifies to the notion that the method of AI creativity in resource-restricted settings is contingent upon access asymmetries, not just technological capacity.

The key element of the framework is the Human Creative Agency Layer, which reframes musicians as "adaptive and improvisational agents" instead of "passive users of AI systems". There is still a need for human creativity through prompting, editing, refining, contextualizing, localizing the language and integrating with local sounds. The technological practices of music making in Nigeria are marked by forms of resilience, where producers are able to make music in a culturally appropriate way with limited resources. This is in line with the "frugal innovation" literature, which focuses on the utilization of technology in an adaptive way in low resource contexts (Pansera& Owen, 2018). The AI Generative Layer is a collection that includes all the operations of generative AI systems, such as composition generation, beat creation, lyric assistance, mastering automation, arrangement suggestions and vocal synthesis in the field of music production. These technologies make the creation of more advanced production technologies accessible to everyone; however, they raise the issues of reliance on foreign platforms, standardization of algorithms and uniformity of musical aesthetics (Birhane, 2021).

This Cultural Mediation Layer is one of the most innovative aspects of the framework. This layer offers insights into the negotiation of local identity, indigenous sounds, Afro-beat aesthetics, multilingual creativity, authenticity expectations of the audience, and cultural legitimacy when incorporating AI into music production. Musicians culturally reinterpret and localize generative technologies rather than simply copying their AI outputs and make them fit to the socially situated musical meanings. As such, creativity with the help of AI is still entrenched in Nigerian cultures. Lastly, the Output and Value Layer concerns the social and economic impacts of AI-generated creativity such as music production, monetization, streaming circulation, the audience's reception, creative ownership and commercial sustainability. The framework thus suggests that the use of generative AI in resource-poor settings is not just an automation of music-making processes, but an integration of generative AI into adaptive, improvisational and culturally mediated creative systems that are determined by infrastructural constraints and local innovative practices.

7. Theoretical Propositions

The designed AI-Mediated Musical Creativity Framework for Resource-Constrained Environments (AIMCF-RCE) is based on five interrelated theoretical propositions. Firstly, AI-enabled creativity in resource-poor settings is more of a product of infrastructural factors than just technological capacities. Access and use of AI technologies are heavily impacted by components such as unreliable power, limited internet access, cost accessibility and poor regulations. Secondly, musicians using AI in low resource settings have different ways of using and adapting AI than in more technologically sophisticated settings. Creators don't always have the option to seamlessly integrate technology, so they will often find creative ways of working around the limited resources available.

Thirdly, there is no complete automation of cultural contextualization, aesthetic judgment and local interpretation of sounds which is why the human creative agency is still a key component in AI-assisted music making. Musicians are still involved in the production of creative works, with prompting, editing, localization and cultural mediation. Fourthly, reliance on foreign AI platforms can lead to new digital and creative dependencies in the music industries of the Global South. Local creators might end up relying more and more on external technological and cultural infrastructures as the majority of AI systems are developed and controlled by organizations in the Global North. Lastly, although generative AI can help to lower the barrier to entry for music production, it has the potential to exacerbate technological disparities as some individuals and organizations may have limited access to digital tools and resources. The combination of these propositions accounts for the emergence of AI-mediated musical creativity, through an interplay of technology, infrastructure, culture and human agency, in resource-dominated environments.

8. Practical/policy implications

8.1 Implications for Musicians

Overall, the research results indicate that in order to adapt to the changing digital music production landscape, musicians in resource-poor settings need to become AI literate. In addition to the traditional musical skills, creators will need new hybrid creative abilities, such as prompt engineering, AI-assisted composition, managing their workflow using digital tools, and optimizing their content. In many African creative economies, financial constraints are an issue and musicians need to strategically use resources that can boost their productivity without compromising artistic authenticity and cultural relevance, which includes low-cost and readily available AI tools. Being able to combine technology innovation with local creative expression will become an important factor in competitiveness in new digital music markets.

8.2 Implications for Policymakers

The study reveals that policy makers must ensure the enabling environment to foster an equitable approach to the creative industries with AI. To lower hurdles to AI adoption, investments need to be made in reliable electricity infrastructure, affordable broadband internet connectivity, and in digital innovation ecosystems. Additionally, copyright laws need to be updated to address new challenges regarding AI-generated content, ownership rights, how it is trained, and creative attribution. Policymakers can also encourage the building of local AI ecosystems by offering research subsidies, innovation grants, and other support measures to AI and creative technology startups located in Africa's cultural industries.

8.3 Lessons to be Learned for Educational Institutions

The educational system plays an important role in the preparation of future creative professionals for a production environment based on AI. AI-assisted music composition and digital production methods, along with the concept of computational creativity, should be included in music and creative arts curricula. Also, there is a need for ethical AI education, which covers topics such as intellectual property rights, algorithmic bias, cultural representation, and responsible usage of AI technology. Increased access to digital production training can alleviate current skills gaps and empower new musicians and producers to effectively interact with AI technologies.

8.4 African Technology Ecosystems implications

The research also reaffirms the importance of localized development of AI in African tech ecosystems. Relying on foreign AI platforms can perpetuate a culture of dependency and marginalization. Therefore, investments should focus on the creation of African-language datasets, regionally tuned AI music systems and machine learning models that are trained with African music traditions and sounds. These efforts can contribute to technological sovereignty and the cultural and creative diversity of Africa in the AI systems.

This paper has a few significant theoretical contributions to the nascent research on AI-mediated creativity. First, it introduces a new conceptual model, the AI-Mediated Musical Creativity Framework for Resource-Constrained Environments (AIMCF-RCE) that helps to understand how generative AI works in low-resource creative environments. Secondly, the study provides a Global South approach to creative AI scholarship, which is currently still rooted in a Western perspective. Thirdly, it expands the current debates on AI and creativity to show that infrastructural conditions, cultural context, labour and technology access inequalities, and similar are a key part of AI adoption outcomes. Fourthly, the proposed framework explains AI-mediated music production by combining infrastructure, culture, labor, technology, and creativity, thus providing a more comprehensive perspective of AI-mediated music production. Finally, the study rethinks the process of AI application in music in a way that is not only technological diffusion, but socio-technical adaptation and a cultural negotiation.

10. Conclusion

This study has posited that the level of creativity music can evoke in Nigeria with the involvement of AI cannot be appreciated by using theory of technological advanced societies. Accessibility and the interpretation, localization and deployment of generative AI technologies in creative production ecosystems are ultimately determined by resource constraints. The proposed AIMCF-RCE model highlights that AI adoption goes beyond technology to considering infrastructural, cultural, platform-specific, and human creative agency factors. Nigerian musicians are not simply passive consumers of AI systems, but rather engage in active adaptation, negotiation, and cultural reconfiguration to ensure that these technologies are relevant to their creative practices, audience preferences, and artistic identities.

The study also emphasizes the need to understand the socio-technical nature of AI-mediated creativity, as it is not simply a matter of technology, but also involves social, economic, and cultural contexts. The potential of generative AI in music production is immense, promising to create opportunities for broader music production and increased creative possibilities, alongside challenges of technological inequality, digital dependency, and cultural representation. Looking forward, the role of AI in music creation across Africa will remain dependent on ongoing developments in AI technology, coupled with investments in infrastructure, policy-fostering environments, African innovation hubs, cultural preservation, and fair and inclusive digital engagement. This study will develop a context-sensitive framework that is rooted in the realities of resource constrained environments, thereby adding to a better understanding of AI, creativity and cultural production in the digital age that is inclusive and globally representative.

Recommendations

- Governments should invest in reliable electricity supply, affordable broadband internet, and digital infrastructure to facilitate AI adoption in the music industry.
- Policymakers should modernize copyright laws to address AI-generated music, ownership rights, licensing, and intellectual property protection.
- Musicians and producers should be trained in AI-assisted music creation, prompt engineering, digital production workflows, and ethical AI usage.
- Educational institutions should incorporate AI, digital music production, computational creativity, and AI ethics into music and creative arts curricula.
- Governments, universities, and private organizations should fund the development of indigenous AI tools tailored to African music contexts.
- Researchers and technology developers should create high-quality datasets featuring African languages, rhythms, instruments, and musical traditions to reduce cultural bias in AI systems.
- Musicians should use AI as a creative support tool rather than a replacement for human creativity, cultural interpretation, and artistic judgment.
- Technology providers should develop low-cost and mobile-friendly AI music applications suitable for resource-constrained environments.
- Public and private institutions should provide grants, innovation hubs, and startup support for AI-driven music and creative technology ventures.
- AI systems used in music production should incorporate local cultural values, indigenous sounds, and multilingual capabilities to preserve African musical identities.
- African countries should invest in local AI research, cloud infrastructure, and technology ecosystems to reduce dependence on foreign AI platforms.
- Future studies should empirically validate the AI-Mediated Musical Creativity Framework for Resource-Constrained Environments (AIMCF-RCE) across different African countries and creative sectors.

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